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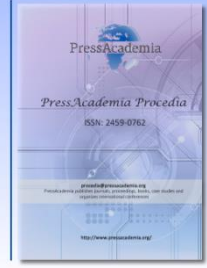
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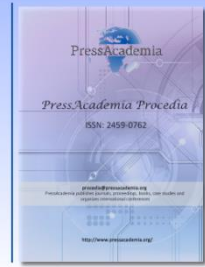
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CONSUMER PRIVACY IN THE ERA OF BIG DATA: A SURVEY OF SMARTPHONE USERS' CONCERNS

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ABSTRACT

Smartphones increase rapidly and become high-speed mobile data networks progressively appearing everywhere in the recent years. Also, there is a large and ever increasing number of mobile phone applications on the market. In this case, consumer privacy become critically important because sellers might access a large volume of personal information. This paper attempts to identify the consumer privacy and concerns in the context of big data and to explore how consumers' demographic differences may affect their concerns for information privacy. The smartphone owners' demographic differences and their concerns over privacy are analyzed, based on a survey of 392 smartphone users in Erzurum. It has been found that consumers' demographic differences have varying degrees of impact on their concerns for information privacy in the context of big data.

Keywords: Big data, consumer privacy, privacy concerns, smartphone users.

JEL Codes: G10, G32

1. INTRODUCTION

Although the internet wasn't widely accessible all over the world with just 400 million internet users in 2000, the numbers have soared high up to 3.2 billion internet users globally by the end of 2015 (Union 2015). By 2018, according to eMarketer, nearly half of the world's population, or 3.6 billion people, will access the internet at least once each month (eMarketer 2014a). A mobile phone market which was 4.08 billion users globally in 2012 grew by 6.2% in 2013 to 4.33 billion users. The mobile market was supposed to grow by 5.1% to 4.55 billion users in 2014 and further by 4.7% to 4.77 billion users. The worldwide smartphone market grew 13.0% over year in 2015 Q2, with 341.5 million shipments, according to data from the International Data Corporation (IDC) Worldwide Quarterly Mobile Phone Tracker (IDC 2015). A total mobile phone users are likely to reach 5.13 billion users globally by 2017 (eMarketer 2014b). Among the mobile phone users, there were around 1.13 billion smartphone users in 2012 i.e. around 28% of global smartphone users. The number of smartphone users was further expected to increase by 22.5% to 1.75 billion users in 2014, which was around 39% of mobile users. Around 49% i.e. nearly half of the mobile phone users globally are likely to use smartphone by 2017. (eMarketer 2014b)

These data give what happens in this area. Using of the internet and mobile devices have spread across the world. Wade (2014) note that we can surf the web on a smartphone, read the newspaper on an e-reader and access e-mail virtually anywhere. It means that technology has become an integral part of our lives. Currently, there are varieties of information including personal data, social network data, and location data in mobile apps (Keith et al. 2014). Therefore, mobile apps have become the most appropriate device for collecting consumer information in one device. (Keith et al. 2014). However, these applications and services also introduce a range of new threats to users' privacy. While a user carries it, a mobile device can capture a complete record of the user's location, online activities, and social encounters, potentially including an audio-visual record (Aditya et al. 2014).

While there are benefits of having access to mobile apps, using applications in a bad way increase privacy concerns for mobile phone users. Thus, many academic researchers became interested with information privacy (Culnan and Armstrong

1999; Malhotra et al. 2004; Smith et al. 2011; Chen et al. 2015; Hirose et al. 2016). This shows that consumer privacy is an important issue. Because of no quantitative studies that examine privacy in the era of Big Data in Turkey, we investigate to how consumer privacy is perceived, in particular by smartphone users. The rest of paper is as follows:

- This paper provides a review of the prior literature to introduce the theoretical background of studying information privacy, privacy concerns in Big Data.
- This paper attempts to contribute by studying the privacy issues in the context of the smartphone within Erzurum, and more specifically, the relationships between consumers' demographic differences and their information privacy concerns.
- This is followed by a description of the research methodology and findings
- The smartphone owners' demographic differences and their concerns over privacy are analyzed, based on a survey of 392 phone users in Erzurum.
- The paper concludes with a discussion of the main results in relation to the existing literature, directions for future research.

2. CONSUMER PRIVACY IN THE ERA OF BIG DATA

Huaiqing Wang et al. (1998) define privacy as "the right to be let alone," which is interested in solitude, secrecy, and autonomy. It is also related to the ability to gather, control, protect and use information about individuals (Waldo et al. 2007). You can also express privacy that refers to any kind of behavioral, financial, consumer, biographical, medical and biometric information available about a person (Koseoglu and Koker 2015). When we look to how we define to privacy in an era of big data with mobile devices, Shilton (2009) defines privacy as "the ability to understand, choose, and control what personal information you share, with whom, and for how long" (p. 50).

On the other hand, the definition of consumer privacy from Goodwin (1991) is "the consumer's ability to control (a) presence of other people in the environment during a market transaction or consumption behavior and (b) dissemination of information related to or provided during such transactions or behaviors to those who were not present" (p. 152). Youn (2009) defines consumer privacy as "consumers' ability to control when, how, and to what extent their personal information is to be transmitted to others" (p. 391).

Smartphones have achieved significant penetration. They have a range of additional capabilities, including image/audio/video recording, GPS location, compass, accelerometer, near-range radio (NFC and Bluetooth) (Aditya et al. 2014). Besides this, the smartphones also include advanced computing and communication facilities, such as location-tracking or position-aware applications, which can be used by mobile phone companies, relatives, and friends, or third parties, to identify the specific location of a mobile phone user (Leek and Christodoulides 2009). Smartphones also include multiple functions which can be listed as web browsers, emails, photo albums, games, calendars, and contact lists, and also through apps they can collect much information about consumers such as identity, upcoming schedule, time spent on different apps, contact lists, real-time location, etc. (Xu et al. 2012). For this reason, the personal information of consumers starts to become a commodity.

Taylor and Wagman (2014) emphasized that governments, firms, data aggregators and other interested parties collect, store and analyze data about consumers for easily obtained information. They can collect the personal information about users via mobile devices especially smartphones because they think that personal data is the new great opportunity of the internet (Spiekermann et al. 2015). For example, The Wall Street Journal revealed that, when the 101 popular smartphone apps examined, 56 apps transmitted the phone's unique identifiers to other companies without users' awareness and 47 apps transmitted the phone's location to outsiders. (Thurm and Kane 2010). It was further found that both Apple IOS and Google Android mobile operating systems regularly record and transmit location data without the consent of device owners (Angwin and Valentino-Devries 2011). This shows that sometimes we cannot regulate the applications to control our privacy information (Wade 2014). The information automatically collected by applications and distributed other channels (Xu et al. 2012).

However, there is a lack of understanding of what consumers think about the data collection and using their personal information that is getting from applications as a result of their mobile phone use. People want to use mobile applications for a variety of different functions (Gomez-Martin 2011). For example, they want to use any applications for their interests such as games, tutorials on various lifestyle topics, social networking, and banking etc. (Gomez-Martin 2011). Even though there are series of threats and problems, consumers have to use mobile phones for many advantages. It does not mean that consumers do not care this issue. On the contrary, mobile phone users are concerned about their privacy when their personal information is shared others without any permission or consent (Phelps et al. 2000). Consequently, their behaviors are affected by these concerns (Pan and Zinkhan 2006). For instance, a recent study shows that Ovum's Consumer Insights of 11,000 respondents from 11 countries confirms that consumers are concerned about privacy issues in the era of Big Data. Sixty-eight percent of these respondents indicate that they prefer a "do-not-track" (DNT) feature if available (Network

World Asia, 2013). In order to reduce the problem, these privacy concerns should be solved (Gurau and Ranchhod 2009). Because consumer users do not want to leak their personal information such as their name, address, location, login credentials, contacts, emails, photos, and other files (Wetherall et al. 2011).

Most of the existing studies are addressing the issue of privacy with big data (Yu et al. 2015; H. Wang et al. 2015; Quinn 2015; Liu 2015; Combe 2015; Kshetri 2014; Hahn 2014; Gaff et al. 2014; Cate 2014; Bardi et al. 2014; Karabey 2012) and consumer privacy with mobile environment, mobile devices (Zhang et al. 2013; Okazaki et al. 2009; Praher and Praher 2008; Holtmanns 2002; Buck et al. 2014)

All the happenings show that “we live in an era of an explosion of data” (Landau 2015). In light of the many studies and which is referred to above, the purpose of this study is to understand consumer privacy in the era of big data. The main research question of the study is “How do the smartphone users perceive consumer privacy in the era of Big Data?”

3. RESEARCH METHODOLOGY

The purpose of the research model is to how to test consumers’ demographic differences such as gender, income, age and education level may affect their privacy concerns on mobile devices.

The questionnaire was applied to 392 randomly selected mobile phone users during November–December 2015, in a location of Turkey which name is Erzurum. All respondents included in this study indicated that they were smartphone users. The questions were designed to collect information about the demographic profile of respondents which can be listed as age, gender, education level and income and the level of respondents’ about privacy concerns and personal information.

Privacy concerns were measured by items developed from Boyles et al. (2012). The collected data have been analyzed using the SPSS 20 software package. In line with the exploratory approach adopted in this study, the statistical methods used to analyze the data were frequency, cross-tabulations, and the Chi-square test.

4. RESULTS

A total of 392 participants were included in the sample. The participants were recruited from the Erzurum. The gender distribution was 206 (52.6%) males and 186 (47.4%) females. Their ages ranged from 17 to 50 and over. A majority of respondents (53.8%) are within the age range of 17 to 24. In terms of education level, about 11.5% are high school, about 13.3% are college, about 53.3% are undergraduate, and the remaining 21.9% are postgraduate participants. Out of 392 respondents who reported monthly income level, about 52.8% are less than 1000 Turkish Lira.

4.1. Gender Analysis

Through analyzing investigations results from the questionnaires, the following features of privacy concerns and personal information in different genders are observed.

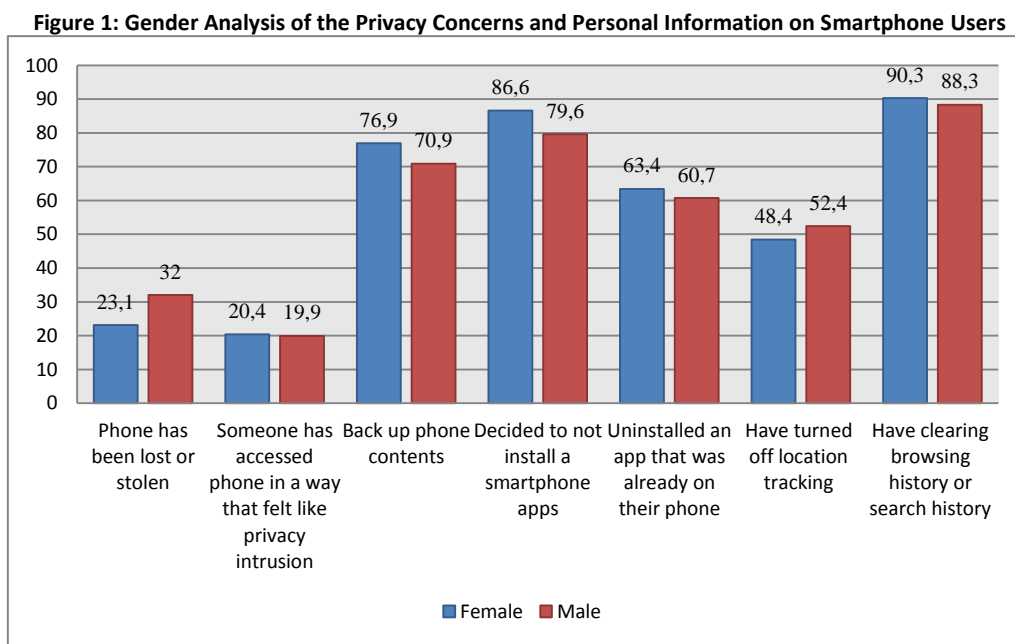
The degree of privacy concerns and personal information from females is obviously lower than males in the data collection by mobile users. Among the 7 variables, only “phone has been lost or stolen” and “back up phone contents” are proved to be true, and there is a difference between them, which is shown in Table 3.

Table 3: Gender Analysis of Privacy Concerns and Personal Information

Questions	p-Value	Female	Male
1. Phone has been lost or stolen	<0.05	39.4%	60.6%
2. Someone has accessed phone in a way that felt like privacy intrusion	0.897	48.1%	51.9%
3. Back up phone contents	<0.05	49.5%	50.5%
4. Decided to not install a smartphone app	0.068	49.5%	50.5%
5. Uninstalled an app that was already on their phone	0.574	48.6%	51.4%
6. Have turned off location tracking	0.424	45.5%	55.5%
7. Have clearing browsing history or search history	0.528	48.0%	52.0%

Note: Chi-square test was used. If p-value < 0.05, there was a statistically significant difference between the female and the male.

In general, when we look at Figure 1, the proportion of the females about privacy concerns is higher than males. It is shown in the data that 76.9% of the respondents who back up phone contents are females, and females account for 86.6% of the respondents who decided to not install smartphone applications. Besides, the proportion of males who have turned off location tracking is higher than females. It is learned from the questionnaires that females worried about privacy concerns than males.



4.2. Age Analysis

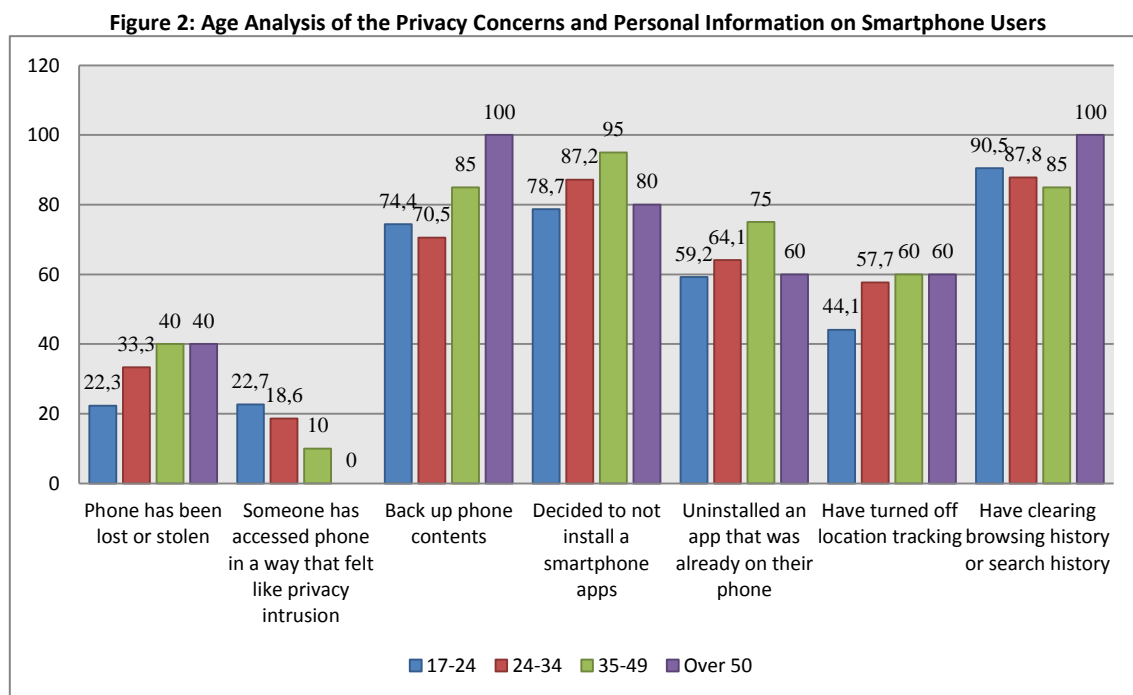
Based on the investigation results from the questionnaires, features of privacy concerns and personal information of respondents from different age groups can be summarized as follows:

Respondents between 35 and 50 years old are more suspicious of the data collected by organizations (Table 4). The reason obtained through the questionnaires is that people of this age group have accumulated a certain amount of savings and thus pay much attention to privacy protection, whereas people who are between 17 and 24 years old do not care much about this because they do not have any savings and have nothing to lose.

Table 4: Privacy Concerns and Personal Information Analysis of Respondents from Different Age Groups

Questions	p-Value	17-24	25-34	35-49	Over 50
1. Phone has been lost or stolen	0.059	43.1%	47.7%	7.3%	1.8%
2. Someone has accessed phone in a way that felt like privacy intrusion	0.300	60.8%	36.7%	2.5%	0.0%
3. Back up phone contents	<0.05	54.3%	38.1%	5.9%	1.7%
4. Decided to not install a smartphone app	0.080	51.1%	41.8%	5.8%	1.2%
5. Uninstalled an app that was already on their phone	0.490	51.4%	41.2%	6.2%	1.2%
6. Have turned off location tracking	0.055	47.0%	45.5%	6.1%	1.5%
7. Have clearing browsing history or search history	0.643	54.6%	39.1%	4.9%	1.4%

Chi-square test was used. If p-value < 0.05, there was a statistically significant difference among those groups. Looking at the results for Figure (2) below we see the percentage of respondents for each age group asked about the extent to which they agree with the following statements about their privacy. We observe that except second statement the other all statements which refer to a high degree of privacy concern, as age increases the proportion of mobile users with the high degree of privacy concerns increases.



4.3. Education Background Analysis

Through analysis of investigation results from the questionnaires, features of the attitudes toward privacy protection from respondents with different education backgrounds are summarized as follows:

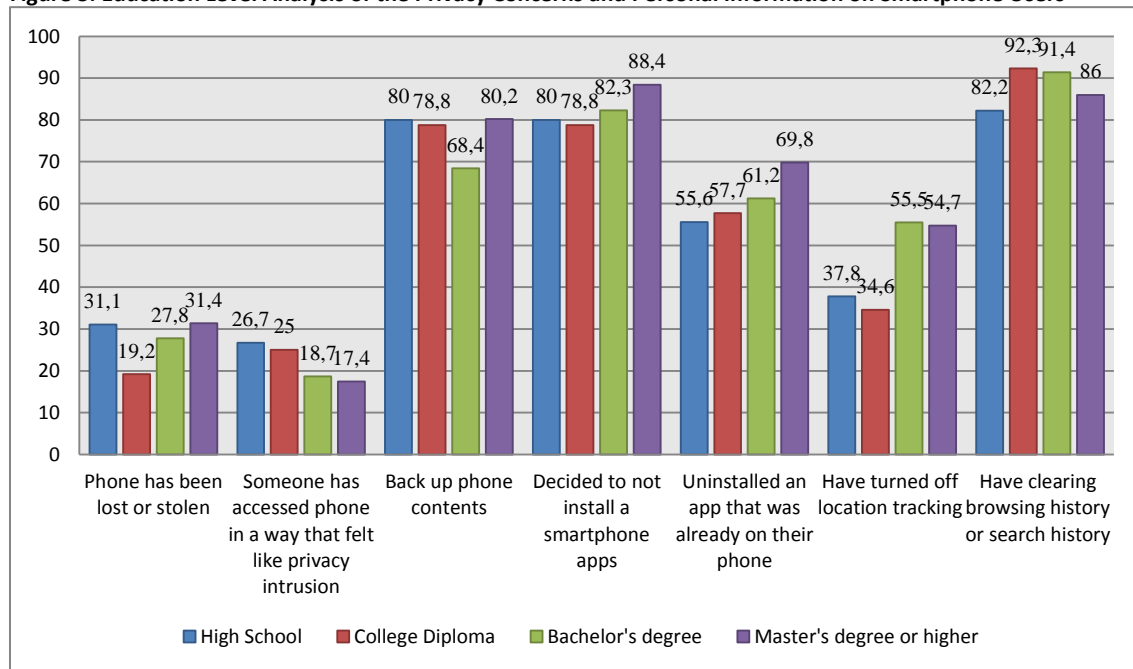
The level of privacy concerns drops with the increase in respondents' educational degree (Table 5). It is observed through data analysis that compared with respondents with an education background of high school, those with a Master's degree or higher are more inclined to think that have turned off location tracking may result in a leakage of personal information ($p < 0.05$).

Table 5: Privacy Concerns and Personal Information Analysis of Respondents with Different Educational Backgrounds

Questions	p-Value	High School	College diploma	Bachelor's degree	MD PhD
1. Phone has been lost or stolen	0.440	12.8%	9.2%	53.2%	24.8%
2. Someone has accessed phone in a way that felt like privacy intrusion	0.453	15.2%	16.5%	49.4%	19%
3. Back up phone contents	0.085	12.4%	14.2%	49.5%	23.9%
4. Decided to not install a smartphone app	0.433	11.1%	12.6%	52.9%	23.4%
5. Uninstalled an app that was already on their phone	0.327	10.3%	12.3%	52.7%	24.7%
6. Have turned off location tracking	<0.05	8.6%	9.1%	58.6%	23.7%
7. Have clearing browsing history or search history	0.191	10.6%	13.7%	54.6%	21.1%

Chi-square test was used. If p value < 0.05 , there was a statistically significant difference among those groups. Respondents with a higher education level are more conscious of privacy protection (Fig. 3). It is observed from the data that more respondents with a Master's degree or higher education background actively take privacy protection measures than respondents from other education backgrounds.

Figure 3: Education Level Analysis of the Privacy Concerns and Personal Information on Smartphone Users



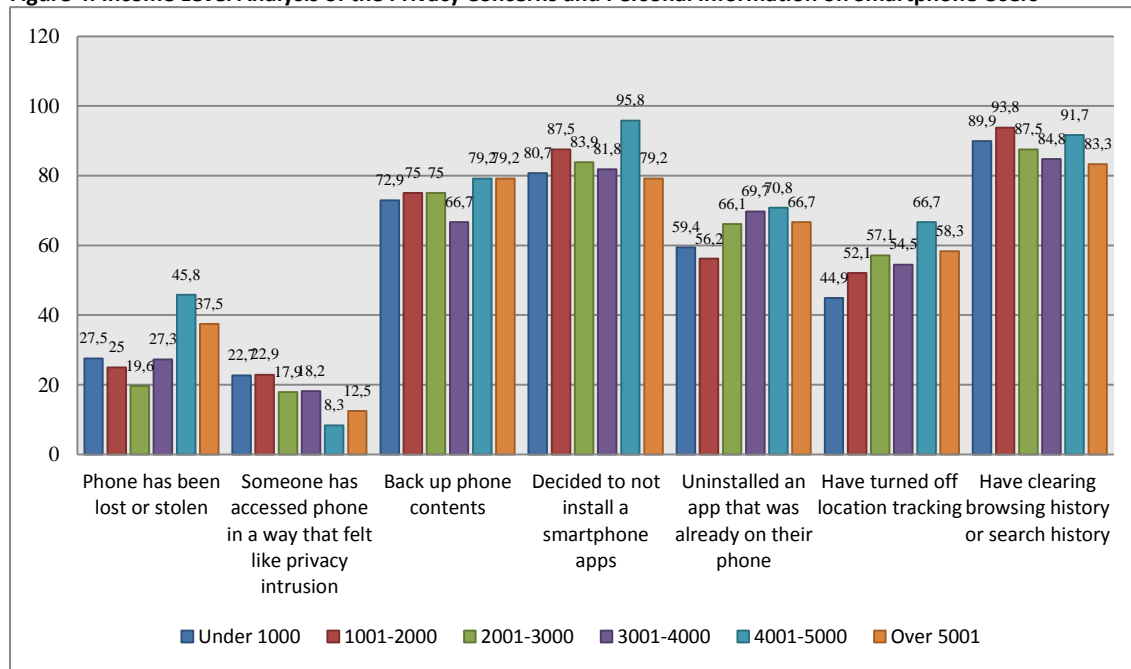
4.4. Income Level Analysis

The next relationship of interest is privacy and personal information versus income distribution. Table 6 shows the relationship. It can be seen that for those with the highest degree of concern there isn't any specific trend except for respondents with income 4001-5000 Turkish Lira a group that seems to have a higher percentage of users with concern than the other income groups.

Table 6: Privacy Concerns and Personal Information Analysis of Respondents with Different Income Level

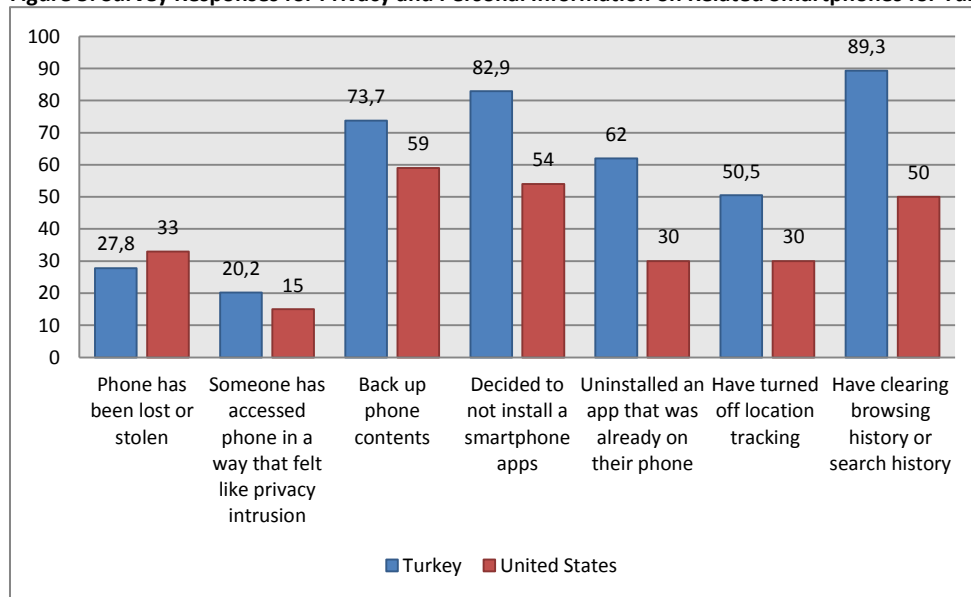
Questions	p-Value	Under 1000	1001-2000	2001-3000	3001-4000	4001-5000	Over 5001
1. Phone has been lost or stolen	0.216	52.3%	11.0%	10.1%	8.3%	10.1%	8.3%
2. Someone has accessed phone in a way that felt like privacy intrusion	0.509	59.5%	13.9%	12.7%	7.6%	2.5%	3.8%
3. Back up phone contents	0.732	52.2%	12.4%	14.5%	7.6%	6.6%	6.6%
4. Decided to not install a smartphone app	0.470	51.4%	12.9%	15.5%	8.3%	7.1%	5.8%
5. Uninstalled an app that was already on their phone	0.624	50.6%	11.1%	15.2%	9.5%	7.0%	6.6%
6. Have turned off location tracking	0.226	47.0%	12.6%	16.2%	9.1%	8.1%	7.1%
7. Have clearing browsing history or search history	0.705	53.1%	12.9%	14.0%	8.0%	6.3%	5.7%

Chi-square test was used. If p-value < 0.05, there was a statistically significant difference among those groups. Looking at the results for Figure (4) below we see the percentage of respondents for each income group. We observe that from (3) statement to (7) statement there is trend while the income level increases. It means that statements which refer to a high degree of privacy concern, as income level increases the proportion of mobile users with the high degree of privacy concerns increase.

Figure 4: Income Level Analysis of the Privacy Concerns and Personal Information on Smartphone Users

5. CONCLUSION AND PRACTICAL IMPLICATIONS

This paper attempts to study the consumers' concerns with personal information in Big Data. In our study, we investigated the behaviors of consumers about smartphone apps in Erzurum. In our research, we selected to study common individual consumers' demographic differences, such as gender, age, education level and income and how they affect their concerns for information privacy in the context of Big Data. Based on data collected and the statistical analyses performed, we found that nearly one-fourth of smartphone owners have lost their smartphone or had it stolen, one-fifth of smartphone owners says that another person has accessed their phone's contents in a way that made them feel that their privacy had been invaded, seven in ten of smartphone owners back up the photos, contacts, and other files on their phone so they have a copy in case their phone is ever broken or lost, eight in ten of smartphone owners have decided to not install a smartphone app when they discovered how much personal information they would need to share in order to use it, more than half of smartphone owners have uninstalled an app that was already on their smartphone because they learned it was collecting personal information that they didn't wish to share, one-half of smartphone owners have turned off the location-tracking feature on their smartphone because they were concerned that other individuals or companies could access that information, nearly nine in ten of smartphone owners have cleared the browsing history or search history on their phone.

Figure 5: Survey Responses for Privacy and Personal Information on Related Smartphones for Turkey and United States

As in Figure 5, we can see that compared to the U.S. (Boyles et al. 2012), Turkey users have a higher proportion of users who have a high degree of privacy concerns and personal information. Thus, Turkey users appear actually to have more concerns about privacy and security issues than U.S. users. We can say that one of the reasons of privacy differences between these two countries is culture. The internet can change the consumer behaviors. However, some dynamics of societies is critical for how to think, react, and behave. For example, the religion of people, the degree of civil liberties and political rights are very important in every nation. It is predictable that people who live in developed countries behave more confidentially contrast to developing or undeveloped countries. From this point of view, it might be a difference for Turkey and United States. Turkish people is loyal to family. Therefore, they care much more what they do in their social and internet life. Also, families expect some behaviors from theirs. They do no ignore the pressure of family and society rules. In a word, the social and cultural factors determine the behaviors on online.

The findings of this article can provide beneficial information for company owners and managers, members of parliament and government officials, and lastly consumers. The company owners and managers should indicate that what the meaning of their applications for customers and how customers use these apps with safely. Also, if the customers learn their personal information collect by companies without any allow rules, what the managers of company feel about it. Therefore, they have to think how they gain trust of their mobile apps users or others in the internet environment. The first thing that what they should do is determine their privacy statements about each apps. They emphasize more details about using mobile apps in order to level of assurance for customers. The findings also indicate the perceptions of smartphone users about privacy issues. Therefore, consumers should easily control their personal information in apps. In this point, mobile application developers try to design a mechanism that works for a range of specific privacy settings. The marketers try to understand consumer perceptions and attitudes in order privacy perspective. Therefore, they can fix the best mobile apps for their strategy. On the other hand, the members of parliament and government officials must develop a legislation for protecting of people privacy. It is the area of responsibility of deputy. They should do some plans for increasing mobile customers' awareness. Consumers should know their rights about the subject of privacy issues. That's why, state officials should educate consumers about how people protect their privacy contrast to organizations.

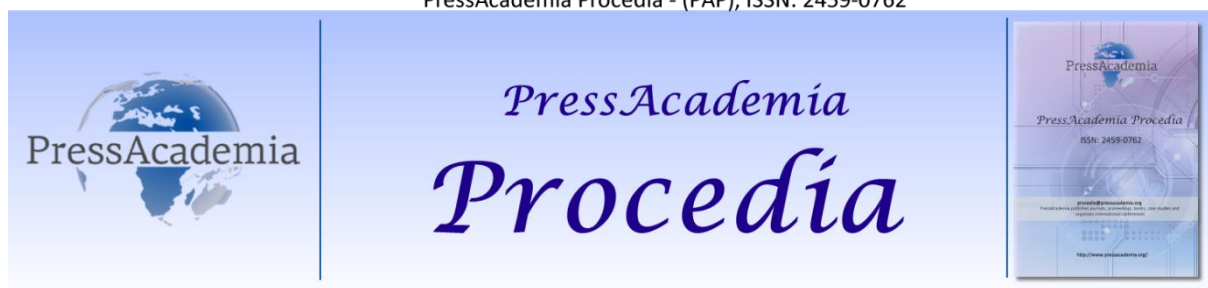
The mobile consumers should learn important of privacy. They have to protect their personal information because of many malicious companies. As such these companies do not care personal rights. They might sell mobile users information for their profit. While consumers use some mobile apps, they should be careful about company privacy statement. In the era of big data, the cost of personal information and security should be very important for every customers. Therefore, if they increase their level of awareness about mobile privacy, they will be more comfortable in this area.

Our study contributes to existing literature on the relationship between demographic differences and consumer privacy concerns in Big Data. It has been suggested individual consumers' demographic differences (gender, age, education level, income) are correlated to their concerns for information privacy in the context of Big Data which can affect their behaviors. Future studies can be such as privacy experiences, privacy awareness, personality differences, and culture climate, and test how may affect consumers' privacy concerns (Zhang et al. 2013).

REFERENCES

- Aditya, P., Bhattacharjee, B., Druschel, P., Erdélyi, V., & Lentz, M. Brave new world: privacy risks for mobile users. In Proceedings of the ACM MobiCom workshop on Security and privacy in mobile environments, 2014 (pp. 7-12): ACM
- Angwin, J., & Valentino-Devries, J. (2011). Apple, google collect user data. Wall Street Journal, 22.
- Bardi, M., Zhou, X. W., Li, S., & Lin, F. H. (2014). Big Data security and privacy: A review. China Communications, 11(2), 135-145.
- Boyles, J. L., Smith, A., & Madden, M. (2012). Privacy and data management on mobile devices. Pew Internet & American Life Project, 4.
- Buck, D.-K. C., Horbel, C., Kessler, T., & Christian, C. (2014). Mobile consumer apps: Big data brother is watching you. Marketing Review St. Gallen, 31(1), 26-35.
- Cate, F. H. (2014). Privacy, Big Data, and the Public Good. Science, 346(6211), 818-818, doi:10.1126/science.1261092.
- Chen, J., Ping, J. W., Xu, Y. C., & Tan, B. C. (2015). Information Privacy Concern About Peer Disclosure in Online Social Networks. IEEE Transactions on Engineering Management, 62(3), 311-324.
- Combe, C. (2015). Privacy, Big Data, and the Public Good: Frameworks for Engagement. Local Government Studies, 41(1), 181-182, doi:10.1080/03003930.2014.981403.
- Culnan, M. J., & Armstrong, P. K. (1999). Information privacy concerns, procedural fairness, and impersonal trust: An empirical investigation. Organization science, 10(1), 104-115.
- eMarketer (2014a). Internet to Hit 3 Billion Users in 2015. <http://www.emarketer.com/Article.aspx?R=1011602>. Accessed November 9 2015.
- eMarketer (2014b). Smartphone Users Worldwide Will Total 1.75 Billion in 2014. eMarketer.
- Gaff, B. M., Sussman, H. E., & Geetter, J. (2014). Privacy and Big Data. Computer, 47(6), 7-9.
- Gomez-Martin, L. E. (2011). Smartphone usage and the need for consumer privacy laws. Pitt. J. Tech. L. & Pol'y, 12, i.
- Goodwin, C. (1991). Privacy - Recognition of a Consumer Right. Journal of Public Policy & Marketing, 10(1), 149-166.
- Gurau, C., & Ranchhod, A. (2009). Consumer privacy issues in mobile commerce: a comparative study of British, French and Romanian consumers. Journal of Consumer Marketing, 26(7), 496-507.
- Hahn, J. (2014). Privacy in the Age of Big Data: Recognizing Threats, Defending Your Rights, and Protecting Your Family. Library Journal, 139(10), 124-124.
- Hirose, M., Mineo, K., & Tabe, K. THE INFLUENCE OF PRIVACY INFORMATION IN MOBILE APPS. In 2016 Global Marketing Conference at Hong Kong, 2016 (pp. 1337-1341)
- Holtmanns, S. (2002). Privacy in a mobile environment. 13th International Workshop on Database and Expert Systems Applications, Proceedings, 493-497.
- IDC, I. (2015). Worldwide Quarterly Mobile Phone Tracker.
- Karabey, B. (2012). Big Data and Privacy Issues. E-Science and Information Management, 317, 3-3.
- Keith, M. J., Babb, J. S., & Lowry, P. B. A Longitudinal Study of Information Privacy on Mobile Devices. In System Sciences (HICSS), 2014 47th Hawaii International Conference on, 2014 (pp. 3149-3158): IEEE
- Koseoglu, O., & Koker, N. E. (2015). Consumer Privacy in New Media: A Study of University Students in Turkey. Mediterranean Journal of Social Sciences, 6(2), 588.
- Kshetri, N. (2014). Big data's impact on privacy, security and consumer welfare. Telecommunications Policy, 38(11), 1134-1145, doi:10.1016/j.telpol.2014.10.002.
- Landau, S. (2015). Control use of data to protect privacy. Science, 347(6221), 504-506.
- Leek, S., & Christodoulides, G. (2009). Next-generation mobile marketing: how young consumers react to bluetooth-enabled advertising.
- Liu, Y. (2015). Privacy Protection Method in the Era of Cloud Computing and Big Data. International Conference on Engineering Technology and Application (Iceta 2015), 22, doi:ARTN 01041
10.1051/mateconf/20152201041.
- Malhotra, N. K., Kim, S. S., & Agarwal, J. (2004). Internet users' information privacy concerns (IUIPC): The construct, the scale, and a causal model. Information systems research, 15(4), 336-355.
- Okazaki, S., Li, H. R., & Hirose, M. (2009). CONSUMER PRIVACY CONCERNS AND PREFERENCE FOR DEGREE OF REGULATORY CONTROL A Study of Mobile Advertising in Japan. Journal of Advertising, 38(4), 63-77, doi:10.2753/Joa0091-3367380405.

- Pan, Y., & Zinkhan, G. M. (2006). Exploring the impact of online privacy disclosures on consumer trust. *Journal of Retailing*, 82(4), 331-338, doi:10.1016/j.jretai.2006.08.006.
- Phelps, J., Nowak, G., & Ferrell, E. (2000). Privacy concerns and consumer willingness to provide personal information. *Journal of Public Policy & Marketing*, 19(1), 27-41, doi:DOI 10.1509/jppm.19.1.27.16941.
- Praher, C. P., & Praher, J. F. (2008). Security and Privacy in an Enterprise Search Infrastructure for Mobile Devices. *Idimt-2008: Managing the Unmanageable*, 25, 431-444.
- Quinn, A. C. (2015). Privacy in the age of big data: Recognizing threats, defending your rights, and protecting your family. *Government Information Quarterly*, 32(3), 362-362, doi:10.1016/j.giq.2015.04.004.
- Shilton, K. (2009). Four billion little brothers?: Privacy, mobile phones, and ubiquitous data collection. *Communications of the Acm*, 52(11), 48-53.
- Smith, H. J., Dinev, T., & Xu, H. (2011). Information privacy research: an interdisciplinary review. *MIS quarterly*, 35(4), 989-1016.
- Spiekermann, S., Acquisti, A., Bohme, R., & Hui, K. L. (2015). The challenges of personal data markets and privacy. *Electronic Markets*, 25(2), 161-167, doi:10.1007/s12525-015-0191-0.
- Taylor, C., & Wagman, L. (2014). Consumer privacy in oligopolistic markets: Winners, losers, and welfare. *International Journal of Industrial Organization*, 34, 80-84.
- Thurm, S., & Kane, Y. (2010). Your apps are watching you: A WSJ investigation finds that iPhone and android apps are breaching the privacy of smartphone users. *The Wall Street Journal*.
- Union, I. T. (2015). *The World in 2015: International Telecommunication Union*.
- Wade, A. (2014). Children's Online Privacy Protection Act: Can Website Regulations Be Applied to Mobile Phone Apps, *The Fed. Cts. L. Rev.*, 8, 197.
- Waldo, J., Lin, H., & Millett, L. I. (2007). *Engaging privacy and information technology in a digital age: National Academies Press Washington, DC, USA*.
- Wang, H., Jiang, X. H., & Kambourakis, G. (2015). Special issue on Security, Privacy and Trust in network-based Big Data. *Information Sciences*, 318, 48-50, doi:10.1016/j.ins.2015.05.040.
- Wang, H., Lee, M. K., & Wang, C. (1998). Consumer privacy concerns about Internet marketing. *Communications of the Acm*, 41(3), 63-70.
- Wetherall, D., Choffnes, D., Greenstein, B., Han, S., Hornyack, P., Jung, J., et al. Privacy revelations for web and mobile apps. In *Proc 13th USENIX Conference on Hot Topics in Operating Systems*, 2011 (pp. 21)
- Xu, H., Gupta, S., Rosson, M. B., & Carroll, J. M. (2012). Measuring mobile users' concerns for information privacy.
- Youn, S. (2009). Determinants of Online Privacy Concern and Its Influence on Privacy Protection Behaviors Among Young Adolescents. *Journal of Consumer Affairs*, 43(3), 389-418.
- Yu, Y., Mu, Y., & Ateniese, G. (2015). Recent Advances in Security and Privacy in Big Data J.UCS Special Issue. *Journal of Universal Computer Science*, 21(3), 365-368.
- Zhang, R. D., Chen, J. Q., & Lee, C. J. (2013). Mobile Commerce and Consumer Privacy Concerns. *Journal of Computer Information Systems*, 53(4), 31-38.



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ORGANIC AGRICULTURE PRACTICES IN TURKEY AS A VALUE CHAIN CREATING MODEL OF AGRICULTURAL PRODUCTION

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ABSTRACT

This study emphasises the importance of promoting organic agriculture activities which will contribute to reviving and bringing the agricultural sector of Turkey to a level that is in keeping with the country's farming assets such as its land, natural resources and diversity of living organisms in the soil and also contribute to the monetary added value created in the country, which unfortunately has yet to achieve reaching contemporary development goals despite being described as a country of agriculture. The main area of focus of this study, which puts the organic farming community of Kirtik Village at the center, is the mechanism whereby all products and semi-products produced in this village are directly supplied to producers and consumers; creating an organic chain. Ensuring the fair dissemination of wealth created by the monetization of organic farming products; contributing to public health by promoting organic product awareness and increased consumption of organic products at more reasonable prices, and creating opportunities for conducting agricultural practices in a sustainable environment as a model that creates a value chain in Turkish agricultural production are the topics focused on in this study.

Keywords: Organic agriculture, organic farming, organic production, organic foods, organic bread, sustainable ecosystems

JEL Codes: M10

1.INTRODUCTION

Turkey is ranked 14th (EIU 2016: 5) on the Economist Intelligence Unit Index which lists countries according to their agriculture sustainability, water footprint, pesticide and fertilizer usage, land ownership rights, sustainable agricultural systems, biodiversity and farmer demographics. The index is based on 1500 strings of data obtained from the World Bank, the Food and Agriculture Organization of the United Nations, Organisation for Economic Co-operation and Development (OECD) and similar agencies (EIU 2016: 14).

In the nutrition problems category, which includes headings such as the ratio of overweight and obese individuals to the general population or figures on undernutrition, insufficient child development, Turkey is ranked 19th (EIU 2016: 22). The country is ranked 20th among 25 countries, when it comes to food waste (EIU 2016: 38).

The facts expressed in the findings of the Economist Intelligence Unit Fixing Food research, regarding Turkish agriculture, are as follows:

- When compared to the developed world, vast majority of man power is in the farming industry, in opposition with the requirements of the times
- Calcified soil, soil loss due to erosion
- Soil in existing agricultural fields lose infertility, fertilizing only low-value products, due to uninformed and uncontrolled usage
- Unwanted agricultural produce (fruits and vegetables) are often rejected by export markets are sent back. They are then consumed in the domestic market which contributes to higher numbers of cancer cases.

International indices show that, Turkey has regressed in the following areas in the recent period (Pamuk 2014: 297).

- Biological diversity, and protection of ecosystems
- Impacts of the inputs and technologies on the environment used in the agricultural sector
- Development of clean and renewable energy resources

Turkey has opened up its most fertile fields for industrialization and urban development and it has fallen into a state where it needs to import wheat to feed its domestic population, from being a land of agriculture in the past. However, in spite of the bleak picture summarized above, today it seems there is a chance to take back farming fields, to add value to affordable products, to empower farmers and encourage them to produce better quality products and to provide consumers healthier fruits and vegetables at affordable prices. As part of this study, agriculture producers are encouraged to produce organic products with high added value that will enrich them, while create an opportunity to expand organic fields and at the same time making affordably priced and healthy food available for consumers. Good agriculture practices will come out of the Kirtik Village Organic Cafeteria Project as an example of an organic chain.

2. THE IMPORTANCE OF ORGANIC AGRICULTURE WITHIN THE SCOPE OF CURRENT PROBLEMS OF TURKISH AGRICULTURE

2.1. From Land of Agriculture to Wheat Importer

In 2005, a quarter of the Turkish population was employed in agricultural sector. In 2016 this figure had decreased to 18.3% (TUIK, 2016). For many years Turkey was considered “a farming nation” because of the weighted ratio of the agricultural sector within the economy, and again for several years the country was known as a “self sufficient” (NTV, 2016) country in agriculture.

Especially in recent years, the opinion that Turkey is a land of agriculture doesn't reflect the reality judging by the industry's weighted ratio in the economy, its added value; the level of product quality, and based on comparisons on with other countries.

The percentage of the workforce employed in agriculture in European Union is around 4%. This figure has in Turkey lately decreased below 20% but the sector's contribution to national income is only around 7% (GTHB, 2017). An oft-quoted analogy in the past years has been the situation The Netherlands, which is only as large as the surface are of Konya province with a population of 17 million. The Netherland's 2016 agricultural exports volume stood at EUR 85 billion (GN, 2017). Turkey's exports in the same period stood at only EUR 17 billion (TIM, 2017). It should also be recalled that Turkey's population is 80 million. These figures present striking evidence as to the unproductiveness of Turkey's farming industry.

Regarding the agriculture industry, another expression used to describe Turkey is that it's a “giant granary.” On the contrary, Turkey imported 44,458 tons of wheat between the first month of 2008 and May 2009 (Radikal, 2009). In January 2017, Turkey announced a series of international tenders for importing wheat from EU countries (Hürriyet, 2017). This applies not only to wheat, but to many other grains, vegetable oils, fruit and vegetable seeds and even livestock. Turkey today is an importer in all of these categories. In addition to this situation, a significant amount of products often has to be recalled due to residual pesticide.

A study by the Akdeniz University's Food Security and Agricultural Research Center at local food markets in Antalya found that in 2014 21 percent of 400 vegetable and fruit items contained pesticide residue (Cumhuriyet, 2015) that exceeded legislative limits. 25 percent out of 309 fruit and vegetable items in 2013 contained pesticide residue above the limit set in national regulations. It can be stated that the frequent rejection of Turkey's exported goods by its major importing partners seems to confirm the findings of this study. In recent years, in addition to political tension between the two countries, Turkish many batches of fresh fruit and vegetable exports to Russia have been returned on the grounds that the products were in violations of Russia's health legislation standards and that the produce contained fruit flies. Turkey's fruit and vegetables exports falling from USD 875 million to USD 331 million (Ulker, 2017) (a 62 percent fall) in 2016 has not been only a commercial loss. It has also contributed to increase in the frequency of several diseases, particularly certain types of cancer, as most of the rejected produce is consumed domestically (Milliyet, 2017).

The problems plaguing Turkish agriculture such as the use of GMOs or the loss of 4 million hectares of agricultural land in the past 27 years (Hürriyet, 2017), are no longer problems that only concern farmers. These have now become issues that pose a major threat to the country's habitat, its economy and general consumer health.

Agricultural fields in Turkey in general consist of several tiny parcels belonging to a number of proprietors; a situation stemming from the country's inheritance laws. This dispersed structure of agricultural fields increases production costs while impoverishing the farmers; (Boztoprak, Demir, Coruhlu 2016, 75-86) hinders the application of modern farming methods (Boztoprak vd. 2016) , and prevents the diversification of transportation routes, which in turn decreases the farmers' competitive power in global markets. Land consolidation (GTHB, 2015) policies are being implemented in recent

years, but these have not achieved a significant improvement yet. Converting carbon dioxide from greenhouse contaminants into productive elements; (Rifkin 2015: 86-87) creating new agricultural products that rely on cooperation between computer and genetic technologies (Schwab 2016, 76) seem to be the only way to live up to the necessities of the age of the Fourth Industrial Revolution. Unless such measures are taken, the gap between Turkish agriculture and developed countries will continue to expand.

2.2. From Conventional Agriculture to Organic Agriculture

The rapid growth of the global population has necessitated the development of new methods and technologies to increase agricultural production. The increase in agricultural productivity has been made possible by the employment of several industrially produced agricultural inputs (synthetic fertilizers, synthetic chemical pesticides, etc.) in large amounts. However, this method -- commonly referred to as conventional agriculture-- has had a negative impact on the environment with chemical residues also contaminating underground water resources. This has now reached an extent threatening the well-being of all species (ITO 1999: 1).

Therefore, in recent years the interest in bolstering productivity in agriculture, has focused on concerns regarding good agricultural practices.

“Good agricultural practices” refer to “commitment to not harming the environment during agricultural production and/or not causing harm to the well-being of humans and other species; conserving natural resources, and meeting agricultural demand through safe practices that provide for sustainability and traceability” (GTHB, 2014).

“Organic farming practices” refer to “raising or producing organic produce or inputs by using the soil, water, plants, livestock and natural resources; the collection of produce from natural areas and resources and other processes whereby the end-produce meets the consumer through harvesting, slaughter, processing, grading, packaging, labeling, conservation, storage, transportation, marketing, import, exports and all other processing” (GTHB, 2010).

According to the definition of the UN Food and Agriculture Organization (FAO) organic farming, is a type of production aiming: “organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity. It emphasises the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. This is accomplished by using, where possible, agronomic, biological, and mechanical methods, as opposed to using synthetic materials, to fulfill any specific function within the system” (FAO, 1999).

According to European Union (EU) “organic farming is an agricultural system that seeks to provide the consumer, with fresh, tasty and authentic food while respecting natural life-cycle systems” (EU, 2017). The European Union also, as part of its “rural development plan 2014-2020” considers organic farming as an important instrument for the development of rural areas in the Union (EU, 2017).

Conventional Agriculture to prevent losses in the amount of production due to diseases and pests, has traditionally used agricultural and synthetic fertilizers to increase soil productivity, which has come to pose a significant threat not only to environment and the soil, but also the well-being of human and animal species. Organic farming, unlike the conventional agriculture, supports the ecosystem and the well being of humans and the soil (Tilman, Cassman, Matson, Naylor, Polasky 2002: 272).

According to a study on the impact of organic farming on biodiversity and productivity, organic farming practices increase biodiversity in the soil by 30 percent in comparison with conventional agriculture (Bengtsson, Ahnstrom, Weibull 2005: 265).

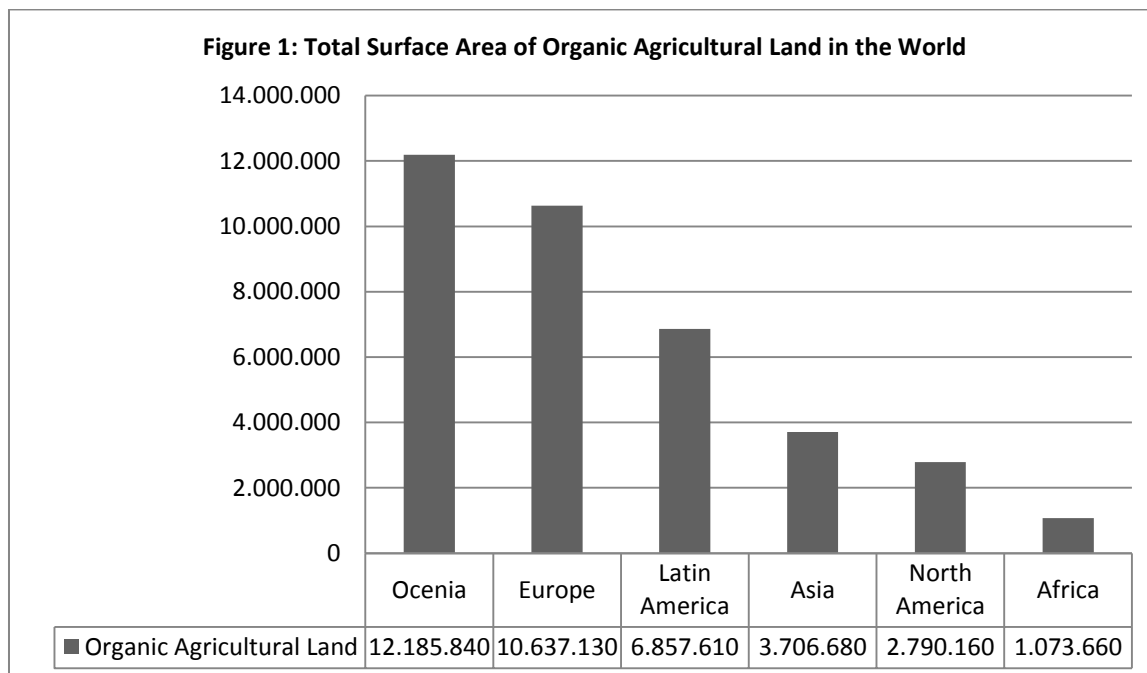
Considering the nature and human respecting aspects of organic agriculture, it is not difficult to assert that, organic farming will be the only choice in the future for not only farmers but also consumers, who are the most directly influenced by the diseases caused by conventional agriculture (FAO, 2004).

The use of chemicals, fertilizers, hormones used in the agricultural sector have begun to significantly affect human and public health; increasing the frequency of various types of cancer and leading to higher rates of obesity and neurological disorders (FAO, 2000).

Organic agriculture offers a system that has the highest degree of reliability due to traceability and control systems overseen by certification bodies that include controls and checkpoints at each stage of production: starting from the planting phase until the delivery stage to the end user; including during harvesting, processing, packaging, tagging, grading, storage, transportation and other processes.

Eco-farming or bio-farming-- or to use the most common expression -- organic agriculture, doesn't only have the potential to put an end to the contamination of natural resources, the soil and dissemination of toxic materials to humans and animal

species, but it also has the capacity to foster the conservation of the livelihood and the natural biological structure of the soil, which in turn will contribute to the sustainability of soil fertility in Turkey and in the world.



Source: Sevinç Ateş, Nevşehir District, The Impacts of Different Fertilizer and Mulch Materials which can be used in Organic Strawberries Farming on Productivity and Quality Properties, Ph.D Thesis unpublished, Adana, 2015, p.11.

According to 2014 data 1,9 million certified organic producers in 164 countries in the world used 37,5 million hectares of land for organic farming practices. Comparing this data with 2007 data shows that the number of countries that are practicing organic agriculture, has increased from 141 to 164; and the surface area allocated to organic farm has grown to 37.5 million hectares from 35 million hectares (Milliyet, 2017).

In the above chart organic agriculture fields are shown on a continental basis. According to the chart Oceania is ranked first with 12.2 million hectares of land allocated to organic farming, followed by Europe (10,6 million hectares) ,Latin America (6,9 million hectares) and Asia (3,7 million hectares).

The top three countries that have the largest organic farming lands are Australia (12 million hectares), Argentina (3,8 million hectares) and the USD (1,9 million hectares) (Ates, 2015).

According to the data from the Turkish Statistical Institute (TurkStat) the development of organic crop production in Turkey is as follows:

Table 1: Organic Crop Production

	Number of crops	Number of farmers	Area(1)	Production
	(Number)	(Number)	(Hectares)	(Tonnes)
2005	205	14 401	203 811	421 934
2006	203	14 256	192 789	458 095
2007	201	16 276	174 283	568 128
2008	247	14 926	166 883	530 224
2009	212	35 565	501 641	983 715
2010	216	42 097	510 033	1 343 737
2011	225	42 460	614 618	1 659 543
2012	204	54 635	702 909	1 750 127
2013	213	60 797	769 014	1 620 387

2014	208	71 472	842 216	1 642 235
2015	197	69 967	515 268	1 829 291

Source: Ministry of Food, Agriculture and Livestock

(1)Wild production areas are included.

Source: TÜİK, <http://www.tuik.gov.tr/UstMenu.do?metod=temelist>, 2.04.2017

3. AGRICULTURAL PRODUCTION AND THE CREATION OF VALUE CHAIN

When compared with developed economies, Turkey is still far behind the desired level in terms of producing high value added products. The percentage of high-tech commodities is only 2% in Turkey's exports while this figure is 27 % in China, 18 % in South Korea and Switzerland, 17 % in USA and 16 % in Japan, France, Germany and Mexico. Moreover, according to a bulletin prepared by the Antalya Chamber of Trade and Industry, while the worth of Turkish exports per kilogram was USD 1.34 in 2015, that number fell to USD 1.32 in December 2016 (ATSO, 2017).

We are faced with starker picture when we examine the dollar-worth per kilogram numbers for agricultural products. The net worth per kilo for fruit and vegetable products is USD 0.98 and that figure can be as low as USD 0.49 in the case of fresh fruit and vegetable exports (ATSO, 2017).

Table 2: The Average Dollar Value Per KG in Turkish Exports

SECTOR	2016 December Exports (kilogram/dollar)
Ready-to-wear and garments	14,78
Leather and leather products	11,90
Hazelnut products	8,09
Tobacco	7,04
Automotive industry	6,85
Machine and machinery	5,54
Other industrial products	5,19
Textile and textile raw materials	4,05
Climatization industry	4,15
Ship and yacht building	4,14
Electric- electronic and services	4,98
Iron and non-iron metals	3,49
Carpets	3,02
Dried vegetables and products	2,79
Olive and olive oil	2,34
Water products	2,15
Ornamental plants and products	2,18
Furniture and paper products	1,31
Fruit and vegetable products	0,98
Chemicals and chemical products	0,83
Cereals and products	0,75
Fresh fruits and vegetables	0,49
Steel	0,57
Mining products	0,22
Cement, glass and soil products	0,15

Source: Antalya Chamber of Commerce and Industry <http://www.atso.org.tr/detay/2/5/1/5309/atso-subat-ayi-meclis-konusmasi.html>, 11.03.2017.

As the striking figures from the Antalya Chamber of Commerce indicate, Turkey, which has to export 2.7 tons of mining

products per a mobile phone imported at USD 600, is getting behind in completing the transition to becoming a country where it exports processed commodities instead of exporting natural resources without any industrial processing.

Creating a global value chain, producing high value-added products that have become brands, and conducting farming activities employing a technological infrastructure in line with the necessities of the Information Age is an imperative that needs to be fulfilled, albeit belatedly. At this point, two successfully implemented value chain examples from the FAO provide sufficient clues for how Turkey can achieve its own transformation.

“According to FAO, sustained value chains ensure economic sustainability by creating added value; social sustainability by encouraging fairer distribution of the created added value and environmental sustainability by reducing the ecological footprints” (Erol 2015: 43).

The first of the examples is the “Indian Potato Value Chain”, which includes changing the type of crop used in horticultural production. When PepsiCo needed a different type of potato for its Frito Lay's, potato farmers started producing a new type of potato which was better fit for chips production, although the switch increased their costs by 20 percent. This way, the farmers' profit rose by between 10 to 50 percent (Erol 2015: 45) in comparison with their traditional farming practices.

The second example of a successful value chain is from Central America: A group of US coffee buyers founded small enterprises and cooperatives for the production of high quality coffee beans. The scheme secured good coffee for consumers and contributed to exports to the countries involved. The scheme also led to the creation of many new jobs and conservation of the environment thanks to the use of environmentally friendly farming methods. The Project, which started with 3000 selected producers in 2003, had reached to include 6000 producers in 2009 (Erol 2015: 46).

4. KIRTIK VILLAGE ORGANIC CAFETERIA PROJECT

As in the success story of the Central America coffee value chain, the Organic Cafeteria Project for Kirtik Village aims to achieve the creation of a value chain by using a similar approach through establishing direct consumer-producer and producer-producer links, in a relationship where the two sides will mutually foster each other.

It is of importance that one of the most well-established economics departments in Turkey, the Istanbul University's department of economics supports this project which focuses on the expansion of organic agriculture areas and increasing supply of affordable organic food.

The project was launched in July 2015, in order to support over fifty certified organic producers of Kirtik Village, located in the Burhaniye district of Balikesir province.

The project initially consisted of supporting marketing efforts of individual farms, advertisement of their products, the creation of a website (Kirtik, 2017) to this purpose and the managing of social media accounts. It has now reached a point where its focus is now complete commercialisation of the organic agricultural products -- the unprocessed raw resource -- by branding and creating added value.

4.1. Purpose Of The Project

While the one arm of the project seeks to encourage local farmers to produce branded, functional and value added products to increase their incomes (and as such contribute to the expansion of land used for organic agriculture), another arm of the project focuses on improving public health by making available affordable and healthy foods through the efforts of producers, and contributing to the expansion of organic produce. The third element in the project, production of organic bread, will contribute to the producer-consumer chain.

Increased level of welfare, due to branded and commercialized quality products, will lead to higher contribution of the agricultural sector to the economy. Higher income levels will not only motivate the farmers to produce more organic, but they will also eliminate the pressure of migration to cities.

On the contrary, migration to villages will change organic agricultural areas; turning them into centers of attraction. We will likely see a considerable increase in employment in the region. .

The development of organic production motivated by the raised income levels caused by branded products which are ready to compete in foreign markets, will not only lead to soil conservation; water quality and energy conservation; higher biological diversity (Allen, Kovach 2000, 223) but it will also positively contribute to improving public health as the most important incentive among the “ten reasons to consume organic foods” (Boyacioglu, 2002) as listed by the Organic Consumers Association.

4.2. Phases of the Project

The project has first focused on production, rather than selling products by promising minimum purchase quotas.

Subsequently, the organic fields which are only used in the summer will be prevented from staying idle, which will allow the production of new crops, which in turn will ensure full capacity usage of organic fields and also provide additional income to farmers.

Bread has a special place in Turkish cuisine. Due to an increase in the use of genetically modified wheat and additive agents and preservatives, bread consumption is increasingly threatening public health (Boyacioglu, 2002). For this reason, bread will play an important role in encouraging people to get into the habit of feeding organically, and later in maintaining that habit. To this end, through interaction bakeries producing bread from non-GMO organic wheat and employing traditional sourdough (probiotic) methods; cakes, muffins, and other snack foods will be produced and sold at reasonable prices, particularly in school cafeterias.

The organic bakery, which comprises the third phase of the project, will also have the role of a ready market, in which the certified organic products, primarily olive oil, produced in the organic village will be marketed.

Academics will be in the first target audience for marketing of the products, considering this group's income level and awareness of organic eating. Academic staff will be informed via e-mails and brochures about the assortment, which they will be able to order online. Students working in the project on a part time basis will meet their orders.

The most important stage of the project is the construction of a dehydration to enable the storage, transportation and subsequently the commercialization of organic raw foods. The building constructed by Burhaniye Municipality in the village for this purpose, will be furnished with vegetable-fruit slicing machines, as well as dehydration equipment and packaging facilities.

Following this phase, an olive oil plant will be constructed for squeezing olives and bottling of the olive oil; another major product of the village.

Later on, the brand which will be created will carry the location label and the name of the village, which will help jumpstart rural tourism in the village. With this purpose, in order initiate organic tourism, bungalows will be erected in the subject field which will be leased from the Ministry of Forestry. The visitors who join tours of the village will be given information about organic agriculture and shown the activities. The income earned will go to seasonal agricultural training and sports activities for students and the disabled.

In the future phases of the projects, one of the plans is to help neighboring villages transition to organic farming with the organic chain starting to function, in order to help expand the area of organic fields and to ensure that these villages are also included in the chain. Funds that will be derived from income earned from organic activities will be used to this end. Farmers from the newly included villagers will attend training and later practice farming in the Kirtik village, during which the participants will be supported financially by means of the above mentioned funds. The organic chain, ever growing with the inclusion of more new villages, will eventually contribute significantly to achieve rural development.

5. CONCLUSION

This study focuses on a project, which was developed to overcome the difficulties stemming from recession felt in every facet of Turkish agriculture, despite the country's misleading fame as a country of agriculture. The project includes activities to reverse the recession in agriculture by encouraging organic farming efforts; helping to restore the health quality of produce (which has significant adverse effects on public health), eliminating factors that degrade soil, water, air quality and biodiversity and by contributing to sustainability of the environment.

The village of Kirtik, in Balikesir, Burhaniye-- the location of the Organic Cafeteria Project where fifty certified organic farmers participate -- will likely become the biggest organic village of Turkey. By establishing a fruit and vegetable processing facility and distributing the dried and packaged produce as affordable and nutritious snacks first to students and staff healthy; the project seeks to eventually extend the organic chain to a wider population with the creation of organic sales points.

REFERENCES

Allen P. and Kovach M., The capitalist composition of organic: The potential of markets in fulfilling the promise of organic agriculture, <https://pdfs.semanticscholar.org/76d3/6b1d50febce8ff968e38d2858d25d0906c51.pdf>, p.223, 2.04.2017

Allen P. and Kovach M., The capitalist composition of organic: The potential of markets in fulfilling the promise of organic agriculture, <https://pdfs.semanticscholar.org/76d3/6b1d50febce8ff968e38d2858d25d0906c51.pdf>, p.223, 2.04.2017

Antalya Chamber of Commerce and Industry, <http://www.atso.org.tr/detay/2/5/1/5309/atso-subat-ayi-meclis-konusmasi.html> , 24.02.2017

Ateş, Sevinç, Nevşehir District, The Impacts of Different Fertilizer and Mulch Materials which can be used in Organic Strawberries Farming on Productivity and Quality Properties, Ph.D Thesis unpublished, Adana, 2015, p.10.

Ateş, Sevinç, Nevşehir District, The Impacts of Different Fertilizer and Mulch Materials which can be used in Organic Strawberries Farming on Productivity and Quality Properties, Ph.D Thesis unpublished, Adana, 2015, p.11.

Avrupa Birliği, Agriculture and Rural Development, http://ec.europa.eu/agriculture/rural-development-2014-2020/index_en.htm, 06.04.2017.

Bengtsson J., Ahnström J., and Ann-Christin Weibull A.C., The Effects Of Organic Agriculture On Biodiversity And Abundance: A Meta-Analysis, <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2664.2005.01005.x/pdf>, s.265, 06.04.2017.

Boyacıoğlu, M. Hikmet, Bazı un katkı maddeleri ve bunlara ilişkin ülkemizdeki son gelişmeler, <http://www.tekbas.com.tr/images/resim/makale1.pdf> , 2.04.2017

Boztoprak T , Demir O , Çoruhlu Yakup E., Problems Regarding the Land Consolidation Practices Sourced by Legislation and Solution Suggestions, Electronic Cartography Technologies Bulletin Cilt: 8, No: 1, 2016 (75-86), http://s3.amazonaws.com/academia.edu.documents/45198924/YAYINLANAN_MAKALE.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1491338339&Signature=QFiutoURXOWkPIm6OMA%2Frc%2BwqFU%3D&response-content-disposition=inline%3B%20filename%3DArazi_Toplulastirmasi_Uygulamalarinda_Me.pdf, p.76, 23.03.2017.

Cumhuriyet Gazetesi, 5 Temmuz 2015, http://www.cumhuriyet.com.tr/haber/turkiye/314463/Meyvemizi_bile_zehir_ettiler.html, 23.03.2017.

Erol Elif M., An Evaluation on Supply and Value Chain in Globalized World, T.C. Gıda Tarım ve Hayvancılık Bakanlığı, Uzmanlık Tezi, Ankara, 2015, p.43.

Erol Elif M., An Evaluation on Supply and Value Chain in Globalized World, T.C. Ministry of Food, Agriculture and Livestock, Uzmanlık Tezi, Ankara, 2015, p.45.

Erol Elif M., An Evaluation on Supply and Value Chain in Globalized World,, T.C. Ministry of Food, Agriculture and Livestock, Uzmanlık Tezi, Ankara, 2015, p.46.

EU , What is organic farming?, https://ec.europa.eu/agriculture/organic/organic-farming/what-is-organic-farming_en, 06.04.2017.

FAO, Childhood Pesticide Poisoning Information for Advocacy and Action, http://www.fao.org/newsroom/common/ecg/51018/en/maquette_childhood.pdf , 06.04.2017.

FAO, Food Safety And Quality As Affected By Organic Farming, <http://www.fao.org/docrep/meeting/X4983e.htm#b1>, 06.04.2017.

FAO, Organic Agriculture, <http://www.fao.org/docrep/meeting/X0075e.htm>, 06.04.2017.

Hollanda Ekonomi Bakanlığı, <https://www.government.nl/latest/news/2017/01/20/agri-food-exports-achieve-record-high-in-2016>, 23.03.2017

Gıda Tarım ve Hayvancılık Bakanlığı, http://www.tarim.gov.tr/Belgeler/ButceSunumlari/2017_Yili_ButceSunumu.pdf, 21.03.2017.

Hürriyet Gazetesi, 11 Ocak 2017, <http://www.hurriyet.com.tr/turkiye-abden-bugday-alacak-40332978>, 23.03.2017.

Hürriyet Gazetesi, 3 Ocak 2017, <http://www.hurriyet.com.tr/27-yilda-4-milyon-hektar-tarim-alani-yok-oldu-40325168>, 23.03.2017.

İstanbul Ticaret Odası, "Dünya'da ve Türkiye'de Ekolojik Tarım Ürünleri Üretimi, İhracatı ve Geliştirme Olanakları", İTO yayınları, Yayın No: 1999-70, Aralık 1999 İstanbul, p. 1.

Kırtık Organik, <http://www.kirtik.com/>, 2.04.2017

Milliyet Gazetesi, "Yükte Ağır, Pahada Ucuz Ürünler İhraç Ediyoruz", <http://www.milliyet.com.tr/yukte-agir-pahada-ucuz-urunler-ihrac-antalya-yerelhaber-1863836>, 24.02. 2017

Milliyet Gazetesi, 3 Nisan 2017, <http://www.milliyet.com.tr/bozulan-gidalar-kanser-saciyor--gundem-2425137/>, 23.03.2017.

NTV, The lie of 'Kendi Kendine Yeten Ülke' Yalanı, <http://www.ntv.com.tr/ekonomi/kendi-kendine-yeten-ulke-yalani,FNtrdzPAT0av9jE5dddddGQ> , 13.02.2017.

Organic Consumers Association, Safeguard Organic Standards: 10 Reasons Consumers Buy Organic, <https://www.organicconsumers.org/essays/safeguard-organic-standards-10-reasons-consumers-buy-organic>, 2.04.2017

Pamuk, Şevket, Türkiye'nin 200 Yıllık İktisadi Tarihi, Türkiye İş Bankası Kültür Yayınları, 3. Baskı, İstanbul, 2014.

Radikal Gazetesi, 06.09.2009, <http://www.radikal.com.tr/ekonomi/turkiye-bugdayda-ithalatci-ulke-oldu-953109/>, 23.03.2017.

Rifkin, Jeremy, Nesnelerin İnterneti ve İşbirliği Çağı, çev. Zülfü Dicleli, Optimist Yayınları, İstanbul, 2015.

Schwab, Klaus, Dördüncü Sanayi Devrimi, çev. Zülfü Dicleli, Optimist Yayınları, İstanbul, 2016, p.76.

T.C. General Directorate of Legislation Development and Publication, <http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=7.5.14217&MevzuatIlski=0&sourceXmlSearch=tar%C4%B1m>, 06.04.2017.

T.C. Ministry of Food, Agriculture and Livestock, 'Arazi Topluatırma ve Tarla İi Gelitirme Hizmetleri', <http://www.tarim.gov.tr/Konular/Arazi-Toplulastirma-ve-Tarla-Ici-Gelistirme/Projeler>, 06.04.2017.

T.C. Ministry of Food, Agriculture and Livestock, 2017 Budget Presentation,

T.C. Ministry of Food, Agriculture and Livestock, İyi Tarım Uygulamaları Hakkında Yönetmelik, http://www.tarim.gov.tr/BUGEM/Belgeler/Bitkisel%20C3%9Cretim/%C4%B0yi%20Tar%C4%B1m%20Uygulamalar%C4%B1/%C4%B0TU%20Mevzuat/itu_yonetmelik_2014.pdf, 06.04.2017.

T.C. Ministry of Food, Agriculture and Livestock, Organik Tarımın Esasları ve Uygulanmasına İlikin Yönetmelik,

The Economist Intelligence Unit, Fixing Food, <http://foodsustainability.eiu.com/wp-content/uploads/sites/34/2016/11/Barilla-Fixing-Food.pdf> , p.5, 21.03.2017.

The Economist Intelligence Unit, Fixing Food, <http://foodsustainability.eiu.com/wp-content/uploads/sites/34/2016/11/Barilla-Fixing-Food.pdf>, p.14, 21.03.2017.

The Economist Intelligence Unit, Fixing Food, <http://foodsustainability.eiu.com/wp-content/uploads/sites/34/2016/11/Barilla-Fixing-Food.pdf>, p.22, 21.03.2017.

The Economist Intelligence Unit, Fixing Food, <http://foodsustainability.eiu.com/wp-content/uploads/sites/34/2016/11/Barilla-Fixing-Food.pdf>, p.38, 21.03.2017.

Tilman David, Kenneth G. Cassman, Pamela A. Matson, Rosamond Naylor & Stephen Polasky, 'Agricultural sustainability and intensive production practices', <http://www.nature.com/nature/journal/v418/n6898/pdf/nature01014.pdf>, p.672, 06.04.2017.

Turkish Exporters Assembly, <http://www.tim.org.tr/tr/basin-odasi-gundem-turkiye-ihracati-2017-yilinda-155-milyar-dolara-yukselecek.html>, <https://www.gidahatti.com/tim-de-acikladi-2016-ihracati-ne-oldu-73054/>, 23.03.2017.

The Turkish Statistical Institute , <http://www.tuik.gov.tr/UstMenu.do?metod=temelist>, 21.03.2017.

Ulker K., Dünya Gazetesi, 24 Mart 2017, <http://www.dunya.com/kose-yazisi/rusya-turkiye-arasinda-gida-gerilimi/355125> , 23.03.2017.



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DEPLOYING KNOWLEDGE MANAGEMENT IN DMAIC METHODOLOGY OF SIX SIGMA PROJECTS

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ABSTRACT

Six Sigma, as a tremendous acclimated method for doing things, moves towards steady and plausible change by developing buyer dependability and reducing action time and number of imperfections. On the other hand, Knowledge Management (KM) is a most recent approach that strategies with the uncommon asset of affiliation i.e. data. In this exploration, resulting to evaluating the looks into of examination on this alliance, the linkage amongst KM and 6-sigma is investigated and in conclusion usage of KM instruments in parts of DMAIC procedure as a sensible and valuable system for 6-sigma, have been secured. Both KM and 6-sigma are quickly cautious business association frameworks with essential thinking and process improvement strategies, Specialists in both fields can get benefit from each other. 6-sigma can get from KM how to be acquainted with Knowledge furthermore forms. 6-sigma specialists also can pick up from KM systems that care for change. 6-sigma is an apparent methodology for Quality and strategy updating with observable quality on deformity obstruction instead of yield detection. By decreasing assortment and waste at the same time, fundamental concern comes about and persistent change are to be progressed. KM of course is proposed at rolling out handy improvement, too. At the end of this study, the author proposes the conceptual framework about the perceived benefits which Knowledge based and 6-sigma oriented organization can achieve after implementation of these best practices.

Keywords: Knowledge Management (KM), 6-sigma, Tacit Knowledge (TK), Explicit Knowledge (EK), DMAIC methodology, etc.

JEL Codes: K12

1. INTRODUCTION

As organizations have begun giving careful consideration towards enhancing their operational business practices, KM and Six Sigma technique has reformed the universe of business and advanced with developing energy in consumer loyalty and quality. In the changing business environment, the key component required for supporting or building aggressive favorable position is the capacity of an organization to react proactively through operational and task Knowledge and related advancements. Competition has turned out to be increasingly savage, clients are demanding higher quality at lower costs and net revenues appear to fall particularly in times of emergency. A proficient and compelling procedure to end up more focused is to embrace KM and Six Sigma. The imperativeness of knowledge innovative strength and knowledge value in enhancing activities of organizational Quality was driving forward and harmonized by the experts in Quality Assurance arena. In resentment of the way that making of accompanying organizational knowledge for change execution, various leveled operations, effectiveness augment and increasing extra advantage were the all points considered of these two frameworks, and 6-sigma endeavors are in like way based after fitting data and its stream, a practical relationship can be seen between them. Along these lines, there is a strong relationship between KM and 6-sigma. Both of two anticipated at positive additional categorized information for performance improvement Duguid, (2000). Treichler et al. (2002) reasoned that Six Sigma is a much trained procedure that helps associations to concentrate on creating and conveying close impeccable items and organizations. It is likewise, in Treichlers' (2002) view, a change-speeding up procedure that spotlights on seeking after achievement and the fast appropriation of progress. The significance of Knowledge creativity and learning part in improvement exercises of organization quality was managed and affirmed by the specialists in quality science fields. The best endeavors and extraordinary attempt if are not in view of learning prompts awesome profundity of the current gap. Both of them aimed at certain more organizational knowledge for performance improvement. In this way, there is a cozy relationship between Knowledge Management (KM) and Six Sigma. In the event that KM and Six Sigma are consolidated together, a capable administration technique will be accomplished. KM framework gives an immediate access

to taking care of the issues in Six Sigma ventures. Sung H. Park (2003). Each of them additionally intends to bolster development and productivity and force another. Kevin D. Barber and J. E. Munive-Hernandez, (2006). Together KM and Six Sigma are a perfect fit for improving the quality of product / service delivery and support. S. Choo (2007). The Six Sigma approach is well positioned to provide quantifiable measures of process performance outcomes and a consistent approach through the DMAIC (Define, Measure, Analyze, Improve and Control) quality improvement cycle, in how and when to use the metrics. In the event that KM and 6-sigma are shared commonly, an influential categorized methodology will be set up, Brue, (2002). KM structure gives an absolute access to taking care of the issues in 6-sigma ventures Clifford, (2001). Each of them additionally plans to manage improvement and viability and impact another. S. Crom, (2008).

2. LITERATURE REVIEW

Knowledge Management

Knowledge management was considered a systematic approach which is applied for capturing, structuring, and disseminating knowledge all over an organization. As a result, the organization's performance would increase in terms of working faster through reuse and the use of best practices. This includes reducing the costs of reworking data from project to project (Nonaka & Takeuchi,1995). Effective management of knowledge plays an important role in the improvement of organizational competitive advantage through sharing of best practices, achieving better decision making, faster response to key institutional issues, better process handling, and improved people skills; and is essential to long-term organizational effectiveness. According to Pitt, M., & MacVaugh, J. (2008)), knowledge management as any process or practice of creating, acquiring, capturing, sharing and using knowledge, wherever it resides, to enhance learning and performance in organizations which means the knowledge must be generated, after generating the knowledge it must be acquired, after that knowledge needed to be captured or stored so that everybody can use the knowledge when it is needed.

According to Cricelli, L., & Grimaldi, M. (2008). , KM best practices include:

- Creating precise systems that permit assuming as how to stream to the right people at the ideal time;
- Focusing on significant business issues to maintain a strategic distance from redundant attempts, expand promptness the moment to capability, make remarkable Knowledge Management (KM) to the business, and cross constraints and capacities;
- Applying vibrant techniques;
- Enabling new knowledge to be created and new issues to be clarified; and
- Placing the Management fixation on effective communication, inclusion, requirement, and knowledge related behavior.

Two various types of knowledge should be perceived from each another. External knowledge that can be fundamentally shared and is consistently all around apparent; its reassign is potential through created course (Korth, 2007). Tacit Knowledge (TK) then again is a great deal more unpredictable to expressive; it is exceptionally individual, setting specific and exchanged predominantly in the progression of shared communications (Nonaka, 1991). Running with model describes the constituent of data and applies to knowledge association where TK is supported and changed over into Explicit Knowledge (EK) and then into TK (Nonaka, 1995, p.62). Pathirage, et. al., (2008) validated that knowledge has ended up being important organizational resource. Knowledge includes TK as well as EK. If there should arise an occurrence of EK, it expresses about perceived knowledge and implicit passes on personal learning, Harris, (2008), Plessis, (2007). EK is documentable and sharable through IT while TK abides in workers' brain. In this knowledge world, massive number of firms is getting the chance to be learning driven keeping in mind the end goal to perform and succeed the high passionate edge. Sireteanu and Grigoruta (2007) recommended that Universities can appreciate their rule objective as a learning association and present educational programs that chains models and courses of action subjected through KM, proposing to gain information to utilize influential performance, with an accent on updating capability, appropriateness and advancement. Ababneh (2008) had concentrated on the impact of KM and organizational learning in relationship with improvements. The extent of KM implies the philosophies, practices, scattering, processes, and policies, orderly, formal and casual procedures (Deng and Poole (2008).

Six Sigma

6-sigma is an engineered and thinking framework for upgrading business, product / service and process improvement that are subject to quantifiable techniques and rational procedures for fulfilling clients' objectives and minimizing defect rate. Three standard clarifications behind 6-sigma use are Customer's fulfillment, reducing action time and number of deformities. Numerous organizations have taken after the flourishing case of firms like Motorola and General Electric (GE) and actualized. 6-sigma. Six Sigma is creative talent „to support efficiency, help boosting market and create consumer loyalty by furnishing organizations with a planning of mediations and factual devices that can prompt the development onward advantage and enhancing Quality" (Harry, 1998, p. 60). GE that completed 6-sigma under its CEO Jack Welsh and that rolled out this development move towards a great degree especially favored depicts it as „the most essential venture GE has ever endeavored" (Brue, 2002, p. 7). The firm reported only three years after its utilization more than \$2 billion of store resources (General Electric 1999 Annual Report, p. 5). The results of 6-sigma depends upon estimations and to keep up a

course of action inside its cutoff focuses so generally no noncompliance happen. W. Edwards Deming, to a great degree all around vitalizing and regarded Quality power, described in a talk to Japanese organization in 1950 the utilization of quantifiable mechanism as a „marvelous new instrument" important in a collecting conceived cost speculation resources and Quality changes (Deming, 1950). The Greek letter Sigma is utilized as the candid picture for calculating the deviation. The Sigma levels gauge the DEFECTS PER MILLION OPPORTUNITIES (DPMO) and goes for keeping the strategy inside its upper and lower control limits, i.e. ± 6 -sigma around its mean. Thusly, just 3.4 DEFECTS are being experienced per one million OPPORTUNITIES enduring that the techniques average floats unmistakably by as much as 1.5 standard deviations. Motorola developed this origination in eighties. The Quality Assurance gather fundamentally centered around the satisfaction with the Client's expectations and investigated the refined items/services for defects. Motorola needed to focus on its adequacy with a specific end goal to not to create defective product while in the meantime enhancing consumer satisfaction (Kumar and Gupta, 1993). Organizations, for instance, General Electric, Allied Signal, Honeywell and various others took after not long after besides made it a fundamental part into their organizational improvement works out (General Electric 1997 Annual Report, p.6) making „6-sigma the marvelous get ready for new 21st century GE activity" (General Electric 2000 Annual Report, p. 6). The five phase approach of 6-sigma is known as DEFINE, MEASURE, ANALYZE, IMPROVE, and CONTROL (DMAIC). In the first stage, project and scope and moreover the money related impact are seen (Define). This is straggled by social occasion data for measuring the present procedures implementation (Measure), considerable hidden drivers of defects (Analyze), advancement the technique (Improve) and in conclusion developing measures to keep up the developments made (Control). Clifford (2001) certifies that this commitment is basic as or else 6-sigma would basically be another corporate winning prevailing fashion, the most state-of-the-art mode in an enlarged parade of must-have suitability seethes that constantly widened totally through corporate America". The technique involves a pyramid of 6-sigma specialists, called Belts, and two basic processes: the (DMAIC) methodology and (DFSS) Design for 6-sigma process. Contained by processes, some 6-sigma best practices are obvious:

- [1] Dynamic interest of top Leadership,
- [2] Senior official going about as full-time Manager of the project,
- [3] Spotlight on evaluation based upon data driven results,
- [4] Accountability for money related outcomes,
- [5] Recruitment of full-time and low safeguarding Belts, and
- [6] Efficient organizing for prospect pioneers.

Enhancing Knowledge Management with 6-sigma

Pearson (2000) defines the end of the Information Revolution and the start of the Knowledge Revolution. This joins a prearranged approach, and also dealt with information investigation as a benchmark for basic leadership. Sveiby, K. E. (2001). . The destinations of 6-sigma however are as per the outline of KM as a „process of improving activities through better information and obligation" Lyles, M. A., & Schwenk, C. R. (1992). General Electric (GE), related its prosperity with this framework by setting up a society that „was keen on change, hungry to learn and eager to move quickly on a better than average idea."(General Electric 1998 Annual Report, p. 3). Various associations, for instance, Honeywell and Raytheon, both having a long history in applying the 6-sigma framework, consider this to be a fair way to deal with offer best practices and interpret it as „a key segment of the learning strategy" (Raytheon 2006 Annual Report, p. 3 or Honeywell 2006 Annual Report). Knowledge and experience from these "process authorities" is required remembering the final objective to handle the endeavor of lessening deformations inside an association. Socialization practices for group building happen persistently in the fundamental portion of the DMAIC methodology. This improves the understanding of the target moreover helps removing potential correspondence impediments. The Externalization changes over contingent information of the person into EK; to a great degree expected device is the Ishikawa diagram. Pictures and layouts are delivered normally all through the swapping of TK subsequently making a far reaching considerate of the entire change and likely interpretations for its defects. By analyzing influences among routine of essentials and considering and understanding circumstances and end results, EK ends up being new EK (Combination). Finally, Internalization happens as people happen to obvious with the new procedure therefore early implied learning. This hierarchical learning game plan system is constant and ideally makes a "Knowledge Spiral" as it crosses departmental points of confinement. TK gets the opportunity to be authoritative information as it moves from a man to a gathering to the association (Nonaka, 1995). Both 6-sigma and KM share a noticeable component in a business world to the top with change activities and upgrade rationalities. Totally through 6-sigma, KM addresses three issues:

- i) The engaged environment,
- ii) Using learning in the organizational environment, and
- iii) Decreasing duplication of endeavors.

To display the KM philosophy in a basic approach, Raytheon (2012) current a four phase procedure: CREATE, CAPTURE, SHARE, and REUSE. Bread cook said, "You can see that we've merged benchmarking as a noteworthy part of that take into authority, approach and groups of practice also. In all probability, we have to reprocess knowledge, with the objective that we have lower nuisance and we get set up arrangements all the more rapidly and rapidly."Among distinctive focuses

arranged groups, Raytheon supports Communities of Practices (CoPs) for both 6-sigma and KM. KM champions propel the four phase KM process in every business and firm. "Our philosophy was to choose KM champions that were in the 6-sigma master populace," said Baker (2014). "So we required the change managers, perhaps, that were by then arranged to be the KM champions." Efforts are under methodology to discover extra groups, give synergistic apparatuses and resources to CoPs, and build interest. Experts in both fields can get from each other. 6-sigma can get from KM how to perceive learning and procedures. Joseph Hofer-Alfeis from Siemens said, "6-sigma is sorted out to the way of items and procedures. In the event that you consider a learning candid to goodness business, 6-sigma for data quality' - the nature of the capacity, the nature of information streams, and the nature of description information - ought in like way be a to an extraordinary degree charming thing. Furthermore, what we do with our business visionaries, when you make an animating procedure, is a 6-sigma framework; and it winds up in business change practices by enhancing the Knowledge." Preston (2006), Kingsley Martin (2003) and WLE (2006) et.al described the following benefits which the organizations accomplished after implementing the best practices including KM practices and 6-sigma .

- Productivity and efficiency
- Knowledge sharing,
- Skill advancement and guidance
- Competitive advantage,
- Marketplace visibility as a high-tech firm
- Capability to express effort to experienced experts
- Consistency of work product across offices or practice areas
- Quicker release times
- Quality control
- Reduced aggravation penetrating for documents
- Customer partnership
- Helps make certain the precise in sequence gets to the right people at the right time to make the right decisions
- Enhanced team announcement
- Reduced problem solving time
- Enhanced profitability consistency
- Improved project Management customer participation reduced design cycle time close to market business process improvement

3. USING KM TOOLS IN DIFFERENT PHASES OF DMAIC

3.1. Define Phase

One of the extensive motivations behind DEFINE stage is a complete clarification of issue. Essentially, a pool brimming with issues is craved to take in every one of them and to recognize indispensable and imperative ones, yet for the reason that of absence of these resources, the problem is not prominent suitably Pearson (2000). In addition, KM inference taking into description Knowledge maps is another issue. The reason for this mechanism is acceptance of knowledge inadequacies and insufficiency in the organization Sveiby, K. E. (2001). The learning of Pareto Chart, Kano Analysis, SIPOC Process Map Functional and Deployment Map and so forth for better depiction of the procedure is particularly fundamental to the extent Definition stage is concerned Lyles, M. A., & Schwenk, C. R. (1992). Other pleasing presence of KM in this stage is statement and determination of appropriate principal in various fields to differentiate the issue / problem. A champion amongst the most fundamental inspirations driving this Defining stage is customer affirmation and Voice of Customer (VOC). 6-sigma has an extensive look to customer area. In spite of the technique that VOC are well thought-out as one of described source of issues in 6-sigma, envisages disclose a team number of 6-sigma ambles guide to consumer reliability enhancement and in decay most activities wanted to reduction of categorized cost assertiveness and potential advancement within integrated sources. Increasingly attractive properties of assumption leaning in 6-sigma philosophy are self-possessed as per business activities. (Raytheon 2006 Annual Report, p. 3 or Honeywell 2006 Annual Report). Key desire the methodology which helps Voice of Customers (VOCs) in KM likewise is Customer KM. To be sure, current affirmation happened as a result of customer fundamentals are not available with reliable situation or doesn't embrace every degree. "Client Knowledge" is a self-motivated strategy of practice, worth and sensible origination [Henning Gebert, 2003]. It implies Client understand the compulsory knowledge for basic leadership for shopping and the firm likewise secure client's understanding knowledge and his existing requirement which can take benefit amid development of new products. Thus, KM framework in an association ends up analyzing VOC in better from and to clear up Client's genuine need lastly to make appropriate Critical to quality (CTQ). Define Activities include the followings as per M. C. Becker, (2001).

- Classify the Assignment,
- Nominating Champion and Project Sponsor
- Define Client's Requirements and Critical to Quality (CTQs)

- Identify Problem, Purpose and associated Benefits
- Characterize Stakeholder/Resource breakdown
- Record the course of action
- Develop Project plan

Define Quality Tools include the followings as per G. Brue, 2002

- Project Contract and Plan
- Effort/ Impact Analysis
- Process Mapping Tree Diagram

3.2. Measure Phase

A portion of the straightforward decisions of this stage comprise of recognizing premier issues obviously, far-sighted examples by constructing the application of Knowledge and to make clear the dimensions and accessible 6-sigma development. The most fundamental accomplishments of Knowledge frameworks and KM systems are to build up an appropriate infrastructure for CODIFICATION, STORAGE, DATA RETENTION, and in wrapping up ideal extraction and deployment. (D. Gilmour, (2003). CODIFICATION, ORGANIZATION AND ACQUIRING CONSEQUENCES of this stage for future use consultancy relationship of 6-sigma ambles: One of the most indispensable issues that specialists standardize them was to check emphasized practices in future and to support potential assessment. The information of the followings is key to be inclined to an appropriate approach to have improved Knowledge about the MEASUREMENT stage Harry, M.J. (1998).

Measure Activities include the followings as per S. Kumar, Y. P. Gupta, (1993)

- Determine the project based Dependant and independent variables
- Conclude Operational Definitions
- Set up implementation values
- Develop Information Collection and investigative the problem / project under investigation
- Validate the Estimations
- Measurement Frameworks Consideration
- Decide Process Capability and point of reference

Measure Quality Tools include the followings as per Connie M. Borrer, 2009)

- Quality Function Deployment (QFD)
- Measurement Systems Analysis (MSA)
- Process Capability

3.3 Analyze Phase

KM framework covers this topic precisely. The knowledge and better understanding of Main cause Analysis, 5 Whys, Statistical Data Plots, Hypothesis Testing, CTQ Flow-down is particularly indispensable to the extent Analysis stage is apprehensive (Nonthaleerak, P., & Hendry, L. (2008). Choosing the finest extract to join in meetings to create new ideas is a standout amongst the mainly crucial services of KM practices to 6-sigma . Bennet, A., & Bennet, D. (2004). The knowledge of the followings is indispensable to be addressed in a suitable manner to have enhanced understanding about the ANALYSIS PHASE (Kayworth & Leidner, 2003)

Analyze Activities

- Make point of reference the course of action and or Products /Projects / Services
- Institute contributory associations Utilizing relevant Knowledge of the processes involved
- Investigation of the procedural plan
- Establish Root Cause(s) utilizing the related Information

Analyze Quality Tools

- Statistical examination of information
- Cause and effect diagram
- Pareto diagram, Run chart, Scatter graph etc.

3.4. Improve Phase

The essentially worth mentioning goal of this stage integrates knowledge of critical rational combination, coordination, clarification, perceiving risks and executing arrangement of configuration, modernization, conceptualizing and consultancy are the most central fundamentals of this stage (Womack & Jones, 1991). Fundamental leadership needs osmosis amid an infinite region of knowledge which are spread throughout the organization. It infers associated person for fundamental organization must take a glance at essential data among organization and endeavor to trade it to other collaboration in a

persuaded time. A champion amongst the most key inspirations driving KM is seeking inadequacy, conveying new knowledge and moving towards imagination. Chen, D. C., & Holsapple, C. W. (2009). For perceiving reactions for improvement, specialists' thoughts are generally basic. Henceforth, specialty part and their suitable decision and reality of scrutinized past encounters and knowledge are obviously guaranteed. If these responses are not significant, the firm will keep running over considerable measure of losses. The information of the followings is basic to be tended to in a reasonable way to have enhanced comprehension about the IMPROVE STAGE (Holsapple, C., & Joshi, K.D. (2005).

Improve Activities

- Build up interpretation alternatives
- Appraise Risks and advantages of determination of substitutes
- Authorize resolution by means of a lab trial
- Realize resolution
- Establish revelation efficiency using Data

Improvement Quality Tools

- Design of Experiments (DOE)
- Failure Mode and Effect Analysis (FMEA) Risk assessment

3.5. Control Phase

Documentation, change exploration, expansion of Improve stage results in a sustainable structure, are the most essential ones in this stage. Moreover, group organizing, accumulation and in Conduction of lessons, prospective understandings and proposal of future maneuvers are the systems of this stage which have a strong relationship with KM (Brown, J. S., & Duguid, P. (2000). Change protection joins utilizing filed experiences, making utilization of the Tacit and explicit Knowledge. The data and better appreciation of Control Charts, Out of-control Action Plan, Capability Flow-up is essential to the degree Control stage is concerned. O'Dell, C. & Grayson, C.J. (2004)

Using KM gives acceptance of making of learning acquired in IMPROVE and control stage and as it were responsibility and CLASSIFICATION, CODIFICATION, STORING AND SHARING them. By running learning in KM cycle, they constantly get the opportunity to be all-embracing and redesign that their course of action and time get the chance to be possible quickly. Wolford, Dan, & Kwiecien, S. (2004).

Moving as per KM and changing to learner association, complete preparing, information taking care of and systematic obtained information in the best way. Honestly, this goal is realized totally and especially by KM. Holsapple, C., & Joshi, K.D. (2005).

Control Activities

- Conclude desired Controlling parameters
- Realize and validate Controls
- Build up Reassign planning
- Comprehend advantages of Implementing resolution
- Close up the assignment and
- Correspond outcomes

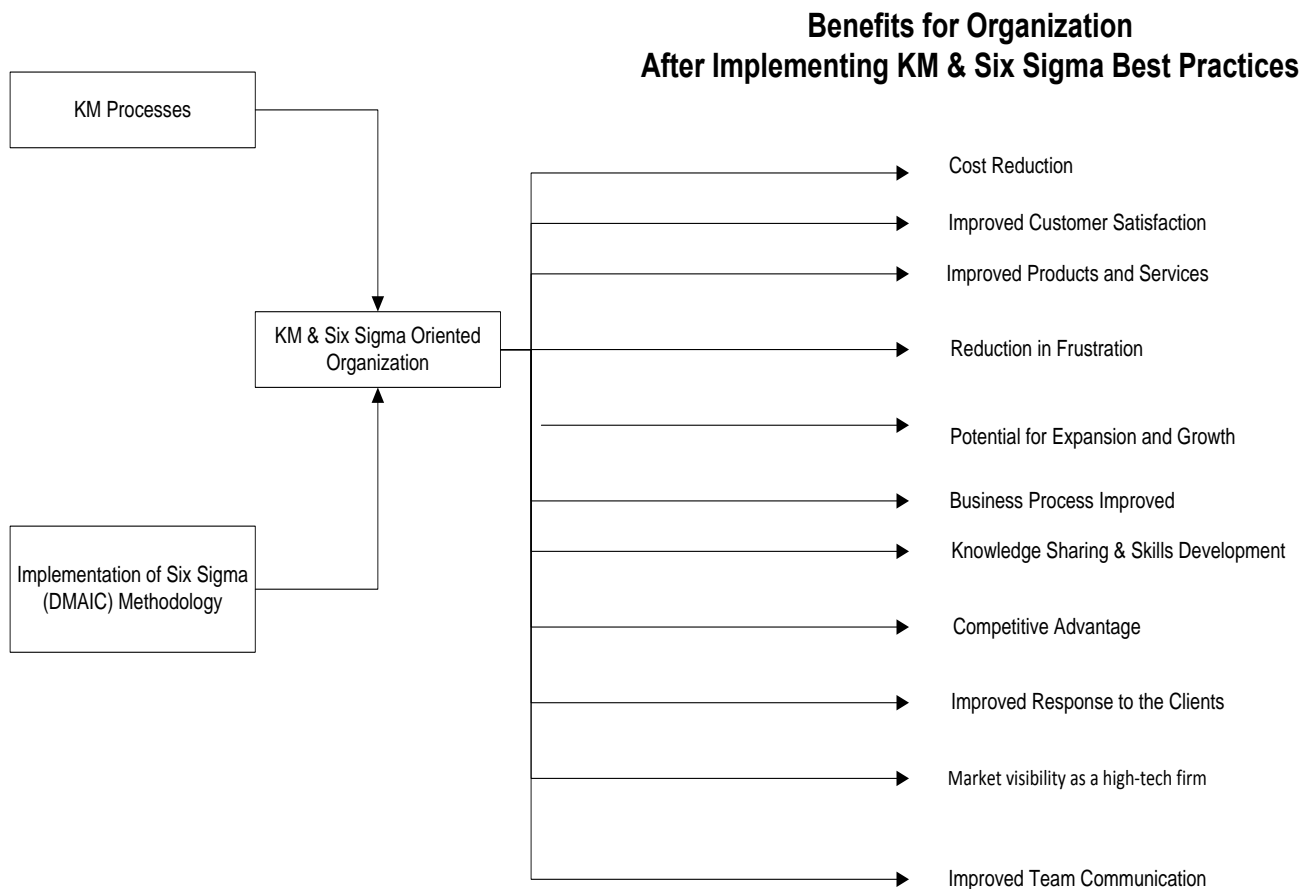
Control Quality Tools

- Statistical Process Control (SPC)
- Out of Control Action Plan
- Plan modifications to eliminate the deficiency

4. METHODOLOGY

Both KM and 6-sigma are quickly cautious business association frameworks with essential thinking and process improvement strategies. Specialists in both fields can get benefit from each other. by having detailed qualitative analysis of the researches carried out by the eminent persons in this field. Data are gathered from written descriptions of past research articles etc. This study was conducted to develop a conceptual framework based upon the factors about the perceived benefits which Knowledge based and 6-sigma oriented organization can achieve after implementation of these best practices.

Figure 1: Conceptual Framework for Organization after Implementation of KM and 6-sigma Best Practices



5. CONCLUSION

In learning focused financial structure arena, it is difficult to accomplish strong change for the advantage of relationships and associations. Starting now, knowledge is considered as the most crucial resource, along these lines, in conclusion with no exact perspective and appropriate device every firm will be unproductive consistently, KM that had a short life erase this test impressively and sensibly. 6-sigma ,one of the productive and manageable system that its accomplishments have made up-to-date change. These two outstanding judgments have typical focuses in their motivation and approach and are relating to each other and swing into a powerful management approach in an organization. As demonstrated by said thinkers about, using productive gadgets of KM have predominantly dealt with effect on use and support of 6-sigma tries and its health help. Representatives being displayed to 6-sigma rambles through their commitment as partners share their comprehension and furthermore development of new Knowledge. Both are important resources as they help assembling a learning organization being a source of high significance. The associations need to stimulate the use of such best practices including Knowledge Management and Six Sigma. This won't just build up the continuous accomplishments to turn up a learning relationship also have the benefit of perhaps reducing the push time of actions in the course of dominant work on dissemination and function. The author proposes the following conceptual framework about the perceived benefits which Knowledge based and Six Sigma oriented organizations can achieve after implementation of these best practices.

REFERENCES

- Brue, G. (2015). *Six Sigma for Managers*, (Briefcase Books Series). McGraw Hill Professional.
- Karthi, S., Devadasan, S. R., Muruges, R., Sreenivasa, C. G., & Sivaram, N. M. (2012). Global views on integrating Six Sigma and ISO 9001 certification. *Total Quality Management & Business Excellence*, 23(3-4), 237-262.
- Helms, R., Ignacio, R., Brinkkemper, S., & Zonneveld, A. (2010). Limitations of network analysis for studying efficiency and effectiveness of knowledge sharing. *Electronic Journal of Knowledge Management*, 8(1), 53-68.
- Anand, G., Ward, P. T., & Tatikonda, M. V. (2010). Role of explicit and tacit knowledge in Six Sigma projects: An empirical examination of differential project success. *Journal of Operations Management*, 28(4), 303-315.
- Weldy, T. G. (2009). Learning organization and transfer: strategies for improving performance. *The Learning Organization*, 16(1), 58-68.
- The Certified Quality Engineer Handbook, Third Edition, ed. Connie M. Borrer, ASQ Quality Press, 2009, pp. 321–332.
- Chen, D. C., & Holsapple, C. W. (2009). Knowledge Shared is Power: Utilizing Knowledge Management Activities to Replicate Lean Sigma Best Practices. *Knowledge Management & E-Learning: An International Journal (KM&EL)*, 1(2), 90-102.
- Nonthaleerak, P., & Hendry, L. (2008). Exploring the six sigma phenomenon using multiple case study evidence. *International Journal of Operations & Production Management*, 28(3), 279-303.
- Pathirage, C., Haigh, R., Amaratunga, D., & Baldry, D. (2008). Knowledge management practices in facilities organisations: a case study. *Journal of Facilities Management*, 6(1), 5-22.
- Lopez-Nicolas, C., & Molina-Castillo, F. J. (2008). Customer Knowledge Management and E-commerce: The role of customer perceived risk. *International Journal of Information Management*, 28(2), 102-113.
- Arendt, M. (2008). Six sigma and knowledge management. *Economics and Organization of Future Enterprise*, 2(2), 14-20.
- Gowen Iii, C. R., Stock, G. N., & McFadden, K. L. (2008). Simultaneous implementation of Six Sigma and knowledge management in hospitals. *International Journal of Production Research*, 46(23), 6781-6795.
- Cricelli, L., & Grimaldi, M. (2008). A dynamic view of knowledge and information: a stock and flow based methodology. *International Journal of Management and Decision Making*, 9(6), 686-698.
- Ababneh, R. I. (2008). The impact of knowledge management and organization learning on organizational innovation: The case of the greater Amman Municipality in Jordan.
- Pitt, M., & MacVaugh, J. (2008). Knowledge management for new product development. *Journal of Knowledge Management*, 12(4), 101-116.
- Sireteanu, N. A., & Bedrule-Grigoruta, M. V. (2007). Perspectives of knowledge management in universities. *Available at SSRN 1029990*.
- Choo, A. S., Linderman, K. W., & Schroeder, R. G. (2007). Method and context perspectives on learning and knowledge creation in quality management. *Journal of Operations Management*, 25(4), 918-931.
- Dahlgaard, J. J., & Mi Dahlgaard-Park, S. (2006). Lean production, six sigma quality, TQM and company culture. *The TQM magazine*, 18(3), 263-281.
- Kevin D. Barber and J. E. Munive-Hernandez, Process based KM system for continuous improvement, *Journal of Quality & Reliability Management*, pp. 1002-1018, 2006
- Lee, K. C., & Choi, B. (2006). Six Sigma management activities and their influence on corporate competitiveness. *Total Quality Management & Business Excellence*, 17(7), 893-911. (Raytheon 2006 Annual Report, p. 3 or Honeywell 2006 Annual Report)
- Lin, C., Yeh, J. M., & Tseng, S. M. (2005). Case study on knowledge-management gaps. *Journal of knowledge management*, 9(3), 36-50.
- Ricondo, I., & Viles, E. (2005). Six Sigma and its link to TQM, BPR, lean and the learning organisation. *International Journal of Six Sigma and Competitive Advantage*, 1(3), 323-354.
- MC Becker, N Lazaric (2005), RR Nelson, SG Winter *Industrial and Corporate Change* 14 (5), 775-791.
- Holsapple, C., & Joshi, K.D. (2005). A Formal Knowledge Management Ontology: Conduct, Activities, Resources, and Influences. *Journal of the American Society for Information Science and Technology*, 55(7), 593-612.
- 6 Jamieson, R., & Handzic, M. (2004). Framework for Security, Control and Assurance of Knowledge Management Systems. *Handbook on Knowledge Management 1*, Springer-Verlag, Berlin Heidelberg, 477-505.

- O'Dell, C. & Grayson, C.J. (2004) Identifying and Transferring Internal Best Practices. Handbook on Knowledge Management 1, Springer-Verlag, Belin Heidelberg, 601-622.
- Wolford, Dan, & Kwiecien, S. (2004). Driving Knowledge Management at Ford Motor Company. Handbook on Knowledge Management 2, Springer-Verlag, Belin Heidelberg, 501-510.
- Antony, J. (2004). Six Sigma in the UK service organisations: results from a pilot survey. *Managerial Auditing Journal*, 19(8), 1006-1013.
- Bennet, A., & Bennet, D. (2004). The Rise of the Knowledge Organization. Handbook on Knowledge Management 1, Springer-Verlag, Belin Heidelberg, 3-20.
- Linderman, K., Schroeder, R. G., Zaheer, S., Liedtke, C., & Choo, A. S. (2004). Integrating quality management practices with knowledge creation processes. *Journal of Operations Management*, 22(6), 589-607.
- Linderman, K., Schroeder, R. G., Zaheer, S., & Choo, A. S. (2003). Six Sigma: a goal-theoretic perspective. *Journal of Operations management*, 21(2), 193-203.
- Sung H. Park, Six Sigma for Quality and Productivity Promotion, Asian Productivity Organization, ISBN: 92-833-1722-X, Page 143_146 , 2003
- Gebert, H., Geib, M., Kolbe, L., & Brenner, W. (2003). Knowledge-enabled customer relationship management: integrating customer relationship management and knowledge management concepts [1]. *Journal of knowledge management*, 7(5), 107-123.
- Treichler, David, Carmichael, Ronald, Kusmanoff, Antone, Lewis, John & Berthiez, Gwendolyn, (2002), "Design for Six Sigma: 15 Lessons Learned", *Quality Progress*, January, pp. 33-42.
- Joyce, B. R., & Showers, B. (2002). *Student achievement through staff development*. Ascd.
- Biolos, J. (2002). Six sigma meets the service economy—six sigma: it's not just for manufacturing. *Harv Manag Updat*, 7, 3-5.
- G. Brue, 2002. Six Sigma for Managers, McGraw-Hill, New York, NY D. Gilmour, (2003)
- Black, A. R., Black, J. D., & Azizkhan-Clifford, J. (2001). Sp1 and krüppel-like factor family of transcription factors in cell growth regulation and cancer. *Journal of cellular physiology*, 188(2), 143-160.
- Clifford, L. (2001). Why you can safely ignore Six Sigma. *Fortune*, 143(2), 140.
- Brown, J. S., & Duguid, P. (2000). *The social life of information*. Harvard Business Press.
- Sveiby, K. E. (2001). A knowledge-based theory of the firm to guide in strategy formulation. *Journal of intellectual capital*, 2(4), 344-358.
- T. A. Pearson, (2000). Six Sigma and the Knowledge Revolution. *Annual Quality Congress*, 54(0), p. 723-727
- Lyles, M. A., & Schwenk, C. R. (1992). Top management, strategy and organizational knowledge structures. *Journal of management studies*, 29(2), 155-174.
- Harry, M.J. (1998). Six Sigma: A Breakthrough Strategy for Profitability. *Quality Progress*, 31(5), p. 60-64.
- Nonaka, I., & Takeuchi, H. (1995). *The knowledge creation company: how Japanese companies create the dynamics of innovation*. Oxford University Press. New York, USA, 304.
- Nonaka, I. (1991). Models of knowledge management in the West and Japan.



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BOOSTING ENTREPRENEURSHIP IN GEORGIA DEVELOPMENT OF FAB LABS

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ABSTRACT

Boosting entrepreneurship has a crucial meaning for long-term economic development. It is taken as axiomatic that innovative activity has been the single, most important component of long-term economic growth. The Fab Lab concept is to provide spaces open to the public where people can access tools, training and designs in digital fabrications, and to base this around a global network of physical workshops with access to on-line and other support services, as well as being networked with one others. Fab Labs take advantage of increasing accessibility to versatile and powerful digital design and fabrication tools. During the last few years Georgian government increase funding and state support to diffusion innovations into the economy. It's evident if we count launching the innovative laboratories in the different cities of Georgia. The network consists more than 20 labs in the country. All of them are located at the public spaces and are funding by state government. Fabrication Laboratories offer to all entrepreneurs, students, and citizens full service of product prototyping and business consulting. The article considered and discusses about the role of this innovative laboratories into the economic growth, stimulation of entrepreneurship and startup developments.

1.INTRODUCTION

Undoubtedly the capability to innovate and to bring innovation successfully to market will be a crucial determinant of the global competitiveness of nations over the coming decade. There is growing awareness among policymakers that innovative activity is the main driver of economic progress and well-being as well as a potential factor in meeting global challenges in domains such as the environment and health.

Job creation and productivity growth are at the forefront of today's global development agenda. According to the 2013 World Development Report on jobs entrepreneurship is mentioned as an important tool in addressing these dual goals. Entrepreneurship is the phenomenon associated with entrepreneurial activity. Entrepreneurial activity is an enterprising human action in pursuit of the generation of value through the creation or expansion of economic activity by identifying and exploiting new products, processes, or markets.

The Fab Lab concept may reflect a new manufacturing paradigm where individual entrepreneurs define problems, create solutions, and market products. A community workspace is created that serves as an incubator for research, creative endeavors, and business incubation. The Fab Lab removes barriers such as start-up funding, access to equipment, and access to expertise, thus encouraging systemic change to educational and entrepreneurial environments. Fabrication Laboratories (Fab Labs) began as an educational outreach project from MIT's Center for Bits and Atoms in 2002, with funding from the National Science Foundation. Fab Labs combine open source software with commercially available, industrial grade, rapid prototyping equipment such as computer controlled laser cutters, scanners, and milling machines. Internet and broadband conferencing capabilities link over 40 Fab Labs in 11 countries (Sun 2009; Lassiter, 2009) to enhance information sharing and informal educational opportunities. Fab Labs allow individuals to construct prototypes as long as users learn how to do the fabrication on their own and share the lab with others. Nowadays the global network of

Fab Labs counts more than one thousand laboratories worldwide. Since 2014, Georgia become the first country in the South Caucasus, where launched first fabrication laboratory, which operated at the base of state university.

What does Innovation and Entrepreneurship means for Development?

According to the broad notion, innovation is the implementation of a new or significantly improved product (good or service), a new process, a new marketing method, or a new organizational method in business practices, workplace organization, or external relations.¹ The definition of innovation has broadened— it is no longer restricted to R&D laboratories and to published scientific papers. Innovation could be and is more general and horizontal in nature, and includes social innovations and business model innovations as well as technical ones. Last but not least, recognizing and celebrating innovation in emerging markets is seen as critical for inspiring people— especially the next generation of entrepreneurs and innovators. (Fingar, 2006)

Innovation is gaining prominence in all kinds of economic activity around the world. Not only advanced economies but also developing nations are finding that innovation is one of the main drivers of economic growth. This renewed understanding of the significance of innovation is having a growing impact on the course of policy formulation in many countries. Governments have realized that technology adoption alone is no longer sufficient to maintain a high-growth scenario; rather innovation is now crucial for catching up to high-income countries. (Cameroon, 1996)

On average, the technology gap between developing and developed countries appears to be narrowing. One explanation is that more and more developing countries outperform in innovation inputs and outputs relative to their level of development.

Another new policy development is the focus on creating an ‘innovation culture’ with businesses, students, and society at large. This is meant to spur greater entrepreneurial activity and to achieve a better public appreciation of the role of science and innovation. The design of proper metrics and evaluation strategies of policies is emphasized too. Indeed, the formulation and measurement of innovation policies is increasingly treated as a science in its own right. (OECD 2007)

Governments can support entrepreneurial activities in a variety of ways. At the most basic level, effective government policies can create an institutional base that establishes openness to trade, improves the business environment for domestic and foreign investment, establishes effective intellectual property rights regimes, and enhances knowledge flows and learning. Beyond those general policies, many governments have also intervened at the industry and firm levels to address market failures. Governments can also play a more direct role in fostering innovation. Public investment in science and basic research can play an important role in developing. (INSEAD, 2015)

Fab Labs – A place where innovations live on

The impact of a technological innovation will generally depend not only on its inventors, but also on the creativity of the eventual users of the new technology. Therefore, supporting diffusion of technologies can increase its impact on economics.

The concept of a Fab Lab was first imagined as the educational outreach component at the Center for Bits and Atoms (CBA) at the Media Lab of the Massachusetts Institute of Technology in USA, in 2001 by the funding support of National Science Foundations. Fab Labs and its workshop areas offering the possibility of digital fabrication and rapid prototyping to anyone interested. These are run mainly by enthusiasts called “Makers”, entrepreneurs, start-up owners and such structures form a distributed network of laboratories enabling invention and providing access to an array of flexible computer controlled tools that cover several different length scales and various materials. A fab lab is per definition an open place for everyone: youth, students, researchers, entrepreneurs, startups, small & medium enterprises and university faculty. Fab Lab is also a workplace for innovation, providing stimulus for entrepreneurship at local scales. A Fab Lab becomes a platform for learning and knowledge exchange: an open place to play, create, learn, mentor, share and invent. Fab Labs are available as a community resource, offering open access to individuals as well as scheduled access to workshops and training activities in different technological subjects. Fab Labs include tools to laser cutting, to build 2D and 3D structures, CNC milling machines that make circuit boards and precision parts, low-cost 3D printers and scanners, and a suite of electronic components and programming tools for low-cost, high speed microcontrollers and tiny computers for electronic prototyping. These machines can produce prototypes with the aim to allow making "almost anything" and to prototype and refine new ideas. These prototypes embraces technology-enabled products generally perceived as limited to mass production and experimentation.

¹ European Communities and the Organisation for Economic Co-operation and Development (OECD)

To define a laboratory as a Fab Lab, these criteria have to be met:²

- Public access to the Fab Lab is crucial since Fab Lab is all about democratization of tools and means for invention and personal expression.
- The Fab Lab has to support and subscribe to the Fab Charter –a set of rules describing what Fab Lab is, and what is not, and what are its duties and responsibilities.
- Fab Labs have to share a common set of tools and processes to be able to produce the same thing in each and every Fab Lab in the world.
- Fab Labs must play an active part in the international Fab Lab network.

The Fab Lab community workspace removes barriers such as access to equipment and access to expertise. The Fab Lab's grassroots environment serves as an incubator for creative endeavors, job creation, economic development and research. Individuals applying scientific and mathematical principles to the practical design, manufacturing and operation of products engage in engineering activities. Some individuals become entrepreneurs as they create businesses related to marketing and selling their newly engineered creations. Thus Fab Labs help create "entrepreneurs" -individuals who design as well as market their own creations.

Fab Labs take advantage of increasing accessibility to versatile and powerful digital design and fabrication tools. The Fab Labs concept has also benefitted from a wave of social interest in making, hacking and tinkering globally. Growth in Fab Labs numbers has consequently been rapid. In 2017, there were more than 1100 laboratories in over 70 countries.³ (Smith, 2015)

Motivated by the academic activities that are of interest to scientists and by the formation of new communities interested in science and development around Fab Labs, a Fabrication Laboratory inserted in a scientific framework can open new dimensions to science and education, inspire curiosity and offer powerful new ways to facilitate the development of new ideas with a certain impact. With the small economical investment requested to establish a Fab Lab, an academic institution, especially in developing countries, can catalyze innovation and entrepreneurship at the grassroots level with the help of its faculty and students. Fab Labs can enable researchers, students and makers in general to expand their work in new ways and to test out their ideas without breaking their budgets. These tools can also help new scholars to do science and discover it. Creativity, together with the making of ideas into fruition, is essential for progress and can help build better communities.

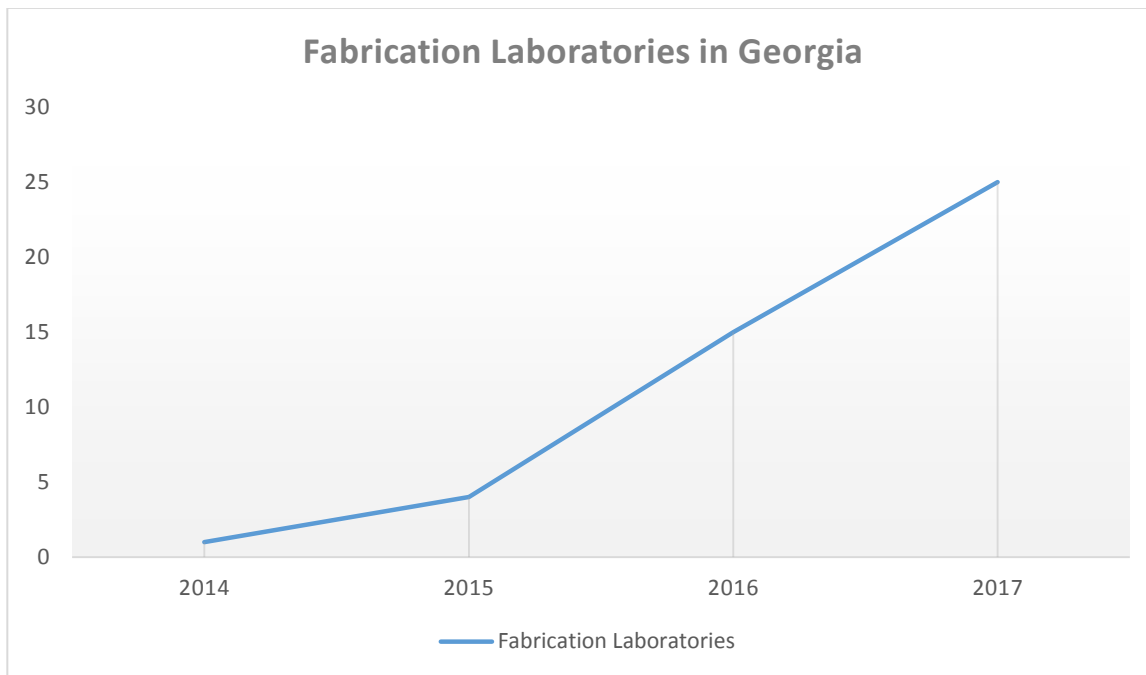
The goal for creating Fab Labs is to share knowledge and collaborate across international borders in the fields of science, education and sustainable growth. Whereas the life in a high-skill manufacturing Fab Lab is built upon thoughts and creation.

The Role of Fab Labs in the Entrepreneurship Policy of Georgia

The main challenge today for the government of Georgia is to find sources of long-term economic growth, particularly through private sector development. But the enterprise sector is heavily dominated by retail and other sectors that do not generate opportunities for increased trade or value added production. Continued growth will require not only higher savings and investment, but also a serious refocusing on domestic production, with an emphasis on productivity enhancements and diversification. In particular, Georgia will need to focus on supporting exports, with particular attention to improving competitiveness in the manufacturing and agriculture sectors, to spur economic growth. (Benashvili, Asanidze, 2016)

² Fab Lab Charter: <http://fab.cba.mit.edu/about/charter/>

³ (www.fablabs.io/labs)



Source: Ministry of Economy of Georgia

The diffusion of technologies and boosting entrepreneurship are the directions of Georgian economic agenda. It promote start-ups and entrepreneurs very strongly to upgrade their activities. Fabrication laboratories has a crucial meaning in the chain between the technologies and entrepreneurs. The laboratories are meant to aide young innovators to turn their ideas into reality, thereby boosting economic development, start-ups and job-creation. In 2014 first fabrication laboratory was opened at Ilia State University, with financial support of Innovation and Technology Agency of Georgia. Since 2014, 14 industrial innovation laboratories-Fab Labs-opened in Tbilisi and ten other cities throughout the country today. Those modern, small-scale laboratories offering the services of 3D printers, computers and other materials, are state-funded centers of innovation hosted in many of Georgia's vocational colleges and other centers of innovation. Counting the 25 that opened today, Georgia is now in 10th place in terms of countries and the number of operating Fab Labs. Also, education is among the top priorities of the four-point strategic agenda of the Government of Georgia. (Agenda.ge, 2015)

All Fab Labs share a commitment in giving to people and helping creativity to flourish environment. During the last few years laboratories mainly located in Tbilisi become the base for many start-ups, which launched entrepreneurs. Usually, the space provides many benefits to entrepreneurs and small businesses in the city that may not have access to designated office space. On the other hand, academic institutions as Tbilisi State University successful launch business incubators. Which will create convenient atmosphere and good pre-conditions, basis for the start-uppers who have innovative business ideas. Beside the technological support from the laboratories, incubators help them in the implementation by providing full consultations pack and connections.

This movement is already afoot—professional schools and universities across the country are investing in tech-rich spaces like fabrication labs, innovation centers, and maker spaces that expose students to new technology and, most importantly, equip them with the skill sets modern workforce requires. Launching fab labs at schools and professional schools is a key priority of Georgia educational policy. Beyond that, a lot of traditional jobs have been lost to automated computer-based jobs. Part of the issue is that we don't have people who know how to operate these newer machines; there's a huge demand for those skills. A lot of students were skilled in making things with the older equipment, but not in the new ways things are being manufactured, the digital fabrication side of using 3D modeling and CAD. That's what's being tied in now.

Financial systems are not conducive to business development. Companies cite high interest rates and risk-averse lending policies (requiring high levels of collateral) as substantial hindrances to expansion. In addition, risk capital is in short supply. Few entrepreneurs reported receiving funding from the domestic financial system; most relied on their own resources to support the development of their business. During the early stages of new innovative companies, which usually have few

or no sources of revenue and require large initial capital investments to develop their products, loan payments have a high opportunity cost. For startups that are in their nascent stages and focused on developing their first products, equity investments tend to be a better option. The government can establish favorable financing programs for SMEs⁴ by developing early-stage risk capital. The role of early-stage risk capital is highly relevant for innovative startups and SMEs.

Fabrication laboratories and business incubators create a possibility for start-ups to produce its goods with low expenses and it favor start-ups to increase productivity. This factors in Georgia contribute to a positive business environment for small and medium enterprises and start-ups for rapid business growth or fostering entrepreneurship.

REFERENCES

- Smith, A & Hielscher, S & Fressoli, M (2015) *Transformative Social Innovation Narrative: FabLabs*. TRANSIT: EU SSH.2013.3.2-1 Grant agreement no: 613169 | 31st of March 2015” Accessed at WWW: http://www.transitsocialinnovation.eu/content/original/Book%20covers/Local%20PDFs/145%20TSI%20Narrative_FabLabs_Upload.pdf
- Fonda, C & Canessa, E (2015) “Making Ideas at Scientific Fabrication Laboratories” The Abdus Salam International Centre for Theoretical Physics.
- Kuriakose, S (2013) *Fostering Entrepreneurship in Georgia*, International Bank for Reconstruction and Development, Washington, USA.
- OECD (2007) *INNOVATION AND GROWTH RATIONALE FOR AN INNOVATION STRATEGY*, OECD Publishing, Accessed at WWW: <http://www.oecd.org/sti/inno/39374789.pdf>
- Gerguri, S and Ramadani, R (2010) “The Impact of Innovation into the Economic Growth” South East European University at Tetovo, Faculty of Business Administration, Accessed at WWW: https://mpra.ub.uni-muenchen.de/22270/1/MPRA_paper_22270.pdf
- Drucker P. F. (1993), *Innovation and Entrepreneurship*, Harper & Row Publishers Inc., New York, USA.
- Fingar, P. (2006), *Extreme Competition: Innovation and the Great 21st Century Business Reformation*, Meghan-Kiffer Press, Florida, USA
- Horn, P., Maxwell, E. and Crawford, S. (2004), *Promoting Innovation and Economic Growth: the special problem of digital intellectual property*, A Report by the Digital Connections Council of the Committee for Economic Development.
- Zuleeg, F. Green, J. and Schubert, B. C. (2007), *Cultivating a Market for Innovation in Europe*, Policy Brief of the European Policy Centre.
- OECD (2012) *Innovation for Development*, OECD Publishing, Accessed at WWW: <http://www.oecd.org/innovation/inno/50586251.pdf>
- Agenda.ge (2015) “New laboratory turns dreams into reality for Tbilisi entrepreneurs”, News agency, Accessed at WWW: <http://agenda.ge/news/46271/eng>
- Blikstein, P. (2013). “Digital Fabrication and ‘Making’ in Education: The Democratization of Invention”. In J. Walter-Herrmann & C. Büching (Eds.), *FabLabs: Of Machines, Makers and Inventors*. Bielefeld: Transcript Publishers.
- Cornell University, INSEAD, and WIPO (2015): *The Global Innovation Index 2015: Effective Innovation Policies for Development*, Fontainebleau, Ithaca, and Geneva.
- Cameron, G (1996) *INNOVATION AND ECONOMIC GROWTH*, Centre for Economic Performance London School of Economics and Political Science, London, UK
- Benashvili, G. and Asanidze, N. (2016) *ECONOMIC DEVELOPMENT OF THE SOUTHCAUCASUSEAST-WEST CROSSROAD*, The 2016 WEI International Academic Conference Proceedings

⁴ Small and medium-sized enterprises



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EFFECT OF HUMAN CAPITAL ON ORGANIZATIONAL PERFORMANCE IN HEALTHCARE ORGANIZATIONS

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ABSTRACT

For today's competitive environment, organizations are required to increase their performance continuously in order to survive. Human capital is one of the most important aspects, which increases performance. In this study, the influence of human capital on organizational performance is examined. The study was conducted between November 2016 and January 2017 in private healthcare organizations operating in Istanbul. The sample includes the managers working in healthcare organizations. According to the findings, it is founded that there is a positive but low correlation between human capital and organizational performance. Similarly, according to the managers, human capital influences organizational performance in a positive way, however its affect is relatively low. Depending on these results, it is concluded that managers' awareness related to human capital is not sufficient, and increasing these awareness in further studies is recommended.

Keywords: Human capital, performance, organizational performance, health, healthcare organizations

JEL Codes: M10, O34

1. INTRODUCTION

By globalization, important developments in business world have been occurred, and businesses have started to face with an intensively competitive environment. Today, organizations are dealing with issues of increasing market share, satisfying customer expectations, competing, reducing costs, and operating with low profitability. Therefore, taking these efforts into account, it is possible to argue that increasing organizational performance becomes one of the most important conditions of organizational survival. Organizations, who increase their performance, can obtain competitive advantage, and achieve their goals more easily. One the most important determinants of organizational performance is human capital.

Human capital constitutes the most important part of competitive advantage for most organizations, and it has an important influence on organizational success, performance, and efficiency (Yen, 2013). Human capital also has an important role on healthcare organizations in order to survive, increase performance, and obtain competitive advantage. In this study, it is aimed to reveal the influence of human capital on organizational performance in healthcare organizations.

2. LITERATURE REVIEW

2.1. Human Capital

Human capital refers to the knowledge level, skills, and abilities of the employees in an organization, and it is the main starting point of innovation process (Özaydın, İlhan and Bayrak, 2015). Human capital is one of the most important and valuable assets of an organization, and organizations may achieve important benefits through human capital. Moreover, human capital also helps organizations to become more effective and efficient, and reach organizational goals (Awan and Sarfraz, 2013).

Today, organizations aim to get competitive advantage are using their employees as a competitive instrument. Increasing employee productivity to get higher value and efficiency has become an important and remarkable strategy. Organizations aim to optimize their workforce not only to achieve their organizational goals, but also to execute long-term plans and to achieve sustainability. As a result, organizations apply human capital development programs in order to optimize their workforce. Therefore, organizations are inclined to invest human capital in order to transform and develop their employees to a workforce with appropriate knowledge, skills, and abilities required for highly changing and complex environment. (Marimuthu, Arokiasamy and Ismail, 2009).

2.2. Human Capital and Organizational Performance Relationship

Today, business world emphasizes the importance of organizational performance. There are numerous ways of determining organizational performance (Zehir, Can and Karaboga, 2015). These criteria are classified as financial and non-financial performance measures. Financial performance criteria include profitability, total sales volume, return on investment, and they have been used for long time in organizational performance measurement. However, these criteria are criticized by authors due to their certain shortcomings, such as not completely reflecting the performance. Therefore, organizations, in addition to financial criteria, also use non-financial indicators such as product quality, customer and employee satisfaction, and innovation (Erdem, Gökdeniz and Met, 2011).

Human capital influences organizational performance positively, and provides competitive advantage through increasing organizational performance. Human capital investments have become important parts of organizational performance increasing methods (Marimuthu, Arokiasamy and Ismail, 2009). According to the studies, there is a positive relationship between human capital and organizational performance. For instance, Sharbati, Jawad, and Bontis (2010) found a positive relationship between human capital and organizational performance. Moreover, Crook et al. (2011) suggest that human capital positively influences organizational performance. Drawing on the literature reviewed and the empirical studies above, the following hypotheses are developed:

H1: There is a positive relationship between human capital and organizational performance.

H2: Human capital influences organizational performance positively.

3. DATA AND METHODOLOGY

The study was done between November 2016 and January 2017 in private healthcare organizations operating in Istanbul. The sample of the study involves the managers working in these organizations. Data were collected through using surveys, and 102 survey forms were collected. The survey used in the study has three parts. First part is based on demographic information. Second part is based on determining managers' perception about human capital structure in their organization. In the development of the second part, we relied on the studies done by Topaloğlu and Bayrakdaroğlu (2012) and Yıldız (2011). Third part is based on determining managers' perception about organizations' performance. In the development of this part, we relied on the studies done by Küçük and Kocaman (2014), and Zerenler (2005). Statements in the survey are based on 5-point Likert scale (Totally Disagree, Disagree, Neither Agree nor Disagree, Agree, Totally Agree).

In the data analysis process, descriptive statistics were calculated. In determining construct validity of human capital and organizational performance scales, Exploratory Factor Analysis (EFA), and Confirmatory Factor Analysis (CFA) were used. Moreover, fit indices were calculated as well. In order to determine the reliability of the scale, Cronbach's Alpha coefficient was calculated. In addition, Pearson correlation and regression analyses were used to determine the relationship between human capital and organizational performance. The results were evaluated in 95 percent confidence interval, and 5 percent significance level.

4. FINDINGS AND DISCUSSIONS

53 (52 percent) of the managers participated in the study are lower-level managers, 36 are middle level managers (35.3 percent), 13 (12.7 percent) are top managers. 20 (19.6 percent) of them are working for 1-3 years in their organization, 25 (24.5 percent) are working for 4-6 years, 19 (18.6 percent) of them are working for 7-9 years, and 38 (37.3 percent) are working for 10 or more years in their organizations.

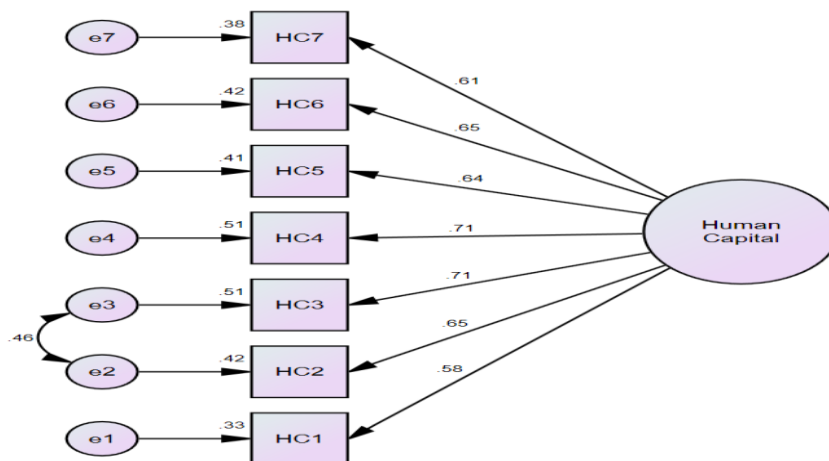
Table1: Exploratory Factor Analysis about Human Capital

Items	Factor Loadings
HC3. Employees are eager for teamwork.	.80
HC4. Employees feel that they belong to the organization, and their commitment is high.	.76
HC2. Employees use their time efficiently, and show high performance.	.76

HC6. Employees don't avoid taking risks to succeed	.70
HC5. Employees are willing to share their knowledge and abilities with their peers.	.70
HC7. There is an effective communication between managers and employees.	.66
HC1. Each employee has unique knowledge, in addition to being creative and innovative.	.63

KMO and Bartlett tests were applied to determine the appropriateness of data set. KMO score was found to be 0.83, and Bartlett test was found to be significant ($p < 0.01$). Findings of the exploratory factor analysis are given in Table 1. After factor analysis, statements were grouped under a single factor with seven statements, which explains 51.62 percent of the total variance.

Figure 1: Confirmatory Factor Analysis on Human Capital



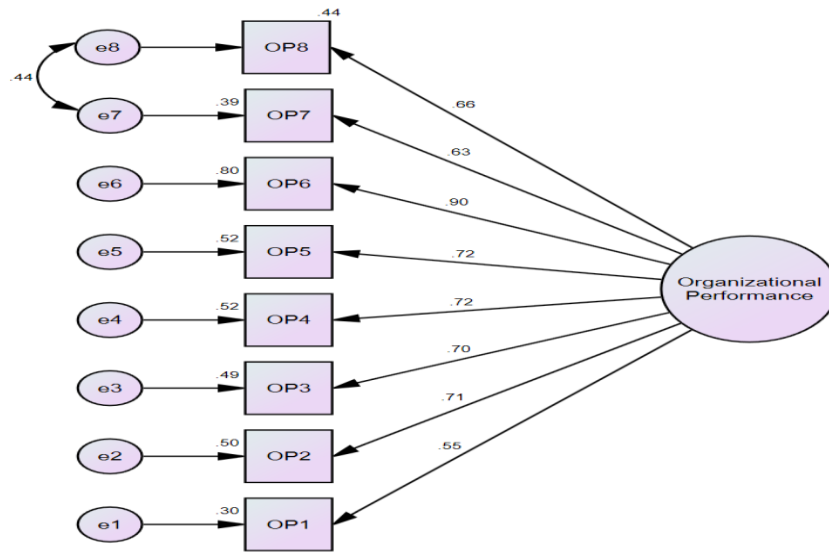
Confirmatory factor analysis is done in order to evaluate whether the 7-items structure of the human capital is confirmed or not. The obtained model is given in Figure 1. Fit indices are found to be as CMIN/df=1.64, NFI=0.92, IFI=0.97, TLI=0.94, CFI=0.97, RMSEA=0.08. According to these results, it is concluded that the fit indices are sufficient. Cronbach's Alpha coefficient, which is calculated to determine reliability of the scale, is found to be as 0.84, which indicates that internal reliability of the scale is high.

Table 2: Exploratory Factor Analysis about Organizational Performance

Items	Factor Loadings
OP6. Our organization has a higher level of goal achievement	.88
OP4. Market share of our organization is high.	.78
OP2. Quality of our products and services are high.	.77
OP5. Our organization has high level of efficiency.	.75
OP8. Our organization has high level of profit.	.74
OP3. Our organization has a higher level of success related to developing new products and services.	.73
OP7. Our organization has a high sales volume.	.72
OP1. Our organization has a higher level of patient satisfaction level.	.60

KMO and Bartlett tests were applied to determine the appropriateness of data set. KMO score was found to be as 0.89, and Bartlett test was found to be significant ($p < 0.01$). Findings of the exploratory factor analysis are given in Table 2. Depending on the results of factor analysis, statements were grouped under a single factor with eight statements, which explains 56.05 percent of the total variance.

Figure 2: Confirmatory Factor Analysis on Organizational Performance



Confirmatory factor analysis is done in order to evaluate whether the 8-items structure of the human capital is confirmed or not. The obtained model is given in Figure 2. Fit indices are found to be as CMIN/df=1.55, NFI=0.93, IFI=0.97, TLI=0.96, CFI=0.97, RMSEA=0.07. According to these results, it is concluded that the fit indices are sufficient. Cronbach’s Alpha coefficient, which is calculated to determine reliability of the scale, is found to be as 0.88, which indicates that internal reliability of the scale is high.

Table 3: Correlation Analysis

		Human Capital
Organizational Performance	Pearson Correlation	.208*
	Sig. (2-tailed)	.036
	N	102

*. Correlation is significant at the 0.05 level (2-tailed).

According to the correlation analysis given in Table 3’, there is a significant and positive, but low relationship between human capital and organizational performance (r=0.208).

Table 4: Influence of Human Capital on Organizational Performance

Independent Variable	Unstandardized Coefficients	t	Sig.
	B		
(Constant)	3.99	15.68	.000
Human Capital	0.16	2.13	.036
	R ² = 0.043		
	F= 4.52		
	Sig.=0.036		

Dependent Variable: Organizational Performance

According to the regression analysis given in Table 4, human capital influences organizational performance both positively and significantly (β=0.16, t=2.13, F= 4.52, p<0.05). 4.3 percent of the variance in organizational performance is explained by human capital (R²=0.043). These results indicate that human capital is an antecedent of organizational performance, however its determining magnitude is low.

When Table 3 and Table 4 are examined, it is seen that hypotheses H1 and H2 are accepted. According to the results, it was found that there is a positive but low relationship between human capital and organizational performance. Similarly, it is concluded that human capital affects organizational performance positively, whereas its effect is low. This situation can be explained with managers' lack of awareness related to the importance of human capital. However, in another study done in different sector, the relationship between human capital and organizational performance was found to be both positive and higher. Moreover, the influence of human capital on organizational performance was also be found higher in that study (Samad, 2013).

5. CONCLUSION

Intense competition within the healthcare sector, cost pressures, and increase in the expectations of patients have been forcing healthcare organizations to increase their performance. Together with highly skilled employees, investments on human capital, which is an antecedent of organizational performance, will increase organizational performance. Therefore, healthcare organizations, which are labor-intensive businesses, are required to perform appropriate and effective plans on human capital. Moreover, managers' awareness and perceptions about human capital must be increased as well. One limitation of this study is that it has a limited sample. However, this study has significance in terms of demonstrating the importance of human capital, and its relationship with organizational performance. For further studies, including higher sample sizes is recommended.

REFERENCES

- Awan, M.A.S., Sarfraz, N. 2013, "The Impact of Human Capital on Company Performance and the Mediating Effect of Employee's Satisfaction", *IOSR Journal of Business and Management*, Vol.8, Issue.2, pp.76-82.
- Crook, T.R., Todd, S.Y., Combs, J.G., Woehr, D.J., Ketchen Jr, D.J. 2011, "Does Human Capital Matter? A Meta-Analysis of the Relationship Between Human Capital and Firm Performance", *Journal of Applied Psychology*, Vol.96, No.3, pp.443-456.
- Erdem, B., Gökdeniz, A., Met, Ö. 2011, "The Relationship Between Innovation and Organizational Performance: A Research in Five-Star Hotels in Antalya", *Dokuz Eylul University Faculty of Economics and Administrative Sciences Journal*, Vol.26, No.2, pp.77-112.
- Küçük, O., Kocaman, G. 2014, "The Relationship between Customer Orientation, Innovation Orientation and Business Performance: An Implementation", *The Journal of Academic Social Science Studies*, Number: 29 , pp. 37-52.
- Marimuthu, M., Arokiasamy, L., Ismail, M. 2009, "Human Capital Development and Its Impact on Firm Performance: Evidence from Developmental Economics", *The Journal of International Social Research*, Vol. 2/8, pp.265-272.
- Özaydın, M.M., İlhan, E., Bayrak, M.R. 2015, "An Alternative Approach to Permanent Improvement of Intellectual Capital and Human Resources: Investors in People (IIP)", *Journal of Yasar University*, 10/40, pp. 6645-6659.
- Samad, S. 2013, "Assessing the Contribution of Human Capital on Business Performance", *International Journal of Trade, Economics and Finance*, Vol. 4, No. 6, pp.393-397.
- Sharabati, A.A.A, Jawad, S.N, Bontis, N. 2010, "Intellectual Capital and Business Performance in The Pharmaceutical Sector of Jordan", *Management Decision*, Vol. 48, No. 1, pp.105-131.
- Topaloğlu, E.E, Bayrakdaroğlu, A. 2012, "The Effects of Intellectual Capital on the Turkish Banking Sector and A Research on this Issue", *Electronic Journal of Social Sciences*, Volume:11, Issue:41, pp.332-352.
- Yen, Y.F. 2013, "The Impact of Bank's Human Capital on Organizational Performance: How Innovation Influences Performance", *Innovation: Management, Policy & Practice*, Vol.15, Issue.1, pp.112-127.
- Yıldız, S. 2011, "The Effect of Intellectual Capital on Business Performance: A Research in Banking Sector", *Anadolu University Journal of Social Sciences*, Vol.11, No.3, pp.11-28.
- Zehir, C., Can, E., Karaboga, T. 2015, "Linking Entrepreneurial Orientation to Firm Performance: The Role of Differentiation Strategy and Innovation Performance", *Procedia-Social and Behavioral Sciences*, 210, pp.358-367.
- Zerenler, M. 2005, "The Performance Measurement System Design and A Study on Performance Measurement of Manufacturing Systems", *The International Journal of Economic and Social Research*, 1, pp.1-36.



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STRATEGIES FOR THE INVOLVEMENT OF NURSES AS ENTREPRENEURS IN HEALTHCARE

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ABSTRACT

Nowadays, entrepreneurship, which is a dynamic factor in all fields to improve the quality of human life, is gaining importance in the health care system with each passing day. This system, which has a very wide area, allows nurses to fulfill their contemporary roles and responsibilities as a professional. Nursing entrepreneurship has a multi-dimensional background. Unlike traditional nursing approaches, entrepreneurship has an important place among contemporary nursing roles and responsibilities. Entrepreneurship is an important source of innovation and creativity. Entrepreneurial nursing is based on the factors such as nursing services, health care products, legal services, health care services/political advice and publications. In this context, entrepreneurship in nursing is accepted in every field, and its recognition is increasing. Consequently, nurses are expected to be entrepreneurs as a change agent in the health care system. However, there are many factors that support and prevent nursing entrepreneurship. This review has been designed to describe the barriers of entrepreneurship in nursing and to present strategies for overcoming these barriers.

Keywords: Entrepreneurship, health care, contemporary roles and responsibilities, nurses

JEL Codes: L21

1. INTRODUCTION

Nowadays, entrepreneurship has become one of the important factors playing a role in economic development with the rapid development of technology, the transition from the industrial society to the information society and the ease of access to information. In recent years, entrepreneurship has become increasingly important in the world and in our country. The facts that entrepreneurship increases employment in the developed and developing countries, provides economic development and increases the social and individual living standards are among the most important reasons for this situation (Ekici, 2016; Rahman and Day, 2014). Nowadays, the concepts of enterprise, entrepreneur and entrepreneurship have also come to the forefront in our country as well as all over the world in order to provide individual and social welfare and to increase the quality of life.

2. THE CONCEPTS OF ENTERPRISE, ENTREPRENEUR AND ENTREPRENEURSHIP

Although there are many definitions of enterprise, entrepreneurship and entrepreneur in the literature, the first definition of entrepreneurship and entrepreneur made by Richard Cantillon in 1755 is widely accepted (Korkmaz, 2012). Enterprise, which is a French-derived word "enterprender/ entrepreneur", refers to the state of going into action, starting and attempting to perform an action. Entrepreneur is used in the meaning of an enterprising person in such a situation. According to Cantillon, entrepreneur is defined as a person who organizes the business in order to make profit and undertakes the risks of the business. Entrepreneurship is defined as a concept that includes entrepreneurs' whole processes of taking risks, watching for opportunities, putting into practice and making innovation by devoting the necessary time and effort (Arslan and Şener, 2012; Öztürk et al., 2014; Taysı and Canbaz, 2014; Yılmaz and Sünbül, 2009). In the literature, entrepreneurship is also used in the meaning of working independently (self-employment) or starting to a work. Entrepreneurship aims to take advantage of the emerging opportunities or to create new opportunities. In this sense,

entrepreneurship is a process for the creation and follow-up of opportunities independently of whether or not resources are controlled (Mungan, 2013). The concept of entrepreneurship has four main components. These are being innovative and creative, risk taking, pioneering and competitive thinking. Being innovative and creative refers to seek creative, unusual and new solutions to the problems and requirements. Risk is a decision-making feature and defines the uncertainty of the outputs to be achieved as a result of the implementation of decisions. Pioneering refers to take responsibility and go into action by taking the necessary decisions instead of following others. Competition creates a healthy environment both for institutions and consumers. Competition ensures that entrepreneurs produce quality products, work efficiently and are consumer-oriented in order to be able to exist (www.hbogm.meb.gov.tr). Although entrepreneurship entering into the economy literature starting from the eighteenth century has showed its effects for the implementation of technological developments, this concept has scarcely been included in other literatures (Taysı and Canbaz, 2014). However, entrepreneurship emerging with the combination of bio-physiological, socio-cultural, psychological and technological items develops by the fact that individuals have a high entrepreneurial motivation and entrepreneurial spirit and enthusiasm for entrepreneurial activities (Korkmaz, 2012). Therefore, entrepreneurship should be the field of interest of other fields, especially health and education, not only the field of economy.

2.1. Importance of Entrepreneurship

Entrepreneurship initiates and develops change in the structure of business administration and society, thus it contributes to the growth of entrepreneurial activities as well as playing important roles in terms of the economic progress and social development of a country (Ekici, 2016). Entrepreneurship has a strategic significance for developing economies. Because the ways to gain profit, to activate the unused potential and to create new business districts are to encourage entrepreneurs (Korkmaz, 2012; Yılmaz and Sünbül, 2009). Entrepreneurship also involves many important factors such as the increase in production, productivity and income level, the developments in health care system, developments in education, developments in knowledge and technology (Gözek, 2006).

In particular, important countries that have realized that entrepreneurship act as an important engine for economic growth, innovation and competitiveness have increased the number of entrepreneurs. The United States is the most important country among them.

2.2. Characteristics of Entrepreneur

To be able to adapt to the competitive environment and survive advantageously along with the technology, that has made progress at an unprecedented pace in the globalizing world, depends on the degree of economic development. In this sense, one of the dynamic elements that keep the economies alive is entrepreneurs (Taysı and Canbaz, 2014). Entrepreneurs play a key role in recognizing the requirements of the community and turning them into investment and social welfare as an added value. Therefore, entrepreneurs should have certain characteristics in order to become entrepreneurs. There is a close relationship between the success in entrepreneurship and the personal characteristics of entrepreneurs (Yılmaz and Sünbül, 2009).

Unlike the other people, entrepreneurial individuals have characteristics such as having a strong desire for success, being devoted to freedom, being planned, being able to take risks, to take responsibility, being dynamic, having a rich subconscious and imaginative ability, being open to innovation and change, and having personal mission and vision. Entrepreneurs without these characteristics cannot be successful (Arslan and Şener, 2012; Mungan 2013; Öztürk et al. 2014; Yılmaz and Sünbül, 2009).

The most important element that leads the individual to become an entrepreneur and makes him/her successful in this regard is the entrepreneurial capacity. People prove their abilities or show their creativity through this capacity they have, and thus they can manage their professional life (Öztürk et al., 2014).

Along with the fact that entrepreneurship has increasingly become more important in societies, what the factors that trigger the tendency of entrepreneurship in individuals are has become an issue of concern in academia. In this context, the personal, demographic and environmental factors affecting the entrepreneur's personality and entrepreneurial personality have been primarily emphasized (Ekici 2016; Karabulut 2009). These factors can be sorted as age, gender, education, educational status of mother and father, the birth order in the family, the occupational ideal, the presence of entrepreneur in the family and the income level of the family (Ekici, 2016; Akşit, 2003; Avşar, 2007).

According to Russel (1997), entrepreneurial activities play a key role in the emergence of new enterprises. On the other hand, socio-cultural factors can support or inhibit the activities of entrepreneurs. Social values, beliefs and norms are the starting points for the emergence of new initiatives. Individuals' perceptions on entrepreneurship are formed in this environment where they exist. Therefore, the socio-cultural and environmental dimensions of the individual directly affect the entrepreneurship and entrepreneurship practices.

3. NURSING AND ENTREPRENEURSHIP

The health care system is one of the most dynamic systems in terms of service delivery. In particular, the rapidly increasing population activates the entrepreneurs in this field and prompts for different pursuits to provide quality care services in the health care system. As a consequence, entrepreneurship is gaining importance in the healthcare system with each passing day. (Öztürk et al.,2014).

This system, which has a very wide scope, allows nurses to fulfill their contemporary roles and responsibilities as a professional. However, as a result of the wrong policies applied for the effective use of healthy human power, the need for qualified professional health care manager could not be foreseen at the right time, as in the nursing profession, so this requirement has not been met. However, nurses constitute the members of the health care team with whom the healthy/sick person establishes the most frequent and long-term communication within the interdisciplinary structure of the health service delivery (Dayhoff and Moore, 2005; Dolu et al., 2016).

Nursing entrepreneurship has a multi-dimensional background. Unlike traditional nursing approaches, entrepreneurship has an important place among contemporary nursing roles and responsibilities (Dolu et al. 2016). In terms of nursing profession, nursing is defined as "the nurse's supervision regarding the patient care and practices" (ICN, 2004). Entrepreneur nurse is the person who directly provides nursing services such as care, education, research, management or counseling (Arslan and Şener, 2012). One of the identified segments of entrepreneurship is the nurse entrepreneur, where an autonomous independent nurse works directly with patients in a private practice setting (Smith 1996). It is known that nurse entrepreneurs suggestion is a cost-effective alternative for specific types in health care services (Cook, 2005).

Entrepreneurship improves the skills of nurses in the working environment and contributes to their personal lives. Entrepreneurship is also an important part of decision making in the process of career planning and development of nurses (Arslan and Şener, 2012).

Nowadays, rapidly developing medical and technological developments as well as the capital limitations in front of nursing entrepreneurship, inexperience in business, inadequate professional support, the attitudes of other health professionals and legal barriers make innovation compulsory and create an opportunity for nursing entrepreneurship (Bemis, 2008; Dolu et al., 2016; Austin et al., 2006).

3.1. Characteristics of Entrepreneur Nurse

Entrepreneurship is an important source of innovation and creativity (Yelkikalan et al., 2010). The belief that human is not born as an entrepreneur and that the individuals has been provided with the existing potential by cultural, sociological, psychological, political and economic environmental factors has become widespread while the discussions of "Is entrepreneurship inherent or does it come into existence afterwards?" has been made (Bozkurt, 2011).

When the literature is examined, it is seen that the entrepreneurial aspects of nurses are affected by their individual (strong personality and the power of faith, being able to take risks, being creative and enterprising, being able to dream, to be honest, reliable, patient and enthusiastic, to be planner and organizer, to be able to foresee the future) and occupational characteristics (experience, knowledge, communication skills, reconciliation, time management).To develop a new product to improve patient care and to market it can be given as an example for entrepreneur nursing (Arslan and Şener, 2012).

The roles and responsibilities such as nursing services, health care products and appliances, legal services, health services/political consultancy and political publications are on the basis of entrepreneur nursing. In this context, the concept of entrepreneurship in nursing is accepted in all fields and its recognition is increasing (Arslan and Şener, 2012; Wilson et al., 2003).

Nowadays, entrepreneur nurses are in various positions outside the hospital environment. Counseling works, training companies, home/health companies/agents, assistance-based life and day care institutions for adults, child care centers, community clinics, durable medical equipment companies, writing-publishing work places and health care product companies are the main fields among them (Arslan and Şener, 2012).

4. CONCLUSION

The development of entrepreneurship includes the dissemination of entrepreneurship trainings and the development of entrepreneurship characteristics of individuals. Therefore, it is thought that the individual entrepreneurship levels of nurses and the factors affecting nurse entrepreneurship should be determined in the development of health care services and in the formation of innovative programs. In this context, it is recommended to; develop an entrepreneurial and aggressive nurse student profile as an important model, regulate the curriculum teaching practices in nursing faculties/colleges with an understanding that supports innovation, organize in-service programs, trainings, seminars and conferences on entrepreneurship for nurses.

REFERENCES

- Akşit, G. (2003). *Farklı Kültürlerde Girişimcilik Niyeti ve Üniversite Öğrencilerine Yönelik Karşılaştırmalı Bir Araştırma [The Study of the Entrepreneur Intention in Different Cultures: An Application to University Student]* (yayınlanmamış yüksek lisans tezi). Akdeniz Üniversitesi/Sosyal Bilimler Enstitüsü, Antalya.
- Arslan, H, Şener DK. (2012). Hemşirelikte yeni ve önemli bir kavram: girişimcilik [A new and important concept in nursing: entrepreneurship]. *İ.Ü.F.N. Hem. Derg* 20(2): 140-145.
- Austin, L., Luker, K. Roland, M. (2006). Clinical nurse specialists as entrepreneurs: constrained or liberated. *J Clin Nurs* 15(12): 1540-1549.
- Bemis, P.A. (2008). Obstacles to nurse entrepreneurship. *RN* 71(12): 21-22.
- Boore, J. Porter, S. (2011). Education for entrepreneurship in nursing. *Nurse Educ Today* 31(2): 184-191.
- Bozkurt, Ö.Ç. (2011). *Dünyada ve Türkiye’de Girişimcilik Eğitimi: Başarılı Girişimciler ve Öğretim Üyelerinden Öneriler [Entrepreneurship Education in the World and in Turkey: Proposals from Successful Entrepreneurs and Faculty Members]* Ankara: Detay Anatolia Akademik Yayıncılık Ltd. Şti.
- Cook, R. (2005). Community nursing in the 21st century: Who, where, what, how? *British Journal of Community Nursing* 10(7): 306–311.
- Dayhoff, N.E., Moore, PS. (2005). CNS Entrepreneurs: innovators in patient care. *Nurse Practitioner*, 6-8.
- Dolu, İ.Ç, Temuçin, E.D.,Özkan,H.A. (2016).Hemşirelik öğrencilerinin girişimcilik düzeyleri ile bazı ilişkili faktörlerin değerlendirilmesi. [Assessment of the entrepreneurial characteristics and some related factors of nursing students] *JED/GKD* 11(2): 293-315.
- Ekici, E. (2016). *Üniversite Öğrencilerinin Girişimcilik Eğilimini Belirlemede Planlanmış Davranışlar Teorisi ve Girişimcilik Eğitiminin Rolü. [Measurement of University Students’ Entrepreneurship Intention : The Role of the Theory of Planned Behavior and Entrepreneurship Education]* (Yayınlanmamış yüksek lisans tezi), Çukurova Üniversitesi/ Sosyal Bilimler Enstitüsü Yönetim ve Organizasyon Anabilim Dalı, Adana.
- Gözek, S. (2006). *Girişimci Adayının Özellikleri, Girişimcilik Eğilimleri ve Girişimci Adayına Sağlanan Destekler, [The Entrepreneur Candidate’s Specialities, their Entrepreneur’s Propensity and Supports which is Provided for the Entrepreneurs]* (Yayınlanmamış yüksek lisans tezi), Sütçü İmam Üniversitesi/Fen Bilimleri Fakültesi, Kahraman Maraş.
- <http://hbogm.meb.gov.tr/aol/kitaplar/aol/2014/girisimcilik1/unite1.pdf>.
- International Council of Nurses (ICN) (2004). *Guidelines on the Nurse Entre/Intrapreneur Providing Nursing Service*. Geneva, 1-33.
- Karabulut, A.T. (2009). Üniversite öğrencilerinin girişimcilik özelliklerini ve eğilimlerini belirlemeye yönelik bir araştırma [A study to determine the entrepreneurial characteristics and intentions of college students]. *Marmara Üniversitesi İ.İ.B.F. Dergisi* 26 (1): 1-18.
- Korkmaz, O. (2012). Üniversite öğrencilerinin girişimcilik eğilimlerini belirlemeye yönelik bir araştırma: Bülent Ecevit Üniversitesi örneği [Research on determining the entrepreneurialism inclination of university students: Bülent Ecevit University example]. *Afyon Kocatepe Üniversitesi, İİBF Dergisi*, XIV(II): 209-226.
- Mungan, S. (2013). *Kadın Girişimcilik Değerleri İle Kadın Girişimcilik Algısı Arasındaki İlişkide Girişimcilik Eğitimlerinin Rolü [Role of Entrepreneurship Trainings on the Relations Between Woman Entrepreneurship Values and Woman Entrepreneurship Perception]* (Yayınlanmamış yüksek lisans tezi), Marmara Üniversitesi/Sosyal Bilimler Enstitüsü İşletme Anabilim Dalı Yönetim ve Organizasyon Bilim Dalı, Mersin.
- Öztürk, Y.E., Köksal, O., Kırac, R. (2014). Sağlık yönetimi bölümü öğrencilerine yönelik girişimcilik ölçeğinin geliştirilmesi [Development of entrepreneurship scale for students of health management department]. *International Journal of Human Sciences*, 11(2): 582-597.
- Smith, S. (1996). Independent nurse practitioner: Advanced nursing practice in Brisbane. *Australia. Nursing Clinics of North America*. 31(3): 549–564.
- Taysı, K., Canbaz, S. (2014). Önlisans öğrencilerinin girişimcilik özelliklerini ve eğilimlerini belirlemeye yönelik bir araştırma [A research on identifying entrepreneurship qualities and tendencies of the students of associate degree]. *Electronic Journal of Vocational Colleges*. 59-67.
- Wilson, A., Averis, A. Walsh, K. (2003). The influences on and experiences of becoming nurse entrepreneurs: a Delphi study. *International Journal of Nursing Practice*. 9(4): 236-245.
- Yelkikalan, N., Akatay, A., Yıldırım, H.M., Karadeniz, Y., Köse, C. Koncagül, Ö. (2010). Dünya ve Türkiye üniversitelerinde girişimcilik eğitimi: karşılaştırmalı bir analiz [Entrepreneurship Education in World and Turkish Universities: A Comparative Analysis]. *KMÜ Sosyal ve Ekonomik Araştırmalar Dergisi*, 12(19): 51-59.
- Yılmaz, E., Sünbül, A.M.(2009). Üniversite öğrencilerine yönelik girişimcilik ölçeğinin geliştirilmesi [Developing scale of university students entrepreneurship]. *Selçuk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*. 21: 195-203.



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THE RELATIONSHIP BETWEEN FINANCIAL DEVELOPMENT AND ENTREPRENEURSHIP: PANEL DATA ANALYSIS

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ABSTRACT

Entrepreneurship has been one of the most popular topics in recent years due to its continuing dynamism in the Modern Market Economy. Many recent studies investigate the financial obstacles and difficulties in the establishment of new companies and commercial entities. The purpose of this research is to define entrepreneurship and entrepreneurship concepts in detail, while explaining financial factors and financial mechanisms at the forefront of environmental factors affecting entrepreneurship in the world. Besides, what are the obstacles to entrepreneurship, and how entrepreneurship is influenced by the financial barriers will be explained. The aim is to reduce the number of entrepreneurs who obstruct the economic development. This study assumes that there is a positive relationship between entrepreneurship and four financial factors which are affordability of financial services, ease of access to loans, venture capital availability, and soundness of banks. In this context, four hypotheses related to these factors will be tested by population averaged panel data analysis.

Keywords: Entrepreneurship, financing, capital.
JEL Codes: M30

1. INTRODUCTION

Entrepreneurship has been one of the most popular topics in recent years, due to its continuing dynamism in the Modern Market Economy and its contribution to economic growth. Three important alterations which are increase in employment, empowered economy and general acceptance of entrepreneurship in the field of academy boost the popularity of entrepreneurship currently. Business investments have a critical impact on productivity of countries. For this reason, economies demand developed and multi-faceted financial markets to provide sources for new investments. Having an effective financial sector; countries should encourage foreign entrepreneurs as well as they support their own local entrepreneurs. Financial markets must be in line with the regulations essential to protect entrepreneurs and other actors of the economy. By attracting the market with the highest return rates, countries should allocate resources to support the initiatives and projects of potential investors.

2. LITERATURE & HYPOTHESES

2.1. Literature Review

After literature review, it is realized that among many dynamics influencing entrepreneurship, the most effective dynamics of an entrepreneur's movement is financial dynamics. Considering financial impacts on entrepreneurship, academic studies have dealt with some dimensions of financing constraints and barriers.

Financial barriers to entrepreneurship vary according to the development of economies. Most common barriers are property right protection and investment financing. Strong protection of property rights impacts entrepreneurship highly positively (Aids R., Estrin S., Mickiewicz T., 2010). On the contrary, North has argued that the insecurity of property rights could result in little fixed capital and small firms sector (North 1990,p.65).

High developed economies are more dependent on financing of investments than poor economies because strong institutional environment affects entrepreneurship affirmatively (Aids R., Estrin S., Mickiewicz T., 2010). Glaeser states that where institutions are small and weak, entrepreneurship activities could be restricted and it may cause lack of efficiency (Glaeser et al., 2003;Johnson at al., 1997;Baumol, 1990).

According to Paulson's research, lots of households report that they do not invest due to lack of funds. Business start ups are closely related with wealth of potential entrepreneurs. If entrepreneurial households expand their business, they can undertake profitable opportunity but most of entrepreneurs have no enough money to do so. (Paulson, 2004).

For some ventures, investment is sensitive to cash flows. Financial constraints may mean that entrepreneurs are unable to borrow, or can borrow only a limited amount of money to invest. Less dependence on the availability of outside funding is more advantageous for entrepreneurs (Fazzari, et al.,1988).

In this study, what are the obstacles to entrepreneurship, and how entrepreneurship is influenced by the financial barriers will be explained. The focus is by using new data and approach providing evidence for the relationship between the financial constraints and entrepreneurial activity.

The aim of this study is to reduce the number of entrepreneurs who obstruct the economic development and to prevent the ventures that may have growth problems to increase success of new entrants. To examine how financial factors impact entrepreneurial activities, we asked "How does countries' financial market development affect entrepreneurship?" as a key question of this research.

2.2. Hypotheses

The major sources for new investments are strong and trustworthy bank loans, well-regulated securities exchange stocks and venture capital. This study assumes that there is a positive relationship between entrepreneurship and four financial factors which are affordability of financial services, ease of access to loans, venture capital availability, and soundness of banks. In this context, four hypotheses related to these factors will be tested by panel data analysis.

H1: *The more affordable the financial service is, the higher entrepreneurship rate is.*

Knowing to what extent are financial services affordable for businesses is important for who are new business investors. Especially for poor entrepreneurs do not have enough money for investments; this financial factor can be a vital constraint that prevents new ventures. We can assume that high affordability of financial services could increase the entrepreneurship rate and affect start up projects positively.

H2: *The higher the ease of access to loans, the higher the entrepreneurship rate is.*

Bank loans are an important source of financing for new businesses and expanding existing ventures. The World Economic Forum's Global Competitiveness Report, which collects data through executive opinion surveys, provides insight on individuals' views on access to bank loans in different countries. The World Economic Forum data shows that financing of banks becomes more difficult to obtain between 2007 and 2010 in all countries because of the financial crisis.

Paravisini (2008) shows in the context of Argentina that banks not only face frictions in their access to external financing, but that these frictions prevent them from undertaking profitable investment opportunities in the real economy. Banerjee and Duflo (2008) have similar findings in the context of a directed lending program in India.

Our variable: ease of access to loans describes how easy is it to obtain a bank loan with only a good business plan and no collateral. Besides access to loans; reaching strong and trustworthy loans is important. In order to do so, the finance sector requires being reliable, transparent, and clear.

H3: *The more available the venture capital, the higher the entrepreneurship rate is.*

Venture capital states the level of investment performed by venture capital firms towards young businesses in seed and start-up phases. Venture capital availability illustrates how easy it is for start-up entrepreneurs with innovative but risky projects to get equity funding.

Venture capital differs significantly among countries and is very sensitive to market cycles in terms both of amounts invested and stages of investment. Regarding current financial environment, venture capital funds may invest in later stages, leaving gaps at stages where profit expectations are less clear and risk is extremely higher.

H4: *The higher the soundness of banks, the higher the entrepreneurship rate is.*

Banks were more efficiently run in low and middle-income countries than in high-income countries.(Navajas M. C. and Thegeya A., 2013) Soundness of banks helps the development of the quality of assets and soundness helps to establish typical standards for banks of different size classes, location, deposit composition, etc. (Riefier W., Friday D.,1937)

In this study, the soundness of banks describes how do you assess the soundness of banks.

This paper continues as follows. Section 3 represents the data & methodology and the logic behind why the variables are chosen for this study. 4 hypotheses will be tested in this part. Section 4 will discuss the results of the study and Section 5 brings in helpful insights and conclusions to the literature and briefly mentions the limitations of the study.

3. DATA AND CONSTRUCTION OF VARIABLES

3.1. Data

The sample of data that we use in our analyses is constructed by merging data from four sources, including the World Bank, Global Competitiveness Report database. We did not restrict construction of our sample to a group of countries. However, due to missing data on several variables, our analyses are based on a sample that covers data on 87 countries for the years between 2004 and 2014. Our sample consists of 87 countries. Therefore, we feel that our final sample fairly represent the entire population of interest.

In our study, we explore a balanced panel data of 10 years. We prefer panel data, since by blending the variation over time and variation over dynamics we can realize estimates of unobservable country effects. This analysis has several advantages over cross-sectional or time-series data. (Hsiao)

Table1: Summary Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max	Data Source
1 New business density (log)	661	0,64	1,31	-3,67	3,48	World Bank
2 Affordability	326	4,31	0,85	2,01	6,02	Global Competitiveness Index
3 Loan	661	3,23	0,92	1,50	5,51	Global Competitiveness Index
4 Venture capital	661	3,04	0,85	1,44	5,39	Global Competitiveness Index
5 SBNK	661	5,34	0,90	1,44	6,90	Global Competitiveness Index
6 GDP (log)	655	25,14	1,82	20,44	29,36	World Bank
7 Total tax rate	661	40,58	18,06	7,40	137,40	Global Competitiveness Index
8 Labor market efficiency	653	4,40	0,53	2,79	5,95	Global Competitiveness Index
9 Num. procedures to start bus.	644	7,47	3,44	1,00	18,00	Global Competitiveness Index
10 Inflation	647	4,94	4,50	-4,86	44,39	World Bank
11 Quality of higher education	653	4,31	0,92	1,90	6,22	Global Competitiveness Index

Table 1 presents the summary statistics of our sample. We first utilize multilevel linear modeling and maximum likelihood estimation technique to analyze the relationship between financial dimensions and new business density. The analysis accounts for the standard deviations which are associated with the overall error term. (Rabe-Hesketh and Skrondal, 2012; STATA Documentations, 2015).

3.2. Entrepreneurship Rate

The dependent variable of this study is entrepreneurship rate. The World Bank data represents the entrepreneurship rates of countries for 2016. These rates differ from one country to another. This variable indicates how many entrepreneurs from every hundred people are in one country. The entrepreneurship ratio is calculated by dividing the number of new entrants entering the market during the year by the total number of firms.

3.3. Independent Variables

To test the hypotheses, the Global Competitiveness Report 2016 (WEF, 2015-2016) data is used.

The affordability of financial services: This variable measures that in one country, to what extent are financial services affordable for businesses? [1 = not affordable at all; 7 = affordable] | 2013–14 weighted average (WEF, 2015-2016).

Ease of access to loans: This variable measures that in one country, how easy is it to obtain a bank loan with only a good business plan and no collateral? [1 = extremely difficult; 7 = extremely easy] | 2013–14 weighted average (WEF, 2015-2016).

Venture capital availability: This variable measures that in one country, how easy is it for start-up entrepreneurs with innovative but risky projects to obtain equity funding? [1 = extremely difficult; 7 = extremely easy] | 2014–15 weighted average (WEF, 2015-2016).

Soundness of banks: This variable measures that in one country, how do you assess the soundness of banks? [1 = extremely low—banks may require recapitalization; 7 = extremely high—banks are generally healthy with sound balance sheets] | 2014–15 weighted average (WEF, 2015-2016).

3.4. Control Variables

GDP (log): This variable states the gross domestic product valued at purchasing power parity in billions of international dollars.

Total Tax Rate: The total tax rate measures the amount of taxes and mandatory contributions payable by a business in the second year of operation, expressed as a share of commercial profits. The total amount of taxes is the sum of five different types of taxes and contributions payable after accounting for deductions and exemptions: profit or corporate income tax, social contributions and labor taxes paid by the employer, property taxes, turnover taxes, and other small taxes.

Labor Market Efficiency: Regarding this variable; efficiency is measured by 8 dimensions which are cooperation in labor-employer relations, flexibility of wage determination, hiring and firing practices, redundancy costs, effect of taxation on incentives to work, pay and productivity, reliance on professional management, country capacity to retain talent, country capacity to attract talent, female participation in the labor force.

Num. Procedures to Start Business: This variable indicates the number of procedures required to start a business.

Inflation: This variable shows the annual percent change in consumer price index (year average).

Quality of higher education: This variable responds the question of how do you assess the quality of primary schools in your country? [1 = extremely poor—among the worst in the world; 7 = excellent—among the best in the world] | 2014 Source: International Monetary Fund, World Economic Outlook Database (April 2015 edition)

Table 2: Correlations

Variables	1	2	3	4	5	6	7	8	9	10	11
1 New business density (log)	1,00										
2 Affordability	0,43	1,00									
3 Loan	0,48	0,78	1,00								
4 Venture capital	0,48	0,79	0,94	1,00							
5 SBNK	0,34	0,60	0,68	0,61	1,00						
6 GDP (log)	0,18	0,52	0,34	0,42	0,27	1,00					
7 Total tax rate	-0,27	-0,09	-0,18	-0,13	-0,13	0,26	1,00				
8 Labor market efficiency	0,47	0,51	0,54	0,55	0,30	0,14	-0,39	1,00			
9 Num. procedures to start bus.	-0,40	-0,25	-0,24	-0,26	-0,15	-0,09	0,32	-0,44	1,00		
10 Inflation	-0,30	-0,40	-0,21	-0,25	-0,17	-0,33	0,07	-0,20	0,28	1,00	
11 Quality of higher education	0,59	0,67	0,58	0,65	0,33	0,61	0,05	0,52	-0,40	-0,42	1,00

Table 2 illustrates the correlations for all variables. Regarding this table, we do not expect to see there is a relationship between our dependent variable (entrepreneurship rate) and our independent variables (affordability of financial services, ease of access to loans, venture capital availability and soundness of banks).

According to Table 2, we realize that the correlation between these variables and the entrepreneurship rate is high and significant and it obligates us to observe this relationship in a multivariate setting. Besides, all explanatory variables are significantly correlated with new business density. The correlation between the variables; total tax rate, num. procedures to start bus., inflation, and the dependent variable seems to be significantly negative, which suggest that their impact on new business density is not much in recent years.

3.5. Model

This study explores ten-year data of 87 countries. In our study, population averaged panel data is used. The population averaged model does not fully specify the distribution of the population, it specifies only a marginal distribution (Nauhaus J. M., 1992). The regression model is stated as follows:

$$y_{it} = \alpha + \beta X_{it} + u_i + \epsilon_{it}$$

In this mentioned model, i represents country and t represents year. y represents the new business density; α is a constant; X_{it} , is a vector of country level variables that includes four dimensions of the financial environment (affordability of financial services, ease of access to loans, venture capital availability and soundness of banks) and control variables (log of GDP, total tax rate, labor market efficiency, num. procedures to start bus., inflation, and quality of higher education). u represents the country specific effect. ϵ is the overall error term and is assumed to have i.i.d. normal distribution. Our estimators eliminate the country specific effect by taking the first difference of all variables in the model.

4. FINDINGS AND DISCUSSIONS

4.1. Regression Estimates

Table 3 presents the regression analyses of our 4 hypotheses. Model 1,2,3 and 4 present the estimate of our variables respectively; affordability of financial services, ease of access to loans, venture capital availability and soundness of banks. Model 1 seems to be highly significant because wald chi. sq.=102,8, $p<0.00$. Model 2 has the value of wald chi sq.=83,45, $p<0$, Model 3 has the value of wald chi sq.=87,18, $p<0$, and Model 4 has the value of wald chi sq.=75,35, $p<0$ as well; so that all the models in that study as a whole appears to be highly significant.

According to Hypothesis 1, the entrepreneurship rate increases as the value of affordability of financial services increases. As our expectation, there is a positive but insignificant relationship between the value of entrepreneurship rate and affordability ($\beta= 0,024$, $p>0,803$) β value is positive but probability is higher than 0,05 which states insignificance. This result suggests that affordability has no significant effect on entrepreneurship rate as we consider.

Especially for low income entrepreneurs, increasing the supply of affordable financial services and credit is required to be strengthened because by doing this, business development initiatives can be expanded and entrepreneurs can be encouraged (Birkenmaier J., Watson S.,2005).

Table 3: Regression Estimates

Variable	Control model		Model 1		Model 2		Model 3		Model 4	
	Coff.	P> z	Coff.	P> z	Coff.	P> z	Coff.	P> z	Coff.	P> z
Affordability			0,024	0,803						
Loan					0,125	0,001				
Venture capital							0,159	0,000		
SBNK									0,064	0,054
GDP (log)	-0,009	0,867	-0,100	0,069	-0,025	0,647	-0,026	0,629	-0,021	0,702
Total tax rate	-0,007	0,068	-0,015	0,001	-0,007	0,044	-0,008	0,032	-0,007	0,064
Labor market efficiency	0,203	0,050	0,150	0,267	0,120	0,251	0,137	0,185	0,182	0,078
Num. procedures to start bus.	0,007	0,601	-0,007	0,739	0,000	0,989	-0,003	0,827	0,003	0,788
Inflation	0,000	0,959	-0,008	0,531	-0,004	0,520	-0,003	0,579	-0,002	0,751
Quality of higher education	0,527	0,000	0,746	0,000	0,508	0,000	0,491	0,000	0,532	0,000
Constant	-2,193	0,098	-0,187	0,885	-1,657	0,204	-1,668	0,198	-2,128	0,103
Observations	625		310						625	
Number of groups	102		98						102	
Wald chi sq.	69		102,88		83,45		87,18		75,35	
Prob > chi sq	0		0		0		0		0	

Hypothesis 2 states that the entrepreneurship rate increases as the value of ease of access to loans increases. There is a positive and significant relationship between the entrepreneurship rate and loan ($\beta=0,125$, $p<0,001$). This result emphasizes that high ease of access to loans has positive impact on the entrepreneurship rates. In competitive markets, firms have enough access to alternative sources of credit for their new investments. Cetorelli argues that high ease of access to loans may foster a more competitive and especially bank- dependent industrial sectors; thereby reducing credit availability to potential start ups who menace to compete with attendends and offer the loans to those incumbents less worthy (Cetorelli, 2001).

Hypothesis 3 proposes that the entrepreneurship rate increases as the venture capital is more available. Since β value is positive and equals to 0,125 and probability is equal to 0,00, the result indicates that there is a positive and significant relationship between the entrepreneurship rate and venture capital.

Start up firms have formed their own venture capital divisions to provide risk capital for expansion and early-stage financing. Venture capital provides companies a portion of their or other owners' interest in the company in exchange for the VCs' backing instead of paying out hard-to-get cash in the form of interest and principal installments.

Hypothesis 4 states that the entrepreneurship rate increases as the value of soundness of banks increases. In our results, β value is 0,064 and $p>0,054$ which means there is a positive but insignificant relationship between the entrepreneurship rate and the soundness of banks.

Banks have respectable effect on especially small and young firms' entrance to markets. In general, there is close link between bank stability and new business creation. Since, strong banks preserve new businesses from negative effects of market competition by overcoming obstacles. Moreover, nonbank financial institutions have become increasingly crucial providers of loans to entrepreneurs; so that, the soundness of banks and robust bank structure become more significant in order to not negatively affected by this new condition (Black S. & Strahan P., 2002).

5. CONCLUSION

Entrepreneurs accelerate the creation, dissemination and implementation of new ideas. An entrepreneur provides benefits to economy in many ways. Entrepreneurs combine production resources by a new manner to make use of unused

production factors to improve productivity while operating existing inputs of the production tools already being used with different methods to increase production. Whether the successes or failures of entrepreneurs are examples for other entrepreneurs and guide them for their attempt to new businesses.

In this paper, after scanning the literature we realize that there are many studies about financial constraints of entrepreneurship, but the methodology and the controlling sample selection we chose for our study is different from the approach of other studies examined. In our study, we try to analyze the relationship between entrepreneurship and financial constraints. The reason why we preferred a disparate approach is to provide unexplored insights for academic background.

After explicating the results of our testing, substantial evidence could be easily attained that financial dimensions have vital importance on start up businesses in countries. Financial barriers and constraints crucially impact the entrepreneurship rates, since returns to business investment tend to increase with wealth and financial development as well as with entrepreneurial talent.

After testing our 4 hypotheses we realized that there is a weak link between our two financial dimensions: affordability of financial services, soundness of banks and the entrepreneurship rate. On the other hand, our analyses provide evidence on the relationship between two other financial dimensions; ease of access to loans and the venture capital availability and the entrepreneurship rate.

In this study, the relationship between the financial environment and entrepreneurship rates is explored. To analyze this relationship, a longer panel than one that is used in this study may be better. So that, the shortness of the panel used in this study may be regarded as a limitation for our study.

We conclude that future researches could include any other financial dimensions which have strong relationship between the entrepreneurship activities and start up businesses. The conclusion of this study is empowered by the used statistical approaches which allow us to make sure findings are robust to alternative functional forms and the inclusion of further control variables (Kerr, Nanda, 2009).

REFERENCES

- Aidis R., Estrin S., Mickiewicz T., Institutions, Finance and the Level of Development: the Impact on Entrepreneurship in Transition, *Review of Economics and Institutions*, ISSN 2038-1379 DOI 10.5202/rei.v1i1.3, Vol. 1 – No. 1, Spring 2010 – Article 3
- Anna L. Paulson, Robert Townsend, Entrepreneurship and financial constraints in Thailand, *Journal of Corporate Finance* 10 (2004) 229–262
- Banerjee, A., E. Duflo, and K. Munshi (2003) 'The (mis)allocation of capital', *Journal of the European Economic Association*, 1 (2-3), 484-94.
- Birkenmaier J., Watson S., (2005), Affordable Financial Services and Credit for the Poor: The Foundation of Asset Building, *Journal of Community Practice*, Vol. 13(1)
- Black S. and Strahan P., (2002), Entrepreneurship and Bank Credit Availability, *The Journal of Finance* * Vol. LVII, No. 6 *
- Brander, J. & Amit, R. (1998). Why Do Venture Capital Firms Exist? Theory and Canadian Evidence.
- Brander, J., K. Hendricks, R. Amit, and D. Whistler. (1998). The engine of growth hypothesis: On the relationship between firm size and employment growth work. University of British Columbia, Department of Economics. Manuscript.
- Cetorelli, Nicola, 2001, Does bank concentration lead to concentration in industrial sectors? Working paper 01-01, Federal Reserve Bank of Chicago
- Fazzari, S., Hubbard, R.G., Petersen, B., 1988. Financing constraints and corporate investment. *Brookings Papers on Economic Activity* 1, 141–195
- Glaeser, E., Scheinkman, J., & Shleifer, A. (2003). Injustice of Inequality. *Journal of Monetary Economics*, 50 (1), 199-222. doi:10.1016/S0304-3932(02)00204-0
- Hsiao C., Panel Data Analysis — Advantages and Challenges, *Sociedad de Estadística e Investigación Operativa Test* (0000) Vol. 00, No. 0, pp. 1–63, Department of Economics, University of Southern California, USA Wang Yanan Institute for Studies in Economics, Xiamen University, China
- Kerr W., Nanda R., (2009), Financing Constraints and Entrepreneurship, Working Paper 15498
- Klapper, L., Laeven, L., and Rajan, R. (2006). Entry regulation as a barrier to entrepreneurship. *Journal of Financial Economics* (p. 591–629).
- Navajas M. C. and Thegeya A., (2013) Financial Soundness Indicators and Banking Crises, IMF Working Paper, International Monetary Fund

Neuhaus J.M.,(1992), Statistical Methods for Longitudinal and Clustered Designs with Binary Responses, *Statistical Methods in Medical Research* 1:249-273.

North, D. (1990). *Institutions, Institutional Change and Economic Performance*. New York: Cambridge University Press

Paravisini, D. (2008), 'Local bank financial constraints and firm access to external finance', *Journal of Finance*, **63** (5), 2161-93.

Riefier W., Friday D., Lichtenstein W., Riddle J. H., (1937), Soundness of Financial Institutions, (p. 87 - 98)

Small Business Encyclopedia, 2017, Entrepreneur Media, <https://www.entrepreneur.com/encyclopedia/venture-capital>



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ENTREPRENEURSHIP IN NURSING EDUCATION

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ABSTRACT

Entrepreneurship is becoming increasingly important within nursing care as societal changes give space for new entrepreneurs in the field. Entrepreneurship means that salaried nurse develops, promotes, and delivers an innovative health care or nursing practice. Nursing role and responsibilities are continually changing with developments in medical science, policy directives and movements in priorities in health care, and advances emanating from nursing and scientific research. Hence, there is a need for entrepreneurial nurses, to maintain and improve the individual care. Nurse need to understand the process of the introduction and management of change so as to determine and carry through his/her position in the change process and participate as valid. Therefore education about entrepreneurship is becoming an important concept in nursing education. For entrepreneurship to be improved severity in nursing, nursing education must ensure that students are provided with the opportunity to develop the necessary knowledge and skills.

Keywords: Entrepreneurship, nursing, nursing education

JEL Codes: L20

1. INTRODUCTION

In all fields relating to develop the life quality of human, entrepreneurship has been currently regarded as a significant dynamic element (Arslan and Şener, 2012). Economy is also positively affected by increase in entrepreneurship. Entrepreneurship is thus supported all around the world. Furthermore, entrepreneurship is gaining more and more importance within nursing care as spaces are provided for new entrepreneurs in all areas by societal changes (Rankinen and Ryhänen, 2014).

Nowadays, the generation of multi-dimensional thinking, multidisciplinary studies and new problem solving methods are required for many health problems. For this purpose, by generating opinions for resolving the health problems and integrating new opinions, entrepreneurship principles must have been used in the studies of health improvement and disease prevention (Dolu et al., 2016). Along with the advancements in medical science, policy directives and movements in priorities within health care, and the developments arising from nursing and scientific researches, changes are continuously experienced in nursing roles and responsibilities. Because of the mostly aging population, the increase in chronic diseases and the increasing costs, changes are needed in nursing care. Therefore, in order to sustain and promote the individual care, a need for entrepreneurial nurses has arisen (Wilson et al., 2012).

As the technological era in which we exist is experienced all over the world in the delivery of quality, health-care services based on requirements, the concepts such as entrepreneurship, innovation and creativity have become significant in our country and in nursing (Şen et al., 2013). Nurses who are the practitioners of all levels of the health care system (protection, improvement, treatment, care and rehabilitation of health) are required to renew themselves in accordance with the scientific, technological, economic, social and social changes and improvements in order to fulfill these requirements (ICN 2009). Nursing education has become compulsory in order to carry out entrepreneurship strategies to

raise qualified nurses who are capable of fulfilling the requirements in changes and improvements (Başar et al., 2015; Dil et al., 2012; Şen et al., 2013).

While entrepreneurship is a learning discipline, entrepreneurship education leads to the improvement of entrepreneurial skills, qualities and behaviors (Dolu et al. 2016). It is necessary to include the improvement of entrepreneurial skills that nurses need to lead and respond to the changing demands in pre-graduation and post graduation education and training (Darbyshire, 2014).

2. DEFINITION OF ENTREPRENEURSHIP

When we examine the literature, it is seen that many definitions of entrepreneurship have been made. Entrepreneurship has been defined by many researchers in the field of economy, sociology and psychology. Entrepreneurship is defined as “the institutionalization or the development of something in order to provide benefits to the individuals and society” (Andrade et al., 2015).

Entrepreneurship is also defined as the fact that the entrepreneurs take risks, look for the opportunities, cover the entire process of innovation (Arslan and Şener, 2012; Başar et al., 2015).

With regard to the widely used definition of the European Commission (2006), “Entrepreneurship represents the ability of an individual to transform opinions into action. That is to say, it involves creativity, innovation and risk taking in addition to the ability to plan and manage projects to reach the objectives.”

3. ENTREPRENEURSHIP IN NURSING

The healthcare system with a great variety of areas enables nurses to provide professional services and to provide a variety of activities as experts. Thus, “nurse entrepreneur” is not a new concept (Darbyshire, 2014). Nurses worked freely to provide patients with at the beginning of the 20th century. The patient care practices have changed in the later years. The focus of nursing has extended since the mid-1960s. The nursing profession has contributed to the protection, development and correction of health in addition the knowledge, skills and confidence required to combine medical administration. For the recent twenty years, nurses have begun to perform in accordance with the entrepreneurial model, and they have produced innovative initiatives (Boore and, Porter, 2011; Dolu et. al.,2016).

When entrepreneurship is assessed with regard to nursing profession, entrepreneurship can be implemented in the business environment and personal life in order to develop the nurses' skills and to provide a better care (Arslan and Şener, 2012). In contrast to conventional nursing attitudes, entrepreneurship has also significance among contemporary and professional nursing attitudes and behaviors (Dolu et.al., 2016). Within the context of the health services, entrepreneurial nurses may be regarded as health and social care professionals who take innovative steps, develop the outcomes of patient care and decrease the health care costs (Kara, 2015). Among many definitions about the entrepreneurs nurses in the literature, patient care and practice with the nurse control are the most important definitions (ICN, 2009).

A professional nurse entrepreneur is a person who determines a patient's requirement and envisages how that requirement can be responded by nursing effectively, and then formulates and implements a plan to fulfill that requirement. As entrepreneurs, nurses are innovative powers within the healthcare sector for developing and producing new approaches to fulfill patients' requirements. That is to say, entrepreneurial nurses are innovators who employ their ingenuity to produce new ideas, services and new products or to develop new methods in order to use the available products in a different way (Dolu et. al., 2016). Several types of nurses entrepreneurs are available in various specialties such as acute care, gerontology, ostomy-wound and home health (Sarioğlu, 2014; Leong, 2004).

3.1. Entrepreneurship in Nursing Education

To support the acquirement of graduate outcomes that have positive effects on the transition of student is the most significant purpose of nursing education (Gamble, 2017). It is necessary to pay utmost attention to the balance between knowledge and ‘doing’ in the education of nurses (Hoyles et al., 2000). Nursing education involves the acquirement of abilities by means of on-the-job training with theoretical components that are taught as block or day release (Freshwater and Sticklely, 2004). It was considered by nurse teachers that entrepreneurship education was important in nursing education (Rankinen and Ryhänen, 2014).

It has been stated by Diekelmann that the majority of nurse trainers keep going to teach the same subjects that no longer have places within the health care system despite the significant changes in the health care systems and nursing practices. Hence, a remarkable reform and innovation should be made in nursing education leadership in the future nursing practices (Herdman and Korkmaz, 2009). With respect to the utilization of entrepreneurship principles in resolving the health problems, innovative and creative nurse entrepreneurs along with the early identification of health problems and the application of efficient care approaches, entrepreneurial education in the nursing curriculum is significant (Dolu et al.,

2016). The fact that the nursing education programs should produce entrepreneurial professional development that will allow nurses to introduce programs, that will contribute to enhanced health and health care was stated in the crucial "The Future of Nursing" report in the United States (Institute of Medicine, 2010).

The theoretical knowledge regarding the entrepreneurship, information about values and attitudes supporting the entrepreneurship should be included in entrepreneurship education (Rankinen and Ryhänen, 2014). It is necessary for the content of the entrepreneurship in nursing education programs/courses to focus on entrepreneurship innovation issues. For the development of the required knowledge and skills, opportunity should be provided by the education content. (Rankinen and Ryhänen, 2014). It is considered that such an educational program will enhance the coordination skills of nursing students in the exchange of agents and interdisciplinary health service delivery in their professional lives and will significantly contribute to the resolution of developing health problems (Dolu et al., 2016). Furthermore, they require some common skills most of which are attempted to be imparted by nurse education programs and that have been determined as the skills in opportunity spotting and innovation, planning and critical thinking, decision-making, time-management, self-discipline, and communicating.

4. CONCLUSION

With respect to the improvement of health, prevention of disease, recognition of risk factors, prevention and health increasing the developers' behaviors, maintenance and management of the new information, entrepreneurship, which is critical for developing the quality of nursing care and maintenance, in the nursing practice has a significant role (Kara, 2015). The entrepreneurial and innovative of roles and responsibilities in care practices should be reflected and supported by nursing education (Mcsherry and Douglas 2011). Studies should be performed with regard to entrepreneurship in nursing and nursing education. When the results of these studies are taken into account, the programs regarding creativity and entrepreneurship in patient care should be included in nursing education curricula for the development of entrepreneurship in nursing, and it should be ensured by nursing education that students are provided with the opportunity to develop the necessary knowledge and skills. The entrepreneurial and innovative of roles and responsibilities in care practices should be reflected and supported by nursing education.

REFERENCES

- Andrade, A.C., Ben, L.W.D., Sanna, M.C. (2015). "Entrepreneurship in Nursing: overview of companies in the State of São Paulo", *Rev Bras Enferm.* Vol. 68, no. 1, pp. 35-9.
- Arslan, H., Şener, D.K. (2012). "Hemşirelikte Yeni ve Önemli Bir Kavram: Girişimcilik"[A New and important concept in nursing: Entrepreneurship], *İ.Ü.F.N. Hem. Derg.*, vol. 20, no.2, pp.140-145.
- Başar, M. (2013). "Girişimcilik ve Girişimcilik Süreçleri", Yılmaz, Ü. (Ed.). Girişimcilik. Açıköğretim Fakültesi Yayını, Eskişehir, pp.2-19.
- Boore, J., Porter, S. (2011). "Education for Entrepreneurship in Nursing", *Nurse Education Today*, vol.31, pp.184–191.
- Darbyshire, P. (2014). "An idea whose time has come: nursing entrepreneurialism", *Whitireia Nursing and Health Journal*, vol. 21, pp. 9-14.
- Dil,S., Uzun,M., Aykanat,B. (2012). "Hemşirelik Eğitiminde İnovasyon" [Innovation in nursing education], *International Journal of Human Sciences*, vol.9, no.2, pp.1217-1228.
- Dolu, İ.Ç., Temuçin, E.D., Özkan, H.A. (2016). "Hemşirelik öğrencilerinin girişimcilik düzeyleri ile bazı ilişkili faktörlerin değerlendirilmesi", [Assessment of the entrepreneurial characteristics and some related factors of nursing students] *JED/ GKD*, vol. 11, no. 2, pp.294-315.
- Freshwater, D., Stickley,T. (2004) The heart of the art: emotional intelligence in nurse education. *Nurs Inq.* 11(2):91-8.
- Gamble, S.A. (2017). "Simulation in undergraduate paediatric nursing curriculum: Evaluation of a complex 'ward for a day' education program", *Nurse Education in Practice*, vol.23 , pp. 40-47.
- Herdman, E.A., Korkmaz, Ö.Y. (2009). "Hemşirelik ve Yenilikçilik"[Hemşirelik ve yenilikçilik] *Hemşirelik Eğitim ve Araştırma Dergisi*, vol.6, no.2, pp. 2-4.
- Kara, D. (2015). "Innovation in Nursing Practices", *Global Journal on Advances in Pure & Applied Sciences*, vol. 07, pp 170-174.
- International Council of Nurses (2009). Delivering quality, serving communities: Nurses leading care innovations. <http://www.icn.ch/publications/2009-delivering-quality-serving-communities-nurses-leading-care-innovations/> Erişim tarihi 27.01.2017
- Leong, S. (2004). "Clinical Nurse Specialist Entrepreneurship", *The Internet Journal of Advanced Nursing Practice*, vol. 7,no. 1, pp. 1-5.

Mcsherry, R., Douglas, M. (2011). "Innovation in nursing practice: A means to tackling the global challenges facing nurses, midwives and nurse leaders and managers in the future", *Journal of Nursing Management*, vol. 19, pp.165-169.

Rankinen, S., Ryhänen, A. (2014). "Entrepreneurship, Education in Nursing – A Narrative Review", *Seinäjoki University of Applied Sciences*, Vol. 2.

Sariođlu, A. (2014). "Bireysel Yenilikçilik Ölçeđinin Hemşirelikte Geçerlik ve Güvenirliđi" [Validity and Reliability of the Individual Innovation Scale in nursing] Yayınlanmamış Yüksek Lisans Tezi. Atatürk Üniversitesi Sağlık Bilimleri Enstitüsü, Erzurum.

Şen, H.T., Yılmaz, F.T., Gürdođan, H.P. (2013). "Hemşirelikte Yaratıcılık." [Creativity in nursing], *Akademik Bakış Dergisi*, vol.38, pp.1-8.

Wilson, A., Whitaker, N., & Whitford, D. (2012). Rising to the challenge of healthcare reform with entrepreneurial and intrapreneurial nursing initiatives. *Online Journal of Issues in Nursing*, 17(2):5.



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TYPES OF INFORMATION TECHNOLOGY CAPABILITIES AND THEIR IMPACTS ON LOGISTICS CAPABILITIES: AN EMPIRICAL STUDY

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ABSTRACT

The purpose of this study is to investigate the impacts of four components of IT capabilities on logistics capability at the logistics sector. The IT capabilities consist of IT infrastructure, IT business experience, IT relationship resources and IT human resources. The study is supported with a field study conducted on the third part logistics firms, which are members of the international forwarding associations UND, operating in 9 cities in Turkey. After distribution of 450 questionnaires, 428 usable questionnaires were returned (a response rate of 95%). The data was analysed by using the frequency, Pearson correlation and regression analyses via SPSS programme. After analysing the research data, it was realized that there is a statistically significant relationship between four components of IT capabilities and logistics capability.

Keywords: IT capabilities, IT infrastructure, IT business experience, IT relationship resources, IT human resources, Logistics capability

JEL Codes: O30, L80, M10

1. INTRODUCTION

Due to the rapidly changing business environment and technological improvements, companies are obliged to achieve sustainable competitive advantage in order to survive and grow. Competitive advantage may be gained from two main sources: assets and the capabilities that enable assets to be deployed advantageously (Dierickx and Cool 1989). In other words to provide a strong and sustainable competitive advantage, companies should improve organizational capabilities.

Organizational capabilities are defined as skills and abilities, complicated talents and aggregated knowledge implemented through organizational processes to coordinate activities (Zhao et., 2001:91). To be aware or not to be aware: companies are always focus on its unrivaled organizational capabilities to respond customer expectation. Organizational capabilities can be everything a company perform the best. The issue is, to find and improve activities that are done the best. If they are improved, organizational capabilities could aid small or big companies to survive in changing business environment like a life buoy.

There are too many organizational Capabilities as Process capability, Innovation capability, Management capability, Alliance capability, Service capability, financial capability etc. but this study is focused on two of them; Information Technology (IT) Capability and Logistics capability.

2. LITERATURE REVIEW

2.1. IT Capabilities

By acceleration of technological developments, information technology (IT) capabilities have become the most important capabilities of companies for gaining sustainable competitive advantage. Due to today's extremely competitive global business environment, companies utilize information technology to develop customer service, shorten cycle times, and decrease cost (Hwang et.al, 2015:1).

Information technology is defined as any type of computer-based information system, including design processing and hardware, software, microcomputer applications and network investments (Zhao vd., 2001: 93). By another definition, the Information technology (IT) is the application of computers; to store, recover, dispatch and manage data, inside the firm or between firms and other ventures (https://en.wikipedia.org/wiki/Information_technology#cite_note-DOP-1).

Information Technology (IT) can be defined as organizational IT capabilities as complicated bunches of IT-related resources, skills and collected knowledge, exercised through business processes that enable company to ordinate activities (Stoel and Muhanna, 2008: 8). Since to delineate, coordinate, combine, share and manage an organization's information assets; the IT capabilities include the human, process and technology <http://www.gartner.com/it-glossary/information-capabilities-framework/>

In the literature there are many different perspectives regarding IT capabilities. The first perspective describes IT capabilities as a set of sub-dimensions such IT human capabilities and IT infrastructure capabilities, IT planning capability, system development capability, and IS operation capability (Fink 2011; Ravichandran and Lertwongsatien 2005). The another perspective describes IT capability as an embracing structure that manages IT resources such as IT infrastructure, human IT resources, IT operations, IT objects and IT knowledge, IT infrastructure quality, IT business expertise, and relationship infrastructure between IT and business (Bharadwaj 2000; Tippins and Sohi 2003, cited by Xu ve Kim 2014:330). Moreover, the other perspective describes IT as a hierarchy of "composite operant resources which are IT infrastructure, IT business experience, IT relationship resources, and IT human resources". Therefore, IT capability can have as many sub dimensions as the number of different IT-related resources. (Chen and Tsou, 2012: 74).

This study focused on IT capabilities as four sub-dimensions: IT infrastructure, IT business experience, IT relationship resources and IT human resources. IT infrastructure provides the foundation for companies to deliver business applications as servers, networks, laptops, customer knowledge, help desk etc. (Aral and Weill, 2007:766). IT business experience is a company's skill to unify IT strategy with business strategy. IT relationship resources are defined as the company's ability to integrate IT functions into business units and utilize IT resources. IT human resources are the most important item of the IT asset base, and represent a strategic organizational resource and a crucial organizational capability (Chen and Tsou, 2012: 74). The scale, used for this study, is about an integrated measurement system for IT capability; that is adapted by Chen and Tsou (2012).

After scanning literature in detail, there are found many different studies regarding IT capabilities or Logistics capability. There are similar studies as "Interfirm IT capability profiles and communications for cocreating relational value: evidence from the logistics industry" (Rai., Pavlou, Im, Du, 2012) or "Information technology influences on world class logistics capability" (Closs, Goldsby, Clinton, 1997) etc. But, there is not detected any study include both of these capabilities. This paper may be the first one to examine IT capability and Logistics capability together.

2.2. Logistics Capabilities

Logistics literature is full of instances of the effect of logistics capabilities which can provide superior contributions towards the accomplishment of superior performance and sustainable competitive advantage (Sezhian et.al, 2011:31). Logistics capabilities are defined as aptitudes, organizational processes, information and skills that allow a company to obtain high performance and sustainable competitive advantage against competitors (Mandal, 2016:44), by minimizing time and cost as much as possible. Therefore logistics capability is an exhaustive indicator of an enterprise's logistics situation (Chen et. al, 2007: 1163-1164).

In the logistics literature, there are various elements of logistics capabilities. Morash, Dröge and Vickery (1996) argue that logistics capabilities divided into two elements or "value disciplines" as "demand oriented" and "supply oriented". According Daugherty and Pittman (1995) and Fawcett, Stanley and Smith (1997) the most important item at logistics capability is the time-based capability. Also Fawcett and Fawcett (1995) declare that, to obtain optimum operational performance; these capabilities are essential; delivery speed, service quality, flexibility, cost and innovation. According to Eckert and Fawcett (1996) the most important items of logistics capabilities are human resource, quality and time; while Bowersox and Closs (1996) suggest that the most important items are responsiveness, consistency and flexibility.

Furthermore, there are various classification of logistics capabilities at logistics literature. Mentzer et al. (2004) categorize logistics capabilities; as demand management interface capability, supply management interface capability, information management capability and coordination capability. Zhao, Dröge and Stank (2001) classify logistics capabilities into customer-focused and information-focused capabilities. Lynch, Keller and Ozment (2000) argue that logistics capabilities are composed operational capability and value-added service. Shang and Marlow (2005) declare that logistics capabilities consist of information integration and general integration capabilities (Mandal, 2016:47; Liu and Luo; 2010:50; Sezhian et.al, 2011:31).

In this study, the scale about the capabilities required to apply main activities in the business logistics are adapted by Jay Joong-Kun, Ozment, Sink, (2008).

3. RESEARCH METHODOLOGY

3.1. The Aim of the Study

The aim of the study is to determine the impacts of four components of IT capabilities on logistics capability. For the study, data were collected by using the questionnaire method. Then, all questionnaire data were analysed with the Statistical Package for the Social Sciences (SPSS) for Windows. First, frequency analysis was used to indicate the respondent's opinions for each questionnaire items. Then, correlation analysis was used to find out the relationship between four components of IT capabilities and logistics capability. Finally to achieve the main aim of the study, regression analysis was performed.

3.2. Sample and Data Collection:

The research data was collected among managers in third part logistics (3PL) firms, which are members of the international forwarding associations, by conducting the questionnaire method. 450 questionnaires were distributed to third part logistics (3PL) firms in the 9 cities of Turkey; 428 usable questionnaires were returned and analysed.

The international forwarding associations is founded in 1974 in order to solve nationally and internationally issues. To be a member of these associations, companies must be authorized by Ministry of Transportation and must have some national and international transport certificates.

The associations have nearly 1200 members around the Turkey. Regional and urban distributions of member companies are shown at Table 1. According to regional sequencing, Marmara region has the highest number of members with 396 and Doğu Anadolu Region is the lowest region with 21 members. According to urban sequencing, İstanbul has the highest number of members, with 371 and Iğdır is the lowest city with 21 members. Due to a low number of members, Iğdır has been neglected for this research. Then 428 questionnaires are distributed to 9 cities at 6 regions in Turkey, as can be seen from the Table 1.

Table 1: Registered Companies and Distributed Questionnaires

Region	1.City	Numbers of companies	2.City	Numbers of companies	Total number of company	Number of distributed questionnaires
Marmara	İstanbul	371	Kocaeli	25	396	180
Akdeniz	Mersin	195	-	-	195	106
Karadeniz	Trabzon	37	Bolu	28	65	39
İç Anadolu	Ankara	47	Kayseri	39	86	41
Güneydoğu Anadolu	Gaziantep	70	-	-	70	51
Ege	İzmir	33	-	-	33	11
Doğu Anadolu	Iğdır	21	-	-	21	0
Total		1185				

3.3. Measures of the Study Variables

The structured questionnaire was based on academic literature. IT infrastructure, IT business experience, IT relationship resources, and IT human resources were measured by using J.-S. Chen, H.-T. Tsou (2012) scales. The multiple item scale was used for each components. Logistics capability items were taken and adapted to this study from Jay Joong-Kun Cho, John Ozment, Harry Sink, 2008. In the questionnaire respondents were asked to mention their opinions about each one. On the research questionnaire Likert-type scale is used, that ranged from (1) "strongly disagree" to (5) "strongly agree".

At the beginning, the reliability analysis was conducted. As can be seen from the Table 2 reliability coefficients for all scales exceeded .70.

Table 2: Sample Alpha of the Study Variables.

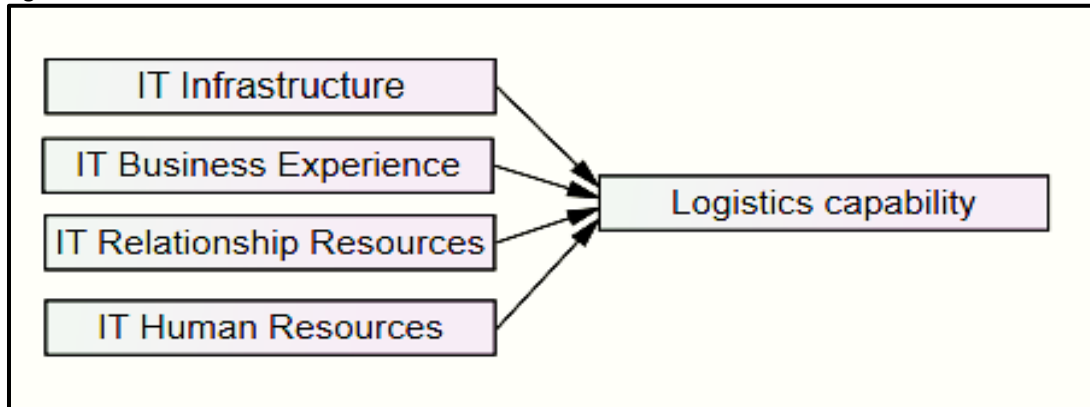
Variables	Number of Items	Sample Alpha
IT Infrastructure	2	0,875
IT Business Experience	4	0,891
IT Relationship Resources	4	0,924

IT Human Resources	3	0,850
Logistics capability	11	0,711

4. RESEARCH MODEL AND HYPOTHESES

The information obtained in accordance with the existing literature, the research model and hypotheses have been developed for analysis. The relationships between the four components of IT capabilities and logistics capability are illustrated in the research model (Figure 1).¹

Figure 1: The Research Model



According to the research model, the following research hypotheses were defined;

- H1: IT infrastructure positively influences logistics capability.
- H2: IT business experience positively influences logistics capability.
- H3: IT relationship resources positively influence logistics capability.
- H4: IT human resources positively influence logistics capability.

5. THE RESULTS OF THE EMPIRICAL STUDY

5.1. Sample Characteristics

Table 3 shows the characteristics of the respondents and the companies participated in this study. The data was collected for this study among managers in third part logistics (3PL) firms that member of the international forwarding associations by conducting 428 questionnaires.

According to the descriptive statistics, the following information emerged. Regarding respondents' age, 24,9% were between 20-30 years old; 58,4% were between 31 and 40, 13,4% were between 41-50 and the remaining 3,3% were 51 and more. Regarding gender, %85,2 of the participants are male and % 14,8 are female. When asked to their marital status, 74,6% were married, and 25,4% were single. Educational level distribution is as follows; elementary school (3,9%), high school (62,1%), associate degree (12,2%), bachelor degree (18,9%), post graduate degree (2,6%) and doctoral degree (0,2%).

The positions of the respondents in the firms are senior manager (20%), middle level manager (77,6%) and lower level manager (2,4%). The work tenure of the respondent is under 1 year (2,6%); 1 and 3 years (18,6%), 4-6 years (32,5%), 7-9 years (27,1%) and more than 10 years (19,3%).

Number of employees of the participant firms are between 10 and under is 2,6%; 1-50 is 78,8%; 51-250 is 16,9%; 251-500 is 1,2% and 500 and over is 1%. The participant firms' capitals are the mostly local capital (96,2%) and their commercial titles are limited (97,8%).

¹ There was different variables at the modal. For this congress to shorten the article, the modal analyzed as two main parts: one of them is "IT capability and Logistics capability" and the other part is "IT capability and competitiveness". Both part includes the same demographical data.

Table 3: Characteristics of Respondents and Firms

		Frequency	Valid percent			Frequency	Valid percent
Gender	Male	62	14,8	Marital status	Married	306	74,6
	Female	357	85,2		Single	104	25,4
Age	20-30	106	24,9	Education Level	Elementary	16	3,9
	31-40	249	58,4		High school	259	62,1
	41-50	57	13,4		Associate Degree	51	12,2
	51≤	14	3,3		Bachelor degree	79	18,9
Position	Senior manager	85	20,0	Post-graduate degree	11	2,6	
	Middle level manager	330	77,6	Doctoral degree	1	0,2	
	Lower level manager	10	2,4				
Management Type	Family Members	366	87,6	The Work Of Tenure Respondents	<1 year	11	2,6
	Out of Family	17	4,1		1-3 year	79	18,6
	Professional	35	8,4		4-6 year	138	32,5
	Managers				7-9 year	115	27,1
Establishment	<1 year	1	0,2	Number of Employees	<10	9	2,1
	1-5 year	28	6,6		10-50	330	78,8
	6-10 year	112	26,5		51-250	71	16,9
	11-20 year	188	44,5		251-500	5	1,2
	21 year <up	93	22,2		501 ≤	4	1,0
The capital structure	Local capital	352	96,2	Commercial Title	Incorporated	7	1,7
	Local&Foreign capital	7	1,9		Limited	398	97,8
	Foreign capital	7	1,9		Unlimited	2	0,5

5.2.Analytic Procedure (Statistical Analysis)

At the beginning, all questionnaire data were entered into the Statistical Package for the Social Sciences (SPSS) for Windows. Then respectively in order to indicate the respondent's opinions for each questionnaire items, frequency analysis was used; to find out the relationship between four components of IT capabilities and logistics capability correlation analysis was used; at last, to achieve the main aim of the study, regression analysis was performed.

5.3.Correlations Results

The correlations between IT infrastructure, IT business experience, IT relationship resources, IT human resources, and Logistics capability are also covered. Table 4 depicts the correlations.

Table 4: Results of Correlation

CORRELATION					
	IT Infrastructure	IT Business Experience	IT Relationship Resources	IT Human Resources	Logistics capability
IT Infrastructure	1	,844**	,807**	,753**	,549**
IT Business Experience	,844**	1	,904**	,798**	,606**
IT Relationship Resources	,807**	,904**	1	,826**	,592**
IT Human Resources	,753**	,798**	,826**	1	,612**
Logistics capability	,549**	,606**	,592**	,612**	1

** . Correlation is significant at the 0.01 level (2-tailed).

As a result of the correlation analysis, statistically significant relationships are detected between IT infrastructure, IT business experience, IT relationship resources, IT human resources and logistics capability. The correlation coefficients in Table 4 indicate that there are strongest relationships between IT relationship resources and IT business experience (0,904; $p < 0.01$) and the weakest relationships between IT infrastructure and logistics capability (0,549; $p < 0.01$)

5.4. Regression Results of the Study

Based on the past researches presented in the literature review, pertinent hypotheses were proposed and a model was developed. Using a linear regression analysis the theoretical model and hypotheses were tested.

- **IT infrastructure and logistics capability**

In the correlations analysis, a significant relation is detected between IT infrastructure and logistics capability. In order to ascertain the influence of IT infrastructure on logistics capability, regression analysis has been practiced. As shown in Table 5, the regression model is also statistically significant. The overall F-statistic of 184,076 is significant at the 0.01 level; the adjusted R-square value is 0.300. This means that IT infrastructure explains approximately 30% of the logistics capability. Thus first hypothesis "IT infrastructure positively influences logistics capability" ($H1$) is supported.

Table 5: IT infrastructure and logistics capability

Independent variable	β	t	p	R ²	Adjusted R ²	F
IT Infrastructure(ITI)	0,549	13,567	0,00	0,302	0,30	184,076

Dependent variable: Logistics capability * $p < 0,001$

- **IT business experience and logistics capability**

As a result of the regression analysis, the model is significant with F value of 246,695 ($p < 0.01$) and explained 36,5 % of the logistics capability by the adjusted R² value. Hence, hypothesis H2: "IT business experience positively influences logistics capability" is supported.

Table 6: IT business experience and logistics capability

Independent variable	β	t	p	R ²	Adjusted R ²	F
IT Business Experience(ITBE)	0,606	15,707	0,00	0,367	0,365	246,695

Dependent variable: Logistics capability * $p < 0,001$

- **IT relationship resources and logistics capability**

Another regression test was conducted to determine the effect of IT Relationship Resources (ITRR) on logistics capability. The regression results show that ITRR and Logistics capability received contribute significantly, with an overall F value of 228.542 ($p < 0.01$), and; the adjusted R-square value is 0.349. This means that IT infrastructure explains approximately 34,9% of the logistics capability. Thus, hypothesis H3 is supported.

Table 7. IT relationship resources and logistics capability

Independent variable	β	t	p	R ²	Adjusted R ²	F
IT Relationship Resources (ITRR)	0,592	15,118	0,00	0,350	0,349	228,542

Dependent variable: Logistics capability * $p < 0,001$

- **IT human resources and logistics capability**

In the correlations analysis, a significant relation is detected between IT human resource and logistics capability. In order to examine the effect of IT infrastructure on logistics capability, regression analysis has been implemented. As shown in Table 8, the regression model is also statistically significant. The overall F-statistic of 253,858 is significant at the 0.01 level. Because of the adjusted R-square value (0,373), IT infrastructure explains nearly 37,3% of the logistics capability. Thus the last hypothesis of "IT human resources positively effects on logistics capability"(H4) is supported.

Table 8: IT human resources and logistics capability

Independent variable	β	t	p	R ²	Adjusted R ²	F
IT Human Resources (ITHR)	0,612	15,933	0,00	0,375	0,373	253,858

Dependent variable: Logisticscapability *p<0,001

6.CONCLUSION

The effects of IT Capabilities on Logistics capabilities were analysed by this empirical study. The data was collected by using the questionnaire as the method for data collection. In this study, IT capabilities (by Chen and Tsou, 2012) were used to determine the impact on Logistics capabilities within the 3PL companies in Turkey. The scale for IT Capabilities have four dimensions called IT infrastructure, IT business experience, IT relationship resources and IT human resources. After analysing the empirical data, it is found out that a company's IT capability has a superior effect on logistics capabilities, indisputably. Among the four dimensions of IT capabilities, IT human resources is the most effective factor (37,3%) and IT infrastructure is the less effective factor (%30) regarding their effects on logistics capabilities. IT capability is the most important strategic resources for companies in information-intensive industries which will directly enhance the efficiency of logistics capabilities. Due to the effects of IT capabilities on logistics capabilities, managers must invest in IT capabilities, if they want to achieve competitive advantage at global competition.

As in every research studies, this study also has some limitations. We directed our questionnaire at 3PL managers because they were the best positioned to answer questions related to the technology management and their effects on logistics capabilities. Thus, the results may not be sensitive enough. Future research can collect the data from the IT managers that work at logistics sector; and by using this data the results will be more sensitive. Also, the present study was conducted 3PL firms among 9 cities in Turkey. Future studies should examine 3PL firms in other cities in Turkey and in the other countries to increase the generalization of the model.

REFERENCES

- Aral, S., Weill, P. 2007, "IT Assets, Organizational Capabilities, and Firm Performance: How Resource Allocations and Organizational Differences Explain Performance Variation". *Organization Science*, 18(5), 763-780.
- Bharadwaj, A. S. 2000, "A Resource-Based Perspective on Information Technology Capability and Firm Performance: An Empirical Investigation". *MIS quarterly*, 169-196.
- Bowersox And Bowersox, D. J., Closs, D. J., Helferich, O. K. 1996, "*Logistical management* ",(Vol. 6). New York, NY: McGraw-Hill.
- Chen, J. S., Tsou, H. T. 2012, "Performance effects of IT capability, service process innovation, and the mediating role of customer service". *Journal of Engineering and Technology Management*, 29(1), 71-94.
- Chen, R., Liu, L., Wu, J., 2007, (November), "Logistics Capability and Its Grey Assessment Model". In *Grey Systems and Intelligent Services, 2007. GSIS 2007. IEEE International Conference on* (pp. 1163-1167). IEEE.
- Closs, D. J., Goldsby, T. J., Clinton, S. R. 1997, "Information Technology Influences On World Class Logistics Capability". *International Journal of Physical Distribution & Logistics Management*, 27(1), 4-17.
- Daugherty, P. J., & Pittman, P. H. 1995, "Utilization of Time-Based Strategies: Creating Distribution Flexibility/Responsiveness". *International Journal of Operations & Production Management*, 15(2), 54-60.
- Dierickx, I., Cool, K. 1989, "Asset Stock Accumulation and the Sustainability Of Competitive Advantage: Reply". *Management Science*, 35(12).

- Eckert, J.A. and Fawcett, S.J. 199), "Critical Capability for Logistics Excellence: People, Quality, and Time", *Proceedings of the Council of Logistics Management*, pp. 183-97.
- Fawcett, S. E., Stanley, L. L., Smith, S. R. 1997. "Developing a logistics capability to improve the performance of international operations". *Journal of business logistics*, 18(2), 101.
- Fawcett, S.E. and Fawcett, S.A. 1995, "The Firm as A Value-Added System: Integrating Logistics, Operations and Purchasing", *International Journal of Physical Distribution and Logistics Management*, Vol. 25, No. 5, pp.24-42
- Fink, L. 2011, "How Do IT Capabilities Create Strategic Value? Toward Greater Integration of Insights from Reductionistic and Holistic Approaches". *European Journal of Information Systems*, 20(1), 16-33.
- Hwang, D., Yang, M. G. M., Hong, P., 2015. "Mediating Effect of IT-Enabled Capabilities on Competitive Performance Outcomes: An Empirical Investigation of ERP Implementation". *Journal of Engineering and Technology Management*, 36, 1-23.
- Joong-Kun Cho, J., Ozment, J., Sink, H. 2008. "Logistics Capability, Logistics Outsourcing and Firm Performance in an E-Commerce Market". *International journal of physical distribution & logistics management*, 38(5), 336-359.
- Liu, L., Luo, D. 2012, "Effects of Logistics Capabilities on Performance in Manufacturing Firms". *Contemporary Logistics*, (9), 8.
- Lynch, D. F., Keller, S. B., Ozment, J. 2000. "The Effects of Logistics Capabilities and Strategy on Firm Performance". *Journal of business logistics*, 21(2), 47.
- Mandal, S. 2016, "Towards An Integrated Logistics Capabilities Model Of Supply Chain Flexibility: A Social Exchange Perspective". *Romanian Economic and Business Review*, 11(3), 44.
- Mentzer, John T. and Williams, Lisa R. 2001, "The Role of Logistics Leverage in Marketing Strategy," *Journal of Marketing Channels*, 8 (3), pp. 29-47.
- Morash, E. A., Droge, C.L. M. and Vickery, S.K. 1996, "Strategic Logistics Capabilities for Competitive Advantage and Firm Success." *Journal of Business Logistics*, Vol 17, No 1, pp. 1-22.
- Rai, A., Pavlou, P. A., Im, G., Du, S. 2012, "Interfirm IT Capability Profiles And Communications For Cocreating Relational Value: Evidence From The Logistics Industry". *MIS quarterly*, 36(1), 233-262.
- Sezhiyan, D. M., Page, T., Iskanius, P.2011, "The Impact of Supply Effort Management, Logistics Capability, and Supply Chain Management Strategies on Firm Performance". *International Journal of Electronic Transport*, 1(1), 26-44.
- Shang, K. C., Marlow, P. B. 2005, "Logistics Capability and Performance in Taiwan's Major Manufacturing Firms". *Transportation Research Part E: Logistics and Transportation Review*, 41(3), 217-234.
- Stoel, M. D., & Muhanna, W. A. 2009, "IT Capabilities And Firm Performance: A Contingency Analysis Of The Role Of Industry And IT Capability Type". *Information & Management*, 46(3), 181-189.
- Tippins, M. J., Sohi, R. S. 2003, "IT competency and firm performance: is organizational learning a missing link?" *Strategic management journal*, 24(8), 745-761.,
- Xu, P., Jongwoo (Jonathan) Kim, 2014, "Achieving Dynamic Capabilities with Business Intelligence", In *PACIS* (p. 330).
- Zhao M, Dröge C and Stank T. 2001, "The Effects of Logistics Capabilities on Firm Performance: Customer-Focused Versus Information-Focused Capabilities", *Journal of Business Logistics*, 22(2), 91-107.

<http://www.gartner.com/it-glossary/information-capabilities-framework>

https://en.wikipedia.org/wiki/information_technology#cite_note-dop-1.



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REFORMING TURKEY'S HIGHER EDUCATION SYSTEM IN ORDER TO ATTAIN HIGH INCOME, INNOVATION DRIVEN, INTELLECTUAL ECONOMY' STATUS

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ABSTRACT

Middle-income trap is a status of slowing down and stagnation in economic growth when countries reach middle-income levels. Countries have to restructure their economies fundamentally in order to get rid of this trap; and they restructure national resources, particularly human capital for higher education, technological production and innovation systems. Under realities of the global economic system innovation capacities of nations along with knowledge production have gained extra importance. Fresh perspectives share the view that competitiveness of national economies is founded on innovation; and formulating a national innovation policy especially in developing countries seems to be essential for economic growth and development. In this light a crucial role governments are expected to assume is reforming research institutions, technology transfer institutions and higher education systems in general. In this paper, I will analyze these perspectives with a specific focus on Turkey's national innovation efforts and higher education system.

Keywords: Middle-income trap, higher education, total factor productivity, innovation, development

JEL Codes: D83, N75, O38, I23

1. INTRODUCTION

This paper analyzes the concept of knowledge economy with a special focus on Turkey in light of developments in the global political economy. While analyzing the knowledge economy this study borrows from the newly emerging middle-income trap literature. Having defined the main character of the international political economic system as the "knowledge economy" it would be easy to expect that nations compete with each other to amass intellectual property, knowledge and know-how as much as possible. In the international relations discipline realist argument highlights that since all politics among nations are a zero-sum game, states brutally compete with each other to ensure their own benefits outweigh that of others. In the global economy of the 21st century the most important tool is knowledge, which means intellect plus technology. Therefore, the primary goal of all state leaders would be to gain advantage in terms of the knowledge economy against all other competitors. The balance and distribution of power among states in the global political system could change if one state constantly accumulates more knowledge than others. Thus, the possession of knowledge is an important indicator in the global political system.

Another major concept that this paper employs is the middle income trap. This study analyzes the concept of middle-income trap in the context of international relations and the global political economy by focusing on the Republic of Turkey. In light of macro economic performance of Turkey in the past decade, this study tries to find out whether there are indications of the middle-income trap or not. Additionally, technology and human capital investments along with education policies are emphasized as the most important reform area to get rid of the middle-income trap and move to the high income levels. It is important to note that particular concentration is on the reform needs of Turkey's higher education system.

A middle-income trap is essentially characterized by a slowdown in the pace of economic growth as well as productivity. Countries that grew to middle-income levels subsequently stagnate and fail to grow to high income, advanced-country levels (Kharas & Kohli, 2011). In other words, the "middle-income trap" is a phenomenon of hitherto rapidly growing economies stagnating at middle-income levels for extended periods of time (Aiyar et al, 2013). In other words, overwhelming majority of mid-income countries have remained in the same range of income for extended time periods. Probably most of them will remain as such for many years to come (Gill & Kharas, 2008; Wilson, 2014). The World Bank estimates that of 101 middle-income economies in 1960, only 13 have become able to achieve high income status by 2008 (Agenor et al, 2012).

There is no commonly agreed definition of the term, middle-income trap, in the literature; however, the phenomenon is generally described in terms of relative "catch-up" with the United States' per capita income levels or in terms of the

number of years a country takes to move from one income level to one step upper level based on threshold numbers (Felipe et al, 2012).

A close examination of all macroeconomic data would show that advanced countries have consistent developmental trajectories. Accordingly, in this paper Turkish economy and its structural problems are analyzed with an eye towards the concept of middle income trap. Looking at economic conditions and the position it occupies in the global context in terms of the knowledge economy one might ask whether Turkey would remain stuck in the middle income trap. By employing several parameters and indicators such as competitiveness, productivity, innovation capacity etc. this paper tries to have a better understanding of Turkey's propensities to fall into the mid-income trap or alternatively attain high income levels with innovation-driven knowledge economy.

A particular attention is paid to the Turkish higher education system as a potential policy area with which Turkey might achieve to reach high income category. Thus, experiences of country cases are essential for Turkey in order to design a suitable development program in which higher education and innovation systems are crucial. In the following section a theoretical and conceptual sketch about the middle-income trap is given. There is also a historical tour about the South Korean development model and particularly investments in the higher education system. In the following sections major developments in the global economy and political system are highlighted; moreover, some negative side effects of development trajectories in light of the global future are also mentioned here. Major points regarding the Turkish economy and higher education system are touched upon and some concluding remarks are also presented.

2.LITERATURE REVIEW

2.1. Middle-Income Trap Literature

After World War II an extensive literature has emerged about economic growth and development. The most notable model was designed by Robert Solow whose model was extremely simplified. The Solow model, which attempted to explain the determinants of long-run economic growth by means of capital accumulation and labor growth, has become very popular in this body of literature. Solow model has built on four variables: output, capital, labor and the effectiveness of labor. The main assumption of the model was that there are constant returns to scale with regard to capital and effective labor. In the following decades new studies have been introduced. The goal of these new studies was to explain productivity increases that were not revealed by the Solow model. Later scholars turned their attention so as to explain the causes and variations in long-term growth. Thus, new economic growth studies concentrated on expenditures for research and development activities.

Scholars compared country cases in terms of their growth differentials. For example, Robert Lucas (1993) asked why South Korea has achieved a tremendous numbers in its growth of national income while the Philippines could not attain such a success. However, in 1960 both countries had about the same standard of living, as measured by their per capita GDPs of about \$600, population numbers, urbanization levels etc. From 1960 to 1988, in the Philippines average annual per capita GDP growth was about 1.8 percent; in S. Korea, over the same period, this number was 6.2 percent.

So the critical question is why did Korea, Singapore and Taiwan achieved sustainable development records and higher living standard, and not in the Philippines, Mexico and Brazil? In other words, the obvious question "given the fact that while some countries have made a difference and jumped into the camp of the advanced industrialized countries with high per capita income, why have other countries remained as middle income countries for an extended period of time?" still needs a coherent answer with a basic theoretical sketch.

In the economic growth studies, "middle-income trap" is a relatively new phenomenon that stands for countries where rapidly growing economies stagnates at some points in their economic growth history. More specifically, middle-income trap is growth slowdowns that are identified as large sudden and sustained deviations from the growth path predicted by a basic conditional convergence framework (Aiyar 2013).

As of 2016, low-income economies are defined as those with a GNI per capita of \$1,025 or less; lower middle-income economies are those with a GNI per capita between \$1,026 and \$4,035; upper middle-income economies are those with a GNI per capita between \$4,036 and \$12,475; high-income economies are those with a GNI per capita of \$12,476 or more. As of 2016 Turkey sits in the upper middle-income group with its approximately \$ 9500 per capita income.

As of 2016 among its 188 members, the World Bank classifies a country as an upper middle income country if its per capita income is in the 4,036-12,476 dollars range. The issue faced by many middle-income countries is whether or not they are able to advance towards the high-income group. It should be noted that the World Bank classifies countries based on estimates of gross national income (GNI) per capita for the previous year. The World Bank data indicates that as of the year 2015 middle income countries make almost two third of the global population (5 out of 7,5 billion) and gets almost one third of global income (Gill & Kharas, 2015).

There are many common issues faced by middle-income countries, they all struggle to advance towards the high-income levels. Characteristically, these countries have remained stuck in middle income growth trap because they are unable to either attract sufficient funds from domestic and/or outside sources, political instabilities, poor educational and health

standards, low levels of human capital, inadequate physical and institutional infrastructures, lack of diversification in manufacturing and exports and the most importantly total factor productivity.

In Table 1 below human development indicators could be seen for some selected countries. All these countries in the Table (except Turkey) achieved to get rid of middle income trap in the past decades. Figures for Turkey can be seen in the last row for comparison purposes. It is clear that socio-economic indicators of those countries are significantly better than Turkey. Common characteristics of these achievers could help trapped countries. Six countries in the list remained in the “very high human development” group. Economic and social indicators are balanced. All of them have splendid education and life expectancy figures; average schooling is generally above 10 years for their population.

Countries	Population (in million)	HDI rank	Per Capita Income \$ (PPP)	Life Expectancy	Average Schooling
Singapore	5,5	5	85,382	82,6	10,2
Ireland	4,6	8	68,513	81,1	11,7
Hong Kong	7,3	12	56,923	83,9	10,1
Japan	126,9	17	40,763	83,6	11,6
S. Korea	50,6	18	34,647	82,1	11,9
Spain	46,4	27	34,906	83,0	9,8
Turkey	78,6	71	20,008	75,3	7,9

Source: “Human Development Report-2016;” For Population Numbers “World Development Indicators-2016”

The middle-income-growth trap is related to the transformative difficulties of the national economies. As a country becomes richer the structure of the national economy evolves from economic activities with low productivity into relatively high-productivity ones. At the early stages of development history labor migration from rural areas to urban centers are observed. This creates abundant pool of cheap labor and comparative advantage for low technology manufacturing sectors.

At the early stages of their developmental efforts these countries experience an input-driven production where the achievement of a moment of growth is not difficult since labor is cheap and abundant. These countries provide large productivity gains at first through a reallocation of rural labor from the agricultural sector to the relatively high-productivity light industrial manufacturing activities. After a certain time has elapsed, these new urban classes reach middle-income levels, the pool of low wage workers diminishes and wage levels gradually rise. Wages increase as this economy evolves from low-skilled labor intensive activities into relatively advanced and sophisticated ones. As discussed in the literature the progression from middle to high income is not an easy and guaranteed destination in a linear growth path (Felipe et al., 2012; Berg et al., 2012). The types of goods and services produced and exported would not have the same impact for further growth and development in this economy. At some point it becomes harder to increase the per capita income. Hence, the original cost advantage erodes and as time passes relative competitiveness decreases.

In the development literature it is well documented that hardships for countries in their mid-income stages are essentially due to productivity issues. According to a World Bank research 85 % of the slowdown in the rate of output growth in mid-income economies is explained by total factor productivity growth (Agenor et al, 2012). In other words, the growth of the economy should be coupled with improvements in the total factor productivity. In order to be able to compete successfully in the global market a mid-income country must be equipped with high quality human capital, labor pool and technological advancements. In these countries factors and advantages that contribute to extraordinary growth records during early periods of developmental efforts would fade when middle- and upper-middle-income levels are reached. Hence national governments are supposed to conduct additional reforms in the political and economic spheres. It is clear that governments are required to extend reforms so as to improve infrastructure, health and education to supply a well educated, healthy and trained labor force for the transition to higher income levels.

A middle-income trap is essentially characterized by a slowdown in the pace of economic growth as well as productivity. So what is required for a country to avoid the middle-income trap? In order to answer this question for the Turkish economy we could look at the experiences of countries that recently achieved high income status such as South Korea, Spain, Ireland, Portugal, and Singapore. These countries had managed to overcome the middle-income trap and in recent decades managed to reach the high-income level. A simple answer is that these countries had concentrated on their total factor productivity which accounted for the national economy’s transformative dynamism in regards to its comparative advantage in labor, capital and technology. Gains in efficiency may come from all economic factors or inputs into the production processes. Thus, improvements in labor (human capital and education), technological advancements (innovation) and

efficiency gains in capital (saving and investment) are all important so as to catch the total factor productivity. For instance, in order to avoid the trap, South Korea strengthened its education system in order to provide for the essential standard required of its human resources. It also prioritized research and development and improved its institutional system leading to a dynamic private sector.

3.DATA AND METHODOLOGY

This study aims to combine middle-income literature with comparative higher education policies with an eye towards evolution of the global political economy structures. Methodologically, comparative policies and country cases are employed with qualitative approach. Despite numerous theories, models, and researches in the social science fields interdisciplinary studies are relatively shallow, and they still faces enormous challenges. At the center of the paper the Turkish higher education system resides. In this context, several parameters are collected from official sites regarding enrolment rates, faculty and student compositions, publication records, university rankings, public expenditures, research and development activities, and they are analyzed so as to provide policy recommendations. Comparisons with successful developers and other countries, OECD members and their macroeconomic and developmental figures are provided to depict the relative position of Turkey. Several official and private data sources are used from national institutions such as Turkish Statistical Institute (TÜİK), Turkish Higher Education Council (YOK), and The Scientific and Technological Research Council of Turkey (TÜBİTAK). Additionally, data also obtained from major international organizations such as OECD, UNDP, and Worldbank.

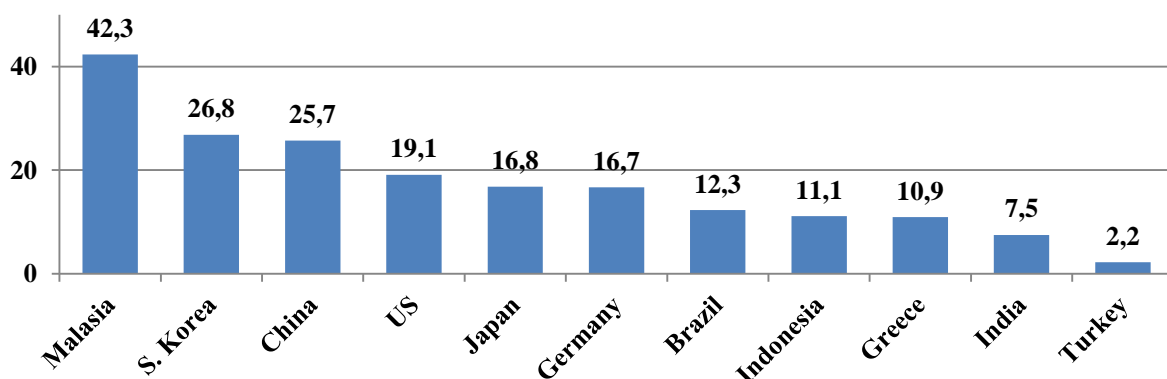
4.FINDINGS AND DISCUSSIONS

It is useful to analyze the main characteristics of the middle income nations such as Brazil, South Africa, Thailand, Malaysia and Mexico. By comparing these cases it is possible to derive some lessons and identify the difficulties they face in the social, political and economic areas. Brazil, Mexico and South Africa are among the most prominent examples of countries that have been associated with the middle-income trap. What should not be done can be learned from these countries. It is also useful to analyze successful cases in the recent decades: Japan, South Korea, Hong Kong, Taiwan and Singapore.

In the last decades there are very limited countries that achieved high income status. South Korea is the most appropriate case for Turkey. South Korea, which had similar developmental level with Turkey at the beginning of the 1980s, made a great transformation throughout the 1990s and following years.

In the 1990s, which are the lost years of Turkey's development record, South Korea has completed the infrastructure necessary for information society and innovation. According to 2015 figures, South Korea's economy has a size of 1.2 trillion dollars while Turkey has 800 billion dollars; South Korea exported goods and services of about 550 billion dollars, 120 billion dollar trade surplus, and it is the world's sixth largest exporter; Turkey exported goods and services of 152 billion dollars value, 48 billion dollars trade deficit, and it is the 30th exporter in the world rank. More importantly, 27% of South Korea's exports are advanced technology products while it is 2% for Turkey. The share of advanced technology products in exports is around 10% for Indonesia, Greece and Brazil, 15% for Germany and Japan, and 25% for countries such as South Korea, USA and China.

Table 2: Proportion of Advanced Technology Products in Manufacturing Industry Exports (2015)



Source: World Bank, "World Development Indicators-2015"

It is obvious that there are some preconditions to gain competitive advantage in the world markets. Six key points are highlighted in the process of transforming national economies in successful countries (Kharas and Kohli, 2011). First, while the primary criterion for achieving the middle-income level is diversity in production, the goal of being able to move to a higher level of income is to focus on specific areas and specialize in the manufacturing and service sectors. This is the rule of scale economy. It would be wise to direct national energies (savings, investments, human capital and all other inputs) to some special products and sectors in order to be able to move from middle-incomes towards high income levels. Especially

after the East Asian crisis, South Korea focused on a couple of selected sectors: the electronics and automotive industries. As giant corporations of S. Korea went bankrupt the remaining ones conducted serious restructuring processes. The East Asian Crisis was seen as an opportunity for the transition to high-efficiency sectors.

The second important model which emerges from the process of national economic transformation into high-income level in successful countries is related to total factor productivity. Undoubtedly, the key to total factor productivity is education policies. The third point in the transition from the middle incomes to the high income levels is expressed as decentralization principle (Kharas and Kohli, 2011). More specifically, power, authority and responsibility are to be distributed in a coordinated manner in macro economic management. Local governments are both weak in terms of capacity and pressures against private interest groups. For that, political power and responsibility should be distributed proportionally.

Another major recommendation for middle-income trap and development is to change economic philosophy or mentality. In particular, policies on social programs need to be formulated independently. With a simple statement, a demand-oriented production structure should be targeted for transition. In this regard, we can give populist practices in Turkey such as the elimination of student fees at universities and distribution of free milk to elementary school students.

The main objective of the economic development strategy should be quality and innovation-based production that can address the world markets. On the other hand, the states should deal with the distribution - redistribution policies, as the government's main task, in separate circles in order to be able to meet the need for social justice. Although education is regarded as a public property, higher education is more like a private property since its rate of return is quite high for the owner. The compulsory education in South Korea is 9 years (6 + 3), but the fact that Turkey's introduction to 12 years-compulsory education is a controversial subject.

In sum, a high quality education system, especially the higher education system, should be restructured in a rational incentive-based system. Rewards and punishment have to be inserted in the institutional codes. In order to get rid of middle income trap, Turkish education system must be focused on productivity rather than equality.

In order to escape from the middle income trap and to achieve high income status, Turkish authorities should design a comprehensive reform project prioritizing total factor productivity at all levels and stakeholders of the system. Without radical reforms it is impossible to position Turkey amongst the top 10 economies of the world by 2023 or even by 2050.

As it is frequently expressed by scholars and experts, Turkey needs to focus on the technologically advanced products. The kilogram value of Turkey's exports is around \$ 1.5, while in advanced countries such as Germany and Japan this figure is around \$ 4.5. One of the preconditions of high technology production and export is quality-oriented universities and other research institutions.

There are certain requirements for producing high technology products. For example, Drori (2010) discussed about these requirements. There are three essential factors on the matter. First, there is a social geography of innovation: Silicon Valley-like technology clusters have been emerged around the world, and the vast majority of them are concentrated in a few regions or countries. It is becoming increasingly difficult to enter into the league of world tech giants. As of 2008, almost half of the 4,000 innovation centers around the world are in the United States. The vast majority of worldwide patents are concentrated in five centers: the United States, Japan, South Korea, PRC and European Patent offices, which signed about 77% of the 727,000 patents registered in 2006. The second factor mentioned by Drori (2010) is the innovation infrastructure. From the financial aspect of R & D activities to legal protection infrastructure, many factors have been examined in this group. The third important factor mentioned by Drori (2010) is the socio-cultural dimension of innovation or ecosystem. Taking social values and norms into account, the overall picture of entrepreneurship, risk taking and business administration and similar activities should be examined.

To support Drori's (2010) major parameters for innovation and development there is a trend in the structure of higher education globally. Quality of universities now is associated with their rank in the world league. Besides, higher education institutions tend to cluster around "university hubs". As the center of gravity shifts towards the Asia Pacific region, Asian universities are also on the rise globally. Of the top 200 universities in the world, there are five from the PRC, three from the South Korea, and two from Singapore and Japan.

Moreover, the concepts of innovation and knowledge economy become more meaningful together with sociology and geography. Innovation has a geographical dimension along with sociological dynamics. Techno-parks, global cities, "smart cities", "competitiveness of cities" and "viable cities index", all these novel concepts are related to innovation ecosystem. In order to be able to attract talent it is necessary to provide for a livable environment to scholars and research personnel (Gill and Kharas, 2015). For example, Mercer's Quality of Living Index has been evaluating and ranking 230 cities of the world over 39 parameters including politics, economy, environment, safety, health, transportation for almost ten years. According to this ranking, Vienna is at the top of the list as the most livable city.

Although the deficiencies in Turkey's education system and in particular the higher education system are partly referred to as inadequate resources, the most important problem is the lack of an all-inclusive system. In Turkey, both the number of universities and the number of enrolled students have experienced a huge increase in the last decade; the number of universities, which was 73 in 2004, reached 180 by 2016. While the number of students enrolled in universities and colleges

was approximately 2 million in 2004, this figure reached 6 million by 2016. The schooling rate, which was 31% in 2004, approached 80% by 2016; It is worth noting that the OECD average was 70.2% in 2014 (Tekneci, 2016).

One of the most important indicators of educational quality is government expenditure per student figures. It is striking that Turkey is one of the lowest-ranking countries among OECD countries in terms of education expenditure per student. According to the OECD data for 2015, when the expenditure per student is examined, Turkey with about 2,500 euros is in the last places of the list (OECD, 2016). It is observed that the share of education budget in Turkey has increased in recent years. The ratio of the amount of public resources spent for the national education system (including public universities) to GDP has reached 4%. However, the OECD average in this area is around 5-6%. According to 2011 figures, public spending for higher education institutions is 1.63% of OECD average GDP, while this figure is 1.32% in Turkey (Tekneci, 2016).

In addition, approximately 80% of the tuition allocated to the education system in Turkey is allocated to personnel expenditures. The funds received by the top ten universities of Turkey from the national budget are around 2.4 billion dollars. To make a comparison, let us recall that the US public budget allocation for Harvard University in 2013 was \$ 4.2 billion. In addition, as announced by Harvard University, the amount donated to college by graduates and other beneficiaries at the end of the 2013 budget year was \$ 32.7 billion (Harvard Magazine, September 24, 2013).

Universities in Turkey are not still accustomed to generate financial resources. By Abbas Guclu's statement, "Universities should produce part of their own resources. The world's advanced universities provide one-third of the budgets from the state, one-third from the students, and one third from their own fund raising activities. In Turkey, almost 95% of the resources are coming from the public funds for state universities (Milliyet, July 3, 2015). While the ratio of administrative to academic staff in the prominent world universities does not reach 5%, in Turkey the number of administrative staff is almost the same as the academic staff in Turkish universities (Milliyet 3 July 2015; Özoğlu et al., 2016).

Another problem area regarding the input structure of the Turkish higher education system is the relative weakness of internationalization. While there are approximately 150 thousand academic personnel in Turkey, the number of foreign academics is 1703, representing about 2% of total (Şeremet, 2015). Moreover, the vast majority of foreign faculty members have been clustered at several major universities, such as Bilkent and Koç Universities. In a comparative study of the global higher education systems by the British Council (2016), the major deficiencies of Turkey are highlighted in internationalization, institutionalization areas and more importantly in quality assurance and international recognition.

One of the most important inputs of the higher education system is related to the academic staff. According to a study conducted by TUBITAK (2015) using 2004-2014 data, the number of publications addressed in Turkey was 228,856 and 1,517,691 cited works. The first three universities ranks according to impacts of publications were Boğaziçi University, Bilkent University and İTÜ. Another data suggests that publications in only 17 fields out of the 250 Turkish universities were ranked above the world average in terms of impact factor.

In South Korea, the top 10 universities have been selected by the government and bureaucratic authorities and these universities are planned to enter into world class universities by providing serious incentives. The Brain Korea 21 project and World-Class-University-WCU projects were influential (Byun et al., 2013). Another project, "Work in South Korea Project" aimed to attract talented students and researchers. The South Korean Advanced Institute of Science and Technology (KAIST) was established to attract Korean scientists from developed countries to the homeland (Michalski et al., 2012). In the period between 2003 and 2011, 10 universities of the South Korea entered into the top 500 universities in the world rankings (Michalski et al., 2012). In China it is observed that the 11th economic plan allocated a special section for university education and university system. With the 11th Development Plan, the PRC government aimed to have a sustainable development strategy for all educational institutions, especially universities. The PRC issued the 13th Development Plan (2016-2020) and the second section is "Innovation-Driven Economic Development." In the most recent plan, the goal is developing worldwide universities, enabling PRC to become the world leader in certain disciplines. The PRC government has identified a specific number of universities in the elite university category.

5. CONCLUSION

Taking into consideration Turkey's financial limitations, resources allocated to universities and R&D activities should be used wisely. Firstly, higher proportions of budget should be allocated to the education and R&D activities. Secondly, the existing source should be used in the most efficient way. Making the Turkish economy more innovative and more competitive is only possible by high quality knowledge production system.

The necessity of producing high-tech products in Turkey has been understood and a number of incentives and measures have been included especially in the 9th and 10th Development Plans to achieve this aim. Furthermore, in the National Science, Technology and Innovation Strategy (2011-2016) prepared by TUBITAK, the areas with high innovation capacity including of automotive, machine manufacturing, information and communication technologies, defense, space, health, energy, water and food sectors are invested and it is accomplished in the form of university – industry cooperation.

The most critical step Turkey needs to take is construction of a commonly shared strategic vision. All stakeholders should agree on this vision. All public institutions predominantly the YÖK must be redesigned in a holistic policy. The entrepreneurship and innovation index produced by TUBITAK for Turkey's universities is an important step. To move into

high income league Turkey must focus on the concept of elit universities. In order for Turkey's universities to reach global standards, at least some of them must operate in autonomous status.

It is necessary for Turkish decision-makers to focus on productivity and efficiency oriented economic reforms. This is a reform program that must focus on educational reform in general and engineering and science programs that will provide, in particular, human capital for Turkey's elite universities and a few selected sectors for high tech export advantage. It is necessary for Turkey to construct a development model that is appropriate for its culture, history, demographic structure and all other socio-political realities.

For the basic principles of this model, it is necessary to pay attention to some of the problems that are present in the current development levels of these countries as well as the important features such as efficiency, innovation and research development from South Korea, Singapore, PRC and Japan models. Also, such issues as demographic sustainability, consumption-waste-saving relationships and social capital sustainability should be taken into account while planning and implementing reforms of higher education development. For example, South Korean experience of getting rid of the middle-income trap can be used as a model in this regard, but it also has alarming points in some aspects: South Korea is in the first place according to the World Health Organization for suicide cases. According to 2013 data, the number of deaths due to suicide per 100,000 population is 28.5 in South Korea, and 21.4 in Japan, while this figure is around 4 for Turkey (WHO, 2014). Likewise, in terms of population growth rate, South Korea, PRC and Japan are expected to face serious problems like all other developed countries. In short, in the course of planning and implementation of Turkey's economic growth and development policies, attention should be paid to other important social and political parameters such as fertility, suicide, divorce, social capital, in addition to economic parameters such as productivity.

REFERENCES

- Agenor, P.R., Canuto, O., Jelenic, M. (2012), "Avoiding Middle-Income Growth Traps," World Bank - Economic Premise, No: 98.
- Aiyar, S., Duval, R. Puy, D., Wu, Y. & Zhang, L. (2013), "Growth Slowdowns and the Middle-Income Trap," International Monetary Fund Working Paper, March 2013.
- Byun, K. Jon, J.E., Dongbin, K., (2013), "Quest for Building World-class Universities in South Korea: Outcomes and Consequences", *Higher Education*, 65, 645–659
- Economist (2011), "Beware The Middle-Income Trap: China's Roaring Growth Cannot Last Indefinitely", June 2011
- Eurostat (2014), "Annual expenditure on public and private educational institutions per pupil/student," Available at <http://ec.europa.eu/eurostat/tgm/>
- Felipe, J. Abdon, A., & Kumar, U. (2012), "Tracking the Middle Income Trap: What Is It, Who Is In It, and Why?" *Levy Economics Institute Working Paper*, No: 715.
- Gill, I. & Kharas, H. (2007), "An East Asia Renaissance: Ideas For Economic Growth", Washington DC: World Bank.
- Gill, I. S., & Kharas, H. (2015). The middle-income trap turns ten.
- Interbrand (2014), "Best Global Brands," Available at: <http://www.bestglobalbrands.com/2014/ranking/>
- Jon, J. & Chung H. (2014), STEM Report: Country comparisons: Republic of Korea, <http://www.acola.org.au/PDF/SAF02Consultants/Consultant%20Report%20-%20Korea.pdf>
- Kharas, H. & Harinder, P. (2011), "What Is the Middle Income Trap, Why do Countries Fall into It, and How Can It Be Avoided?", *Global Journal of Emerging Market Economies*, 3(3), 281-289.
- Kohli, H.A. & Mukherjee, N. (2011), "Potential Costs to Asia of the Middle Income Trap", *Global Journal of Emerging Market Economies*, 3(3), 291-311.
- Kohli H.A., Szyf, Y.A., & Arnold, D. (2012), "Construction and Analysis of a Global GDP Growth Model for 185 Countries through 2050", *Global Journal of Emerging Market Economies*, 4(2), 91-153.
- Li, Y.A., Whalley, J., Zhang, S. & Zhao, X. (2011), "The Higher Educational Transformation of China and Its Global Implications", *The World Economy*, 34(4), 516-545.
- Michalski, B., Kołodziej, G. & Piasecka, A. (2012) Organization and functioning of South Korean Higher Education System"., Adam Marszałek, Toruń (ed.), *Is the 21st Century the Age of Asia? Deliberations on Culture and Education*. Available at: <http://www.researchgate.net/publication/232815596>
- Moon, M. & Kim, K. (2001), "A case of Korean Higher Education Reform: The Brain Korea 21 Project", *Asia Pacific Education Review*, 2(2), 96-105.
- Mowery, D. C. & Sampat, B.N. (2013), "Universities in National Innovation Systems," J. Fagerberg, D. C. Mowery & R. R. Nelson (Ed.), *The Oxford Handbook of Innovation*, Oxford: Oxford University Press, 1-38.
- OECD (2012), "International Comparisons," Main Science and Technology Indicators, Available at: http://www.oecd-ilibrary.org/science-and-technology/main-science-and-technology-indicators/volume-2011/issue-2_msti-v2011-2-en-fr

Sharma, Y. (2014), What Do You Do with Millions of Extra Graduates?, BBC-News (1 Temmuz 2014): Available at: <http://www.bbc.com/news/business-28062071>

TÜBİTAK (2017), Girişimci ve Yenilikçi Üniversite Endeksi-2016, Available at: <http://www.tubitak.gov.tr/tr/kurumsal/politikalar/icerik-girisimci-ve-yenilikci-universite-endeksi>

UNDP (2014), Human Development Report-2014.

World Health Organization (2014), "Preventing suicide: A global imperative", Available at: http://www.who.int/mental_health/suicide-prevention/world_report_2014/en/

Wilson, W.T. (2014), "Beating the Middle-Income Trap in Southeast Asia," *Special Report* No. 156, Heritage Foundation, 27 August 2014.

World Bank (2014), World Development Indicators 2014.



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ETHICAL ASPECTS OF ENTREPRENEURSHIP IN NURSING

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ABSTRACT

Ethics is one of the characteristics of contemporary civilization. Health care system faces uniquely complex ethical problems. Many points of serious concern need to be raised under the concept of ethics. For nurse entrepreneurs to be professionally credible they have to be competent and accountable. While fundamental responsibility lies with the individual nurse entrepreneur, the professions have to evidently improve these essential attributes as well. The code of nursing ethics would constitute supplementation of legal provisions and professional regulations. There is growing recognition of the important contributions made by nurse entrepreneurs within health care systems and an acknowledgement that nurse entrepreneurship promises future advancement in health care. As a consequence, ethics will contribute to harmonious, agreeable cooperation of patients in entrepreneurship processes by nurses, as well as harmonious social coexistence with the healthcare environment which in itself cannot protect.

Keywords: Ethics, entrepreneurship, health care, nursing

JEL Codes: 3 2-Digit JEL codes, 10 punto, calibri

1. INTRODUCTION

The nature of healthcare delivery is maintained to be reshaped by the compelling forces consisting of technological developments, the changes in healthcare economics and the increased patients involvement (Volker, 2003; Yıldırım and Kadioğlu 2007). Various ethical issues emerge concerning how to best use these resources in order to acquire the good for both individuals and society. All patients, nurses, families, physicians, other health professionals and legislators are faced with difficult preferences (Volker, 2003).

Nursing is an indispensable part of health care services (Dinç, 2009). Nurses can provide care by having knowledge and skills required by the age, being sensitive to the humanitarian and ethical aspects of care, continuously developing their professional competence and providing services appropriate to professional ethics (Arslantaş, 2015).

2. ETHICAL SCIENCE

The scope of ethics had improved with the history of humanity. Ethics is a broad term used to describe that branch of philosophy focused on understanding moral aspects of life. It is a term that is derived from the words of "Ethos, Ethike" in Greek and that is called "törebilim" or ahlakbilim" in Turkish. It is also defined as the scientific study and the science of morality. The theme of ethics or philosophy of ethics is human actions (Bountain, 2017; Beauchamp and Childress, 2001; Karaöz, 2000; Ulusoy and Görgülü, 2001; Volker, 2003).

Ethics includes the researches related to social, moral and social norms and philosophical reflections of practices. Ethics is the practical application of philosophy of ethics by asking the question of "what should I do in this situation". Ethical study allows nurses to make logical and lasting decisions. These decisions are based on ethical or formal moral theories. To carry out study on ethics provides nurses with a structured guideline. However, it does not tell us what we have to do. We have to choose this appropriate to ourselves (Alpar et al.2013).

Three types of ethics are mentioned in the literature. 1) Descriptive Ethics; it is an ethical understanding in which behaviors are only examined from moral aspects and moral judgment is not made. 2) Metaethical Ethics; it is an ethical understanding that deals with the issues such as verifying behaviors, investigating the moral causes of behaviors, and giving meaning to them. 3) Normative Ethics; it is an ethical understanding that questions what is right or what needs to be done in moral issues that need to be decided. "Moral" is the Latin equivalent of ethics and means morality. Morality is the code of conduct followed by individuals and groups in a particular period of a particular society (Bountain, 2017; Ulusoy and Görgülü, 2001).

3. ETHICS AND NURSING

Because of the ethical questions caused by the developments in science, medicine and biotechnology, ethics are extremely important in health care (Cerit and Dinç, 2012).

For more than a century, nurses have struggled for professionalism. As a crucial constituent of professional health care services in institutions, communities and homes, nursing activities take place in thousands of instances on a daily basis. More time is spent with patients by nurses compared to any other health-care professionals since caring is a continuous process. The presence of close correlation between nurses and patients allows nurses to observe disease experiences and suffering of patients, and the nurses are required to meet ethics issues with those patients by them (Cerit and Dinç, 2012).

It has been commonly acknowledged that nurses face with exclusive nursing ethical problems resulting from their involvement in patient care (Gastmans, 2002).

Ethics is gaining an increasingly significant place in nursing. Today, there is not a consensus on the meaning of term nursing ethics in nursing literature. This term is unluckily used by numerous authors without any explanation of its definition or intended meaning (Volker, 2003). It was argued by Bishop and Scudder (2001) that "actually, nursing ethics is mainly related to expressing the moral sense of nursing and evaluating how it is accomplished instead of implementing ethical theories to nursing practice". However, it is argued by Thomasma (1994) that "nursing ethics is related to the basically improving relationship. It is required for improving; hence the ethical issues result from the task".

As a consequence of global developments and changes in health care, nurses face with new ethical issues (Görgülü and Dinç, 2007). As it is reported by the International Council of Nurses, the promotion of health, prevention of illness and the care of sick, disabled and dying people are included in nursing. To care for poor people is obvious in this definition. Caring needs more than theoretical knowledge and technical skills, and affective components involving the awareness of others' vulnerability, paying attention to caring requirements and a moral response to the requirements are included in caring (Cerit and Dinç, 2012).

Nurses refrain from permitting personal values to damage their treatment for patients in professional ethical practice. So, it is concluded that the ethical practice of nearly all nurses is put to the test on an everyday rather than an occasional basis (Woods, 1999). For instance, a specific nurse can value and/or in family relationships while a specific nurse can value and/or in family relationships, however a nurse should act upon the professional ethics responsibility to sustain patient confidentiality (Bountain, 2017).

The ethical challenges that emerge in healthcare are included in recurrent ethical problems, nursing practices cannot be always supported by the institutions effectively. But, that shows that many of the nurses care professionals in spite of extensive research findings (Leutor et al., 2012).

Nurses constitute the biggest health care profession in the USA and ensure a specific type of care (nursing care) which is central to the well-being of those who require it. To improve health and to help individuals to overcome the disease are always the purposes of nursing care. While providing nursing care, nurses establish relationships with the patients and their families and are usually involved in more sustained interaction with them compared to any other member of the health care team. In addition, nurses have a crucial role in the health care team, in holding the lines of communication open and in coordinating all the professional services needed for patient care (Redman and Fry, 2000).

The fact that nurses are faced with ethical conflicts while providing care is not surprising. Nurses are individuals who have personal and professional values, they employ their skills in institutions together with the other professionals with different values. They deliver nursing care to the patients who generally have religious, cultural and moral values that are completely different from their own values (Redman and Fry, 2000).

4. NURSE ENTREPRENEURS

The nurse is regarded as "the owner of a business that provides nursing services of a direct care, educational, research, administrative or consultative nature. The self-employed nurse is directly liable to the patient, to whom, or on behalf of whom, nursing services are offered" by nursing entrepreneurship which is generally called as private practice, independent practice, independent contractor, and self-employed practice (ICN, 2004).

Nowadays, an excellent population of the liberated professionals consists of nurse entrepreneurs. Nurse entrepreneurship is very beneficial in terms of financial stability, freedom, flexibility, status, increased patient and professional satisfaction (Leong et al., 2008). Nursing entrepreneurship is represented as a practicable and appealing approach in terms of nursing practice serving to reestablish the professional autonomy, improve nursing professionalism, engage in health system transformation. Furthermore, the nurses with self-employment opportunities are enabled to follow their personal feelings to promote the health consequences using innovative approaches, through the nursing entrepreneurship. The significant contributions that the nurse entrepreneurs made within the health care systems are increasingly realized, and it is accepted that nurse entrepreneurship is promising for the future advancement in health care.

Nurse entrepreneurs consist of the nurses with control over and responsibility for an increased proportion of indirect processes of care in their roles. Nurse entrepreneurs are required to be competent and accountable to be professionally reliable. An excellent practice nurse entrepreneur is defined as a person who is capable of determining a patient's requirement and finding a way for nursing to respond to that requirement effectively, formulating and implementing a plan to fulfill that requirement. Although the basic responsibility lies with the individual nurse entrepreneur, the professions should also apparently develop these crucial attributes. An explicit scope of the practices of nurse entrepreneurs, educational and practice standards, the relevant on-going education programs, and functioning regulatory bodies such as council and accrediting body are needed between the structures (Dayhoff and Moore, 2002).

There has been an increase in inclination to entrepreneur nursing during the recent decades and under the influences of various economic and social factors. Besides, the role of entrepreneur is owned by only 0.5–1% of nurses throughout the world, based upon the census of National Nurses Association. The real number could be more or less than the amount calculated. While it is less than 1% in New Zealand, it is 0.18% and more than 18% in the US and England, respectively (Jahani et al., 2016; Wilson et al., 2012).

5. ETHICS IN NURSING ENTREPRENEURSHIP

One of the attributes of contemporary civilization is ethics. It is comprehensively addressed and emphasized, it might equal be taught or otherwise introduced into individual's life. The economic activity is one of the fields where ethics has become increasingly significant. The costs have continued to increase in health care, and this situation alarms those who are involved within and outside the industry. Moreover, the competition between providers has been increasingly promoted by the health care systems, so this has facilitated the improvement of entrepreneurship as well as intrapreneurship ventures. Therefore, there has been an explosion in entrepreneurs during the recent twenty years (Harris et al., 2009; Victoria and Elena, 2013).

Ethics applied to entrepreneurship could provide practical guidance for solving problems. The current understanding of the phenomenon of entrepreneurship, based on humanistic views, sees it as a wide range of ways of self-realization, and not just profit (Victoria and Elena, 2013). The ethical issues of entrepreneurship, which is crucial, involve under a seemingly clear simplicity numerous. However, serious research attention has been paid to the ethical problems only in the recent times. The health care system is confronted with uniquely complex ethical problems such as basic fairness, relationships of the personnel and patient-health care teams, distribution dilemmas and other challenges. It is necessary to raise many points of serious concern under the concept of ethics (Staniewski et al., 2015).

It is essential for continuing education to be an inseparable part of nurse entrepreneurs' practices and career development strategy. Therefore, through the code of nursing ethics, the supplementation of legal provisions and professional regulations would be constituted, the feeling of responsibility for social consequences of professional actions would be shaped, honest activities would be promoted, and non-ethical activities would be revealed and negatively qualified (Harris et al., 2009).

6. CONCLUSION

Ethics is one of the features of contemporary civilization. Ethics and entrepreneurship are so closely interlinked that that combination in itself could well be looked upon as one of the fundamental criteria of decision-making. One of the areas where ethics has become increasingly important is health care. The significant contributions that the nurse entrepreneurs made within the health care systems are increasingly realized, and it is accepted that nurse entrepreneurship is promising for the future advancement in health care. In consequence, ethics will contribute to coherent, favourable cooperation of patients in entrepreneurship processes by the nurses in addition to coherent social coexistence with the healthcare environment in which it cannot protect by itself.

REFERENCES

- Alpar, Ş.E., Bahçecik, N., Karabacak Ü.(2013). Çağdaş Hemşirelikte Etik [Ethics and Issues in Contemporary Nursing]. İstanbul: İstanbul Tıp Kitabevi.
- Arslandaş, H. (2015). Ruh sağlığı ve psikiyatri hemşireliğinde etik konular, kodlar ve standartlar [Ethical issues, codes, and standards in mental health and psychiatric nursing]. *Psikiyatri Hemşireliği Dergisi*;6(1):47-56.
- Beauchamp, T. L., Childress, J. F. (2001). *Principles of Biomedical Ethics* (5th ed.). New York: Oxford University Press.
- Bishop, A., Scudder, J. (2001). *Nursing Ethics: Therapeutic Caring Presence* (2nd ed.). Boston: Jones and Bartlett Publishers.
- Bountain, D.M. (2017). *Values, Ethics, and Legal Issues. Fundamentals of Nursing Human Health. Eight Edition, Philadelphia: Wolkers Kluwer.*
- Cerit, B., Dinç, L. (2012). Ethical decision-making and professional behaviour among nurses: a correlational study. *Nursing Ethics* 20(2): 200–212.
- Dayhoff, N.E., Moore, P.S. (2002). Entrepreneurial clinical nurse specialists: innovators of patient care. *Clin Nurs Spec* 16: 274-276.
- Dinç, L. (2009). Hemşirelik hizmetlerinde etik yükümlülükler [Ethical responsibilities in nursing services]. *Hacettepe Tıp Dergisi* 40: 113-119.
- Gastmans, C. (2002). A fundamental ethical approach to nursing: some proposals for ethics education. *Nursing Ethics* 9(5): 494-507.
- Görgülü, S., Dinç, L. (2007). Ethics in Turkish nursing education programs. *Nursing Ethics* 14(6):741-752.
- Harris J.D, Sapienza H.J., Bowie N.E. (2009). Ethics and entrepreneurship. *Journal of Business Venturing* 24: 407-418.
- International Council of Nurses. (2004). *Guidelines on the Nurse Entre/Intrapreneur providing nursing service. Author. Geneva, Switzerland: ICN.*
- Jahani, S., Abedi, H., Elahi, Fallahi-Khoshknab (2016). Iranian entrepreneur nurses' perceived barriers to entrepreneurship: A qualitative study. *Iran J Nurs Midwifery Res* 21(1): 45-53.
- Karaöz, S. (2000). Cerrahi hemşireliği ve etik [Ethics in perioperative nursing]. *C.Ü. Hemşirelik Yüksekokulu Dergisi* 4 (1):1-15.
- Kulwicki, E. (2011). Social and ethical aspects of entrepreneurship. *The Małopolska School of Economics In Tarnów Research Papers Collection* 19(1): 55-63.
- Leuter, C., Petrucci, C., Mattei, A., Tabassi, G., Lancia, L. (2012). Ethical difficulties in nursing, educational needs and attitudes about using ethics resources. *Nursing Ethics* 20(3): 348-358.
- Leung, B., Wee Shan, A.K., Yuen-Ping, H. (2008). Is an enterprise framework necessary for an entrepreneurial university? A comparison of technology start-ups in Singapore and Sweden. *Science and Public Policy*, 35(9):647–656.
- Redman B.K., Fry, S.T. (2000). Nurses' ethical conflicts: what is really known about them? *Nursing Ethics* 7 (4): 360-366.
- Staniewski, M.W., Slomski, W., Awruk, K. (2015). Ethical aspects of entrepreneurship. *Filosofija. Sociologija* 26(1):37–45.
- Thomasma, D. C. (1994). *Toward a new medical ethics: Implications for ethics in nursing. In P. Benner (Ed.), Interpretive phenomenology: Embodiment, caring, and ethics in health and illness. Thousand Oaks, CA: Sage.*
- Ulusoy, M.F., Görgülü, R.S. (1991). *Hemşirelik Esasları Temel Kuram, Kavram, İlke ve Yöntemler [Fundamentals of Nursing: Basic Theories, Concepts, Principles and Methods], Ankara:72 TDFO Ltd.Şti.*
- Victoria, D., Elena,L. (2013). Moral and ethical conceptions of entrepreneurs: cross-cultural aspects. *Procedia - Social and Behavioral Sciences* 86: 318 -322.
- Volker, D.L. (2003). Is there a unique nursing ethic?. *Nursing Science Quarterly* 16(3): 207-211
- Wilson A, Whitaker N, Whitford D. (2012). Rising to the challenge of health care reform with entrepreneurial and intrapreneurial nursing initiatives. *Online J Issues Nurs* 17: 5.
- Woods, M. (1999). A nursing ethic: the moral voice of experienced nurses. *Nursing Ethics* 6 (5):423-433.
- Yıldırım, G., Kadioğlu S. (2007). Etik ve tıp etiği temel kavramları [Basic concepts of ethics and medical ethics]. *C.Ü. Tıp Fakültesi Dergisi* 29 (2): 7-12.



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SIGNIFICANCE OF TECHNOLOGY-BASED ENVIRONMENT IN THE DEVELOPMENT OF NURSING STUDENTS' CRITICAL THINKING SKILLS

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ABSTRACT

In parallel with the increase of the students, there is a rapid increase use of technology. Wider accessibility to internet, use of e-mails, web sources, use of advanced mobile gadgets and simulators further fuels the use of technology. However, it is of crucial importance that technology-based learning environment has high-security hardware, that it embodies features that will properly suit their level of and help their development of cognitive, psychomotor and social development process of the students. Therefore, online class/labs and online applied conference/courses—when used effectively—will positively contribute to development of critical thinking skills, an indispensable part and major aim of contemporary education. Therefore, it is vital that technology-based learning environment is utilized and its significant is appreciated in order to enable development and actual practice of critical thinking skills by the nursing faculty members and the students.

Keywords: Technology-based learning environment, critical thinking, nursing, education

JEL Codes: K12

1. INTRODUCTION

Health care systems are changing rapidly in many countries. As a result of these dynamic changes and developments experienced in health care systems, health care technologies have begun to develop rapidly (Cholewka and Mohr, 2009; Kala et al., 2010; Yoo and Park, 2014). This situation has led to the emergence of new knowledge and concepts related to technology in nursing education, practices and researches. In addition, it also required for nurses to acquire new knowledge and skills in the changing application areas (Camilli, 2014; Chan et al., 2016; Shellenbarger and Robb, 2015). Along with the global technological developments, nursing faculties providing education at the undergraduate level are faced with the fact that students should be prepared for the changing health care environments (Shellenbarger and Robb, 2015). Within the changing health care system, nurses are expected to have the necessary skills in health politics, leadership, system configuration, researches, evidence-based practices, team work and in their communication with other health care team members (Kala et al., 2010). However, nursing students may have difficulties in learning clinical skills including psychomotor, cognitive and affective domains (Haraldseid, 2015). Therefore, it is important for nursing students to use new teaching methods along with the changing technology in order to adapt to the changes and to implement nursing practices safely (Chlowka and Mohr, 2009). Since the knowledge level and clinical decision-making skills of the nurses are regarded as important factors in determining their professional competencies, instructors should develop learning methods to meet these learning requirements in nursing education (Kala et al., 2010). The education and training methods that are intertwined with technology can be used to reflect the theoretical knowledge on nursing practices. The use of technology in nursing education offers many advantages for developing new teaching strategies (Axley, 2008; Shellenbarger and Robb, 2015). It is very important to integrate information technologies into the curriculum so that nursing students can achieve success during their education and professional career (Edwards and O'Connor, 2011). The use of technology in nursing undergraduate courses is becoming widespread along with the ease of Internet access, the use of electronic mail and web resources, the development of mobile devices and simulators. The development of nursing students' critical thinking skills is

ensured through the technology used, and they can easily make the right decisions and learn the theoretical and practical courses, and their adaptation to the clinical environment becomes easier (Carley, 2015; Doswell et al., 2013; Fitzgerald et al., 2012; Kaya et al., 2011).

Critical thinking is a mental process that enables the person to reach a decision that directs the individual's behavior a result of the active perception, analysis, synthesis and evaluation of the information obtained through observation, experience and communication, or all possibilities (Papathanasiou et al., 2014; Price 2015; Pucer et al. 2014). Critical thinking, which is an important element of the education process, develops with knowledge and experience (Kaddoura, 2011; Porter-O'Grady et al., 2005). Graduated nurses are expected to have critical thinking skills to ensure their compliance with the multidimensional care systems that include complexity of service offered in various fields, technological knowledge and application and with the rapidly changing health care systems (Chan et al. 2016; Kaya et al., 2011; Shirrell 2008). Nurses use critical thinking skills while taking important decisions about the solution of different problems they encounter during working hours and the stress caused by these problems. Critical thinking, which is an important part of occupational responsibility and nursing care, ensures that nurses perform more evidence-based practices while providing to achieve the expected results in patient care (Benner et al. 2008; Chan 2013; Kaya et al., 2011; Papathanasiou et al. 2007; Pucer et al. 2014). When the literature is examined, it is seen that technological developments such as simulation applications, distance education techniques, online applied conferences and courses, mobile devices that have been used in nursing education in recent years are effective in the development of their critical thinking and decision making skills (Pucer et al. 2014; Reviriego 2014; Wu 2014).

2. DISTANCE EDUCATION TECHNOLOGIES

Distance education is defined as the process of ensuring that nursing students receive education outside the classroom or the building where education is provided, ensuring the learning of more people, and offering an opportunity to share educational and teaching resources with the students, along with the integrated use of video, audio, computer, email, fax, multimedia communication or other technological methods (Kantek, 2013; Mancusa, 2009).

In parallel with the increase in content of the scientific knowledge that guides nursing practices, the intensity of the subjects in the nursing curriculum and course contents is increasing. In addition, in line with the increasing demand for higher education institutions, the number of students is increasing with each passing day, and changes are seen in the demographic characteristics of the students such as the average age and working conditions (Holly, 2009; Kaveevitichai et al., 2009; Kummerow, 2009). This situation causes troubles for institutions in terms of the fact that economic, political, physical working conditions and the number of instructors are insufficient (Şenyuva and Taşocak, 2014). All these factors lead to the necessity of using and developing distance education technologies in order to prevent time limitations in training applications, to reduce content intensity and to provide training for more learners (Carpenter et al., 2013; Kummerow, 2009; Mee, 2014). Thanks to distance education technologies, students and instructors can learn in different environments and at different times, even in different countries (Holly, 2009).

Nursing education in distance education systems has been mentioned since 1969 (Kala et al., 2010). While web-based computer technologies that were used during the first years of distance education in nursing education were used only in the education and learning process, they are now being used as a strategy for sharing learning skills and knowledge (Kala et al., 2010). Distance education is an important training method used to enable students to receive nursing education flexibly and to follow new developments in the changing and developing health system, without the requirement of attending the courses. However, in order for these training methods to be carried out effectively, the educational institutions should have adequate technological facilities, experienced instructors, technical staff and structured programs (Kummerow, 2009; Seven et al., 2014). American Association of Colleges of Nursing (AACN) (1999) states that distance education techniques will ensure nurses' preparation of clinical practices and contribute to the education of future nurse lecturers when they are used with caution (Mancusa, 2009). When distance education technologies are managed well, they provide effective and fast feedback by facilitating the interaction between students and instructors and their peers. This situation enables students to develop their critical thinking skills (Carter et al., 2006).

Critical thinking skill is a part of distance education, and it is important for students to think critically during the learning experience or to acquire the necessary skills (Gharip et al., 2016). Nurses with critical thinking skills can respond to their practices more effectively in order to meet the needs of the healthy/sick individual (Carter et al., 2006).

2.1. Simulation Technologies

Simulation is accepted as a valid tool by instructors and researchers in the acquisition of knowledge and is used as an innovative teaching approach. When it is accepted as a learning tool, simulation is in good harmony with the theoretical and conceptual structure of nursing education (Campbell and Daley, 2013; Faulcon, 2015). Students' experiences on patient care and ability to deal with problems may be inadequate due to the rapid changes in application areas, problems related

to patient safety and ethical problems. It is very important that health professionals are prepared to provide fast, safe and effective care in the presentation of health care. For this purpose, simulation is used as an approach to provide active and experiential learning (Clayton et al., 2017; Kim et al., 2016).

Simulation technologies offer opportunities to present and learn nursing practices in a realistic environment. Instructors use low-tech simulations (low fidelity simulations) such as arm models and hip models and simulations including advanced technology supported by computer systems (screen based simulations) to prevent patients from being harmed by reducing medical errors. Students are learning care practices by performing all possible errors on simulation models without harming the patients (Faulcon 2015; Lavoie and Clarke, 2017; Solnick and Weiss, 2007). On the other hand, students develop their clinical decision making skills by means of simulation applications, their self-confidence increases, and also their problem solving and communication skills develop (Sharoff, 2013). Thanks to the realistic simulation scenarios, all inexperienced or expert nurses and students can acquire the skills necessary to fulfill the roles and responsibilities expected from them in life-threatening situations and emergency situations. However, while simulation technologies are integrated into the nursing curriculum by faculties, it is necessary to evaluate their advantages, disadvantages, difficulties and whether they meet the learning outcomes (Faulcon, 2015). In addition, the content and the difficulty level of the scenarios, and students' learning requirements should be evaluated during the planning of simulation scenarios. These scenarios should not cause too much stress on students (Kim et al., 2016; Clayton et al., 2017).

Nursing education studies have shown that simulation technologies make it easier for students to learn application skills, support critical thinking and their confidence level and increase their scientific knowledge (Sharoff, 2013). Critical thinking has been emphasized as a standard at all levels of education from the past to the present day. Simulation completes the missing pieces for nursing education by transforming the enthusiasm that every student has in technology into an interactive and valuable learning that focuses on critical thinking (Radhakrishnan et al., 2007). The fact that simulation technologies are ethically appropriate and that nursing practices are also applied in a safe, effective and ethical manner contribute to the integration of nursing students with theoretical knowledge and critical thinking (Campbell and Daley, 2013).

2.2. Mobile Technologies

Mobile technologies started to be used in nursing education about 20 years ago (Swan et. al. 2013). In the literature, concepts such as PDA-personal digital assistants, smart phones, tablets, handheld terminals are used to describe mobile devices (Doyle et al. 2014). Mobile technologies have become significant in the healthcare environment since they enable nursing students to get information about medicines, patient care and diseases (Day-Black and Merrill, 2015). The use of mobile devices in health education becomes even more important due to inadequate number of educators and the increase in the number of formal and evening education students enrolled in nursing faculties (Maag 2006). Nursing students are encouraged to use mobile devices to monitor their recorded practices, to access information resources related to the subject, to use technological products related to care practices, and to know the existence of these technologies and to comply with them (Doyle et al. 2014).

In nursing education, mobile technologies are used in clinical applications, classes and practice/simulation laboratories (Raman 2015). The complexity of the issues related to healthy/sick individual's health is faced with the fact that increasingly effective clinical information should be managed (Dolye et al. 2014). The use of mobile learning applications by educators is increasing to facilitate and improve the learning of students in the field of health sciences, to provide rapid communication and interaction with evidence-based applications. Thus, instructors can observe students' progress thanks to mobile technologies (Coulby et al. 2011; George et. al. 2010; Maag 2006). While these advantages are provided in terms of educators, students are provided with advantages in issues such as quick access to information, providing cognitive and collaborative learning, getting feedback from educators more often (Coulby et al. 2011; Kenny et al. 2009; Wyatt 2010). Mobile devices provide quick access to desired evidence-based information about nursing practices and also support students' critical thinking and decision-making processes (Doran et al. 2010; Lai and Wu 2012). In the study carried out by Lai and Wu (2012) with 8 students in psychiatry clinics for 3 weeks, they determined that the combination of mobile technologies and internet technologies is effective in the development of students' critical thinking skills. This situation is effective for students to plan the care of the healthy/sick individual in a way specific to individual, and supporting individuality (Sedgwick 2016).

3. CONCLUSION

The expansion of technology in nursing education has an important role for students to acquire the professional knowledge and skills required by the age. The distance education used in nursing education will start to be used more in the education of students along with the advancement of technological developments such as simulation and mobile technologies.

Graduate nurses should receive education by closely following the technological developments to fulfill their professional roles and responsibilities defined in the international arena and to be able to think critically while making decisions about patient care in the clinical environment. Accordingly, the fact that institutions increase their technological equipments and provide the physical conditions by being supported politically and economically by the governments for nursing education, the participation of instructors and students in trainings (congress, symposium, seminar etc.) for the effective and ethical use of technological equipment, and increasing the number of researches evaluating the effectiveness of technology in care are important. When all these possibilities are provided, students will closely follow the developments in the field of health care by developing their high-level learning and critical thinking skills, and the results expected in the care of a healthy/sick individual and patient safety will be ensured.

REFERENCES

- Benner, P., Hughes, R. & Sutphen, M. 2008, "Clinical Reasoning, Decision Making, and Action: Thinking Clinically and Critically", R. G. Hughes (Ed.), *Patient Safety and Quality: An Evidence-Based Handbook for Nurses*, Agency for Healthcare Research and Quality, pp. 1–23.
- Camilli, S.A. 2014, "Plugging into Nursing Informatics: Preparation, Practice, and Beyond", *Canadian Journal of Nursing Informatics*, volume 9, no 1&2, pp. 1-9.
- Campbell, S.H., Daley, K.M. 2013, "Simulation-Focused Pedagogy for Nursing Education", S.H. Campbell and K.M. Daley (Eds.), *Simulation Scenarios for Nursing Educators*, 2nd Edition, Springer Publishing Company, pp. 1-7.
- Carley, A. 2015, "Using Technology to Enhance Nurse Practitioner Student Engagement", *The Nurse Practitioner*, vol. 40, no. 7, pp.47-54.
- Carpenter, R., Theeke, L., Smothers, A. 2013, "Enhancing Course Grades and Evaluations Using Distance Education Technologies", *Nurse Educator*, vol. 38, no. 3, pp. 114-117.
- Carter, L., Rukholm, E., Mossey, S., Viverais-Dresler, G., Bakker, D., Sheehan, C. 2006, "Critical Thinking in the Online Nursing Education Setting: Raising the Bar", *Canadian Journal of University Continuing Education*, vol. 32, no. 1, pp. 27–46.
- Chan, Z.C.Y. 2013, "A Systematic Review of Critical Thinking in Nursing Education", *Nurse Education Today*, vol. 33, pp. 236-240.
- Chan, A. W.K., Chair, S.Y., Sit, J. W.H., Wong, E. M.L., Lee, D. T.F., Fung O. W.M. 2016, "Case-Based Web Learning Versus Face-to-Face Learning: A Mixed-Method Study on University Nursing Students", *The Journal of Nursing Research*, vol. 24, no. 1, pp. 31-40.
- Cholewka, P.A., Mohr, B. 2009, "Enhancing Nursing Informatics Competencies and Critical Thinking Skills Using Wireless Clinical Simulation Laboratories", *Studies in Health Technology and Informatics*, vol. 146, pp. 561-563.
- Clayton, M. F., Supiano, K., Wilson, R., Lassche, M., Latendresse, G. 2017, "Using Simulation in Nursing Phd Education: Facilitating Application of Responsible Conduct of Research Principles", *Journal of Professional Nursing*, vol 33, no. 1, pp. 68–73.
- Coulby, C., Hennessey, S., Davies, N., Fuller, R. 2011, "The Use of Mobile Technology for Work-Based Assessment: The Student Experience", *British Journal of Educational Technology*, vol. 42, no. 2, pp. 251–265.
- Day-Black, C., Merrill, E.B. 2015, "Using Mobile Devices in Nursing Education", *The ABNF Journal*, vol. 26, no. 4, pp. 78-84.
- Doran, D.M., Haynes, R.B., Kushniruk, A., Straus, S., Grimshaw, J., McGillis-Hall, L., Dubrowski, A., Di Pietro, T., Newman, K., Almost, J., Nguyen, H., Carryer, J., Jedras, D., 2010, "Supporting Evidence-Based Practice for Nurses through Information Technologies", *Worldviews Evidence-Based Nursing*, vol. 7, pp. 4–15.
- Doswell, W., Braxter, B. Dabbs, A. D., Nilsen, W. Klem M. L. 2013, "mhealth: Technology for Nursing Practice, Education, and Research", *Journal of Nursing Education and Practice*, 2013, vol. 3, no. 10, pp. 99-109.
- Doyle, G.J., Garrett, B., Currie, L.M., 2014, "Integrating Mobile Devices into Nursing Curricula: Opportunities for Implementation Using Rogers' Diffusion of Innovation Model", *Nurse Education Today*, vol. 34, 775-752.
- Edwards, J., O'Connor, P.A. 2011, "Improving Technological Competency in Nursing Students: The Passport Project", *The Journal of Educators Online*, volume 8, number 2, pp.1-20.
- Faulcon, R.Y. 2015, "Innovative Teaching Strategies with Simulation Technology in Nursing Education", *Journal of Bermuda College*, vol.1, pp. 47-50.
- Fitzgerald, C., Kantrowitz-Gordon, I., Katz, J. Hirsch, A. 2012, "Advanced Practice Nursing Education: Challenges and Strategies", *Nursing Research and Practice*, *Nursing Research and Practice*, vol. 12, pp. 1-8.
- George, L.E., Davidson, L.J., Serapiglia, C.P., Barla, S., Thotakura, A., 2010, "Technology in Nursing Education: A Study of PDA Use by Students", *Journal of Professional Nursing*, vol.26, no.6, pp. 371–376.
- Gharib, M., Zolfaghari, M., Mojtahedzadeh, R., Mohammadi, A., Gharib, A. 2016, "Promotion of Critical Thinking in E-Learning: A Qualitative Study on The Experiences of Instructors and Students", *Advances in Medical Education and Practice*, vol. 7, pp. 271–279.

- Haraldseid, C., Friberg, F., Aase, K. 2015, "Nursing Students' Perceptions of Factors Influencing Their Learning Environment in a Clinical Skills Laboratory: A Qualitative Study", *Nurse Education Today*, vol. 35, pp. e1-e6.
- Holly, C. 2009, "The Case for Distance Education in Nursing", *Journal of Online Learning and Teaching*, vol. 5, no. 3, pp. 506-510.
- Kaddoura, M. A. 2011, "Critical Thinking Skills of Nursing Students in Lecture-Based Teaching and Case-Based Learning", *International Journal for the Scholarship of Teaching and Learning*, vol. 5: no. 2, pp. 1-18.
- Kala, S., Isaramalai, S., Pohthong, A. 2010, "Electronic Learning and Constructivism: A Model for Nursing Education", *Nurse Education Today*, vol. 30, pp. 61-66.
- Kaya, N, Bolol, N, Turan, N, Kaya, H, İşçi, Ç. (2011, "Kulak Burun Boğaz Kliniklerinde Çalışan Hemşirelerin Karar Verme Stratejileri ve Mesleki Doyumları (Decision-making Strategies and Professional Satisfaction of Nurses Working in Ear Nose Throat Clinics) ", *Fırat Tıp Dergisi (Fırat Medical Journal)*, vol. 16, no.1, pp.25-31.
- Kaveevivitchai, C., Chuengkriankrai, B., Luecha,Y., Thanooruk, R., Panijpan , B., Ruenwongsa, P. 2009, "Enhancing Nursing Students' Skills in Vital Signs Assessment by Using Multimedia Computer-Assisted Learning with Integrated Content of Anatomy and Physiology" *Nurse Education Today*, vol. 29, pp. 65–72.
- Kenny, R.F., Park, C., Neste-Kenny, J.M.C.V., Burton, P.A.,Meiers, J. 2009, "Using Mobile Learning to Enhance Quality of Nursing Practice Education", M. Ally (Ed.), *Mobile Learning Transforming the Delivery of Education and Training*, AU Press, pp. 75-98.
- Kim, J., Park, J.H., Shin, S. 2016, "Effectiveness of Simulation-Based Nursing Education Depending on Fidelity: A Metaanalysis", *BMC Medical Education*, vol.16, pp.152-159.
- Lai, C.Y., Wu, C.C. 2012, "Supporting Nursing Students' Critical Thinking with a Mobile Web Learning Environment", *Nurse Educator*, vol. 37, no. 6, pp. 235-236.
- Lavoie, P., Clarke,S. P. 2017, "Simulation in Nursing Education", *Nursing Management*, vol. 48, no. 2, pp. 16-17.
- Maag, M. (2006). "Ipod, Upod? An Emerging Mobile Learning Tool in Nursing Education and Students' Satisfaction". L. Markauskaite, P. Goodyear, P. Reimann (Eds.), *Proceedings of the 23rd Annual ascilite conference: Who's Learning? Whose Technology*, Sydney University Press, pp. 483–492.
- Mancuso, J.M. 2009, "Perceptions of Distance Education among Nursing Faculty Members in North America", *Nursing and Health Sciences*, vol. 11, pp. 194–205.
- Mee, S. 2014, "Is Distance Education the Answer to the Nursing Shortage?", *Open Journal of Nursing*, vol. 4, pp. 158-162.
- Papathanasiou, I., Kotrotsiou, S., Bletsas, V. 2007, "Nursing Documentation and Recording Systems of Nursing Care", *Health Science Journal*, vol. 1, no.4.
- Papathanasiou, I. V., Kleisiaris, C. F., Fradelos, E. C., Kakou, K., Kourkouta, L. 2014, "Critical Thinking: The Development of an Essential Skill for Nursing Students", *Acta Informatica Medica*, vol. 22, no.4, pp. 283-286.
- Porter-O'Grady, T., Igein, G., Alexander, D., Blaylock, B., McComb, D., Williams, S., 2005, "Critical Thinking for Nursing Leadership", *Nurse Leader*, pp. 28-31.
- Price, B. 2015, "Applying Critical Thinking to Nursing" *Nursing Standard*, vol. 29, no. 51, pp. 49-58.
- Pucer, P., Trobec, I., Žvanut, B. 2014, "An Information Communication Technology Based Approach for The Acquisition of Critical Thinking Skills", *Nurse Education Today*, vol. 34, 964-970.
- Radhakrishnan, K., Roche, J.P., Cunningham, H. 2007, "Measuring Clinical Practice Parameters with Human Patient Simulators: A Pilot Study", *International Journal of Nursing Education Scholarship*, vol. 4, no.1, pp. 1-10.
- Raman, J. 2015, "Mobile Technology in Nursing Education: Where Do We Go From Here? A Review Of The Literature", *Nurse Education Today*, vol. 35, pp. 663-672.
- Reviriego, E., Cidoncha, M. Á., Asua, J., Gagnon, M. P., Mateos, M., Gárate L., de Lorenzo, E., González, R. M. 2014, "Online Training Course on Critical Appraisal for Nurses: Adaptation and Assessment", *BMC Medical Education*, vol. 14, pp. 1-10.
- Seven, M., Çınar, F.İ., Fidancı, B.E., Akyüz, A., 2014, "Nurses' Perspective of Distance Post-Graduate Education: A Turkish Study", *International Journal of Caring Sciences* , vol 7, no 2, pp. 652-661.
- Sharoff, L. 2013, "Simulation and Learning to Care for Patients: Acute Alcohol Withdrawal", *Journal of Contemporary Medicine*, vol. 3, no. 1, pp. 22-27.
- Shellenbarger, T., Robb, M. 2015, "Technology-Based Strategies for Promoting Clinical Reasoning Skills in Nursing Education", *Nurse Educator*, vol. 40, no. 2, pp. 79-82.
- Shirrell, D. 2008, "Critical Thinking as a Predictor of Success in an Associate Degree Nursing Program", *Teaching and Learning in Nursing*, vol. 3, no.4, pp. 131-136.

Solnick, A., Weiss, S., 2007. "High Fidelity Simulation in Nursing Education: A Review of the Literature", *Clinical Simulation in Nursing Education*, vol. 3, pp. e41-e45.

Swan, B.A., Smith, K.A., Frisby, A., Shaffer, K., Hanson-Zalot, M., Becker, J., 2013., "Evaluating Tablet Technology in an Undergraduate Nursing Program", *Nursing Education Perspectives*, vol.34, no.3 ,pp. 192–193.

Şenyuva, E., Taşocak, G. 2014, "Implementation of Web-Based Distance Education in Nursing Education in Turkey: A Sample Lesson in Patient Education", *International Journal of Distance Education Technologies*, vol. 12 no.3, pp. 1-13.

Wu, T.T. 2014, "Using Smart Mobile Devices in Social-Network-Based Health Educationpractice: A Learning Behavior Analysis", *Nurse Education Today*, vol. 34, pp. 958-963.

Wyatt, T.H., Krasukopf, P.B., Gaylord, N.M., Ward, A., Huffstutler-Hawkins, S., Goodwin, L. 2010, "Cooperative M-Learning with Nurse Practitioner Students", *Nursing Education Perspectives*, vol. 31, no.2, pp. 109-113.

Yoo, M.S., Park, J.H. 2014, "Effect of case-based learning on the development of graduate nurses' problem-solving ability", *Nurse Education Today*, vol. 34, pp. 47-51.



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WEARABLE TECHNOLOGY IN NURSING

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ABSTRACT

Nursing care are changing and evolving every day. Wearable technology has gained the interest of nurses. Wearable technology devices are being developed to help people live healthier lives and to know their bodies better through a complex network of interrelated tools. These devices worn on the body that can capture data such as heart rate, gait abnormalities, heart rhythms, number of calories burned, and even hours slept. Many people already have cell phones, computers, tablets, or other devices that networked together with other devices, allowing caregivers, care providers, and even friends and family to monitor functioning and have historical records on a day-to-day or minute-by-minute basis. The system's software can use the data from these sensors to build a personalized profile of the user's physical performance and nervous system activation throughout the entire day—providing a truly personal medical record that can revolutionize healthcare. Wearable technology allows for data capture that is reliable and easy to retrieve and uses objective measures to enhance clinical decisions. Nurses are going to be increasingly responsible for patients who use wearable technologies. Nursing should capitalize on the wearable technology phenomenon by being visionary, vocal, and proactive. Because, wearable technology is part of the future of nursing.

Keywords: Wearable technology, quality of life, making decision, nursing care
JEL Codes: M30

1. INTRODUCTION

The needs for higher quality and better efficiency in health and medicine both at home and in the hospital are becoming more important as the population is growing increasingly older. An inseparable part of the solution to provide health care is provided by wearable technology (Axisa et al., 2005). Wearable technology has aroused the interest of researchers and clinicians over the past decade (Bonoto, 2003). The enormous benefits that could be related to long-term monitoring of individuals at home and community settings result in the motivation for the improvement of wearable sensors and systems (Bonato, 2010). When wearables are integrated with core medical systems, physicians, nurses and hospital staff can be allowed to become exactly mobile, using their hands to work while having access to the relevant, context-aware information, by wearables. Intelligent biomedical clothes and wearable ambulatory health-monitoring systems can function as a key facilitator for life-long continuous health monitoring in terms of all individuals.

2. WEARABLE TECHNOLOGY

2.1. Rehabilitation

By the effect of health care economy which is increasingly becoming difficult, the rehabilitation program of the patients is affected with the decrease in the length of hospital stay of stroke patients. This situation has revealed the need for finding new ways by the clinicians and scientists in order to increase the quality of life of the individuals, to make the physical movement safe, and to produce solutions for the individual (Gürşen, 2013). In this context, there are many wearable

technological care products in the planning of rehabilitation services. Therefore, to recognize the range of wearable products used will expand the application areas of nursing.

Wearable products to support individuals with neurological problems are mainly available in rehabilitation services. The activity level can be improved through the sensors installed in these patient groups and individual-specific motion algorithms can be produced. Patients in physical therapy and rehabilitation units wear pedometers and accelerometers. This wearable technology provides information about the physical activity level of these patients and indicates the state of achieving real objectives regarding the individual's level of exercise (Wilson, 2016). With these tools, the measurement allows for monitoring in the patient's own natural environment. In the past, the nurses were performing measurement in specific areas created for this patient group and relied on these results. However, nowadays, the accelerometer device with noninvasive sensor for patients after stroke is an important tool that records the development of the exercise program given to the patient and provides data entry (Salazar et al., 2014).

The use of wearable technology products in rehabilitation patients plays an important role both in following up the patients and in determining the level of movement of individuals. Another wearable technology used in neurological rehabilitation is the wrist-worn accelerometer, which is used to detect epileptic seizure. This device provides important data in producing an algorithm for an unexpected stroke situation by collecting tonic and clonic contractions (Wilson, 2016).

Another wearable technology product used in Parkinson's patients is eyeglasses and earphones that provide virtual reality. Virtual reality glasses are used to prevent falls (Espay et al. 2010). These glasses copy the surrounding area of the individual and make the patient feel that he/she is in the real world. The glasses perceive the movement of the patient with accelerometer and facilitate the walking of the patient by creating a dynamic checkerboard view over the actual floor covering. The floor covering that moves simultaneously with the patient prevents patients from freezing and ensures them to walk at a flowing speed. The sounds of the steps about how to take a step are accompanied by the earphone (Espay et al., 2010; Wilson, 2016).

2.2. Monitoring

Monitoring is very important in diabetes mellitus, neurology illness, cardiac disease and stroke. For example, one of the wearable technology products used in the identification and diagnosis of diseases in the cardiology clinic is the holter device. This device remains on the patient for 24-48 hours, and the patient's cardiac rhythm, pulse and blood pressure values can be recorded and monitored via electrodes. Another tool used in heart diseases is cardiac pacemaker. Cardiac pacemaker provides the function of the heart by creating an electromagnetic field to the heart and giving electrical activity to the heart (Wilson, 2016). The devices that are designed to be used in the control of diabetes and that give insulin according to the glucose ratio in blood by continuously measuring the blood sugar are widely used in today's diabetic patients. The hand hygiene monitoring monitor developed by Levchenko, Boscart, Fernie (2011) for the prevention of hospital infections entirely focuses on nurses' hand washing, is used in the prevention of hospital infections and seems to have successful results. Hand asepsis is provided by sending a reminder if the nurse did not wash her hands before or after the nurse enters the room through the sensor that can be mounted on the wall and the nurses have. It is seen that these products, which are included in the literature for monitoring purposes, have been solved by a portable sensor for the treatment of both healthcare professionals and patients.

Although nurses are not directly responsible in these treatment and care practices related to sick individuals, they impose responsibility for patient education about the use of the patient's wearable technology products and the points that the individual should pay attention to. Therefore, they make it compulsory for nurses to have knowledge about the use of the wearable products and the characteristics of the product.

2.4. Digital Medication Systems

Medication management is a complex and multifaceted operation that involves several people and numerous steps (Agrawan, 2009). In 1995, the first electronic medication management (eMAR) system was developed. This technology was improved to help reduce medication errors, organize the medication administration process and develop documentation (Moreland et al., 2012).

The eMAR makes it possible for nurses to confirm the five rights of medication administration, to control the doctor's order and to document the medication administration and also provides links to such data as laboratory values, pain levels and vital signs (Moreland et al., 2012). The pharmacy dispensing systems, bar-coded medication administration, electronic medication reconciliation, and personal health records are included in these systems (Agrawal, 2009; Cheung et al., 2009).

2.3. Simulation in Nursing Education

Simulation represents the closest form of reality although it is not the practice of wearable technology. In Turkey and all over the world, the interest in simulation applications to improve patient safety and patient care in the education of healthcare professionals has increased especially in recent years (Sarıkoç, 2016). The fact that learning is easier in simulators designed by creating a virtual environment and that to teach how to cope with unexpected situations provide a safe application environment for healthcare professionals about how to use a new technological product.

The purpose in simulation applications is to be able to see the effectiveness of the attempt on the simulator which has real anatomical structures and dynamic physiology and which imitates them. In this context, the fact that the nurses can perform their practices in these technological educational materials from the nursing basic education will improve the technology use and learning skills of nursing. In addition, its adaptation and integration to day care technologies will increase, and it will be better adapted to the working principles of wearable technology products applied on patients (Kurban, 2015).

3. EFFECTS OF WEARABLE TECHNOLOGY INDUSTRY ON NURSING

In the world population which is getting progressively older, it is aimed to improve the quality of life of patients by using wearable technology products in the treatment, care and follow-up of patients due to the increase in chronic diseases and the occurrence of permanent health problems. In this context, it will not be possible for nurse, who is the most important component of the health care team, to be insensitive to technology.

The needs of a man of the developing and changing world provide nurses with innovations, and research-development investments are increasing for nurses regarding the designing and finding new products for their own professional practices. Armed with knowledge on how to make inventions a reality, nurses now need to see their ideas evolve into new applications improving lives. In this regard, nurse educators and researchers need to lead both students and clinicians. When nurse entrepreneurs have new ideas on wearable technology, it is necessary to get support from the relevant authorities on how to develop this idea, how to apply it and how to concretize it. In this context, the relevant supports are available from universities and Turkish Patent Institute in Turkey.

4. CONCLUSION

Nurse inventors have a very essential role in nursing because of the fact that nurses are kept in a position to observe what is needed to help patients, improve and recover. The wearable technology will be pushed to become a strong force in nursing practice by the partnerships with developers, designers and the other members of healthcare teams. Since wearable technology is a part of the future of nursing, nursing should benefit from the wearable technology phenomenon by being visionary, vocal and proactive. It is essential for professional nursing to be involved in the process of improving and applying digital equipment which can have a big influence on health and well-being (Hansman, 2015).

Thus, it is necessary for nursing educators to allow nursing students to learn about research, development, production and marketing of the inventions in order to help patients. The fact that nurses have inventions that will make easier their professional practices or meet a necessity will make nursing stronger and will be the biggest indication that nursing produces and uses its own information.

REFERENCES

- Agrawal, A. (2009). Medication errors: prevention using information technology systems. *British Journal of Clinical Pharmacology*, 67(6): 681-686.
- Axisa, F., Schmitt, P. M., Gehin, C., Delhomme, G., McAdams, E., & Dittmar, A. (2005). Flexible technologies and smart clothing for citizen medicine, home healthcare, and disease prevention. *IEEE Transactions on information technology in Biomedicine*, 9(3): 325-336.
- Bonato, P. (2003). Wearable sensors/systems and their impact on biomedical engineering, *IEEE Eng. Med. Biol. Mag.*, 22: 18-20.
- Cheung, K.C., Bouvy, M.L., De Smet, P.A.G.M. (2009). Medication errors: the importance of safe dispensing. *Br J Clin Pharmacol*; 67: 676-80.
- Espay, A., Baram, Y., Dwivedi, A., Shukla, R., Gartner, M., Gaines, L., . . . Duker, A. (2010). At-home training with closed-loop augmented-reality cueing device for improving gait in patients with Parkinson disease. *Journal of Rehabilitation Research & Development*, 47(6): 573-582.
- Gürşen, C. (2013). Tele- Rehabilitasyon. *Fizyoterapi Seminerleri E-Kitap*, 2; 151-161.
- Hansman, H. (2015). Tiny, tattoo-like wearables could monitor your health. Retrieved from http://www.smithsonianmag.com/innovation/tiny-tattoo-wearables-could-monitor-your-health-180956862/?utm_source=facebook.com&no-ist.

Kurban K.N. (2015). Hemşirelik Eğitiminde Klinik Simülasyonlar: Genel Bakış, Temelleri ve Kanıtları. In: Hemşirelikte Öğretim ve Eğiticinin Rolü. Anı Yayıncılık:Ankara.99-122.

Levchenko, A. I., Boscart, V. M., & Fernie, G. R. (2011). The feasibility of an automated monitoring system to improve nurses' hand hygiene. *International Journal of Medical Informatics*, 80(8): 596-603.

Moreland, P., Gallagher, S., Bena, J., Morrison, S., & Albert, N. (2012). Nursing satisfaction with implementation of electronic medication administration record. *Computers Informatics Nursing*, 30(2): 97-103.

Salazar, A., Silva, A., Silva, C., Borges, C., Correia, M., Santos, R., & Vilas-Boas, J. (2014). Low-cost wearable data acquisition for stroke rehabilitation: A proof-of-concept study on accelerometry for functional task assessment. *Topics in Stroke Rehabilitation*, 21(1): 12-22.

Sarıkoç, G. (2016). Use of virtual reality in the education of health care workers. *Hemşirelikte Eğitim ve Araştırma Dergisi*. 13 (1): 11-15.

Wilson, D.(2016). An overview of the application of wearable technology to nursing practice. *Nursing Forum*. DOI: 10.1111/nuf.12177.



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A RESEARCH ON MEASURING THE EXCHANGE RISK IN STRATEGICAL FINANCIAL MANAGEMENT APPLIED IN COMPANIES

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ABSTRACT

The strategical financial management in companies could be defined as assuring the required reserves to continue the company's existence under favorable conditions, also protecting and efficient use of these reserves; applying cash flow in the correct way; helping to occur the policies which the companies will follow as a result of being evaluated each internal and external developments. Within this scope of assessment, there is need to analyze the problems of businesses at the stages of 'measuring the exchange risk in strategical financial management' on two principal axes as internal and external dynamics. The purpose of this study which is actualized to measure the exchange risk in strategical financial management is to reveal the effect of the exchange risk of the companies about financial management and how the companies are affected by the negative developments at the end of measuring the exchange risk correctly. After being described the terms that create the content of the study, the relations between these terms and literature are tried to be supported by the primary studies to achieve this purpose. The hypothesizes of the research are started to be improved by the generating the theoretic frame. First of all, research was actualized by the survey for this purpose to reveal how important the frame of strategical financial management and the accuracy of measuring the exchange risk in strategical financial management are. The same data was tested by the hypothesizes beside being evaluated the obtained data with the help of statistical analysis. It is observed by the result of analysis that the strategical financial management is significant for the financial structures of the companies and the existence a meaningful relationship between the correct measuring of exchange risk and right financial decisions.

Keywords: Financial management, strategical financial management, exchange risk, measuring the exchange risk, financial decisions

JEL Codes: G2; G32

1. INTRODUCTION

The foreign exchange risk can be defined economically as the amount of profit or loss of a value of an investment or a transaction abroad as a result of the fluctuation in the exchange rate (Alex, 1982). The period of free circulation of services, money, and products by exceeding the limits allied with the globalization. Political, economic and cultural changes happened in countries, dip, and spurts of the stock market or the war environment especially in this period cause peripeteia in sort of money used for international trade by creating a domino effect. The increase and decrease in value affect the international commerce and investments. For instance, an increase in Peso causes to come dear the goods of Mexico for Turkish importers, and this condition decreases the demand for Mexico products as well. According to Mexican importers, low-value Turkish Lira makes the Turkish products more attractive and increase the importation of goods of Turkish. (Berg, 2004)

The changes in foreign exchange rates cause fluctuations in balances of export and import. Under these circumstances, the governments need to determine their positions by the correct decisions. The companies must measure the risk factors by minimizing the exchange risk and take strategical financial decisions to be out of a tight corner. Not to be affected or completely escaping from the exchange risk are entirely impossible. The businesses should study on exchange risk measurement instruments for minimizing this risk level. It is the evidence that these studies vary from country to country. Changes happened in foreign monies against the sort of money of the country where the primary business is

established excited the attention of managers and scientist to analyze the features of the accounting records of transactions with foreign monies and the effect of the exchange rate risk (Pamukçu, 1984).

2. FINANCIAL MANAGEMENT

Being determined the target-driven investments of companies for in the short, middle and the long term and the process of being invested these reserves to proper assets to increase the amount and quality of goods and services produced can be called as the financial management. Any economic, political and cultural decay happened anywhere in the world spread firstly into countries in the region and whole world in a jiff (Şener, 2009)

Financial management is also called as a discipline provides the distribution of limited sources between the department of the company accurately and manage the process at present when the globalization is intense, and the competition environment incredibly pushes the businesses.

The goals of the financial management mostly parallels the goals of the company can be mentioned as below (Özdemir, 1997)

- The selection of the assets required for the investments of the company,
- Determining the total amount of reserve for these assets,
- Deciding on how and from which sources these reserves will be provided.

The companies run for the 'Strategical Financial Management' to develop new approaches and determine new methods in the field of financial management by changing paradigms for achieving these goals.

The finance managers are in the position of evaluating the economic conditions of the country and estimate the developments. The interest rate in the financial management is the leading factor needs to be considered for both investment and financing decisions. Accordingly, the finance director should understand and interpret the effect of interest, domestic income, inflation, tax and monetary policies on the investments and attainability of the credit. The finance director takes advantage of microeconomics for short termed investment decisions such as the management of cash, stock and receivables and the long termed investment decisions as well (Aydın, Basar, Coşkun, 2006).

2.1. Strategical Financial Management

The process of financial planning starts with the long termed (strategical) financial plans. The strategical plans act as a guide to prepare the short termed schedule and the budget. The short termed plans and the budgets are the implementations of the long termed strategical purposes of the business (Yükçü et al. 1999)

Strategical financial management composes of the economic activities take the long run and the results of these activities. These plans mostly involve a process starts with being specified the purposes of the business. It is mandatory to settle the strategies, carry into action and even improve new strategical approaches after the first stage. The crucial fact remarkable is being the strategical plans and decisions targeted achievable and in accord with the purposes of the business. The companies need to see the financial requirements for the future before a few years for providing secular fund by large amounts and non-frequent time intervals. And so, the estimation of the long-run financing requirement has a place in the companies (Akgüç, 2010).

2.2. Exchange Risk

The risk as a financial concept is the status of being a future of a yield up to the alternative situations and resulted in at least one of these situations positive or negative return (Usta, 2008). The exchange risk is also a status to be caused a negative changing in cash flows of person or institution remains open for the currency impact by the unexpected developments happened in fx rate. In other words, they are the possible losses occur in the financial structure of the companies due to the fluctuations in exchange rates without control of the corporations and conversion the foreign currency to the national currency (Kadioğlu, 2003). The possibility of undergoing a change of the sort of national currency versus foreign currencies cause to occur the exchange risk. The companies face with the exchange risk in trading with foreign currency.

The exchange risk is a risk resultant in volatilities in the value of foreign currency. This volatility is based on inflation occurred by the disparity in the balance of payments of the national economy. The investors expect to earn at least as much as the increment in the rate of inflation when using their money; this is because the savings of the investor protect the purchasing power. For example, the position of a bank in a foreign money is the open interest (position). The foreign money accountabilities of that bank in a particular sort of money hang its assets up. In this circumstance, if the foreign money mentioned increases in value faces with a loss due to the open interest; or the bank yields because of this open rate if this foreign money decreases in value. (Mandacı, 2003).

Decision makers determine the strategies of the company benefit from previous experiences by empirically acting when deciding on the exchange risks. The more they move away from the movement of thought of rationalist and push aside the rationalism the more risk level of the decisions increase. The information obtained must be correctly interpreted and the decisions must be taken in this direction for holding the harmless due to the changing in uncontrollable fields. The systematic risks are evaluated as the risks effect all instruments in an economy and cannot be avoided by diversification while the nonsystematic ones are evaluated as the risks arising from the asset itself and controllable by diversification of the investor. Since the existence of the systematic risk affect all stocks and bonds, the diversification in portfolio does not reduce the risk (Ross, Westerfield, Jordan, 2001)

2.3. Measuring The Exchange Risk

About the measuring of the exchange risks, companies firstly should guess the movements of the exchange rate. The effects create the exchange risk are the real changes occurred in exchange rates. 'Real quotations are obtained by adjusting the nominal exchanges based on internal and external inflation difference; or shown with the mathematical symbols as follows' (Seyidođlu,1994).

$$E_R = E \frac{(1 + p_f)}{(1 + p)}$$

In regard to the formula, E_R and E represent the amount of national currency per foreign monetary unit, respectively the real and nominal exchange. p_f and p relatively represent domestic and international interest rates. It needs to be analyzed the results of the decisions and the applications to determine other methods will be used for measuring the exchange risks. For this purpose, the methods applied in companies should be recorded, and the positions must be changed by estimating the market reactions.

2.4. The Position of Measuring Exchange Risk in Financial Decisions

All financial decisions have a risk, because the companies may face with situations in which they cannot fulfill their obligations due to their structures. The companies can use different investment instruments to spread the risks happened in next financial steps and reduce the financial risks in measuring the exchange risks. At present, the risk management has a strategical importance for each actor in business in the finance sector. Whether stem from systematic or nonsystematic reasons, being obtained the real return at a level different from expected constitutes the risk of the investor undertook (Konuralp, 2005).

In this regard the directors should elude the traditional management models and benefit from more scientific and objective data about the issue of measuring the exchange risks. Besides the classical exchange risk methods, being used the foreign money via international activities by the companies creates a new responsibility in terms of the managers for achieving the primary economic goal. Especially making the profit in various foreign currencies creates a necessity to develop new management techniques. The changes happened in values of foreign monies versus the money of the country in which the business is established caused to start the studies to review the exchange risk occurred by these changes. (Pamukçu, 1984).

3. THEORETIC FRAMEWORK AND HYPOTHESES OF THE RESEARCH

Variables of Research;

- Dependent Variable: Exchange Risk
- Independent Variable: Strategical Financial Management
- Mediator Variable: Perceiving the Exchange Risk

Hypotheses;

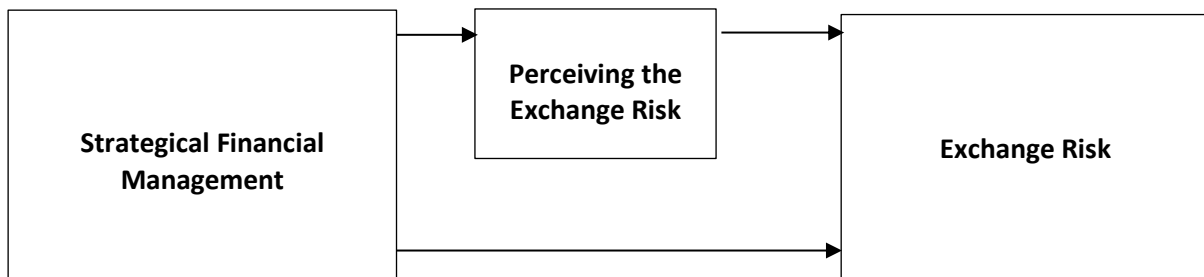
H_1 : There is a significant and positive relation between strategical financial management and measuring of the exchange risk.

H_2 : There is an important and positive relation between strategical financial management and the financial structures of the businesses.

H_3 : The financial decisions of businesses that can accurately measure risk are correct.

H_4 : There is a significant mediator variable role of perceiving the exchange risk between strategical financial management and the exchange risk.

Figure 1: Theoretic Framework of the Research



3.1. Purpose of the Research

It is aimed to analyze the consistency between the reactions and decisions of the companies and measure the exchange risk in the strategical financial management applied in enterprises.

3.2. Sampling of the Research

While being created the sampling of the research, it was benefited from the information obtained by the companies in business in organized industrial zones in İstanbul. Our survey was sent to 3425 companies and received come back from 1486 of them (the comeback ratio for the studies is 43%).

3.3. Method

The quantitative research technique, 'Survey' method as the data collection tool was used to collect the data. The questionnaire forms generated were sent to the companies via e-mail method. Our survey consists of 68 questions and five points Likert scale is used to measure the variables. Google Forms prepared the survey on Google Drive.

4. ANALYSIS OF THE DATA OBTAINED IN RESEARCH

The data collected from the surveys of our results was recorded in the electronic environment, and the register number was created as well. Then, these data generated were analyzed by SPSS 22.0 packaged software. Cronbach's Alpha and Chi-Square tests were used in analyses; we determined the frequency, percentage values, and the graphic data.

Table 1: Cronbach's Alpha Test

Cronbach's Alpha	N of Items
,947	17

The reliability of the questions prepared for measuring the exchange risk in strategical financial management in companies is determined by using Cronbach's Alpha test. As is seen in Table 1, the number, 0,947 based on the measurement criteria ($\alpha \geq 0,9$ = Perfect) of Cronbach's Alpha test is computed as 'Perfect.'

Table 2: Chi-Square Tests-Do You Presume the Change of Movements of Exchange Rate? Which of the following item defines the attitude of your company against the exchange risk?

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	35,921(a)	2	,000
Likelihood Ratio	51,153	2	,000
Linear-by-Linear Association	,030	1	,862
N of Valid Cases	1486		

a 0 cells (,0%) have expected count less than 5. The minimum expected count is 16,36.

In Table 2; Determined that the significance value is less than $0,000 < 0,005$ when being analyzed if there is a relation between the variables or not in the distribution of propositions called 'do you presume the change of movements of exchange rate?' and 'which of the following item defines the attitude of your company against the exchange risk?'. In this

case, the hypothesis 'H1: There is a significant and positive relation between strategic financial management and measuring of the exchange risk' is accepted.

Table 3: Do You Presume the Change of Movements of Exchange Rate?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	1094	73,6	73,6	73,6
	No	392	26,4	26,4	100,0
Total		1486	100,0	100,0	

As is seen in Table 3, the companies mostly show a tendency to presume the change of movements of the exchange rate (73,6%). The companies follow closely these changes which are crucial for themselves.

Table 4: Which of the following item defines the attitude of your company against the exchange risk?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	The exchange risk cannot be controlled. Risk must not be loaded..	62	4,2	4,2	4,2
	The exchange risk can be controlled by being loaded at a certain level	514	34,6	34,6	38,8
	The exchange risk can be controlled anticipatingly	910	61,2	61,2	100,0
	Total	1486	100,0	100,0	

According to Table 4, companies think that the exchange risk is controllable (95,8%). The dominating thoughts among the companies are; 'the exchange risk can be controlled by being loaded at a certain level (34,6%)' and 'the exchange risk can be monitored anticipatingly (61,2%)'. The rate of participants who argues that 'the exchange risk cannot be controlled, so risk must not be loaded' is too low (%4,2%).

Graphic 1: Which of the following item defines the attitude of your company against the exchange risk?

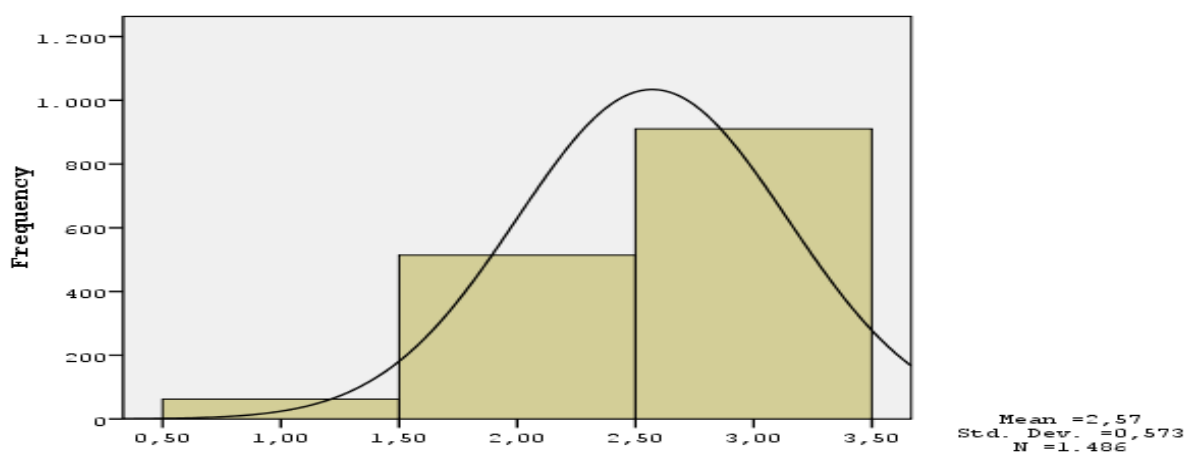


Table 5: Chi-Square Tests- Do You Think That The Financial Structure of Your Company is Strong?* Does your business carry out a long-term plan or program, such as the long-term value of an enterprise concerning exchange rate movements, competitiveness, determination of the present value of future cash flows?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	9,045(b)	1	,003		
Continuity Correction(a)	8,401	1	,004		
Likelihood Ratio	8,217	1	,004		
Fisher's Exact Test				,004	,003
Linear-by-Linear Association	9,039	1	,003		

N of Valid Cases 1486

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 28,23.

In Table 5; Determined that the significance value is less than $0,003 < 0,005$ when being analyzed if there is a relation between the variables or not in the distribution of propositions called 'do you think that the financial structure of your company is strong?' and 'does your business carry out a long-term plan or program, such as the long-term value of an enterprise in terms of exchange rate movements, competitiveness, determination of the present value of future cash flows?'. In this case, the hypothesis 'H2: There is a significant and positive relation between strategical financial management and the financial structures of the businesses,' is accepted.

Table 6: Do You Think That The Financial Structure of Your Company is Strong?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	1290	86,8	86,8	86,8
	No	196	13,2	13,2	100,0
Total		1486	100,0	100,0	

According to Table 6, 1290 of the companies mentioned that their financial structure is strong (86,8%). The statement of being the economic structure stable reflects the confidence of the managers for their decisions regarding the strategical financial management.

Graphic 2: Do you think that the financial structure of your company is strong?

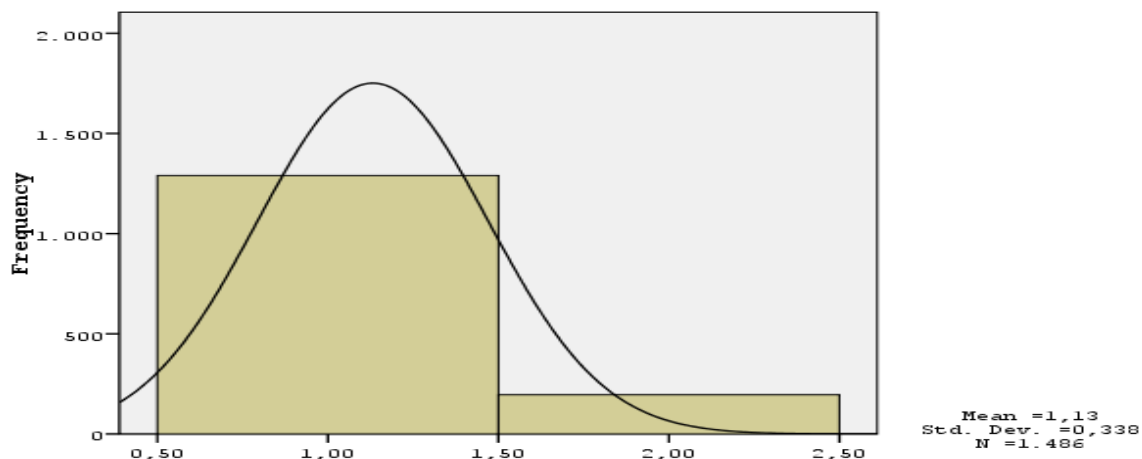


Table 7: Does your business carry out a long-term plan or program, such as the long-term value of an enterprise in terms of exchange rate movements, competitiveness, determination of the present value of future cash flows?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	1272	85,6	85,6	85,6
	No	214	14,4	14,4	100,0
Total		1486	100,0	100,0	

According to Table 7, the decision maker managers on the strategical finance think that the company carries out a long-term plan or program, such as the long-term value of an enterprise in terms of exchange rate movements, competitiveness, determination of the present value of future cash flows. This result means that 1272 companies have long termed strategical plans and also apply them (85,6%).

Table 8: Chi-Square Tests-How often the Future and Forward transactions are used in your business? * How much do you agree with the judgment that the 'strategical finance' methods are correct in the companies which measure the exchange risk correctly?

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12,762(a)	6	,047
Likelihood Ratio	12,901	6	,045
Linear-by-Linear Association	4,480	1	,034
N of Valid Cases	1486		

a 3 cells (25,0%) have expected count less than 5. The minimum expected count is ,08.

In Table 8; Determined that the significance value is less than $0,047 < 0,005$ when being analyzed if there is a relation between the variables or not in the distribution of propositions called 'how often the Future and Forward transactions are used in your company?' and 'how much do you agree with the judgement that the 'strategical finance' methods are correct in the companies which measure the exchange risk correctly?'. In this case, the hypothesis 'H3: The financial decisions of businesses that can accurately measure risk are correct.' is accepted.

Table 9: How often the Future and Forward transactions are used in your company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Continuos	1201	80,8	80,8	80,8
	Occasionally	270	18,2	18,2	99,0
	Never	15	1,0	1,0	100,0
Total		1486	100,0	100,0	

According to Table 9, 1201 of companies continuously use the Future and Forward transactions to be preserved from price uncertainty for options (80,0%). The ratio of businesses that never use these operations is 1,0%.

Graphic 3: How often the Future and Forward transactions are used in your company?

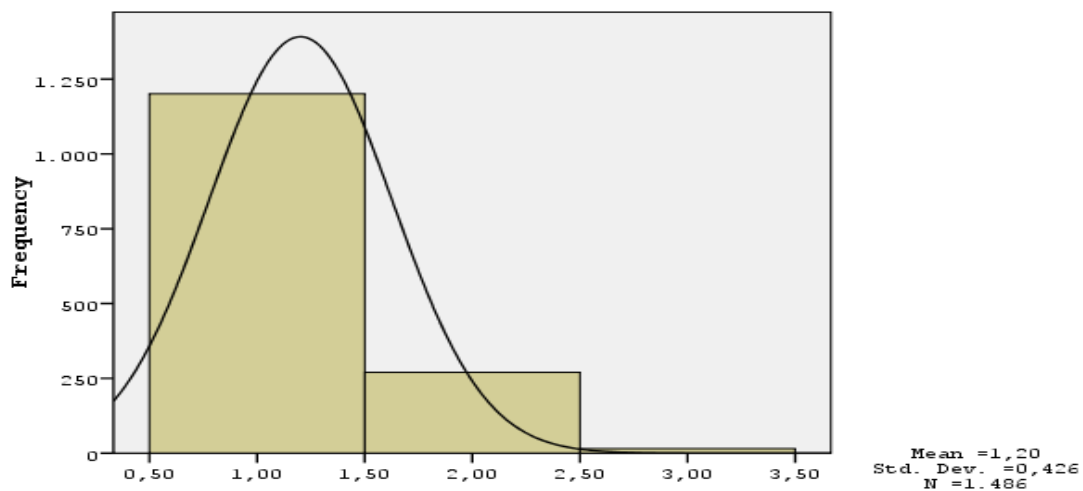


Table 10: Chi-Square Tests-Which of the following title defines the person charged with to follow the movements of the exchange rate and the financial decisions? * How much do you agree with the judgment that the 'strategical finance' methods are correct in the companies which measure the exchange risk correctly? *

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10,857(a)	3	,013
Likelihood Ratio	10,585	3	,014
Linear-by-Linear Association	4,126	1	,042
N of Valid Cases	1486		

a. 2 cells (25,0%) have expected count less than 5. The minimum expected count is 1,14.

In Table 10; Determined that the significance value is less than $0,013 < 0,005$ when being analyzed if there is a relation between the variables or not in the distribution of propositions called 'which of the following title defines the person charged with to follow the movements of the exchange rate and the financial decisions?' and 'how much do you agree with the judgment that the 'strategical finance' methods are correct in the companies which measure the exchange risk correctly?'. In this case, the hypothesis 'H4: There is a significant mediator variable role of perceiving the exchange risk between strategical financial management and the exchange risk' is accepted.

Table 11: Which of the following title defines the person charged with to follow the movements of the exchange rate and the financial decisions?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Business Manager/Owner	1275	85,8	85,8	85,8
Finance Manager	211	14,2	14,2	100,0
Total	1486	100,0	100,0	

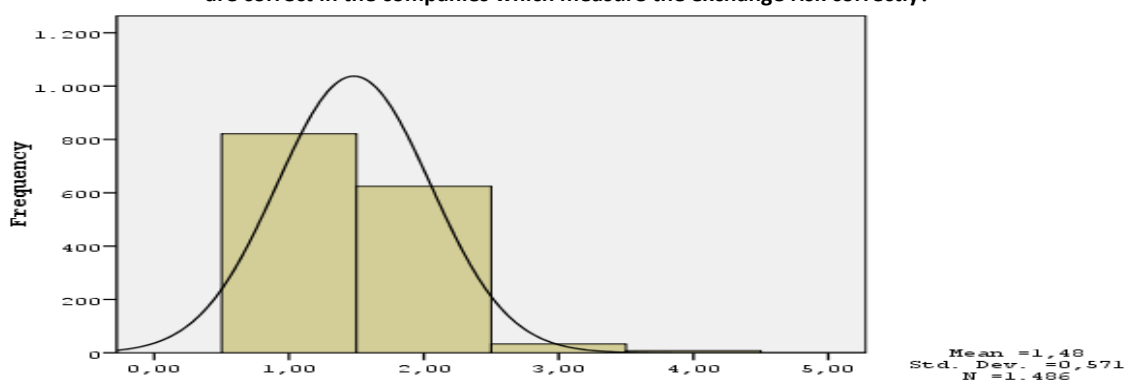
According to Table 11, 'Business Manager/Business Owner' takes the financial decisions. Due to the business owners get the title of business manager for exchange rate decisions, it is seen in 1275 companies that these managers have the final word (85,8%).

Table 12: How much do you agree with the judgment that the 'strategical finance' methods are correct in the companies which measure the exchange risk correctly?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Absolutely Agree	821	55,2	55,2	55,2
Agree	624	42,0	42,0	97,2
I'm on the fence	33	2,2	2,2	99,5
Disagree	8	,5	,5	100,0
Total	1486	100,0	100,0	

It is thought based on Table 12 that the organizations can measure the exchange risk properly are successful. This thought is confirmed by the decisions taken in line with the fact of 'strategical financial management (97,2%)'.

Graphic 4: How much do you agree with the judgment that the 'strategical finance' methods are correct in the companies which measure the exchange risk correctly?



5. CONCLUSION

It is analyzed in this research that the decisions, precautions, and applications of decision maker organs about measuring the exchange risks and the reactions of them to the statements of the market which occurred as a result of the internal-external factors. The answers of participatory companies are tested, and the hypotheses on this research are accepted as well. Following results are obtained when reviewing the subject of exchange risk in strategical financial management. Observed in participatory companies that the person who takes decisions by following the commercial developments has the title of 'business manager/owner.'

These companies mentioned that their commercial structures are strong. Moreover, it is thought based on this research that strategical financial management is successful if the company can measure the exchange risk correctly. The participatory companies stated that the exchange risk is controllable and takable at the specified level. There are especially two kinds of financial derivative instruments against to the exchange risk. Two of the most frequently used techniques are 'Future' and 'Forward.' Companies continuously use these transactions to be preserved from the exchange risk. The uncertainties in exchange rates are accepted as the internal factor of being the exposed to exchange risks; being affected by the political and economic developments in foreign countries is accepted as the external factor. The companies that are established with national capital use US dollars and Euro within the day frequently. Starting from this of view, we can easily say that the dependency of companies to external factors in the financial transactions increased in today when the globalization gathered speed, and the companies frequently use the exchange transactions. It is noticed that the negative circumstances happen in currency markets create an adverse effect on quoting the export sales. The receiving and payments are also affected by these adverse conditions due to the movements of an exchange rate. Some companies mentioned that they would establish a new department in the company to manage the exchange risk by employing new personals (45,4%). There are also other companies stated that they would meet with the banks (or other financial institutions) on this issue. It is seen in analyses conducted that the strategical financial management is significant for the financial structures of the companies and there is a significant relation between the measurement of the exchange risk and correct decisions. These data reflect the essential behavior characteristics of the markets. Mainly observed that the companies that measure the exchange risk correctly and take necessary precautions move freely in the financial area in countries have import-based economies.

6. LIMITEDNESS OF THE RESEARCH

This study is limited with perceptions, and the precautions of the managers take the financial decisions about 'Measuring the Exchange Risk in Strategical Financial Management' in organized industrial zones in İstanbul. Within this scope, the study conducted should be in a different size and applied in other sectors to generalize for the companies out of İstanbul. Moreover, due to this research just involves the decision maker managers on financial issues, there is also limitedness belongs to 'people.' That's why the data obtained reflect the experiences, abilities, attitudes and perception levels of the individuals in sampling group. It can be thought that the studies in a bigger universe bring more important and significant findings due to increasing the 'sampling' level.

REFERENCES

- Akgüç, Ö. 2010, "Financial Management", İstanbul: Avcıol Publish House, p.170
- Alex, O. 1982, "International Trade and Investments: A managerial Approach", New York City, John Wiley and Sons, p.212
- Aydın, N. Basar, M. Coşkun, M. 2006, "Financial Managements", Eskişehir, Aktuel Advertising & Offset Services, p.13
- Berg, H.V.D. 2004, "International Economics", New York, McGraw-Hill / Irwin, p.61
- Kadioğlu, E. 2003, "The Exchange Risk of Companies and Managing this Exchange Risk", Ankara, Stock Exchange Commission(155), p. 2.
- Konuralp, G. 2005, "Capital Markets, Analyses, Theories and Portfolio Management", İstanbul Alfa Publishing, p.64
- Mandacı, P. E. 2003, "The Risks of Turkish Banking Sector and the Methods of Risk Measurement to Hang the Financial Crisis Up", İzmir, Dokuz Eylül University, Journal of Social Sciences Institute 5(1), p.71
- Özdemir, M. 1997, "Financial Management", Ankara: Gazi Bookstore, p.9
- Pamukçu, A. B. 1984, "International Business Financing", İstanbul, Güryay Printing House, Volume I, pp.35-36
- Ross, S. A. , Westerfeld , R.W. , Jordan B.D. 2001, "Corporate Finance, New York , McGraw-Hill Inc, p.430
- Seyidoğlu, H. 1994, "International Finance", İstanbul: Güzem Publications p.137
- Şener, S. 2009, " Agenda of Economy", T.C. Çanakkale On Sekiz Mart University Biga Faculty of Economic and administrative Sciences, Journal of Management Sciences, 7(1), p.27
- Usta, Ö. 2008, "Business Financing and Financial Management", Ankara: Detay Publishing House, p.253
- Yükçü, et al, 1999, "Financial Management", İzmir: Vizyon Publishing House, p.453



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COMPANY INNOVATION SYSTEM: AN EXPLORATION BASED ON EXAMPLES FROM ARÇELİK AND VESTEL

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ABSTRACT

We conceptualize the company as an innovation system. The systems approach to innovation has received limited attention at the company level. While it is widely accepted for nations, sectors, regions and technologies, and while some company-level building blocks have been proposed, the dominant approach at company level is to regard innovation as a process. A company innovation system consists of interacting components with the purpose to produce innovation. Those components can be actors, resources or institutional characteristics. The components can be configured and reconfigured for different purposes. An innovation process is therefore one of the many possible configurations within a system. A systems approach emphasizes part-whole interactions and evolutionary dynamics. We explore the concept of company innovation system using case examples of two Turkish electronics manufacturers: Arçelik, with its Telve Turkish coffee machine, and Vestel with its 3D Smart TV. We find that using the company innovation system approach, we can map innovation systems at the company level, we can indicate the relationships between the components of the system and we can identify system characteristics such as open versus closed, archetypical configurations, where new combinations come from, coordination mechanisms and exploration versus exploitation. As such, we can address questions about the company's innovation management that are difficult to address by using a process approach. We conclude that the company innovation system approach provides additional and complementary insights to the existing company-level innovation approaches.

Keywords: Company innovation system, Arçelik, Vestel.

1. INTRODUCTION

We conceptualize the company as an innovation system. The systems approach to innovation management has received limited attention at the company level. Innovation systems approaches have been proposed for and successfully applied to countries as National Innovation Systems (Lundvall, 1992), to regions as Regional Innovation Systems (Cooke et al., 1997), to sectors as Sectoral Innovation Systems (Malerba, 2002), and to technologies as Technological Innovation Systems (Carlsson & Stankiewicz, 1991). In each of those fields, the innovation systems approach is widely accepted.

Van de Ven (1986), Teece (1996), Granstrand (1998, 2000); Lakhil et al. (1999), Coriat & Weinstein, 2002 and Chen et al., 2015 proposed various building blocks for conceptualizing the *company* as a system of innovation. Still, at the company level, the dominant textbook approach is to regard innovation as a process (see, e.g. Trott, 2011; Tidd & Bessant, 2013). The introduction of the Stage-Gate system by Cooper (1985) greatly contributed to the acceptance of the process view. Initially, many companies regarded innovation processes as purely sequential steps, but later it was recognized that it is more effective to use cross-functional mechanisms, parallel processing and non-linearity within the innovation process (see, e.g., Cooper 1990). Cooper (2008) debunks many of the myths that the Stage-Gate system would be rigid and sequential, while still recognizing that many companies have implemented it as such.

With the advent of open innovation, companies and researchers have increasingly adopted a network approach in addition to the process approach (Chesbrough, 2003). Authors developing concepts of business ecosystems and platforms (Moore, 1993; Iansiti & Levien, 2004; Gawer & Cusumano 2014) have extended this network approach into a systems approach, in which the company is one of the actors within a technological system or platform.

With a network approach researchers emphasize the structure of a system, e.g., the numbers of nodes and links and the connectedness between the nodes. Links are usually represented as '0' (no link) or '1' (link). With a systems approach researchers look beyond the structure, emphasizing the exchange relationships between the nodes and the emergent properties at the system level. A systems approach to innovation emphasizes interaction, learning and knowledge creation. It allows inclusion of a wide array of institutional attributes that may be important in explaining innovation, such as innovative culture, top-down or self-organized coordination, or an open versus closed mindset.

2. THEORY

In this section we first discuss building blocks for conceptualizing the company as an innovation system that have been put forward by various authors. Then we discuss some analytical and methodological aspects, drawing heavily on Carlsson et al. (2002). We then proceed to sketching the outline of the company innovation system concept.

2.1 Building Blocks for a Company Innovation System Concept

Granstrand (2000) coined the concept of corporate innovation system and defined it as *"...the set of actors, activities, resources and institutions and the causal interrelations that are in some sense important for the innovative performance of a corporation."* (p.14), a definition that is in line with the concepts of national, regional, sectoral and technological innovation systems. He studied such systems in different country contexts, on an aggregate country level, identifying a number of important characteristics and developments, such as the growing importance of external technology acquisition and the increasing diversification of companies' technology base. He also investigated implications for growth and performance. Grandstrand's (2000) is the most comprehensive study on this topic to date, but results are presented at an aggregate level, and could be more informative for developing the concept at the company level.

Van de Ven (1986) provided a foundation for company innovation systems in his discussion on "problems in the management of innovation". One of the main problems in innovation, he argues, is the management of part-whole relationships. A tempting and much-used approach for achieving maximum productivity is to segment innovation into a sequence of stages and to divide the labor among specialist departments, like R&D, production or marketing. Such approaches have turned out to be inadequate for complex, interdependent activities like innovation because the efficiency of the micro-structures too often leads to macro nonsense (Van de Ven, 1986). An alternative, he proposes, would be to use simultaneous coupling of business functions, based on the hologram/brains metaphor of Morgan (1986). This requires radically different design principles for the organization of innovation, specifically: 1) allowing the collection of actors responsible for innovation to self-organize, 2) creating redundant functions, rather than narrow specialisms, 3) assuring requisite variety (Ashby, 1962), meaning that the complexity of the internal system should be large enough to deal with a the complexity of the environment, and 4) using temporal linkage, meaning that actors can configure into groups, change configurations, eliminate configurations and reconfigure into different groups, based on the demands of their innovation task. For these principles to work, Van de Ven (1986) continues, the system needs the governance, institutional characteristics and infrastructure that enable it to learn. This requires network-building inside and outside the organization.

Teece (1996) identified different archetypes of such governance based on the institutional characteristics of external linkages, hierarchical decision making, change culture, scope, and vertical integration. As archetypes Teece (1996) identified the multiproduct integrated hierarchy, the high flex Silicon Valley type, the virtual corporation and the conglomerate. Each archetype facilitates specific types of innovation and the creation of or access to specific types of capabilities.

Granstrand (1998, p.475), in his conceptualization of the technology-based firm, views a firm as *"... a legally defined, dynamic human system, consisting of a set of heterogenous resources in an institutional setting ..."*. He identifies resources as the most important components of the system and he provides a detailed discussion of these resources, namely physical capital, financial capital, intellectual capital, relational capital and human embodied capital.

Lakhal et al. (1999) introduce the concept of a networked company. It consists of four basic components: 1) elementary resources, not unlike Granstrand's (1998) resources, 2) elementary methods, by which they mean procedures or technologies to accomplish a task, 3) elementary activities, by which they mean a grouping of resources and an associated method, that converts inputs into outputs, and 4) product, which are the outputs of these elementary activities. The company, then, is a large collection of resources and methods, that are grouped in activities. Activities can be chained together, with intermediate inputs and intermediate outputs, into product-market chains that convert supply market inputs into consumer market outputs. Lakhal et al.'s (1999) concept is not necessarily innovation-related. Although named 'networked company', the concept has many systems characteristics.

Coriat and Weinstein (2002) set out to bring together the organizational and institutional dimensions of innovation systems. The organizational dimension is mostly concerned with the organizational structure for innovation activities, the modes of coordination between the activities and the governance. They identify two main questions. The first is "How can one understand both the diversity of organizational patterns and the existence of dominant modes of organization?" (p.276). This question is related to Van de Ven's (1986) design principle of requisite variety - different environments require different levels of system complexity - and to the principle of temporal linkage - some organization modes are successful across environments and over time, and will tend to more permanent linking, exploiting existing resources and capabilities. Coriat and Weinstein's (2002) second question is "How can organizational patterns evolve to give birth to new principles and organizational systems?" (p.277). This question is related to Van de Ven's (1986) design principle of self-organization - given a new and unknown task, the system will reconfigure to try and solve the task - and also to the principle of temporal linkage - unsuccessful modes or modes that are not continually required will dissolve and be replaced by other modes, exploring new routines and building capabilities. Coriat and Weinstein (2002) warn against treating the company as a closed system, explaining that the company - and, consequently, its dynamics - is a part of the wider institutional environment. They interpret this institutional environment mainly as the national or sectoral systems of innovation that the company is a part of.

Finally, Chen et al. (2015) mention the concept of a 'firm innovation system'. Not unlike Teece (1996) they identify a number of archetypes of innovation systems, using Rothwell's (1994) five innovation generations as a starting point. The use of Rothwell's (1994) generations also implies a generic evolution in how companies structure and lead their innovation systems over time. Specifically, Chen et al. (2015) identify: 1) the internal R&D-oriented innovation system, with a dominant technology-push role of internal R&D, 2) the internal and external collaborative innovation system, with interconnected R&D, marketing and manufacturing functions, 3) the highly strategy-oriented innovation system, led from the business strategy by the CEO or Chief Innovation Officer, and 4) the ecological innovation system, which departs from the company level and sees the company as an actor in a business ecosystem.

2.2 Aspects of Innovation System Concepts

Carlsson et al (2002), in their paper on analytical and methodological issues for innovation systems, indicate that systems consist of components, the relationships among them, and their characteristics or attributes. Components are actors, artifacts (cf. the resources mentioned by Granstrand, 1998), and institutions (such as laws, traditions and norms). The relationships between the components are essential for the formation of a system: the parts influence each other, the parts influence the whole and the whole influences the parts. Such relationships, Carlsson et al. (2002) argue, can be market-based or non market-based. The feedback loops in the relationships provide the dynamics of the system. Attributes are properties of components and relationships, such as capabilities for selecting markets, technologies and organization modes, organizational capabilities for coordinating and integrating activities, functional capabilities for executing tasks efficiently, and adaptive capabilities that allow the system to learn from success and failure. Next to this, the system has dynamic properties, such as robustness, flexibility, the ability to generate change and the ability to respond to changes. Such changes, they argue can be endogenously or exogenously induced. Carlsson et al. (2002) define three major methodological issues to resolve for conceptualizing a system: 1) what is the level of analysis?, 2) what is the definition of the system boundary?, and 3) what constitutes system performance, a question that is related with the system purpose with the defined system outputs?

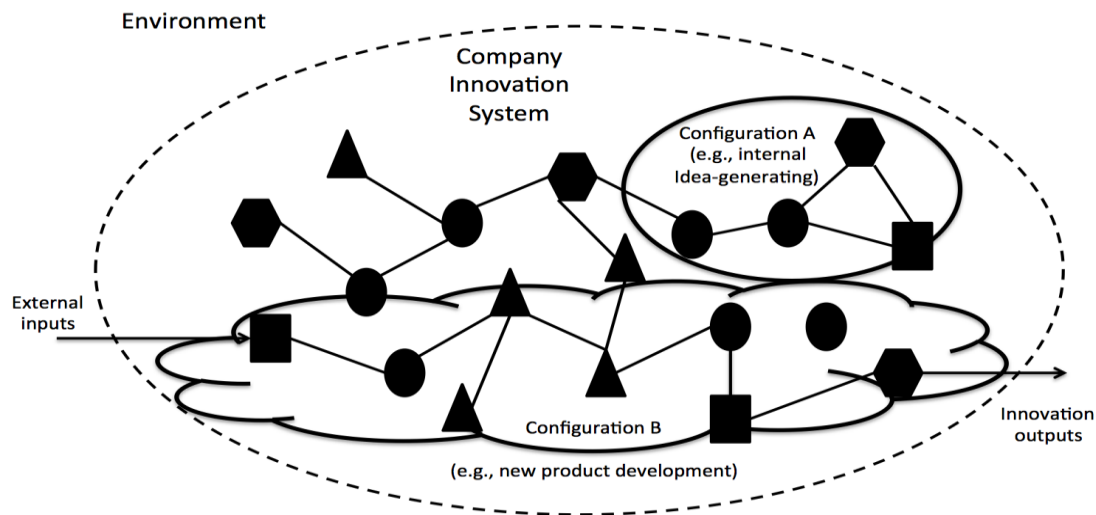
2.3 Company Innovation System

For the company innovation system concept, we follow the 'template' for innovation systems as put forward by Carlsson et al. (2002). Drawing together the building blocks discussed above, we conceptualize of the company as a system of interacting components that has the purpose to produce innovation. These components can be actors, such as individuals, groups, departments or business units, they can be resources, such as financial

capital, intellectual capital or human capital (embodied in the actors and/or their relationships), or they can be institutional characteristics, such as innovative culture, closed versus open or rigid versus adaptive.

The components of the innovation system can be configured, by top-down coordination or by self-organization, into configurations that address specific tasks, e.g., one configuration focuses on coming up with new ideas, another configuration focuses on developing and launching a new product (see figure 1). We further argue that these configurations can range from temporary to permanent. Successful configurations around recurring tasks are expected to be more permanent, reflecting the company's exploitation of existing resources, activities and capabilities. Configurations meant to discover new combinations or unsuccessful configurations will be more temporary and reflect a company's exploration activities and the building of new resources and capabilities. Looked at in this way, an innovation process becomes a specific configuration mode of components of the innovation system. The company innovation system approach therefore does not replace or compete with the process approach, but generalizes it.

Figure 1: Company Innovation System



We emphasize that not all the system's actors and resources need to be involved in every configuration. Indeed, different configurations can exist simultaneously, partly overlapping and using the same actors and resources, while perhaps leaving other actors and resources unused. The use of actors and resources for different tasks, or the (temporal) lack of use of some actors and resources align with Van de Ven's (1986) design principle of 'redundancy of functions': the capacity of the system is larger than what it actually needs for any specific configuration, but prepares it for wider needs.

Like any system, a company innovation system has an environment, i.e., that which is outside the company, and it interacts with this environment, exchanging inputs and outputs with it. Like the system's own resources, such inputs and outputs can be physical, financial, intellectual, relational and human. External innovation systems such as platforms, business ecosystems, technology systems, regional, sectoral and national innovation systems are important parts of that environment.

That leaves us to address the three methodological issues as put forward by Carlsson et al. (2002). First, the *level of analysis* for a company innovation system this is fairly clear, as it will be either the corporate or the business unit level. We need to be careful not to mix the levels, although they can be analyzed together as long as it is clear on which level we are. Second, we define the *system boundary* for the moment very straightforward as the legal boundary of the company. A possible alternative would be to use a stakeholder-based definition that would include, for example, subcontractors working within the company or temporary laborers. Furthermore, as argued by Coriat & Weinstein (2002) and as shown in the concepts of Chen et al. (2015) the company innovation system may be strongly intertwined with wider ecosystems or regional, sectoral or national systems of innovation, and it may in practice not be so easy to define what is 'inside' and what is 'outside'. The dynamics of the system mean that the company boundary may evolve over time. Next to organic evolution of the company, this may be the result of mergers or acquisitions, or of all kinds of spin-out and source-in modes that result from open innovation. Third, we define the *purpose* of a company innovation system in a broad sense. Its outputs and performance can include different types of innovation (product, technological, business model, organizational) with different rates of innovativeness (e.g., incremental, radical), different rates of success or failure and different rates of impact on the company, the market or the world.

3. METHOD

We explore the concept of company innovation system by using two case examples. The first one is Arçelik, a Turkish consumer electronics manufacturer, with its innovation of the Telve Turkish coffee machine. The second one is Vestel, also a Turkish consumer electronics manufacturer, with its innovation of the 3D Smart TV. To construct the case examples, we developed a detailed case protocol, part of which we show here:

- 1- Basics of the innovation
- 2- The internal innovation system of the company
 - a- Is innovation represented at the executive level? Does the company have a “chief innovation officer” or “chief technology officer”?
 - b- What are the main components (actors, departments, units, incubators, central or de-central R&D departments or laboratories, etc.) involved in innovation?
 - c- How are these components related to create innovation?
 - d- A picture of the components of the innovation system and how they are related
- 3- Innovation generations (‘archetypes’ of configuration, see Rothwell, 1994; Ortt and Van der Duin, 2008)
 - a. Technology push model
 - b. Market pull model
 - c. Interactive model
 - d. Open innovation model
- 4- Impact and performance of the innovation

The second author analyzed the Arçelik case. The third author analyzed the Vestel case. The first author checked both cases for completeness in analyzing the questions from the case protocol, for internal consistency and for mutual consistency. For constructing the case examples we used only publicly accessible data, like the company website and its annual reports, press releases, media coverage, academic articles and earlier case studies. The detailed case protocol and the complete case example documents can be obtained from the authors upon request.

4. RESULTS

We describe the case examples of Arçelik and Vestel below. Subsequently we discuss them by making a cross-case comparison and deriving implications for our company innovation concept.

4.1 Arçelik and the Telve

Arçelik is a Turkish household appliances manufacturing company. It started operations in 1955 and today is the market leader in the appliances sector in Turkey. Moreover, it is one of the top five white good manufacturing companies in Europe. With over 2000 patent applications, Arçelik currently accounts for 10% of all the patent applications in Turkey (Arçelik Annual Report 2016). Arçelik received “R&D Leadership” and “Leadership in Technology Development” awards during the Third Turkey Innovation Week. Also, it was chosen as Turkey’s most innovative company in 2014 (Arçelik Annual Report 2014).

Arçelik introduced the world’s first Turkish Coffee Machine, the Telve, in December 2004 (Arçelik Annual Report 2004). It delivers a traditional foamy Turkish coffee quickly without making users have to wait for it to brew. Making Turkish coffee has become much easier since Telve was introduced: all that needs to be done is put water into the machine, put Turkish coffee and sugar in the cup and push the button.

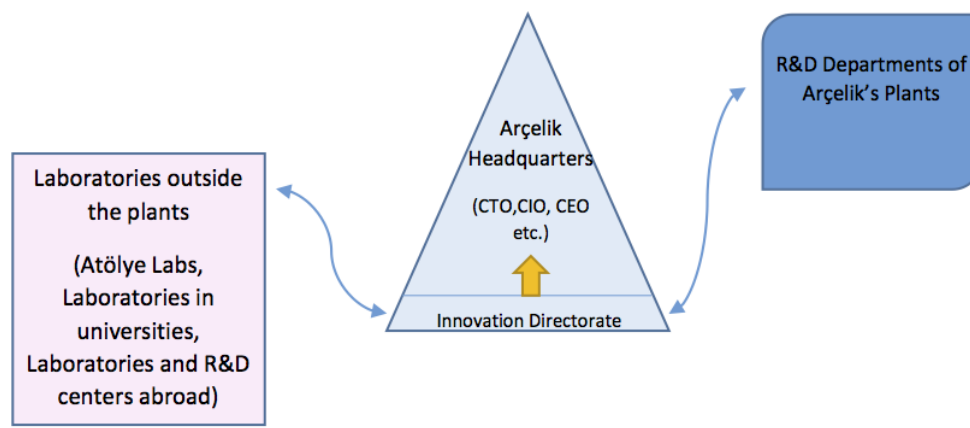
Arçelik’s company innovation system

Arçelik started systematic R&D activities in 1991 with the foundation of its first R&D center (Arçelik website), which is relatively late compared to its international competitors. With its innovation practices, Arçelik sets a benchmark for companies in Turkey. Main components of Arçelik’s strategy are design, quality, technology and innovation (Arçelik Annual Report 2016). Arçelik differentiates between technology management and innovation management. When the Telve was first introduced in 2004, Arçelik had an executive responsible for technology. Currently Arçelik has both an executive responsible for technology and a director responsible for innovation.

Arçelik has R&D departments in each plant in addition to an R&D department in its headquarters. The task of the headquarters R&D is to manage processes, rather than do the detailed research or development. Innovation activities within the business are managed by project groups consisting of employees that work in those business units. These project groups are managed by the innovation directorate which directly reports to the general manager. Arçelik is in the process opening a new prototyping centre, Atölye Labs, to create an attraction point and to enable an open innovation system that engages engineers, makers and technicians at the central R&D Campus of Arçelik.

The Telve innovation appeared from a combination of open innovation and an interactive model of innovation, because Arçelik combined external and internal and technological and market-based ideas to develop the innovation. Arçelik carries on long-term strategic collaborations with universities and research centers that are specialized in R&D. Arçelik supports laboratories located in Istanbul Technical University and collaborates with more than 20 universities abroad. It is involved in various innovation collaboration and platforms both in Turkey and abroad. Arçelik makes use of open innovation platforms and also hunts for early stage technology (Arçelik Website). Figure 2 shows Arçelik's company innovation system.

Figure 2: Arçelik's Company Innovation System



The Telve and its impact

Telve is a radical and architectural product innovation. It is unlike any other coffee machine and it is based on a new set of engineering principles. In 2004, it was new to the market and new to the world. When Telve was introduced, it attracted great attention. Telve was patented with three technologies, consisting of eight patent applications in total. Cook-Sense technology allows the machine to determine the time that is needed for brewing, considering the amount of coffee and sugar that has been put in. AntiSpill technology allows users to be alerted and the machine to switch off when the Turkish coffee is ready. Spin-Jet technology transfers the water from the container to the pot and then it mixes the ingredients homogeneously before the brewing starts (Başarı, 2005).

Telve received the IF Design Award at CeBIT in 2005, one of the world's most prestigious awards (Turkish Coffee World, 2016). Telve has become a commercial success for Arçelik, creating a new market and contributing to the company's sales, profits and brand image. Technologically, Telve has become a dominant design that is now adopted by new entrants in the market. Its social impact has been to change the Turkish Coffee making habits of consumers. The innovation has a good fit with Arçelik's business model and innovation model. Arçelik did not change itself with this innovation, but reinforced its existing capabilities and performance.

4.2 Vestel and the 3D Smart TV

Vestel is a Turkish home and professional appliances manufacturing corporation, consisting of 18 companies specialized in electronics, major appliances and information technology. It is one of the world's largest TV manufacturers, producing its own brands as well as manufacturing OEM products. Vestel and its subsidiary brands have a significant share in the European markets of consumer electronics and home appliances, in particular TV sets, where it accounts for about a quarter of the European market.

The Vestel 3D Smart TV, introduced in 2012, is a television that offers 3D viewing, enhancing viewers' experience along with a traditional 2D option. It offers dual view capability where viewers can watch two different programs

in full-screen on the same TV, looking at the same screen simultaneously. This also allows for *dual play* where customers can play video games with companions, both enjoying a full screen instead of the traditional split screen.

Vestel's company innovation system

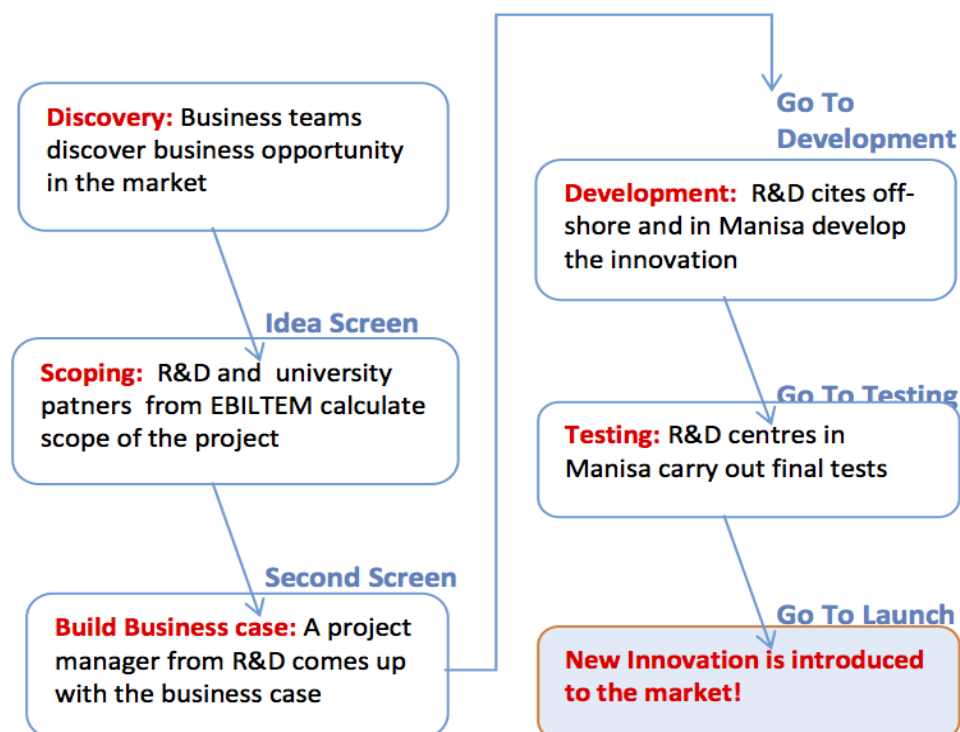
Innovation is not officially represented at the executive level of Vestel. The company has no chief innovation officer or chief technology position. Unofficially however, board member Emre Zorlu may be identified as a representative of innovation at the executive level of the company: "Emre Zorlu is currently also the Vice-Chairman of Vestel Ventures, the venture capital arm of Vestel, focusing on early stage technology, innovation and IP investment, commercialization, and advisory" (Vestel Ventures, 2015).

Vestel has four R&D centers in its main location, Vestel City in Manisa. Three of these are Electronics R&D centers and one is a White Goods R&D center. Other Vestel R&D centers include VESTEK at the Istanbul Technical University Teknopark, where development activities are carried out for IPTV, 3D algorithm and server software used in TV interaction, Cabot UK, which develops middleware software for digital broadcasts, Vestel Elektronik Shenzhen R&D Office, which operates mainly in the area of component certification and IA design and development company in Silicon Valley (Vestel Annual Report 2015).

Vestel R&D centers closely collaborate with a number of national and international institutions and agencies, especially universities. Vestel cooperates with Ege University Science and Technology Centre (EBILTEM) in Izmir: "EBILTEM is an interface organization of Ege University, and an internationally recognized university-industry collaboration institution housing a wide range of offices and units providing information, technology, IPR and innovation management support to industry" (Senturk, 2011).

The company seems to work on both ends of the exploration – exploitation scale. Its initiatives to expand its current product-line and its contract manufacturing for OEM's are fairly safe, geared toward efficiency, and the company can continue to perform like it always has. On the other side of the spectrum, the company commits to developing disruptive technologies that require new technological capabilities. The 3D Smart TV is an example of this last approach. The 3D Smart TV appeared from a combination of open innovation and a technology-driven model. The company seems to gather research results and concept ideas from, e.g., EBILTEM and from its 'satellite' R&D centers abroad. Ultimately, final tests and innovation production are done in Vestel's R&D centers in Manisa. Figure 3 shows Vestel's company innovation system

Figure 3: Vestel's Company Innovation System



The Vestel 3D Smart TV and its impact

The Vestel 3D Smart TV was new to the company, the market and the world. The closest competitors to introduce double-screen TV were LG and Samsung, which both released models around the same time as Vestel. The 3D Smart TV is an architectural innovation, because the complete internal system of the TV was changed to accommodate the double-screen feature. Vestel applies both 3D FPR technology and 3D Shutter technology. This was not a mere change of some components of the system, but rather a complete overhaul in how the system interacts.

The 3D Smart TV is still in the growth phase of its product life cycle. Up to now, the innovation was not successful from a business point of view, with disappointing sales and profit figures. The innovation promises potential to make a big impact in the market, but has failed to do so until now. The innovation shows many the characteristics of exploration, such as leading-edge technology, high research investments, development of new capabilities, and large risks with uncertain payoffs. For all its performance woes, the 3D Smart TV seems to be aimed at changing Vestel from a manufacturing and efficiency-based company toward a high-tech company that can compete with international A-brands.

4.3 Discussion of Results

Cross-case analysis

In table 1 below we show a brief cross-case analysis, highlighting the differences and similarities between the two companies and their innovation systems.

Table 1: Cross-Case Analysis

	Arçelik	Vestel
<i>Executive representation</i>	A technology executive and an innovation director	None or informal
<i>Coordination</i>	Central is facilitating and managing processes	Stable process
<i>Configurations</i>	Ideas and development from inside and outside	Ideas from outside, development inside
<i>Archetype</i>	Combination of Interactive model and Open innovation	Combination of Technology-push model and open innovation
<i>Exploration-exploitation</i>	Mostly exploitation	Mostly exploration
<i>Business success</i>	Big success	Uncertain
<i>Fit with innovation system</i>	Innovation fits the system, does not change it	Innovation geared at changing the system

In the case of Arçelik we see a system that is directly tied to the executive level, with many actors that can be combined into different configurations. The central R&D function is facilitating and managing those configurations. Configurations can be adapted depending on where new ideas come from. The dominant configuration is the interactive model combined with the open model, taking technology and market developments and internal and external developments into account. The successful innovation of the Telve fits the system and exploits its capabilities. Arçelik's innovation system has evolved gradually during the last 30 years, without too many leaps and bounds.

In the case of Vestel we see a system with a more stable configuration. Consequently, it does not need continuous (centralized) coordination. The dominant configuration for the 3D Smart TV and similar innovations is the technology push model combined with the open model, using ideas developed by external parties or by satellite R&D centers and then developing those ideas internally. As indicated, the traditional core business of Vestel seems to follow a different configuration, that, unfortunately we cannot analyze with the current data. The technologically advanced 3D Smart TV innovation has met with uncertain business success, but explores new technology and points toward potential changes in Vestel's innovation system.

Implications

Carlsson et al. (2002) indicate that innovation systems consist of components, the relationships among them, and their characteristics or attributes. We find that using a company innovation system approach, first, we can map

the main components of companies' innovation systems, such as executive level representation, central innovation departments, de-central departments in regions or attached to the business units and business teams. Second, we can indicate the relationships between those components, e.g., as a reconfigurable system facilitated by a central coordinator (cf., Arçelik), or as a more fixed process, where different actors are involved in different stages (cf., Vestel). Third, we can identify the company innovation systems' characteristics, such as exploration-exploitation, the dynamics of the system and the fit between the innovation outputs and the system capabilities.

Coriat & Weinstein (2002) and Chen et al. (2015) indicate that external and internal innovation systems are intertwined, hence we should be careful to include the effects of external innovation systems on the company innovation system. Our case examples confirm and highlight this issue. Focusing on the internal innovation systems only would result in a distorted image. This again brings up the question of the system border definition. For analyzing company innovation systems, it seems unlikely that we can rely on the legal boundary of the company only. Alternative boundary definitions and criteria may need to be explored.

Another aspect that we may gather from the case examples is emphasis on interaction, learning and 'new combinations' (cf., Edquist, 1997). We can detect where new combinations come from and how the innovation system can be configured and re-configured to respond to such new combinations, or to create them. In the innovation process approach, such observations are usually considered as 'external', new combinations are assumed to 'just emerge', or their emergence is separately studied as the 'fuzzy front end' of innovation. In the innovation systems approach, the mechanism of how new combinations happen is built into the analysis: they come from interaction between the actors and resources in the system. Admittedly, a lot of conceptual and empirical work needs to be done to clearly demonstrate this principle.

Next, combining the concept of company innovation system with the cases, we can integrate innovation system and innovation process. An innovation process becomes one of many possible configurations within the innovation system. According to Ortt and Van der Duin (2008), a company may choose a different configuration of its innovation process, contingent upon the type of innovation, the type of business, the resources available, or the external environment. Different configurations may exist side by side, as the Vestel example shows us. Some configurations are successful and will be more permanently linked, meaning that the company will use them over and over. Other configurations may be more temporarily linked. This also points to the coordination function in a company innovation system. A more permanent configuration, once in place, may require relatively less central coordination, as we may infer from the Vestel example. Temporal configurations and reconfigurations will require continuous coordination, either self-organized and centrally facilitated or centrally managed and controlled, as we may infer from the Arçelik example.

Finally, the company innovation system approach enables us to connect to the concept of exploration-exploitation (March, 1991). Existing and permanent configurations exploit the same actors and resources, reinforcing existing capabilities. Such configurations will normally produce successful outputs in the short run, given a stable environment. New and temporal configurations explore new combinations of actors and resources, thereby developing new capabilities. Such configurations require investments with uncertain benefits. Some of them will be huge business successes, others may be outright business failures, but may still contribute to developing new capabilities that enable the innovation system to evolve. The paradoxical finding from our case examples is that the company with a more stable configuration (Vestel) seems to have developed a more exploratory innovation, whereas the company with more flexible and temporary configurations (Arçelik) has developed an innovation that exploits existing capabilities. This may be an issue in the integrity of our data, or a more conceptual issue that should be addressed in further research.

5. CONCLUSION

We conclude with relating our findings back to the objectives of the paper, deriving preliminary academic and practical implications, and addressing limitations and scope for further research.

5.1 Objective and Findings

The objective of this paper was to conceptualize the company as an innovation system and to explore this concept using two case examples. We propose the company innovation system approach as a relevant addition to and a generalization of the innovation process approach.

We conclude that the company innovation system approach builds on existing theoretical foundations. It is also firmly related to the rich theory and data of innovation systems research on other levels of analysis, national,

sectoral, regional and technological. It allows us to identify companies' innovation systems and the differences between them. It provides additional and complementary insights to the innovation process approach.

We find that using the company innovation system approach, we can map the components of innovation systems at the company level, we can indicate the relationships between those components and we can identify system characteristics such as relationships with external innovation systems, open versus closed, archetypical configurations, the emergence of new combinations, coordination mechanisms and exploration versus exploitation.

5.2 Academic and Practical Implications

This research has academic and practical implications. Academically, we propose that innovation management issues can be analyzed using the company innovation system approach. We also propose that for certain issues and characteristics, such as cross-functional cooperation, learning and knowledge, the emergence of new combinations, and coordination of the innovation functions, can be better analyzed and deeper understood using a company innovation system approach instead of an innovation process approach.

Practically, companies need to address and often struggle with issues of innovation system design (who or which part of the system is responsible for what), innovation system structure (how do the different parts of the system work together) and innovation system coordination (how to ensure that the system is productive, fulfills its objectives, and is stable). A well-conceptualized and validated company innovation system approach may provide managers with the relevant insights to address those issues. Which brings us to future research.

5.3 Scope for Future Research

The implications stated above are, at this moment, highly tentative and preliminary. The current paper provides merely an initial conceptualization of the company as an innovation system. Further conceptual work is needed to flesh out the concept and its sub-concepts, to ensure the ability to test and falsify these concepts, and to clarify the connections with related concepts. All the analytical and methodological aspects of innovation systems as identified by Carlsson et al. (2002) should be addressed and clarified. Specific issues that come to mind are: the system definition/boundary, e.g., a strictly legal definition of the company versus a stakeholder involvement definition; the role of the system design principles (e.g., Van de Ven, 1986; Morgan 1986); the possible configurations of the system, archetypical, permanent or temporary (e.g., Teece, 1996; Chen et al., 2015); the governance and institutional characteristics of the system (e.g., Van de Ven, 1986; Teece, 1996); a definition of the elementary units of the system (e.g., Granstrand, 1998; Lakhil et al, 1999); the roles of resources (Granstrand, 1998) and capabilities (Coriat & Weinstein, 2002); the dynamic and evolutionary aspects of the concept (Carlsson et al., 2002).

Further empirical work is needed to do the actual testing and to demonstrate the usefulness of the approach for analyzing innovation in companies. Such empirical work could start with mapping the innovation system of companies using the case method, making cross-sectional comparisons between companies, or following the evolution of specific company innovation systems over time. Specifically, as Carlsson et al. (2002) indicate that, due to the continuous feedback in the system produced by its interactions, we should be careful with 'snapshots'. Therefore, longitudinal research is strongly preferred.

Upon availability of a sufficient basis of empirical observations, further questions could be empirically tackled, such as the contingency between system structure/governance and the environment or the relationship between system structure/governance and innovative performance.

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REFERENCES

- Anwar, A.A. (2017). Vestel 3D Smart TV final module. Assignment for MGMT401 Technology and Innovation Management. Özyegin University Business School.
- Arçelik A.Ş. Annual Reports 2004, 2014 and 2016.
- Arçelik A.Ş Website. www.arcelikas.com (accessed 21 April 2017).
- Ashby, W.R. (1962). Principles of the self-organizing system, in: Principles of Self-Organization: Transactions of the University of Illinois Symposium, H. Von Foerster and G. W. Zopf, Jr. (eds.), Pergamon Press: London, UK, 255–278.
- Başarır, S. (2005). A Comparative Study on Design of Turkish Coffee Brewing Machines for Self-Service: “Telve”, “Kahve” and “Gondol”. A Thesis Submitted to the Graduate School of Engineering and Sciences of İzmir Institute of Technology in Partial Fulfillment of the Requirements for the Degree of MASTER OF SCIENCE in Industrial Design.
- Carlsson, B., Jacobsson, S., Holmén, M., & Rickne, A. (2002). Innovation Systems: Analytical and Methodological Issues. *Research Policy*, 31(2), 233–245.
- Carlsson, B. & Stankiewicz, R. (1991). On the nature, function and composition of technological systems. *Journal of Evolutionary Economics*, 1(2), 93–118.
- Chen, J., Huang, S-f., & Xu, Q-r. (2015). Firm Innovation Systems: Perspectives of Researches on State-owned Key Enterprises. *Frontiers of Engineering Management*, 2(1), 64–70.
- Chesbrough, H. (2003). The logic of open innovation: managing intellectual property. *California Management Review*, 45(3), 33–58.
- Cooke, Ph., Uranga, M.G., & Etxebarria, G. (1997). Regional innovation systems: Institutional and organisational dimensions. *Research Policy*, 26(4–5), 475–491.
- Cooper, R.G. (1985). Selecting winning new product projects: Using the NewProd system. *Journal of Product Innovation Management* 2(1), 34–44.
- Cooper, R.G. (1990). Stage-gate systems: a new tool for managing new products. *Business Horizons*, 33(3), 44–54.
- Cooper, R.G. (2008). Perspective: The Stage-Gate® idea-to-launch process—Update, what’s new, and NexGen systems. *Journal of Product Innovation Management*, 25(3), 213–232.
- Coriat, B. & Weinstein, O. (2002). Organizations, firms and institutions in the generation of innovation. *Research Policy*, 31(2), 273–290.
- Edquist, Ch. (1997). *Systems of innovation: technologies, institutions, and organizations*. Routledge, London.
- Gawer, A. & Cusumano, M.A. (2014). Industry platforms and ecosystem innovation. *Journal of Product Innovation Management*, 31(3), 417–433.
- Granstrand, O. (1998). Towards a theory of the technology-based firm." *Research policy* 27.5 (1998): 465–489.
- Granstrand, O. (2000). Corporate Innovation Systems: A Comparative Study of Multi-Technology Corporations in Japan, Sweden and the USA. Paper submitted to the Dynacom project.
- Iansiti, M. & Levien, R. (2004). Strategy as ecology. *Harvard Business Review*, 82(3), 68–81.
- Lakhal, S., Martel, A., Oral, M., & Montreuil, B. (1999). Network companies and competitiveness: A framework for analysis. *European Journal of Operational Research*, 118(2), 278–294.
- Lundvall, B-A. (1992). *National systems of innovation: An analytical framework*. Pinter, London.
- Malerba, F. (2002). Sectoral systems of innovation and production. *Research Policy* 31(2), 247–264.
- Moore, J.F. (1993). Predators and prey: a new ecology of competition. *Harvard Business Review*, 71(3), 75–83.
- Morgan, G. (1986). *Images of organization*. Sage Publications, Beverly Hills.
- Ortt, J.R. & Van der Duin, P.A. (2008). The evolution of innovation management towards contextual innovation. *European Journal of Innovation Management*, 11(4), 522–538.
- Rothwell, R. (1994). Towards the fifth-generation innovation process. *International Marketing Review*, 11(1), 7–31.
- Senturk, R. (2011). An Open Innovation Story From Turkey: VESTEL Magneto. www.innovationmanagement.se (accessed 8 Nov. 2016).

Teece, D.J (1996). Firm organization, industrial structure, and technological innovation. *Journal of Economic Behavior & Organization*, 31(2), 193–224.

Tidd, J. & Bessant, J. (2013) *Managing Innovation: Integrating Technological, Market and Organizational Change - 5th Edition*. Wiley, Hoboken.

Trott, P. (2011). *Innovation management and new product development - 5th Edition*. Pearson education, Harlow, UK.

Turkish Coffee World. www.turkishcoffeeworld.com/Arcelik-BekoTelve-Turkish-Coffee-Machine-p/tcw-b002.htm (accessed 21 April 2017).

Uzun, P. (2017) Arçelik Telve - Final. Assignment for MGMT401 Technology and Innovation Management. Özyegin University Business School.

Van de Ven, A.H. (1986) Central problems in the management of innovation. *Management Science*, 32(5), 590–607.

Vestel Annual Report 2015.

Vestel Ventures. www.vestelventures.com (accessed 8 Nov. 2016).



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A STUDY ON FINANCIAL ASPECT OF TRADITIONAL FOOD SHOPPING VIA SOCIAL MEDIA

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ABSTRACT

In recent years the efforts of raising awareness of balanced and healthy nutrition in all over the world and in our country have made a successful impact on public. With this awareness and the need to live a longer and healthier life people tend to consume trusting, natural, additive free, healthy, and traditional food. However living conditions make it impossible for people to make traditional foods themselves therefore people are inclined to buy them. Nowadays, traditional food shopping via social media is gradually increasing. In order to meet the demand of traditional food, satisfy the need of consumers and turn this situation into an opportunity numerous micro entrepreneurs use social media (Facebook and Instagram). This research aims to study the importance of social media shopping of traditional foods and the importance of financial aspect of the said shopping. In order to realize this aim, contents were completed and the relationship between literature and contents was promoted with primary work. With conceptual framework, hypothesis of the research has begun to develop. The questionnaire in accordance with this aim provided a research that is primarily about the financial contribution of buying traditional foods via social media to consumers and to the company. The results obtained were evaluated with statistical analysis and tested with hypotheses. According to the analyses, it is found that traditional food shopping via social media provides high financial gain to consumers and companies. It is also ascertained that if the selling rates of the traditional food producers who do marketing via social media increase, their marketing costs decrease and therefore financial profits increase significantly.

Keywords: Financial aspect, financial management, financial profitability, traditional food

JEL Codes: G10, G23

1. INTRODUCTION

The increment in health expenses and the labor loss in working life brought by the nutrition-based problems created an extensive scientific research and a discussion platform by attracting attentions on this subject in recent years. It is discussed in this platform about which food stuff are more healthy, at what ages it should be consumed in what amounts, otherwise which health problems can be faced with. Herein the obesity and the diseases based on obesity in almost every age groups are the major public health problems (Arlı et al., 2006). It could be said that the efforts to raise the awareness of people about healthy life and nourishment in our country and the world achieved to create awareness.

People go into the effort of researching the alternatives of living a more healthy and long life through the internet. In our country and the world, it is known that people notice when they investigate the safety, natural, additive-free and healthy goods that the traditional products can satisfy their needs, and share they this with each other via the social media. Seen that this sharing gradually starts to reach a commercial sector.

1.1. Definition of Traditional Foods

The traditional foods are the values consumed for many years in a region, create a part of the kitchen inheritance of a society and the best-fit nourishment style for the biology and physiologies of the people of that community within the centuries. Much as the traditional foods are called as ethnic and regional featured products and tried to based upon the basis of geographical area and region, there is not a standard definition accepted by everyone. They definitively differ from similar foods due to both traditional raw material used in production and traditional methods used in production and processing (Altuntaş and Gülçubuk, 2014).

2. PURCHASING TRADITIONAL FOOD VIA SOCIAL MEDIA

The communication gathered speed by the developing technology in today increased the awareness and sensitiveness of people about environment and health. As a result of these developments and increasing consumer awareness, the consumer preferences significantly shifted from packed take-home foods to the traditional products. Seen in recent years that the interest in traditional food in our country and the world seems to be increasing.

Traditional food products are mostly produced in the home environment or small family businesses based on the limited production amount and marketed in the same regions. Many entrepreneurs in our country are in this business and sell these goods throughout social media. The added value created by the traditional products produced in home environments or small family businesses has reached an ever growing dimension in our country includes pretty much product range. Putting these related products on country and the world markets can significantly contribute to developing that region and its economy as well.

2.1. The Financial Scale of Purchasing Traditional Foods via Social Media

At present, the traditional food products emerge as an economic value at the end of the production process and economic activity (Altuntaş and Gülçubuk, 2014). Developing the social media and it's spreading use with globalization caused to increase the competition. We see that the consumers who are aware of the competition in the market of traditional food products started to make more complex requests and enhance their awareness for the price and quality. Under these circumstances, the consumers also consider the commercial scale to return the profit when they buy on social media.

2.2. The Financial Scale of Selling Traditional Foods via Social Media

The financial scale involves the long termed goals of the company, profitability, and growth. The need for knowledge increases by the rapidly changing conditions of competition, technological improvements and new methods and techniques applied in enterprises. The companies have to consider and analyze the financial and non-financial factors about the global business world and activity areas beside internal data to return a profit and maintain their presence (Uygur, 2009). The companies embarked on a quest for new methods by noticing the classical methods just measure the financial values but not allow for the analysis of the problem. The balanced success indicator affects the efficient use of source and time by also providing to be evaluated the company thoroughly (Ağca and Tunçer, 2006).

2.3. The Financial Cost and Profitability of Selling Traditional Foods via Social Media

The companies need to be involved in activities such as production, financing, and management of the human sources to achieve the goal (Mucuk, 2013). The marketing is placed on the top of the functions which provide the companies succeed. The enterprises that sell the traditional foods via social media also increase their profitability by partially minimizing the marketing cost.

2.4. The Financial Management of Selling Traditional Foods via Social Media

It needs to be correctly determined the requirements of the company, designed the scorecards consisting of performance criteria within a cause-effect relationship, being the measurements accurate and realist to succeed the management (Güner, 2008).

Much as the financial management as accepted as a different part of the business economy and being provided the means of payment at the start, then the extent of the financial management exceed this classical perspective. Accordingly, the financial management involves being used the reserves effectively and the audit of the success in this field besides being provided these reserves on easy terms.

2.5. The Effect of Selling Traditional Foods via Social Media on the Growth

Due to the modificatory conditions, the purpose of accelerating the development and growth consisting of necessary fiscal policies in every country is changed as stopping the price increase, avoiding the black market and abolish the deflation (Şener, 2004).

Since the financial criteria are beneficial to summarize the measurable economic results of the current situation about previous businesses, DSK BALANCED SCORECARD keeps the financial scale as so (Kaplan and Norton, 1999: 33). Because of this, DSK articulates the financial purposes and helps to companies to determine specific financial goals for each period of the course of life of the companies such as growth, maintenance and obtaining results (Ölçer, 2005: 93).

The financial criteria are determined based on the size, sector in which operates and own conditions (Bean and Jarnagin, 2002: 56). These criteria generally focus on the performance indicators like profitability, growth, net income, increase in sales, cash flow and economic added value (Hornsby and Baxendale, 2001: 5). The financial purposes and the criteria of

companies may differ based on the level of the company on the business life cycle (growth, publicity, maturity, etc.) (Hornsby and Baxendale, 2001: 5). The financial criteria such as sales status and cash flow are essential for a company at publicity level, while other financial criteria like profitability, net income may be more important for the companies at the maturity level.

2.6. Theoretic Framework and Hypotheses of the Research

Variables of the Research

- Dependent Variable: Financial Scale
- Independent Variable: Social Media
- Mediator Variable: The Perception of Purchasing the Traditional Foods via Social Media

The hypotheses developed in this research are proposed as follows

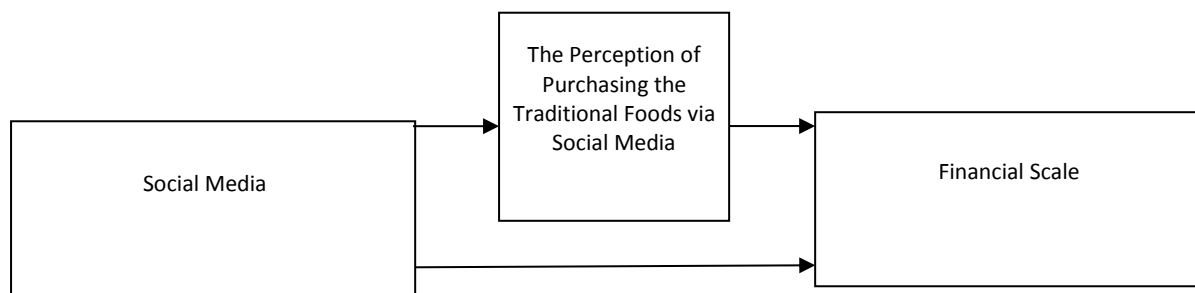
H₁: The gainings of purchasing traditional food via social media is high for the consumer.

H₂: The gainings of purchasing traditional food via social media is high for the company.

H₃: As the sales of traditional food producers increase via social media, marketing costs decrease.

H₄: As the sales of traditional food producers increase via social media, their profitabilities increase.

Figure 1: Theoretic Framework of the Research



3. RESEARCH METHODOLOGY

The survey was prepared by Google Forms on the Google Drive. Totally 1341 of social media users attended in the inquiry. The universe of the research consists of the users of social media. The data obtained in research were collected by using the survey method. It is tried to gather information based on five-point Likert scale besides the open and close ended questions.

3.1. Purpose of the Research

The goal of this research is to reveal how important the purchasing traditional food via social media and the commercial scale of this purchasing are.

3.2. Sampling of the Research

The questionnaire forms were sent 3128 members of pages of traditional food shopping in Facebook and Instagram when creating the sample of the research. 1341 of them made a comeback (The ratio of the comeback of the surveys is 42,87%).

3.3. Data Collection Method of the Research

The survey technique is used in this study. The data collected were analyzed by SPSS 22.0 program. The statistical techniques are used in this study such as Cronbach's Alpha (Reliability), Chi-Square Test and frequency distribution. Totally 42 questions were asked, and the answers were evaluated in 5 points Likert scale to measure the variables about purchasing traditional foods via social media and the financial extent of this purchasing.

4. ANALYSIS OF THE DATA OF RESEARCH

The data obtained from the surveys were recorded in the electronic environment and analyzed by transferring to SPSS 22.0 program. Cronbach's Alpha test, Chi-Square test were used in analyses; the frequency, percentage values, and the graphic data were determined as well.

Table 1: Cronbach's Alpha Test

Cronbach's Alpha	N of Items
,860	10

Cronbach's Alpha test determined the reliability of the questions prepared to analyze the financial extent of purchasing traditional food via social media. As is seen in Table 1, the result of 0,860 ($0.7 \leq \alpha < 0.9$) is accepted as 'good' based on the measurement criterion of Cronbach's Alpha test.

Table 2: Chi-Square Tests- Do you buy traditional food product via social media?* The customers who buy the traditional foods via social media have small expenses.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1012,514(a)	3	,000
Likelihood Ratio	1146,563	3	,000
Linear-by-Linear Association	789,577	1	,000
N of Valid Cases	1341		

a. 2 cells (25,0%) have expected count less than 5. The minimum expected count is ,82.

According to Chi-Square analysis in Table 2, determined that the significance value is less than $0,000 < 0,005$ when being analyzed if there is a relation between the variables or not in the distribution of propositions called 'Do you buy traditional food product via social media?' and 'The customers who buy the traditional foods via social media have small expenses.' In this case, the hypothesis 'H1: The gainings of purchasing traditional food via social media is high for the consumer' is accepted.

Table 3: Do you buy traditional food product via social media?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Evet	974	72,6	72,6	72,6
Hayir	367	27,4	27,4	100,0
Total	1341	100,0	100,0	

It can be seen when Table 3 is analyzed that the participants of survey buy traditional food products by using the means social media. The ratio of buyers is 72,6% while the rate of people who say 'no' is 27,4%.

Graphic 1: Do you buy traditional food product via the means of social media?

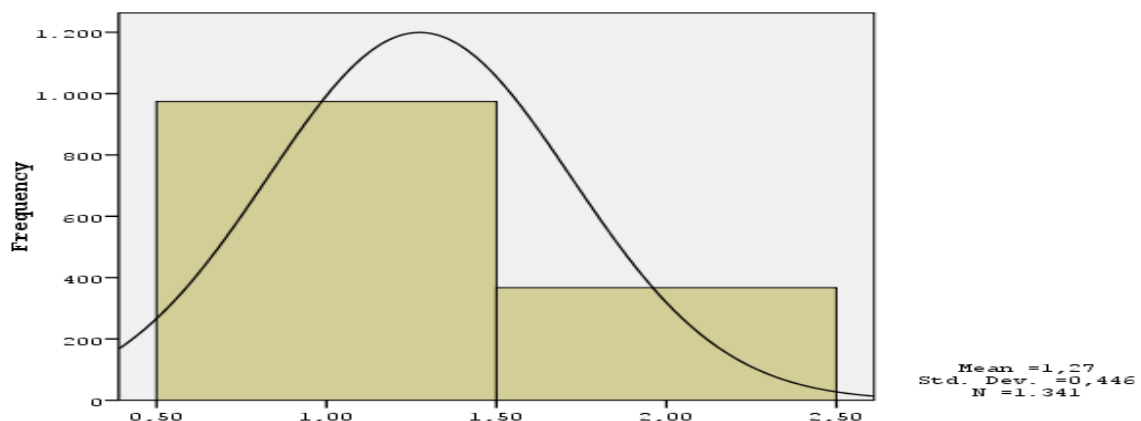
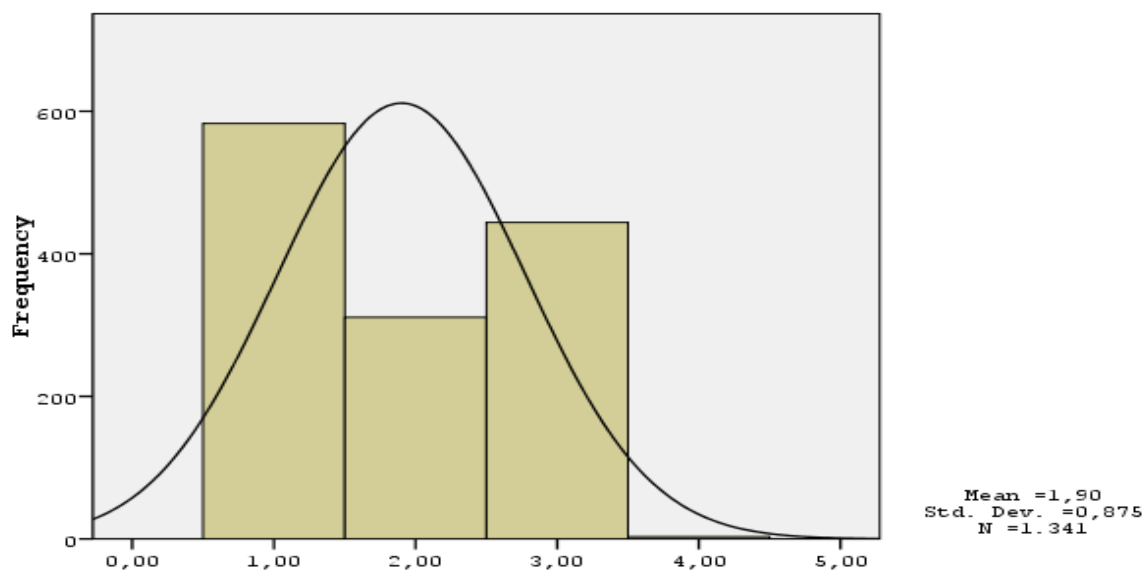


Table 4: The customers who buy the traditional foods via social media have small expenses.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Absolutely Agree	583	43,5	43,5	43,5
	Agree	311	23,2	23,2	66,7
	I'm on the fence	444	33,1	33,1	99,8
	Disagree	3	,2	,2	100,0
Total		1341	100,0	100,0	

According to Table 4, the ratio of participants who think that the customers who buy the traditional foods via social media have small expenses is 66,7%. The ratio of irresolute is 33,1%, and people who disagree is 0,2%.

Graphic 2: The customers who buy the traditional foods via social media have small expenses.**Table 5: Chi-Square Tests- Do you buy traditional food product via the means of social media?*** Selling a product via social media is low-cost in comparison with selling the same product at retail or wholesale.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1007,665(a)	3	,000
Likelihood Ratio	1134,998	3	,000
Linear-by-Linear Association	783,255	1	,000
N of Valid Cases	1341		

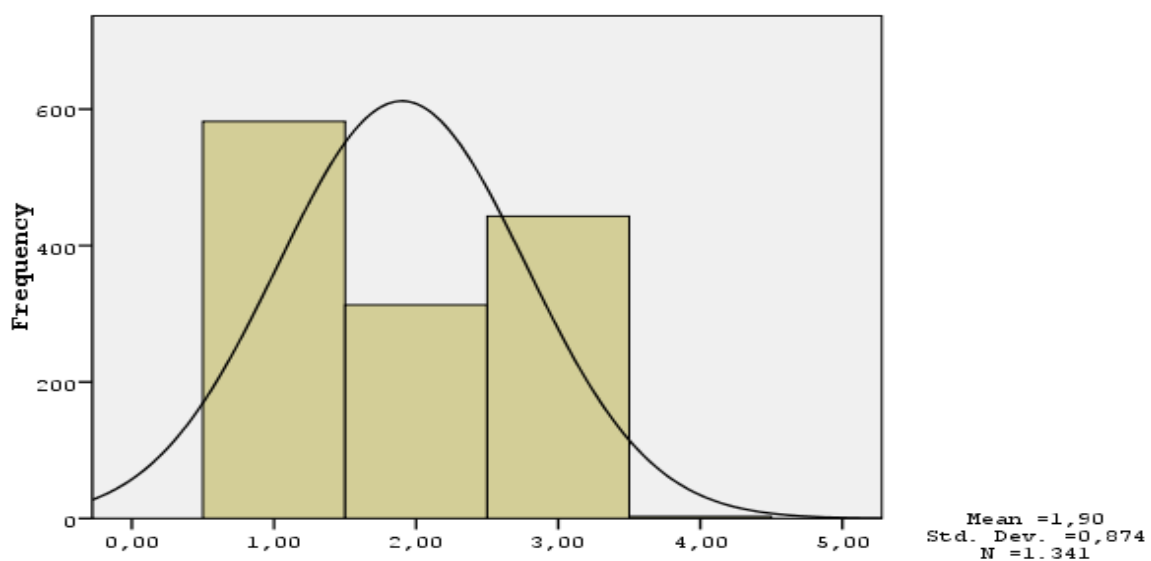
a 2 cells (25,0%) have expected count less than 5. The minimum expected count is ,82.

According to Chi-Square analysis in Table 5, determined that the significance value is less than $0,000 < 0,005$ when being analyzed if there is a connection between the variables or not in the distribution of propositions called 'Do you buy traditional food product via the means of social media?' and 'Selling a product via social media is low-cost in comparison with selling the same product at retail or wholesale in a place.' In this case, the hypothesis 'H2: The gainings of purchasing traditional food via social media is high for the company' is accepted.

Table 6: Selling a product via social media is low-cost in comparison with selling the same product at retail or wholesale in a place.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Absolutely Agree	582	43,4	43,4	43,4
	Agree	313	23,3	23,3	66,7
	I'm on the fence	443	33,0	33,0	99,8
	Disagree	3	,2	,2	100,0
Total		1341	100,0	100,0	

According to Table 6, 66,7% of participants are agree with the question called 'Selling a product via social media is low-cost in comparison with selling the same product at retail or wholesale in a place.' Rest of the percentage composed of irresolute (33,0%).

Graphic 3: Selling a product via social media is low-cost in comparison with selling the same product at retail or wholesale in a place**Table 7: Do you buy traditional food product via the means of social media you use?* As the sales of companies increase via the internet, the costs of marketing get the decrease.**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	781,164(a)	3	,000
Likelihood Ratio	910,639	3	,000
Linear-by-Linear Association	673,335	1	,000
N of Valid Cases	1341		

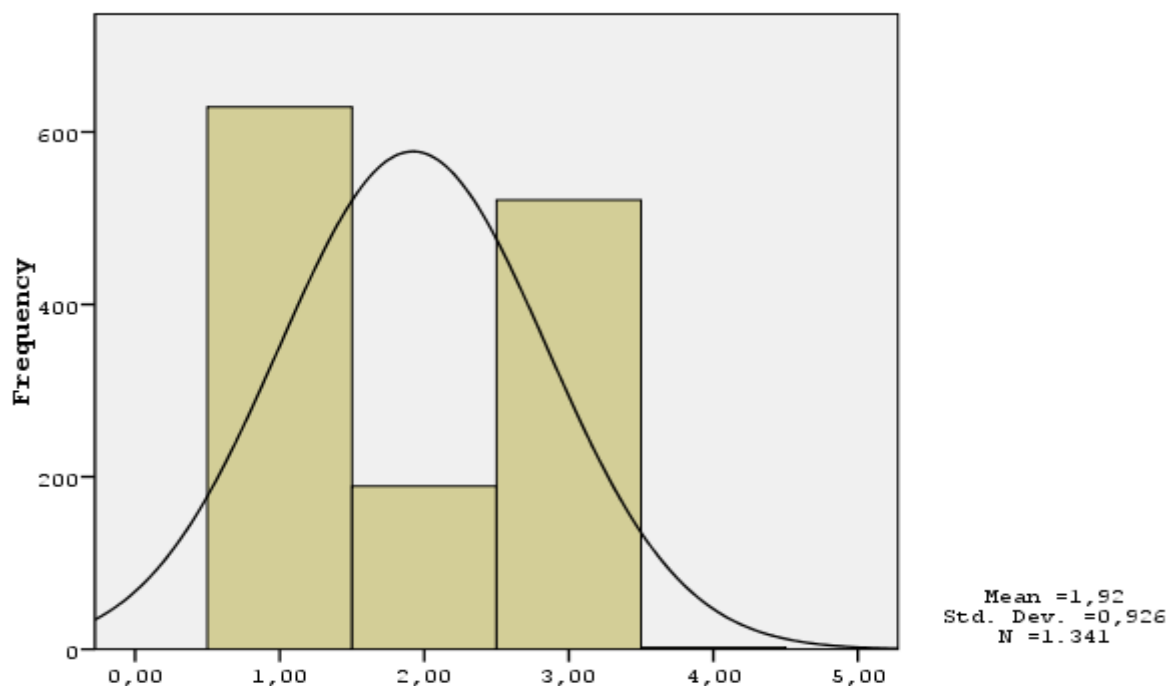
a. 2 cells (25,0%) have expected count less than 5. The minimum expected count is ,55.

According to Chi-Square analysis in Table 7, determined that the significance value is less than $0,000 < 0,005$ when being analyzed if there is a relationship between the variables or not in the distribution of propositions called 'Do you buy traditional food product via the means of social media you use?' and 'As the sales of companies increase via the internet, the costs of marketing get the decrease.' In this case, the hypothesis 'H3: As the sales of traditional food producers increase via social media, marketing costs decrease' is accepted.

Table 8: As the sales of companies increase via the internet, the costs of marketing get the decrease.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Absolutely Agree	629	46,9	46,9	46,9
	Agree	189	14,1	14,1	61,0
	I'm on the fence	521	38,9	38,9	99,9
	Disagree	2	,1	,1	100,0
	Total	1341	100,0	100,0	

With respect to Table 8, totally 818 (61%) of attendees replied in the affirmative for the question called 'As the sales of companies increase via the internet, the costs of marketing get decrease.' The ratio of irresolute is 38,9%.

Graphic 4: As the sales of companies increase via the internet, the costs of marketing get a decrease.**Table 9: Chi-Square Tests- Do you buy traditional food product via the means of social media you use?* As the sales of companies increase via the internet, their profitability gets increase more and more.**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1012,514(a)	3	,000
Likelihood Ratio	1146,570	3	,000
Linear-by-Linear Association	788,660	1	,000
N of Valid Cases	1341		

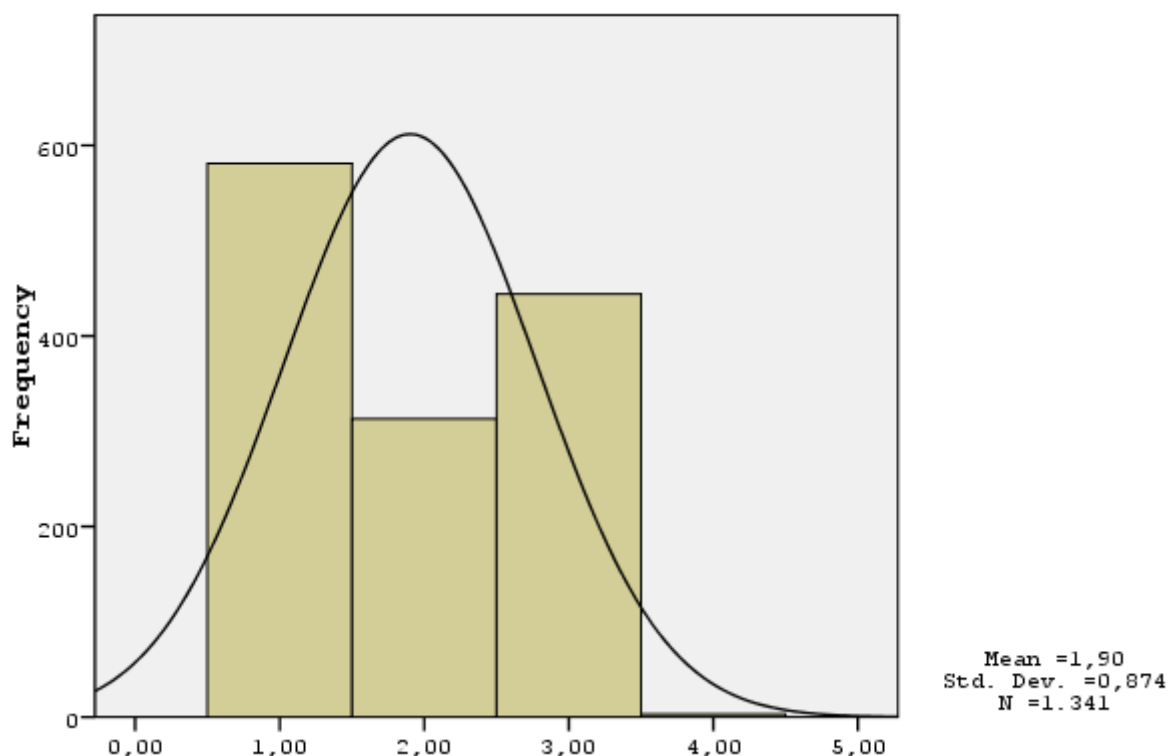
a 2 cells (25,0%) have expected count less than 5. The minimum expected count is ,82.

According to Chi-Square analysis in Table 9, Determined that the significance value is less than $0,000 < 0,005$ when being analyzed if there is a relation between the variables or not in the distribution of propositions called 'Do you buy traditional food product via the means of social media you use?' and 'As the sales of companies increase via the internet, their profitability gets raise more and more.' In this case, the hypothesis 'H4: As the sales of traditional food producers increase via social media, their profitabilities increase' is accepted.

Table 10: As the sales of traditional food producers increase via social media, their profitabilities increase.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Absolutely Agree	581	43,3	43,3	43,3
	Agree	313	23,3	23,3	66,7
	I'm on the fence	444	33,1	33,1	99,8
	Disagree	3	,2	,2	100,0
Total		1341	100,0	100,0	

According to Table 10, 894 (66,6%) of participants mentioned as 'As the sales of traditional food producers increase via social media, their profitabilities increase.' The ratio of irresolute is 33,1%.

Graphic 5: As the sales of traditional food producers increase via social media, their profitabilities increase more and more.

5. CONCLUSION

It is seen when being evaluated the commercial scale of purchasing traditional foods via the internet by the users of social media in terms of the consumers that the return of traditional food products is financially high. And about the companies, the profitability is increased due to the decrease in costs of marketing, so the profitability mounted up. The answers of participants were tested and the hypotheses proposed were accepted either. A vast majority of the users of social media attended to the survey consists of women, and the greatest common factor for them to choose the traditional food products is that they think about these products are made from healthy and organic goods.

Determined by the analyses actualized that the married attendees care more than bachelor ones about being traditional food products hormone-free, additive-free and homemade. It is observed when the opinions of participants are analyzed based on the ages that, the attendees who are between the ages of 25 – 29 care more than the age group between 40 and 44 about being the traditional products hormone-free, additive-free and not genetically modified. For the participants in an age group of 20-24, being traditional products additive-free is less significant in comparison with the ages between 40 and 44. It can be easily said in other words that the characteristics of the traditional products are more important for the attendees in ages between 25-29 than 40 – 44. It is seen within the general scope of the survey that the participants who buy traditional food product via the internet are high trained and have high income also. These users frequently use the

social media channels because of being these channels productive in terms of time management. The changes happen in features of shopping by the developed technology. There is determined when all these results are evaluated concerning seller and consumer that the financial return of selling traditional food products via social media is at high levels.

6. LIMITEDNESS OF THE RESEARCH

Our research is limited with the perceptions of members of the groups of traditional food shopping in Facebook and Instagram about the financial dimension of purchasing these products via social media. So, it cannot be generalized due to this research does not involve all of the social media users. This study also embodies the limitedness belong to people. The information of people about using of social media reflects their perception and personal characteristics. That's why the answers in this survey do not represent the general.

REFERENCES

- Ağca, V., Tunçer, E. 2006, "Multidimensional performance assessment models and an example of balanced scorecard". Afyon Kocatepe University. Journal of Faculty of Economics and Administrative Sciences 8 (1), pp.173-193.
- Altuntaş, A., Gülçubuk, B. 2014, "The Traditional Foods as a Spreading Mean in Local Development and Spreadability of Traditional Food Legislation", İstanbul, Gaziosmanpaşa University Journal of Agricultural Faculty, 31 (3), pp.73-81.
- Arlı, M. et al., 2006, "Nourishment of mother and child", Ankara, Pegem A Publishing House, p. 101.
- Bean, L. Ve Jarnagin, B.D. 2002, "New Cost Priorities: Using a Balanced Scorecard Approach in Financial Reports", The Journal of Corporate Accounting, March-April, pp 55-62.
- Güner, M. F. 2008, "Balanced Scorecard as a Strategic Management Model", Ankara, Gazi University Journal of Faculty of Economics and Administrative Sciences 10,1, pp. 247 – 265 .
- Hornsby, D.D. Ve Baxendale, S. 2001, "Building a Balanced Scorecard for Entrepreneurs", Journal of Cost Management, November-December, pp. 4-9.
- Kaplan, R.S. and Norton, D.P. 1999, "Balanced Scorecard, Transforming the Company Strategy into the", İstanbul, Sistem Publishing, p.33.
- Mucuk, İ. 2013, "Basic Marketing Knowledge", İstanbul, Türkmen Bookstore, p. 1.
- Ölçer, F. 2005, "(Balanced Scorecard) Designing and Applying the Balanced Strategic Performance Measuring and Management System' Ankara, Journal of Public Administration, Volume:38, No:2 , pp. 89-134.
- Şener, S. 2004, "SeekingSeekings of Agriculture Policy in Turkey in the Years of Second World War", Journal of Social Sciences Institute (7), 1, pp. 73-92.
- Uygur, A. 2009, "Balanced Success Indicator as a Multidimensional Performance Assessments Model", İstanbul, Journal of Doğuş University 10 (1), pp. 148-159.



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A RESEARCH ABOUT THE EFFECT OF THE STRATEGICAL FINANCIAL PLANNING OF THE COMPANIES IN LOGISTICS SECTOR IN TURKEY ON THE COMPANY GROWTH

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ABSTRACT

The financial planning involves a part of the planning process, and the planning helps to improve the profit, develop the decision making and even decrease the number of it. The planning means to take the decisions which will affect the future of the company by today. Since the future is indefinite, it is also possible that the plans made are not realized. That's why the future is a moving target, and the reason of the planning is to achieve the goal of the company. Logistics enterprises that actualize the financial planning effectively can grow with ease. Because all the sources obtained are used most effectively, and these actually used sources affect the company growth positively. Revealing how the strategical financial planning of the enterprises in the logistics sector in Turkey should be and how these financial plans affect the company growth are the primary purposes of this study. For achieving this purpose, the relations between literature and the terms are tried to be supported by the major studies after being described the conditions that generate the content of the survey. The hypothesizes of the research has begun to be developed by being created the theoretical framework. Within this scope, firstly a research was actualized by a questionnaire form to see at what level the strategical financial planning in companies grows in comparison with the profitability of the company, company growth, and the sector average. The data obtained were evaluated by the statistical analysis then tested by the hypothesis as well. It is observed at the end of the analysis that the strategical financial planning is essential to empower the financing structure of the companies in the logistics sector and being realized this planning correctly is directly associated with the correct financial decisions

Keywords: Financial planning, strategical financial planning, financial profitability, company growth, logistics sector

JEL Codes: G10; G32

1. INTRODUCTION

Financial planning is the issue that how the company will achieve its strategical targets earthly. A company generally creates the financial planning after being specified the vision and the purposes. The financial plan defines each information, source equipment and the material and the time zone for all these to achieve the goals. The strategy includes the competitive moves, internal business approaches and the plans of actions of the company established by the management to be successful. It is the 'Game Plan' required to carry on the business. The administrators need for the strategies that will guide for achieving the targets and managing the institution.

The strategical financial management is being planned the use of the financial sources and management for providing to reach the goals as a commercial enterprise and values for the shareholders. The strategical financial planning completely includes describing the business targets of the company, determining and measuring the sources, planning to benefit from pecuniary and other sources, establishing methods to analyze and collect the data, taking financial decisions, analyzing and following the paradox between the real results and the budget, then operating in corrective actions to specify the problems. Much as being emphasized on how the innovation is necessary at present, it is not dwelled on how this can be actualized as active and productive (Uzkurt, 2010).

2. FINANCIAL INNOVATION

Innovation comes from the word 'innovatus' in Latin. Its lexical meaning is to change, renew, reveal new and submit. The innovation emerges as a process includes being turned the new ideas, new markets, and the applications into the new goods and services, adopted, applied and coalesced (Akin, Reyhanoğlu, 2014).

The first studies about the innovation start with Hyman Minsky at the beginning of the 1950s. The companies firstly need to have an organization culture encourages the innovation to conduct their activities successfully. The businesses that have an innovational culture need to synchronize their innovation strategies with their organizational structure and provide for the process in the sense of managerial. Besides, the research and development structure of the company must be strong, and the financial support for this field must be provided for being conducted the activities of innovation. One of the required subjects to increase the effectiveness on this issue is the fundamental situation of the competition. Thus, the time of getting into the market of a new product is a pretty important case for the success. Moreover, the price and quality performance of the product developed must be confirmed with the competitive structure of the market operated in (Işık, 2011).

3. STRATEGICAL PLANNING IN COMPANIES

The strategy is the process of setting goals, planning the actions and reorganizing the required instrument and sources by the business to govern itself and provide a competitive advantage (Dinçer, 2007).

The way of obtaining competitive advantage and making it permanent is only the strategical management, not to have a strategy (Erol et al., 2013). The strategical planning is an institutional management activity used to determine the priorities, focus the energy and sources, strengthen the operations, provide employees and other stakeholders to work in the direction of the shared goals, agree upon the results purposed and evaluate and arrange the direction of the organization. It is a disciplined effort creates the necessary decisions, and the actions shape the organization by focusing on the future by asking what the organization, who does it serve for, what and why it does by an emphasis on the future. A valid strategical planning also means how the company will know if it is successful or not beside creating the actions for making progress.

3.1. Planning

The plan shows the itinerary and course of action to be successful. The planning is thought as a process helps a manager to look ahead and find the choices open for himself/herself. The planning can be defined in 2 ways as in the strict sense and broad terms. The planning in broad terms can be defined as process show the way to follow for achieving a goal under the light of current data and possible developments in the future. The planning in the strict sense is the 'process that predetermines what will be done by who and where and when.'

The planning is the crucial function create the first stage of the management process. The success of other management functions depends on a proper planning above all. Reaching the companies to a more complex structure by growing gradually, rapidly changing the dynamic market structure, fierce competition environment, ever-changing economic conditions and advanced technology increase the importance of planning nowadays.

3.2. Strategical Management and Strategical Planning

The strategical management argues that there is a need for the organizations can control the ever-changing environment and comply with this changing. The strategical management sets the target for the operational environment of the company. It must be occurred by planned and conscious methods beyond setting a goal in a reactional sense. Much as the strategical management is known with its widely decision mechanism and planning methods at present, the sociological approaches to this subject have started to gain importance lately (Aktan, 1999).

The strategical management process involves the required research, review, evaluate and choosing studies to be planned, being brought all kinds of precautions into force within the company to apply these strategies, and the activities about evaluating the studies by being controlled in the next phase (Otlu and Demir, 2005). In the management science, the strategies to follow by the firms and the companies against their competitors caused to born a discipline firstly called 'strategical planning' then 'strategical management'. It needs to know the difference of strategical planing and the strategical management. While being created strategies to achieve the goals of a company, a planning of these strategies done firstly, then these procedures are conducted. The results of implementations are reviewed and controlled in the final stage. The plans are prepared for a particular period so as to be short, medium and long termed. The short term projects include less than or up to 1 year; medium termed plans include 1-5 years time, and the long termed programs mostly include 10-15 years time. It is accepted in the studies about strategical management that the big businesses have more knowledge on process, instruments, method and activities of strategical management and the strategy formulation process is more extensive in these companies (Sucu, 2010).

The globalization makes its presence effectively in economic, political, social, cultural and technological fields. Within this scope, the ones with the greatest increase in mobility are the circulation of money, labor, and the goods.(Şener, 2009) A successful planning depends on the knowledge, experience, intelligence level and the prediction abilities for the future in advance of the people prepare the plan. The biggest challenge in planning activity is to predict the future in advance incisively. The success in planning depends on the exact estimations. On the other hand, it must not be forgotten that making an exact prediction is a pretty difficult act. Being faced with some 'uncertainty' and 'risk factors' are two of the fundamental reasons complicate to predict. Some of the factors cause to the uncertainty are; technological developments in future, fashion, seasonal and economical structural changes. The directors of the companies may take several precautions to destroy the effects of the uncertainty factors or at least to minimize them. The existence of a proper accounting and budgeting system and being used the good statistical data help for evaluating the available conditions and predicting the uncertainties in the future. Various estimation methods, notably the statistical ones are used to predict. When the time covered by the plans becomes shorter, the success of estimating methods increases.

3.3. Strategical Financial Planning

The financial planning is a part of the planning process of the company. The planing can be useful for being increased the profit, improved the decision making and reduce the number of errors. Plan means that being taken the decisions will affect the future of the company as of today. Since the future is uncertain, it is also possible that the plans made are not realized. That's why the future is a mobile target, and the reason for the planning is being improved the purpose of the company. Financial planning means that being programmed of all kinds of fund entrance and exit in advance. Preparing the cash and the capital budgets, arranging the pro forma balance sheet, income, and resource of pro forma statements remain one of the most missions of the finance manager about the financial planning (Akın, 2015). Due to all activities of companies are prudential, the finance director has to specify the policies for future and review the policies determined before. Thus, it is tried to forecast the effects of future developments in the company. Otherwise, the possibility of not to being solved the problems increases besides not to being ideally used the existed resources. The expected thing from the financial planning is to seek a solution for cash outflows and the overplus of the money. Furthermore, the studies of being created the optimal liquidity are the goals of the financial planning. In other respects, there are a necessity for financial planning for also long termed activities besides short termed ones. But, there is especially focused on the short termed financial planning in practice.

4. RESEARCH

4.1. The Theoretic Framework and Hypotheses of the Research

Variables of the Research

Dependent Variables: Profitability of the company – Company Growth – At what level the company grows as against the sector average.

Independent Variable: Strategical Financial Planning.

Mediator Variable: Financial Decisions.

Hypotheses

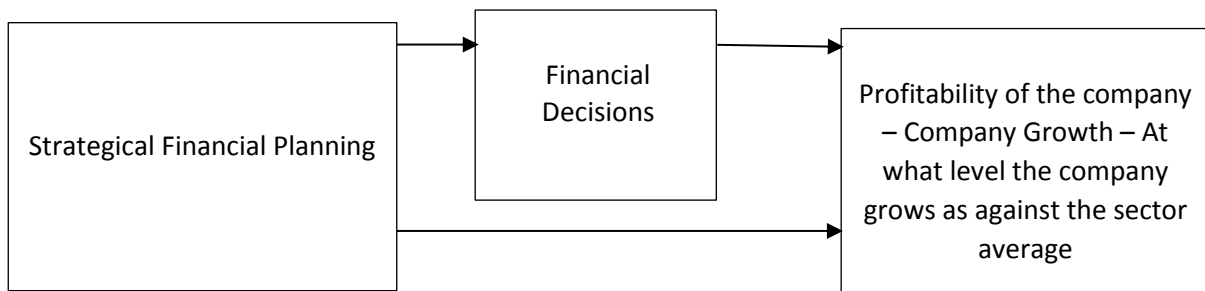
H₁: There is a significant and positive relation between strategical financial planning and the profitability of the company.

H₂: There is a significant and positive relation between strategical financial planning and the company growth.

H₃: There is a significant and positive relationship between strategical financial planning and at what level the company grows as against the sector average.

H₄: Being done the strategical financial planning correctly has an important mediator variable role with being the financial decisions right.

Figure 1: Theoretic Framework of the Research



4.2. Purpose of the Research

It is aimed to search the effect of the strategical planning of companies in the logistics sector in Turkey on their company growth. The survey created to that end analyzed how the companies provide financial growing.

4.3. Sampling Process

The convenience sampling method is used in the research. Our survey was sent to 221 logistics businesses in Turkey, and 157 of them made a comeback via the internet.

4.4. The Analysis of the Data Obtained from the Research

The information obtained from the surveys were recorded in a computer environment, and the data file was created. Then, these data were analyzed by being transferred into the SPSS 22.0 program. Cronbach's Alpha test, Chi-Square test were conducted in the analyses; Frequency, percentage values, and the graphic data were determined.

Table 1:Cronbach's Alpha Testi

Cronbach's Alpha	N of Items
,902	27

The reliability of the questions prepared for analyzing the effect of the strategical financial planning of the logistics companies on the economic growth is determined by being applied the Cronbach's Alpha test. As is seen in Table 1, the number of 0,902 is calculated as 'Perfect' (a ≥ 0,9= Perfect) based on the measurement criteria of Cronbach's Alpha test.

Table 2: Chi-Square Tests- The financial planning is regularized in our company* Our profitability increased by the financial planning.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7,845(a)	2	,020
Likelihood Ratio	12,461	2	,002
Linear-by-Linear Association	4,367	1	,037
N of Valid Cases	157		

a 1 cells (16,7%) have expected count less than 5. The minimum expected count is 4,89.

According to Table 2, determined that the significance value is less than 0,020<0,005 when being analyzed if there is a relation between the variables or not in the distribution of propositions called 'the financial planning is regularized in our company' and 'our profitability increased by the financial planning.' In this case, the hypothesis called 'H1: there is a significant and positive relation between strategical financial planning and the profitability of the company' is accepted.

Table 3: The financial planning is regularized in our company.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Absolutely Agree	109	69,4	69,4	69,4
	Agree	48	30,6	30,6	100,0
	Total	157	100,0	100,0	

According to Table 3, all the attendees reached to the ratio of 100% by answering as ‘absolutely agree’ and ‘agree’ for the question called ‘the financial planning is regularized in our company,’ 109 (69,4%) of them mentioned as ‘absolutely agree,’ and 48 (30,6%) of them answered as ‘agree.’

Graphic 1: The financial planning is regularized in our company.

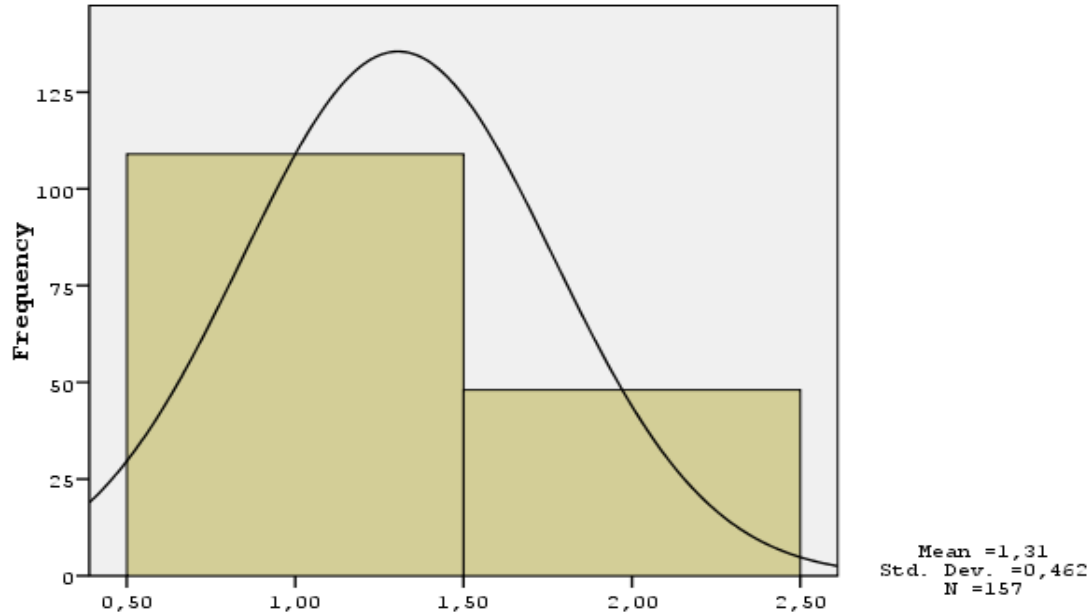


Table 4: Our profitability increased by the financial planning.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Absolutely Agree	94	59,9	59,9	59,9
	Agree	47	29,9	29,9	89,8
	Maybe	16	10,2	10,2	100,0
Total		157	100,0	100,0	

According to Table 4, much as 16 (10,2%) people answered as ‘maybe’ for the question called ‘our profitability increased by the financial planning,’ 141 of the attendees made a positive comeback. 94 (59,9%) of them answered this question as ‘absolutely agree’ and 47 (29,9%) of them answered as ‘agree.’

Graphic 2: Our profitability increased by the financial planning.

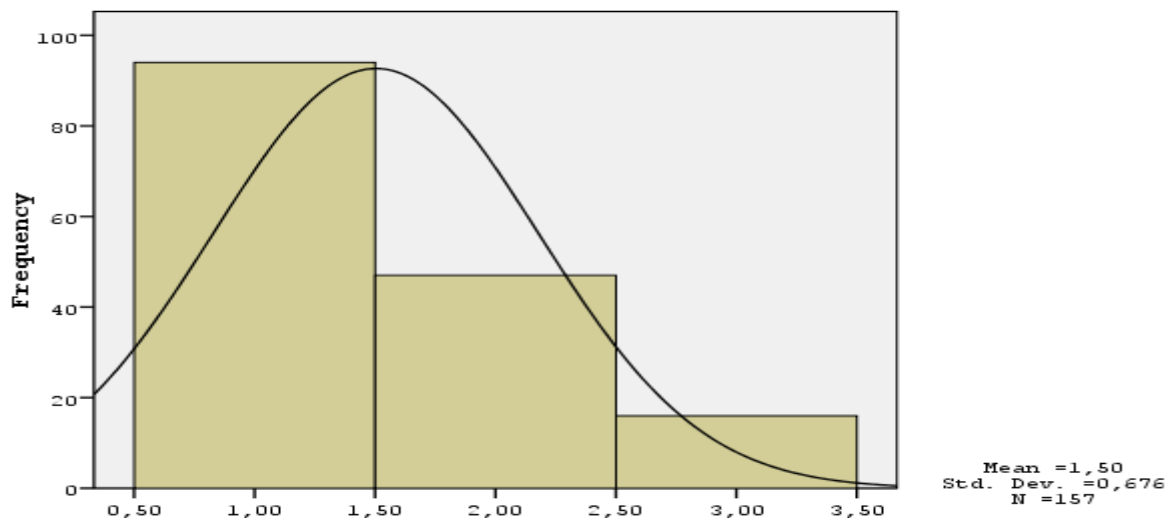


Table 5: Chi-Square Tests- The financial planning is regularized in our company.* Our company grows by the strategical financial planning

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12,811(a)	2	,002
Likelihood Ratio	16,990	2	,000
Linear-by-Linear Association	,852	1	,356
N of Valid Cases	157		

a 1 cells (16,7%) have expected count less than 5. The minimum expected count is 4,89.

According to Table 5, determined that the significance value is less than $0,002 < 0,005$ when being analyzed if there is a relation between the variables or not in the distribution of propositions called ‘the financial planning is regularized in our company’ and ‘our company grows by the strategical financial planning’. In this case, the hypothesis called ‘H2: there is a significant and positive relation between strategical financial planning and the company growth’ is accepted.

Table 6: Our company grows by the strategical financial planning

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Absolutely Agree	109	69,4	69,4	69,4
	Agree	32	20,4	20,4	89,8
	Maybe	16	10,2	10,2	100,0
Total		157	100,0	100,0	

As is seen in Table 6, the question called ‘our company develops by the strategical financial planning’ is confirmed by 141 of attendees. 109 (69,4%) of them answered as ‘absolutely agree,’ 32 (20,4%) of them answered as ‘agree’ and finally 16 (10,2%) of them responded as ‘maybe.’

Graphic 3: Our Company grows by the strategical financial planning.

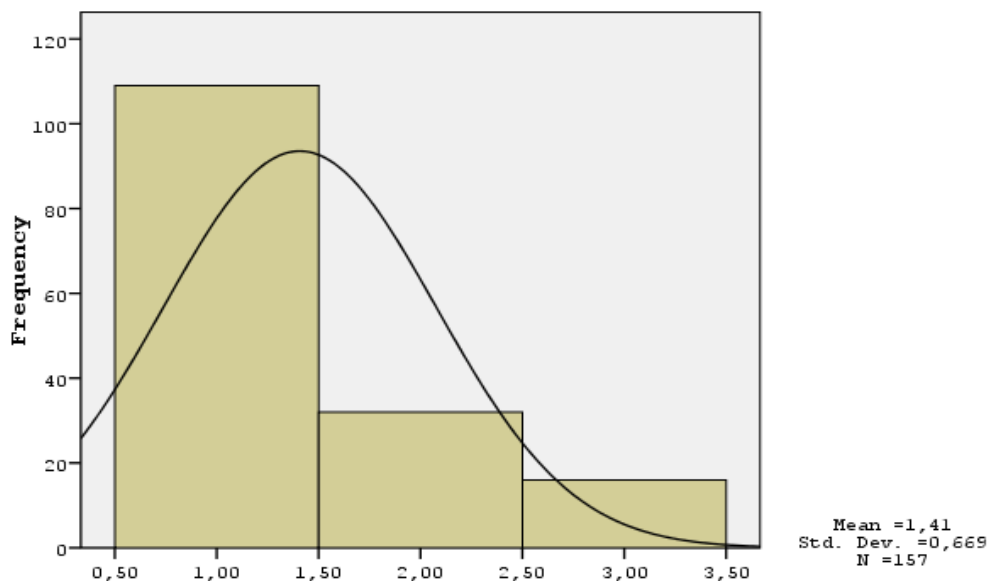


Table 7: Chi-Square Tests- The financial planning is regularized in our company*Our company grows more than the ratio of sector average by the application of strategical financial planning

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	43,931(a)	2	,000
Likelihood Ratio	60,228	2	,000

Linear-by-Linear Association	36,517	1	,000
N of Valid Cases	157		

a 1 cells (16,7%) have expected count less than 5. The minimum expected count is 4,59.

According to Table 7, determined that the significance value is less than $0,000 < 0,005$ when being analyzed if there is a relation between the variables or not in the distribution of propositions called 'the financial planning is regularized in our company' and 'our company grows more than the ratio of sector average by the application of strategical financial planning'. In this case, the hypothesis called 'H3: there is a significant and positive relation between strategical financial planning and at what level the company grows as against the sector average' is accepted.

Table 8: Our company grows more than the ratio of sector average by the application of strategical financial planning

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Absolutely Agree	96	61,1	61,1	61,1
	Agree	46	29,3	29,3	90,4
	Maybe	15	9,6	9,6	100,0
Total		157	100,0	100,0	

As is seen in Table 8, the answers of the attendees for the question show that the strategical financial planning is applied to the company growth and being provided a growth more than the ratio of sector average. 96 (61,1%) of them absolutely agrees, 46 (29,3%) of them agrees, and finally, 15 (9,6%) of them answered as 'maybe.'

Graphic 4: Our company grows more than the ratio of sector average by the application of strategical financial planning

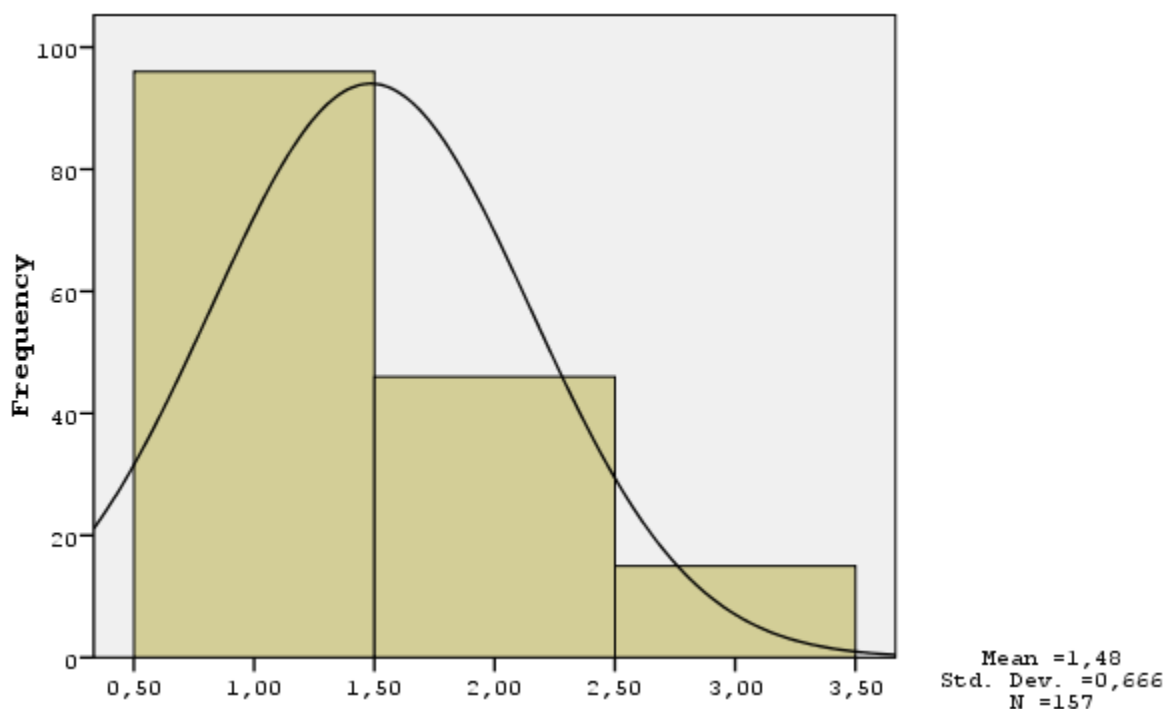


Table 9: Chi-Square Tests- The financial planning is regularized in our business* The logistics companies that decide about which the strategical financial planning will apply alternative grows faster.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10,594(a)	2	,005
Likelihood Ratio	14,335	2	,001
Linear-by-Linear Association	,624	1	,430
N of Valid Cases	157		

a 1 cells (16,7%) have expected count less than 5. The minimum expected count is 4,28.

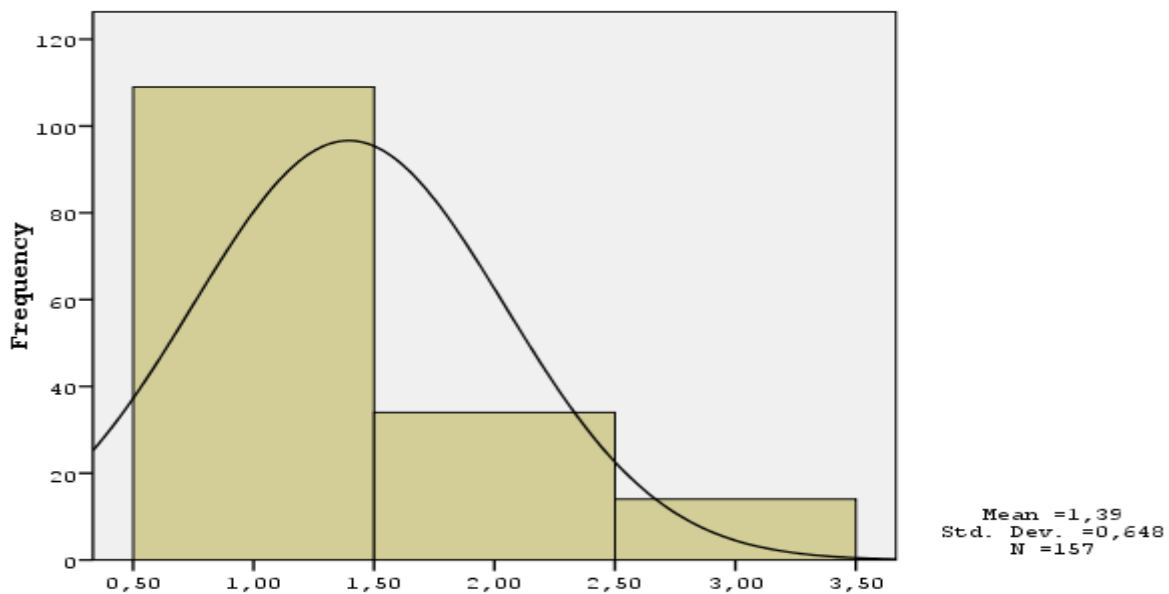
According to Table 9, determined that the significance value is less than $0,005 < 0,005$ when being analyzed if there is a relation between the variables or not in the distribution of propositions called ‘the financial planning is regularized in our company’ and ‘the logistics companies that decide about which alternative will be applied by the strategical financial planning grows faster.’ In this case, the hypothesis called ‘H4: being done the strategical financial planning correctly has a significant mediator variable role with being the financial decisions right’ is accepted

Table 10: The logistics companies that decide about which the strategical financial planning will apply alternative grows faster.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Absolutely Agree	109	69,4	69,4	69,4
	Agree	34	21,7	21,7	91,1
	Maybe	14	8,9	8,9	100,0
Total		157	100,0	100,0	

As is seen in Table 10, the frequency distribution of the answers for the question called ‘the logistics companies that decide about which alternative will be applied by the strategical financial planning grows faster’ as follows; 109 (69,4%) of them absolutely agrees, 34 (21,7%) of them agrees, and finally 14 (8,9%) of them responded as ‘maybe’.

Graphic 5: The logistics companies that decide about which alternative will be applied by the strategical financial planning grows faster



5. CONCLUSION

Concerning our research that there is an active and meaningful relation between the strategical financial plans and the company profitability. It is seen that the profitability is increased as a result of the strategical plans conducted. Under these circumstances, the growth ratio also increases by increasing the profitability. In parallel with this case that these

companies reached a growth level above the sector average. The growth of the companies that actualize the financial planning productively becomes easy. Because all the sources obtained are used most efficiently, and more use the resources affects the company growth positively.

It is observed by the analyses done that the strategical financial planning is important for the companies in logistics sector to strengthen their financing structures. The positive relation between the right planning and the right decisions is confirmed as well. Additionally, our research provided to be understood that how important the strategical plannings are. Also, this study reveals that the logistics companies can quickly make their financing structures more competitive due to these plannings. The importance of strategically evaluating of use of financial alternatives is proved and understood that the options used in time affect the economic structure positively. Moreover, it is revealed that the profitability and the company growth move together and both of these variables gain strength by the strategical financial structure.

6. LIMITEDNESS OF THE RESEARCH

This research is limited with the perceptions of the managers who take decisions about the effects of the strategical financial planning of the companies in the logistics sector in Turkey on the economic growth. Within this scope, the research must be in a different size and applied in other countries for generalizing so as to include the logistics companies out of Turkey. Moreover, due to this study just includes the decision maker managers, there is also a limitedness belongs to the people. Therefore, the data and findings obtained reflect the experiences, abilities, attitudes and perception levels of the people create the sampling group. It can be thought that due to the similar studies conducted in a bigger universe, we can reach to more important and significant findings.

REFERENCES

- Akın, F. 2015, 'The Definition and the Purpose of the Financial Management,' İstanbul, Beta Printing Inc., p.11
- Akın, Ö. and Reyhanoğlu, M. 2014, 'The Innovation Portrait of the Turkey within the Context of the Size of the Companies' (Period of 2002-2008),"İzmir: Dokuz Eylül University Journal of Social Sciences Institute 16 (1), pp. 23-51.
- Aktan, C.C. 1999," New Management Techniques in the 2000s' Strategical Management," İstanbul: TUGIAD Publishing, pp. 1-18.
- Diñçer, Ö. 2007, 'Strategical Management and Business Policy,' İstanbul: Alfa Publishing, p.16
- Erol, Y., İnce, A. R., Aras, M. 2013," The Choice of Strategical Management Approaches in Turkish Industry: research in companies of ISO 1000," Business and Economics Research Journal, 4 (3), pp.75-92.
- Işık, Ö. 2011, " Synergy of Innovation and Strategical Management' Strategical Innovation," Manisa, Celal Bayar University, Journal of Social Sciences 9(2) p.541
- Otlı, F. ve Demir, Ö. 2005, "The Cost Systems in Strategical Decisions", Elazığ, Fırat University, Journal of Social Sciences, 15 (1), pp.155-170.
- Sucu, M. E. 2010, "Strategical Management of SMEs and a Research, A Published Post Graduate Thesis," Denizli: Pamukkale University, University of Social Sciences, p.118
- Şener, S. 2009, " Economy Agenda", Turkish Republic, Çanakkale On Sekiz Mart University Biga Faculty of Economics and Administrative Sciences, Journal of Management Sciences, 7(1), p.27
- Uzkurt, C. 2010, "Innovation Management: What is innovation, How it is conducted and marketed?", Publishing of Ankara Chamber of Industry, pp.41-42



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INVESTIGATION OF THE RELATIONSHIP BETWEEN CYBER BULLYING BEHAVIOURS AND INTERNET ADDICTION IN ADOLESCENTS

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ABSTRACT

Developments in technology and widespread use of technology by young people have enabled the use of technology to enforce bullying behaviors that students have shown in schools. The malicious use of information and communication technologies has led to the observation of a tyranny called "cyber bullying" among bullying types among students in schools. This study examines the relationship between internet addiction and cyber bullying behaviors in adolescents. The sample group of the study was comprised of 239 adolescents attending to different high schools in Istanbul. In the study, "Individual Information Form", developed by the authors, was used for the collection of information data about participants, "Internet Addiction Scale" was used to assess internet addiction in adolescents and "Cyber bullying Scale" was used to assess the cyber bullying behaviours. As a result of the research between the scores of Cyberbullying Scale and the Internet addiction Scale, reveals that there is a significant positive correlation between cyberbullying and Internet addiction ($r=,374, p<0,01$).

Keywords: Internet, internet addiction, cyber bullying, addiction, adolescent
JEL Codes: M30

1. INTRODUCTION

Interactions in the changing and modern world are causing people more stimuli to be exposed. Together with this modernization process, technological developments that bring new and different perspectives are added to human life every day. While these developments support development and change in terms of an individual point of view, they have begun to become an integral part of human life at the same time. It can be said that one of mentioned developments is internet. Internet is a widely used, permanently evolving communication network and connected with computer systems (Özen, Gülaçtı and Çıkılı, 2004). The benefits that Internet provides in many areas, being in the first place in education and training, are indisputable. However, problems appear to be caused by abuse of technology as well as the benefits that seem to be in each technological development. One of them is also internet usage and addiction. The term "Internet addiction" was first proposed by Goldberg in 1996 (Üneri and Tanıdır, 2011). Young (1996) defined the internet use as psychiatric disorder. According to Arıcak (2011), Forrester Research survey results show that 75 % of young aged 12-15 in Europe have at least one mobile phone and age of mobile phone usage is decreasing more and more. According to Sabah-TNS Piar's research, 93% of young 15-22 aged in Turkey are using mobile phones. Internet usage in our country has become widespread in recent years. According to results of Household Information Technologies Research conducted by the Turkish Statistical Institute (TUIK) in April (2012), results obtained of research support this information. According to Turkish Statistics Institute (TUIK) data, rates of internet and computer usage in the 16-74 age group are respectively 49,9% and 48,9%. These rates in 2012 were respectively 48,7% and 47,4%. While rates of computer and internet usage are 60,2% and 59,3% for males aged 16-74, these rates are 39,8% and 38,7% for females. Computer and internet usage 59% and 58% in urban areas and 29,5% and 28,6% in rural areas. In the first three months of 2013 (January-March 2013), it was determined that 39,5% of all individuals in the 16-74 age group use the internet regularly. These results are a finding that shows widespread usage of mobile phones and internet in also Turkey as much as in technologically developed countries.

Internet addiction becoming a problem in the worldwide can be generally defined as non preventing internet excessive usage, more needed internet time gradually, losing time importance of time without internet, behaviours arising such as extreme nervousness, tension and deterioration of individual's work, social and family life in the lack of internet. Internet addiction was defined by Cengizhan (2005) as follows; It is an addiction that is generally observed in school-age children, affecting psychological and bodily development of young and social relations negatively; in parallel with this, and this addiction is seen as use of more internet-computer usage reducing academical performance. In other words, "internet addiction is a term that describes out-control and harmful use of internet." (Öztürk, Odabaşıoğlu, Eraslan, Genç, Kalyoncu, 2007). When the reasons of internet addiction are examined, the need for socialization is seen as an important factor according to researches. Showing individuals themselves in a more exaggerated way as hiding their true identities, sharing their opinions with ease because of not to be recognized, finding internet communication easier than face-to-face communicates can be related to socialization. Besides, ease access to internet can be also considered as one of reasons of internet addiction (Cengizhan, 2005). Adolescents are one of the most susceptible groups to become addicted to the internet. According to literature, 12-18 age period is a very critical in internet addiction (Tsai and Lin, 2003; Şendağ and Odabaşı 2007).

Developments in technology and widespread use of technology by young people have enabled to students show bullying behaviours in schools by use of technology. Bullying is one of most important areas of study that has been encountered in schools today and investigated in recent years. Abuse of information communication technologies has led to the birth of a bullying type among bullying types called " cyberbullying" among schools between students. Cyberbullying is all of deliberative and repetitive, technical or relational damaging behaviours against an individual or group through computer, mobile phone and other communication technologies. Compared to traditional bullying and virtual bullying, it is understood that there are some differences between them. Firstly, it is often to determine the identity of virtual bullies because it is easy to hide the identity in the internet. Besides, the number of witnesses to virtual bullying is higher because information can be spread rapidly in the virtual environment . Finally, virtual bullying can happen all the time and even if virtual victims moves, they can't get rid of virtual bullying. Studies have shown that the most exposed people to virtual cyberbullying are young people of society revealed that adolescents using technologies tools affect on their peers' lives through their increasing threats day by day. From this information and researches, relationship between internet addiction and cyberbullying behaviours was examined in this study.

2. DATA AND METHODOLOGY

2.1.Working Group

The participants of this study were comprised of 239 adolescents attending to three different high schools in İstanbul. In regards with the age groups of the participants, 66,0 % (n=136) of them were between 14-16 years old, 33,0% (n=68) of them were between 17-18 years old and 1,0% (n=2) of them were 19 years old and older. 36,4% (n=75) of them were ninth grade student, 30,6%(n=63) of them were tenth grade student, 25,7%(n=53) of them were eleventh grade student and 7,3%(n=15) of them were twelfth grade student.

2.2.Instruments

In this study, "Individual Information Form", was used to in order to collect socio-demographic information about the adolescents, Cyber Bullying Scale was used to assess the cyber bullying behaviors of the adolescents participated in the study and Internet Addiction Scale was used to assess internet addiction in adolescents.

2.2.1.Individual Information Form

An Individual Information Form was developed by the authors in order to gather socio-demographic information about sex, age and the grades of the adolescents.

2.2.2.Cyber Bullying Scale

Cyber Bullying Scale was developed by Arıca et. al (2012) for the purpose of assessing cyber bullying behaviors of adolescents. The scale consists 24, four point Likert type items. The possible highest score that can be obtained from the scale is 96 and the possible lowest score that can be obtained is 24. The high scores indicate higher levels of cyber bullying behaviors. In the reliability and the validity study of the scale, the Cronbach alpha coefficient of the scale was found to be .95 (Arıca et al., 2012). In this study the Cronbach alpha coefficient for the Cyber Bullying Scale was found to be .89.

2.2.3.Internet Addiction Scale

Internet Addiction Scale is developed by Günüç and Kayri (2010) for the purpose of assessing internet addiction. The scale is comprised of 35, five point Likert items. The lowest possible score is 35 whereas the highest possible score is 175. The high scores indicate the high level of internet addiction. When the scale is administered in a sample group, initially the mean and the standart deviation of the sample is calculated. The individual scores higher then the summation of mean and standart

deviation indicate internet addiction (Internet Addiction > Mean + Standart Deviation). The Cronbach alpha coefficient of the scale was found to be .944 by Günüç and Kayri (2010). The Cronbach alpha coefficient of Internet Addiction for this study was found to be .945.

2.3.Data Collection and Data Analysis

Initially, the written consents of the authors of the instruments used in the study were provided. Prior to the onset of the data collection, the school administrations were given information about the study and their permissions were provided. In each classroom the students were informed about the study and verbal consent was taken from the adolescents who were willing to participate in the study. The ethical concerns were adjusted and the students were told that their anonymity was assured. In order to provide confidentiality and anonymity the teachers were informed about the study and they were asked to leave the classroom during the administrations.

After the data collection a preliminary analysis was performed in order to test the normality of the data collected (Runyon et al., 1999). Conformity of the data to the normality distribution was assessed by the Kolmogorov-Smirnov test. According to the results of the normality test, the data related to the scores of the scales used in the scale was found out to be non-parametric. Hence, Spearman Correlation test was used in the statistical analysis of the data collected (Field, 2009; Balci, 2015). The data was analyzed using Statistical Package for Social Sciences 21(SPSS).

3. FINDINGS AND DISCUSSIONS

When the research findings are examined; The following results have been achieved;

Table 1: The Arithmetic Mean and The Standard Deviations of The Scores of Cyber Bullying Scale and Internet Addiction Scale for Adolescent

Scores	N	Minimum	Maksimum	\bar{X}	ss
Internet Addiction Scale	239	35	175	81,93	27,16
Cyber Bullying Scale	239	24	60	27,09	5,47

The Table 1 shows the arithmetic mean and the standard deviations of the Internet Addiction and Cyberbullying Scales scores. It is seen that the scores of the Cyberbullying Scale vary between 24-60 and the mean score is $27,09 \pm 5,47$. In regards with the Internet Adiction Scale, it is seen that the scores vary between 35-175. The mean score of Internet addiction scale is $81,93 \pm 27,16$. Of the 239 adolescents included in the study, 33 were found to be in the risk group in terms of internet addiction. The average score of the adolescents determined to be in the risk group is $129,33 \pm 16,91$ and the score interval is 110-175.

Table 2: The Spearman Correlation Coefficients Between The Scores of Cyberbullying Scale and Internet Adiction Scale

Scores	N	r	p
Internet Addiction Scale Cyberbullying Scale	239	,374	0,000**

** $p < 0,01$

An examination of Table 2, related to the Spearman correlation coefficients between the scores of Cyberbullying Scale and the Internet addiction Scale, reveals that there is a significant positive correlation between cyberbullying and Internet addiction ($r = ,374$, $p < 0,01$).

When Table 1 is examined, it is seen that Internet Addiction Scale scores of adolescents are between 35-175. Cyberbullying scale scores of adolescents are between 24-60. 33 of 239 adolescents included in the study were determined to be internet addicts.

When the literature performed on internet addiction in worldwide and Turkey;

Sanders, Field, Diego and Kaplan (2000) have concentrate on their researches relationship between intense internet use and social loneliness and depression. At the result of research, it was revealed that adolescents who used gradually more internet can't receive enough social support and their families were closed to communication. It was offered that duration of Internet use is low in adolescents whose relationship with their families and friends.

Kraut et.al (2002) investigated relationship between internet use reasons and social environment in their research. Internet use frequency is increasing in adolescents who have low communication within family and among friends. Being isolated of

adolescent directs individual to internet use. Because individuals create social environment themselves in the internet. It is mentioned that the main way to overcome this is to strengthen communication within the family.

In the study by Johansson and Göttestam (2004) on 3237 Norwegian young people by aiming of internet addiction, they specified that rate of non-internet users is 4,9%, rate of non-internet users frequently is 35,8% and rate of frequent-internet users is 49.6%. 1,98% of participants is internet addict and 8,68% of them is risky internet users. Weekly approximate internet use duration is 4.3 hours between findings of study.

In the study of internet tool use reasons of adolescent students examined by Mossbarger (2008), he expressed that they have used internet as fun. Adolescent students are able to solve the need for communication that can't meet and support get around thanks to this tool. But, this situation revealed addiction symptoms on adolescents.

In the study conducted between the ages of 11 and 16 including 18,709 adolescents by Kalmus, Blinka and Olafsson (2013) in order to investigate relationship between adolescents' excessive internet use and family environment, relationship between active familial environment on internet use of children (children were harmed online) and restrictive environment at low level was found. When family attitude is consistent with family internet use, this situation is predicted negatively. When family attitude is contradicted with their internet use, family attitude predicts internet addiction positively.

In the study conducted by Bayraktar (2001), he aimed to examine the effect of internet addiction on adolescents in the Turkish Republic of Northern Cyprus. His research has shown that internet use by male adolescents is greater than the use of female adolescents. At the same time, it seems that children of well-financed families use internet more. The researcher scrutinized communication over internet and concluded that adolescents described themselves in a very different way. It appeared that adolescents behaving like this felt serious concerns on trust to the other side.

In a thesis study in 2006 was aimed to present wide perspective relation to internet use of high-school students and reveal reasons of variables that may occur in this issue. Increasing in internet use rapidly brought along some problems. At the result of study, it revealed that internet of redundant use led to addiction. A significant relationship was found between internet addiction and pleasure sensation in the research conducted on 296 adolescent students. In addition to this, it has been found out that it is related to internet addiction in the reasons such as family situation, geographical location and social environment (Aslanbay, 2006).

Esen (2007) examined that level peer pressure and perceived social support variables at which level predicted internet addiction. At the result of study for this purpose conducted on 479 high school-students, he found that peer pressure predicted internet addiction positively, perceived family and teacher support predicted negatively and these three variables explained 33% of internet addiction.

In the thesis study prepared by Turnalar-Kurtaran (2008) examined that contributions of lonelines, depression and self variables was on prediction of internet addiction. For this purpose, they included 650 students sample who studied at the general, occupational and Anatolian high schools in the centre of Mersin. They applied to determine students of internet addiction level "Internet Addiction Scale" developed by Young (1998b) and translated into Turkish by Bayraktar (2001) and tested as validity and reliable. As a result of study, it has been seen that self respect predicted internet addiction negatively, loneliness predicted it positively but depression predicted statistically insignificant.

When the relevant literature was evaluated, it can be marked that lack of enough peers of them can contact socially among reasons pushing adolescents to internet addiction and their weak family relations.

When Table 2 was examined, it has been seen that significant relationship at highest degree ($r=.378$, $p<0,01$) between Internet Addiction Scale and Cyberbullying Scale scores statistically.

In order to determine situations cyberbullying and exposed to cyberbullying of high school students conducted by Sarak's study (2012), he applied "Virtual Bully/Victim Scale". At the result of study, he determined as students' age increase, virtual bully/victim being rate situations are higher. Besides, it has been determined whose family education level was literate and under this, having low academical success and adolescents and those who got psychiatric support in internet cafe showed more cyberbullying and exposed to cyberbullying tendencies. Also, it has been determined more internet use frequency and class level were higher, more they were cyber victims.

In the study conducted by Erdur-Baker and Kavgut (2007) in order to determine cyberbullying behaviours of high school students and examine their internet-mobile phones use, they collected data after application of questionnaire to total 228 student from three different high schools. At the end of study, it has been obtained that cyberbullying was also in our country, males showed cyberbullying and exposed to cyberbullying more than females. In addition, it has been concluded that internet use frequency affected being cyberbully/victim positively but no relation to being cyberbully and victim variables such as school type, family socio-economical level, age and class level.

Jung et.al (2014) compared relationship between cyberbullying behaviours and problematic internet use evaluation and psychopathological symptoms young people who were between cyber victims and didn't have cyberbullying. In the study

conducted 4531 between 11-14 ages in Korea, they concluded that 9,7% of young people showed cyberbullying behaviours, 3,3% of them was only victims, 3,4 of those was only bullies and 3% of them was both victims and bullies.

About scientific data and their measurement including cyberbullying by Ybarra, Boyd, Korchmaros and Oppenheim (2012), in the study of 1200 people between 6-17 ages, it has been determined that 25% of participants showed cyberbullying at least one time a month including 10% of them was while online, 7% of those by phone calls and 8% of them by message.

In the study of 1431 people (726 females, 682 males) between 12-17 conducted by Calvete, Orue, Estévez, Villardón and Padilla, (2010) in Spain, it has been determined that 44,1% of adolescents showed cyberbullying at least one time and cyberbullying rates of male were higher than female.

In the study of adolescents between 12-17 ages conducted by Calvete, Orue, Estévez, Villardón and Padilla, (2010) in Spain, it has been found that 44.1% of adolescents showed at least one time, with regard to sexuality variable, males were higher than females on cyberbullying.

In the study of adolescents between 10-17 ages conducted by Ybarra and Mitchell (2007), they informed that 6% of adolescents showed frequently cyberbullying behaviours, 6% of them showed it sometimes and 17% of them showed it in a limited way. As a result of study, as density of bullying behaviours increased, currency of behaviour and psychological problems was higher.

In the study by Özdemir and Akar (2011), it has been determined that 14% of high school students were exposed to cyberbullying and 10% of them showed cyberbullying. It has been understood that cyberbullying was showed in the social networking site that it was frequently there and mobile phones and it has been seen that demographical variables had no effect on cyberbullying. On the other hand, it was found that participants who exceeded 5 hours internet use duration showed more cyberbullying behaviours than other groups.

When studies relation to cyberbullying were evaluated, it was found that cyberbullying generally came to light in adolescents who used internet in a density way, existence and increasing psychological problems together with cyberbullying are remarkable.

5. CONCLUSION

Suggestions below may be presented within the frame of findings from obtained in the study;

Firstly, students are detracted from virtual environment and should be made socializing in their real life and are directed to different activities that can obtain more friends and environments and places that can be social such as sport, cinema, theatre

This study was performed on students from two different high schools. A greater part of sampling comprises of females. In this context, studies on different sampling groups and balanced sampling within the frame of sexuality variable can be suggested.

A similar study through wider age range, together with students who are at all levels from primary schools to higher education may be performed.

Data in this study was collected from students who study in different high school types in İstanbul. Relationship between internet addiction and cyberbullying behaviours may be investigated in different cities and high school types.

This study was formed by quantitative data collecting method. To generalize it and present various perspectives, studies including qualitative data collecting methods may be performed.

Drama training which increases practical awareness on internet addiction and virtual cyberbullying can be given especially to students.

For generalizing internet addiction and cyberbullying behaviours, Turkey profile research may be carried out at various education levels based on different regions and variables.

REFERENCES

Arıcak, O.T. 2011, "Siber zorbalık: gençlerimizi bekleyen yeni tehlike". *Kariyer Penceresi*, vol.2, no.6,pp.10-12.

Aslanbay, M. 2006. *A compulsive consumption: internet use addiction tendency. The case of Turkish high school students*. Yayınlanmış Yüksek Lisans tezi, Marmara Üniversitesi, Sosyal Bilimler Enstitüsü, İşletme Anabilim Dalı, Üretim Yönetimi ve Pazarlama Bilim Dalı: İstanbul.

Balcı, A. 2015 . *Sosyal Bilimlerde Araştırma Yöntem Teknik ve İlkeler*. (11. Baskı). Ankara: Pegem Akademi.

- Bayraktar, F. 2001. *İnternet Kullanımının Ergen Gelişimindeki Rolü*. Ege Üniversitesi Sosyal Bilimler Enstitüsü Psikoloji Ana Bilim Dalı.Yayımlanmamış Yüksek Lisans Tezi: İzmir.
- Calvete, E., Orue I., Estévez, A., Villardón, L., & Padilla,P., 2010." Cyberbullying in adolescents: Modalities and aggressors' profile", *Computers in Human Behavior* Vol.26,pp. 1128–1135.
- Cengizhan, C. 2005. *Öğrencilerin Bilgisayar ve İnternet Kullanımında Yeni Bir Boyut: Bağımlılık*. Erişim Tarihi: 14 Nisan 2017. http://mimoza.marmara.edu.tr/~cahit/Yayin/bil-diri/PDR2005Bil/PDR2005_Bildiri.pdf
- Erdur-Baker, Ö., Kavgut, F., 2007." Akran Zorbalığının Yeni Yüzü: Siber Zorbalık". *Eurasian Journal of Educational Research*, 27, pp.31-42.
- Esen, N. K. 2007. *Akran Baskısı ve Algılanan Sosyal Destek Değişkenlerine Göre, Ergenlerde İnternet Bağımlılığının Yordanması*. I. Uluslararası Bağımlılık Kongresi. (28- 31 Mayıs 2007).İstanbul.
- Field, A. 2009. *Discovering Statistics Using SPSS*. London: Sage Publications, pp.: 148.
- Günüç, S., Kayri, M. 2010. "The profile of internet dependency in Turkey and development of Internet Addiction Scale: Study of validity & reliability". *Hacettepe University Journal of Education*, Vol.39: pp.220-232.
- Jung, Y. E., Leventhal, B., Kim, Y. S., Park, T. W., Lee, S. H., Lee, M., Park, S.H., Yang, J.C., Chung, Y.C., Chung, S.K. ve Park, J. I. 2014. Cyberbullying, problematic internet use, and psychopathologic symptoms among Korean youth. *Yonsei medical journal*,55(3), pp.826-830.
- Johansson, A. ve Götestam, K. G. 2004. Internet addiction: Characteristics of a questionnaire and prevalence in norwegian youth (12–18 years). *Scandinavian Journal of Psychology*. 45(3),pp. 223-229
- Kalmus, V., Blinka, V., Olafsson, K. 2013. Does it matter what mama says: Evaluating the role of parental mediation in European adolescents" excessive internet use. *Children and Society*, 29(2), pp.122-133.
- Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukhopadhyay, T. ve Scherlis,W. 2002. Internet paradox: a social technology that reduces social involvement and psychological well-being?. *Journal of Social Issues*, 58 (1), pp.49-74.
- Mossbarger, B. 2008. Is "Internet addiction" addressed in the classroom? A survey of psychology textbooks. *Computers in Human Behavior*, 24(2),pp. 468-474
- Özen, Y., Gülaçtı, F. ve Çıkılı, Y. 2004. Eğitim bilimleri ve internet. *Fırat Üniversitesi Doğu Anadolu Bölgesi Araştırmaları*,pp. 52-57.
- Öztürk, Ö., Odabaşıoğlu, G., Eraslan, D., Genç, Y., Kalyoncu, Ö.A. 2007. İnternet Bağımlılığı: Kliniği ve Tedavisi. *Bağımlılık Dergisi*, 8 (1), pp.36-41.
- Runyon, R., Coleman, K., Pittenger, D. (1999) *Fundamentals of Behavioral Statistics*. New York: McGraw Hill
- Sarak, Ö. 2012. *Lise öğrencilerinde sanal zorbalık*. Yayımlanmamış Yüksek Lisans Tezi, Sağlık Bilimleri Enstitüsü, Haliç Üniversitesi, İstanbul.
- Şendağ, S. ve Odabaşı, H.F. 2007. İnternet bağımlılığı: Çocukların psikososyal gelişimi üzerindeki etkileri. *International Educational Technology Conference*, (3-5 May 2007), Near East University-North Cyprus.
- Özdemir, M. & Akar, Ö. 2011. Lise Öğrencilerinin Siber-Zorbalığa İlişkin Görüşlerinin Bazı Değişkenler Bakımından İncelenmesi. *Kuram ve Uygulamada Eğitim Yönetimi*, 17(4), pp.605–626.
- Sanders, C.E., Field, T.M., Diego, M. ve Kaplan, M. 2000. "The Relationship of Internet to Depression and Social Isolation Among Adolescents", *Adolescence*, 35 (138),pp.237-242.
- Tsai, C. C., Lin, S. S. J., 2003. Internet addiction of adolescents in Taiwan: An interview study. *CyberPsychology & Behavior*, 6(6), pp.649-652.
- Turnalar-Kurtaran, G., 2008. *İnternet Bağımlılığını Yordayan Değişkenlerin İncelenmesi*. Mersin Üniversitesi Sosyal Bilimler Enstitüsü, Yüksek Lisans Tezi, Mersin.
- TÜİK 2008 Yılı Hane Halkı Bilişim Teknolojileri Kullanım Araştırması. (2008). Erişim Tarihi: 14 Nisan 2017, <http://www.linkopedi.com/cesitli/tuik-2008-yili-hane-halki-bilisim-teknolojileri-kullanim-aras-tirmasi/>.
- Üneri, Ş. Ü. ve Tanıdır, C. 2011. Bir grup lise öğrencisinde internet bağımlılığı değerlendirilmesi: Kentsel çalışma. *Düşünen Adam* Psikiyatri ve Nörolojik Bilimler Dergisi, 24, pp.265-272.
- Ybarra, M.L., & Mitchell, K.J. 2004a. Online aggressor/targets, aggressors, and targets: A comparison of associated youth characteristics. *Journal of Child Psychology and Psychiatry*, 45,pp. 1308–1316.
- Ybarra, M. L., Boyd, D., Korchmaros, J. D. ve Oppenheim, J. K. 2012. Defining and measuring cyberbullying within the larger context of bullying victimization. *Journal of Adolescent Health*, 51(1),pp. 53-58.
- Young, K. S. 1996. Internet addiction: The emergence of a new clinical disorder. *CyberPsychology and Behavior*, 1(3), pp.237-244.



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AN ANALYSIS OF TURKEY'S EXPORT COMPETITIVENESS ACCORDING TO THE SITC TECHNOLOGY CLASSIFICATION

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ABSTRACT

The main purpose of this paper is to determine Turkey's export competitiveness in respect of SITC Technology Classification. The classification has five different categories of goods, namely, raw-material-intense, labour-intense, capital-intense, easy-to-imitate and hard-to-imitate. For analysis, Turkey's export data (US dollars) between 1996 and 2015 is used. Revealed Comparative Advantage (RCA) formula by Bela Balassa (1965) is taken as methodology to analyse. In compliance with Turkey's RCAs of the period, it is found out that Turkey has competitiveness (comparative advantages) on the export of labour intensive and capital intensive goods while it has competitiveness disadvantage on the raw-material intense, easy-to-imitate and hard-to-imitate goods which are research-based goods. It means the goods exported by Turkey is mostly production of labour intense technology, thus it demonstrates that the labour factor is the most significant production factors for Turkey. However, Turkey has disadvantage on easy-to-imitate and hard-to-imitate research-development-based goods strengthen by innovation and high value added products, which are commonly accepted as development indicators for countries.

Keywords: Export competitiveness, SITC, technology classification, Balassa Index, RCA

JEL Codes: F14, F17

1. INTRODUCTION

It is important to determine export structure of countries in terms of their use of export policies. Especially competitiveness analysis in sectoral level has importance to obtain effective results from the right policies practise at right time. Although it seems to rise aggregate export, exports or competition policies in the sectors with no competitiveness embody negativity indeed. Supporting the sectors with insufficient knowledge and technology, weak R&D, low-intense capital, and unskilled labour force will hamper effective use of scarce resources, thus it will have a negative influence on the aggregate export and competitiveness in long term. Such policy practises derived from sectoral analyses are going to be determining for the countries having voice in international environment as much as surviving in there in both economic and political dimensions.

This paper is largely based on analysis of determining Turkey's sectoral competitiveness. To do so, the SITC¹ technological classification is used and Turkey's competitiveness is tried to be categorised according to five classifications. In the analysis, Turkey's exports data for 20 years from 1996 to 2015 is yielded from the UN Comtrade database.

2. LITERATURE REVIEW

There are few studies of Turkey's technological classification according to determining of sectoral competitiveness which uses various RCA indexes. Some of them are summarized as follows.

¹ Standard International Trade Classification; see <https://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=14> for further information.

In 2003, Yılmaz examines the competitiveness and specialization on international trade level of Turkey, the five EU-candidate-countries (Bulgaria, Hungary, Romania, Poland, and Czech Republic), and that of the EU-15. His findings demonstrate that Turkey has competitiveness only in labour intensive sectors.

Erlat and Erlat (2005) try to find out Turkey's export competitiveness against EU-15 by using data between 1990 and 2000. According to the paper's results, while Turkey has competitiveness in the exports of raw materials and labour intensive goods, it has weak competitiveness in the exports of easy-to-imitate and hard-to-imitate oriented goods.

In 2007, Simsek et. al. analyse Turkey's competitiveness in the EU market between 1993 and 2006. For them, it also occurs that Turkey is competitive on raw materials and labour intensive goods exports whilst it partially has competitiveness on capital intensive goods; however, it has competitiveness disadvantage on the research-based goods exports.

In his comprehensive papers, Erkan (in 2011 and 2012) studies out similar results. In his first paper published in 2011, he uses foreign trade data from 1993 to 2009 to define sectoral competitiveness for Turkey and N-11. Akin to the previous studies, it suggests that Turkey has competitiveness on labour and capital intensive goods while it has competitiveness disadvantage in exports of easy-to-imitate and hard-to-imitate oriented goods. In oppose to previous studies he claims that Turkey has competitiveness disadvantage in raw materials as well.

In his second work in the field, in 2012, Erkan uses 1993-2010 data for Turkey and BRIC countries² to measure competitiveness of them. The findings show that BRIC countries mostly have competitiveness on raw materials and labour intensive goods while Turkey is competitive largely in the exports of labour intensive and capital intensive goods.

3. DATA AND METHODOLOGY

The RCA index developed by Balassa (1965) is used to assess Turkey's competitiveness in respect of SITC technological classification. He formulates the index as follows (Balassa, 1965:99-123):

$$RCA = \frac{X_{kt}^j / X_t^j}{X_{kt}^w / X_t^w}$$

Where j stands for country, t for time, k for goods group/sector and w for world/country groups. The numerator of the large fraction indicates the share of country j 's exports of goods k within its total exports in the term t . Likewise, the denominator shows the share of the world's exports of goods k within its total exports in the term t . If RCA value is bigger than 1, it means the country is specialized in that goods group/sector, that is to say, it has competitiveness advantages; if RCA smaller than 1, it means the country has no competitiveness in that goods group/sector, in other word, it has competitiveness disadvantages (Bojncic and Fertó, 2006:584; Khatibi, 2008:4; Nesterenko, 2006:6).

In the assessment of results, it is beneficiary to divide Balassa index in 4 groups for easier interpretation as follows (Hinloopen and Marrewijk, 2001:13):

- | | | | | |
|---------|---|------------------|---|------------------------------------|
| Group-1 | → | $0 < RCA \leq 1$ | → | Disadvantages, no competitiveness. |
| Group-2 | → | $1 < RCA \leq 2$ | → | Weak competitiveness. |
| Group-3 | → | $2 < RCA \leq 4$ | → | Medium advantage. |
| Group-4 | → | $4 < RCA$ | → | Strong competitiveness. |

In the study, arithmetic mean of the RCA coefficients is taken for years from 1996 to 2015. Meanwhile, trimmed mean, that is calculated by excluding the highest and the lowest values of the series in observation values, is measured for the series to obtain better outcomes.

The data set used in the analysis consists of Turkey's export numbers (\$) between 1996 and 2015. SITC technology classification comprises of five sectoral groups (labour intensive, raw material intensive, capital intensive, easy-to-imitate and hard-to-imitate) and each group includes goods group of SITC Rev. 3. In reference to this, goods groups of SITC Rev. 3 classification are illustrated as follows (Haufbauer and Chilas, 1974:3-38; Yılmaz, 2002:65 Buturac et. al., 2005:317; Utkulu and Seymen, 2004:3):

- Labour intensive goods: 26, 61, 63, 64, 65, 66, 69, 81, 82, 83, 84, 85, 89
- Capital intensive goods: 1, 35, 53, 55, 62, 67, 68, 78
- Raw material intensive goods: 0, 21, 22, 23, 24, 25, 27, 28, 29, 32, 33, 34, 4, 56
- Easy-to-imitate (Easy imitable research-intensive goods): 51, 52, 54, 58, 59, 75, 76

² It stands for four countries, namely; Brazil, Russia, India and China.

- Hard-to-imitate (Difficult imitable research-intensive goods): 57, 71, 72, 73, 74, 77, 79, 87, 88

4. FINDINGS AND DISCUSSIONS

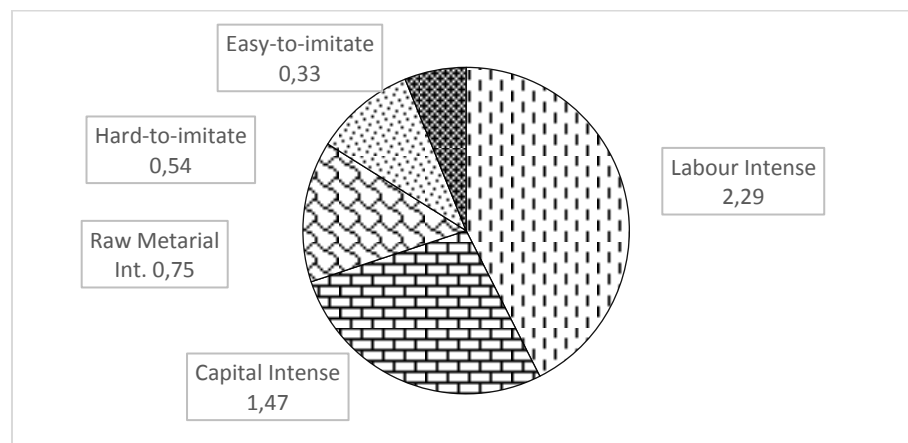
Turkey's RCA findings are shown in the **Table 1** according to the technological classification. Accordingly, Turkey has competitiveness in labour intensive and capital intensive goods exports in terms of trimmed mean values for both periods. For the labour intensive goods, it has medium advantage; for capital intensive goods, there is a weak advantage. Turkey, nevertheless, has disadvantage in the exports of raw materials, easy-to-imitate and hard-to-imitate goods.

Table 1: Turkey's RCAs according to SITC Technological Classification

Goods	RCAs			
	Mean		Trimmed Mean	
	1996-2005	2006-2015		
Raw Metarial Int.	0.87	0.66	0.75	Disadvantage
Labour Intense	2.44	2.14	2.29	Medium Advantage
Capital Intense	1.24	1.70	1.47	Weak Advantage
Easy-to-imitate	0.33	0.32	0.33	Disadvantage
Hard-to-imitate	0.43	0.64	0.54	Disadvantage

Obtained trimmed mean RCA values can be found in Graph 1. According to findings, it can be appropriate to say that Turkey is mostly exporting labour intensive goods. Thus, labour is a significant production factor for Turkey to keep exporting. However, Turkey has disadvantage on exports of innovation and R&D oriented high-tech goods and high added value products which are one of the development indicators.

Graph 1: Turkey's trimmed-mean-RCAs according to SITC Technological Classification (1996-2015)



In the Table 2, RCA values are compared per two periods; first is between 1966 and 2005 and second is from 2006 to 2015. For whole course (1996-2015), also trimmed mean is measured to see how the values has changed in time and compare general mean to the first and the second period's. Changes between the periods and comparison with the general can be summarized as follows;

- In the raw materials exports, Turkey's RCA value decreased between the first period and the second from 0.87 to 0.66 respectively. It means Turkey lost its competitiveness advantage in second period.
- For labour intensive goods, RCA value which was 2.44 in the first period decline to 2.14 in the second period.
- Nonetheless, the RCA value for the country's exports of capital intensive goods rose to 1.70 in the second term from 1.24 in the first term. This shows Turkey's competitiveness in the mentioned group of product's exports.
- When looking at the RCA values of easy-to-imitate oriented goods, disadvantage that the country has on this group of goods was not changed.
- For the hard to imitate goods exports, even though there is competitiveness disadvantage in the first term, in the second term it seems there is a slight rise in competitiveness.

Table 2: Comparison of Turkey's RCAs

	1996-2005	2006-2015	1996-2015 Trimmed Mean
Raw Material Int.	0,87	0,66	0,75
Labour Intense	2,44	2,14	2,29
Capital Intense	1,24	1,70	1,47
Easy-to-imitate	0,33	0,32	0,33
Hard-to-imitate	0,43	0,64	0,54

According to the technological classification, changes in Turkey's RCA values from 1996 to 2015 is demonstrated in the Table 3. In this table, it can be seen that Turkey has RCA values bigger than 1 in labour intensive and capital intensive goods exports, thus it is implied that the country has competitiveness in those sectors. Having said that, Turkey has competitiveness advantage between 1996 and 1999 in raw materials exports, yet, after 2000, it lost this advantage. Turkey, in the exports of easy-to-imitate and hard-to-imitate goods which include innovation and R&D oriented technological products and goods with high added value, has perpetuated its situation of being disadvantaged. As it is mentioned before, however, it is remarkable to see that the RCA values of hard-to-imitate goods that is research oriented has increased in the second term.

Table 3: Turkey's RCA Values Change in Years

Goods/1 st period	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Raw Material Int.	1,1	1,2	1,2	1,0	0,7	0,8	0,7	0,7	0,6	0,7
Labour Intense	2,4	2,4	2,5	2,5	2,7	2,4	2,5	2,5	2,3	2,3
Capital Intense	1,1	1,1	0,9	1,1	1,2	1,3	1,3	1,3	1,6	1,5
Easy-to-imitate	0,2	0,3	0,3	0,3	0,3	0,3	0,4	0,4	0,4	0,4
Hard-to-imitate	0,3	0,3	0,3	0,4	0,5	0,5	0,4	0,5	0,5	0,5
Goods/2 nd period	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Raw Material Int.	0,6	0,7	0,6	0,7	0,7	0,7	0,6	0,7	0,7	0,8
Labour Intense	2,2	2,1	2,0	2,1	2,2	2,2	2,1	2,2	2,2	2,0
Capital Intense	1,6	1,6	1,9	1,8	1,8	1,8	1,6	1,7	1,6	1,5
Easy-to-imitate	0,4	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3
Hard-to-imitate	0,6	0,6	0,6	0,6	0,6	0,7	0,6	0,7	0,7	0,6

5. CONCLUSION

According to the SITC technological classification, in the determining of Turkey's competitiveness in the exports of goods within the five categories, namely, raw materials, labour intensive, capital intensive, easy-to-imitate and hard-to-imitate, it is concluded as follows;

- The country has medium competitiveness in the labour intensive goods and weak competitiveness in the capital intensive goods.
- It is disadvantaged in the exports of the rest (raw materials, easy-to-imitate and hard-to-imitate goods).

As a result of the analysis, it can be said that Turkey's export structure mostly consists of labour intensive products. Therefore, we may claim that the most important production factor for Turkey is labour. In addition, as one of the development indicators for countries, in the exports of easy-to-imitate and hard-to-imitate goods that involve innovation and R&D oriented goods with high added value, Turkey has disadvantage for all years between 1996 and 2015. It can also be stated that the conclusion of this paper shows similarity with the previous studies in the literature.

The way of rising trade performance for a country is firstly specialization in its exports or to define what product groups or/and sectors it has competitiveness in. Then, the country should conduct policies to support these product groups or/and sectors. In that certain point, Turkey's backup over the labour intensive and capital intensive sectors in the short run will play an important role in the country's trade performance. However, specifically in the support of labour intensive sectors would not improve the performance as much as it is desired as the sector involves goods with quite low added values. For this reason, Turkey should give sufficient importance to R&D investments and innovations in the long run in order to reach the high performance of trade. To do so, as Sener (2013) argues in his work, Turkey has to take account to advance "[its]

macroeconomic environment, higher education and training, innovation, technological readiness, labour market efficiency, institutions, goods market efficiency". Only if it follows this path, Turkey will be able to produce high value added research base goods, so that having competitiveness in international level and raising national income.

REFERENCES

- Balassa, B. (1965). "Trade Liberalization and Revealed Comparative Advantage". The Manchester School of Economic and Social Studies. 33(2). May 1965. pp:99-123.
- Bojnec, Š. and Ferto, I. (2006). "Does Comparative Advantages in Agri-Food Trade Matter for Multifunctional Rural Development: The Case of Hungary and Slovenia". Journal of Central European Agriculture. 7(3). pp:583-586.
- Buturac, G., Lovrinčević, Z. and Teodorović, I. (2005). "Comparison of the Structure and Development of International Trade within the Framework of EU Enlargement: The Case of Croatia". Proceedings: 65th Anniversary Conference of the Institute of Economics. Zagreb; November 18 – 19. 2004. ISBN 9536030292-2005. p: 315-342.
- Erkan, B. (2011). "SITC Teknoloji Sınıflandırmasına İlişkin Açıklanmış Karşılaştırmalı Üstünlüklerin Belirlenmesi: Türkiye ve Diğer N-11 Ülkelerinin Karşılaştırılması". Finans Politik & Ekonomik Yorumlar. 48(558). pp: 35-48.
- Erkan, B. (2012). "BRIC Ülkeleri ve Türkiye'nin İhracat Uzmanlaşma ve Rekabet Düzeylerinin Karşılaştırmalı Analizi". Ekonomik ve Sosyal Araştırmalar Dergisi. 8(1). Bahar-2012. pp:101-131.
- Erlat, G. and Erlart, H. (2005). "Do Turkish Exports Have Comparative Advantage with Respect to The European Union Market, 1990-2000". Topics in Middle Eastern and North African Economies. Vol:7. September 2005. pp: 1-17.
- Hinloopen, J. and Marrewijk, C. V. (2001). "On the empirical distribution of the Balassa index" Review of World Economics / Weltwirtschaftliches Archiv 137: s:1-35.
- Haufbauer C.G. and Chilas J.C. (1974). "Specialisation by Industrial Countries: Extent and consequences, in the International Division of Labour: Problems and Perspectives". Edited by H. Giersch. Institut für Weltwirtschaft. Tübingen: Mohr, 1974.
- Khatibi, A. (2008). "Kazakhstan's Revealed Comparative Advantage Vis-À-Vis the EU-27", European Centre for International Political Economy (ECIPE). Working Paper, No: 03/2008, pp:1-12.
- Nesterenko, O. (2006). "Competitiveness of Ukrainian Products". Master of Arts in Economics. National University "Kyiv-Mohyla Academy" Economics Education and Research Consortium Master's Program in Economics. pp:1-49.
- Sener, S. (2013). "The Competitiveness of Turkish Economy Within the Scope of WEF Global Competitiveness Index". Procedia - Social and Behavioral Sciences 75, pp:453-464. Doi: 10.1016/j.sbspro.2013.04.049.
- Şimşek, N., Seymen, D. and Utkulu, U. (2007). "Turkey's Competitiveness in the EU Market: A Comparison of Different Trade Measures". In European Trade Study Group (ETSG) 9th Annual Conference 2007. pp: 1-44.
- Utkulu, U. and Seymen, D. (2004). "Revealed Comparative Advantage and Competitiveness: Evidence for Turkey vis-à-vis the EU/15". In European Trade Study Group 6th Annual Conference. ETSG. September 2004. pp:1-26.
- Yılmaz, B. (2002), "The Role of Trade Strategies for Economic Development: A Comparison of Foreign Trade Between Turkey and South Korea". Russian and East European Finance and Trade, 38(2). March–April 2002. pp. 59–78.
- Yılmaz, B. (2003). "Turkey's Competitiveness in The European Union: A Comparison with Five Candidate Countries – Bulgaria, The Czech Republic, Hungary, Poland, Romania – and The EU15". The East Enlargement of the Eurozone. Ezonplus. Working Paper, No:12. February 2003.



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DESIGN AWARDS AS A DESIGN PROMOTION ACTIVITY: INTERNATIONAL DESIGN AWARDS

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ABSTRACT

Many governments have design policies to increase public awareness level about design and its adding value on products and services. One of these policies are design promotion activities like seminars, exhibitions and publications which are essential to increase the awareness of citizens and companies about the benefits of design. Design awards are one of these design promotion activities that provide companies reputation and publicity. Especially international design awards are significant to promote the product and the company itself in the global context. In this study, design promotion have been identified and the activities belonging to design promotion and the differences between design policy and design support have been revealed. Finally, the role of design awards as a promotion activity have been presented and four design schemes (Design Turkey Industrial Design Award, IF Design Award, Red Dot Design Award, and Good Design Award) have been compared in terms of different dynamics and promotion activities.

Keywords: Design, design policy, design promotion, design awards, international design awards

JEL Codes: L52; M38

1. INTRODUCTION

Design is a powerful tool for nationalities and companies willing to add value to their products or services and to be competitive in both local and global market. However, especially small and medium-sized enterprises (SMEs) are still not aware of the potential benefits of design (Raulik-Murphy and BDes, 2010). This lack of awareness results in low value-added products and services and brings financial failure to both enterprises and nations. In addition, public awareness level about design and its adding value on products and services is also very low. Because of this lack of understanding, many governments have formed and carried out design promotion programmes. These programmes aim to increase awareness of citizens and companies about the benefits of design through design promotion activities like seminars, exhibitions and publications. Design awards are also essential as promotion activity, which provide companies with reputation and publicity. Especially receiving international design award promote the product and the company itself in the global context.

The aim of this study is to identify design promotion and its content, to compare four design schemes (Design Turkey Industrial Design Award, IF Design Award, Red Dot Design Award, and Good Design Award) in terms of different dynamics and promotion activities.

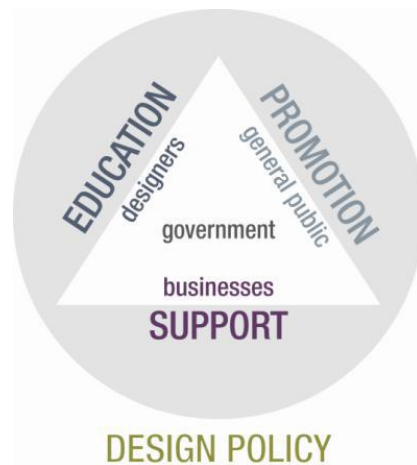
2. LITERATURE REVIEW

2.1. Design Promotion and Design Promotion Activities

To gain an understanding about design promotion programmes, it is important to research and identify “design promotion” as a term. Activities belonging to design promotion and the differences between design policy and design support have to be also revealed. Despite its popularity as a word, finding a single definition explaining the main activities of design promotion is difficult. There are different opinions about design promotion because it includes many activities different from each other. Sung, Song, Park and Chung (2007) in their paper define design promotion as ‘all activities that to contribute to the progress or growth of design for a nation’s sustainable growth’. They divide design promotion into mainly

two functions: design enlightenment and design support and into eight categories: policy research and proposals, awards and certifications, exhibitions and events, publications and publicity, international exchanges, education and training, research and surveys, and development and aid. On the other hand, Raulik-Murphy and BDes (2010) distinguish design education, design support and design promotion as activities that composes the design policy (Figure 1). Support programmes especially focus on businesses, promotion activities on the other hand aim at wider public, generally with the purpose of increasing awareness of the benefits of design by activities such as exhibitions, awards, conferences, seminars and publications. However, design policy is a strategic planning of these all activities to gain maximum advantage (Raulik-Murphy and BDes, 2010).

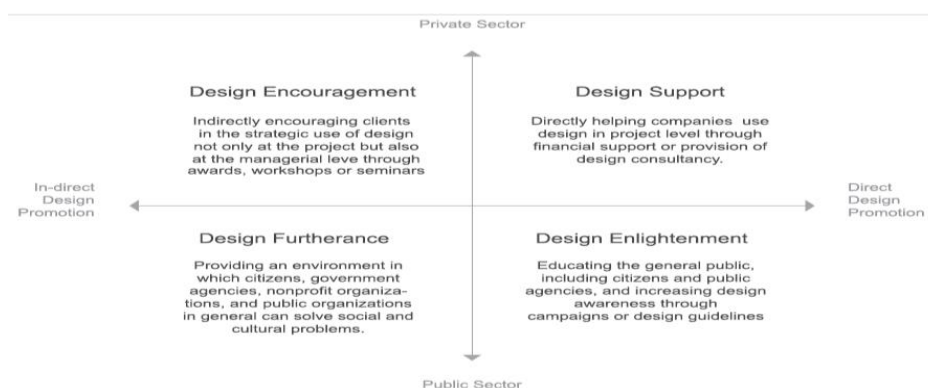
Figure 1. The author's schematic representation of the elements of a National Design System and their definitions (Raulik-Murphy and BDes, 2010)



The terms “design promotion and design policy” are generally used interchangeably. In fact, they represent different practices. The former focuses on reducing the awareness of design through activities like seminars, exhibitions, publications and so on; on the other hand, the latter is part of strategic government planning. Design promotion as a term is used instead of design policy by both practitioners and theoreticians (Er, 2002). However, design promotion is just one of the parts of a design policy (Raulik et al., 2008). Er explains that while design promotion can be presented by non-governmental organisations, policies “require a coordinating power or at least the open support of government to be implemented”. In practical terms, design promotion is easier to apply because it requires less employee training and lower time and finance investment (Raulik-Murphy and BDes, 2010). Therefore, Design promotion programs are more widespread than support programs. According to a recent survey, design promotion is presented in at least 41 countries around the world, while 27 presenting design support. In addition, design promotion programs can reach a larger mass of companies and individuals (Raulik-Murphy, Cawood and Lewis, 2010).

Park, Nam and Chung (2010) proposed a new typology for design promotion. They have degraded the classified activities to the two main criteria: 1) Client: private / public sector 2) Method: direct / indirect. It is demonstrated as two axes and four quadrants which include all range of promotion activities. The quadrants are identified as design support, design encouragement, design enlightenment and design furtherance (Figure 2).

Figure 2. Four types of design promotion activities (Park, Nam and Chung, 2010)



As seen in Figure 2, design support is included in design promotion activities as a direct influencer. Design awards are presented as a piece of design encouragement activities, which is an in-direct design promotion, and the objective of private sector. Design encouragement is defined as “a broader stance in promoting the strategic use of design in companies, pushing for design to be used not only at the project but also at the managerial level.” (Park, Nam and Chung, 2010)

2.2. Design Awards As A Design Promotion Activity

According to Merriam-Webster English dictionary definition, an award is “a judgment or final decision; especially for the decision of arbitrators in a case submitted to them”. Gemser and Wijnberg (2002) define award as:

- It should involve three types of actors (organizers, jurors, and winners)
- It has to be a category of potential award winners and judgement criteria.
- It has to be conferred more than once.

An award not only approves the professional performance of an individual, a group or an enterprise. Sung, You, Lu and Ho (2009) consider that a good award competition also can distinguish the best from the others and become a dominant selection system in industry. Therefore, due to the rising importance of design, design awards become effective tools for companies and nationalities to be globally visible as a one of the major design promotion activities. Studies prove the benefits of design awards in different aspects. Sung, You, Lu and Ho (2009) have revealed that a world-class design-award-winning project has better performance on “company reputation” and “free publicity”, based on the data collected from 64 of Taiwan’s world-class design-award-winning projects (i.e., G-mark, iF and Reddot) during the years 2005 to 2007. A study suggested that ‘companies that win design awards perform better than the ones that do not’, based on an analysis of the financial performance of Japan’s Good Design Award winners, and companies (Reinmoeller and Steen, 2004). Research on the values of winning awards have been gathered and presented as a taxonomy by Sung, Nam, and Chung (2010). One of these values is business value which is defined as the potential to create business occasions and to impress clients and customers. Capability value indicates the company’s ability on design which builds credibility. Competitive value enables company to outdistance its competitors via awareness of design qualification. If consumers hear about the company’s award and become willing to purchase the products, this company gains consumer value. Awards also bring financial value which means better sales, bigger market share, and monetary prizes. Award and its logo could be used in awardwinners’ commercials and other material which provides promotion and brings marketing value to the company. Awards also motivate to be creative and innovative via using design, this is defined as organizational value in literature. Winning an award provides visibility of products which brings protection value. Reputation value as competitive value enables to be competitive in market and affects buying decision positively. Symbolic value is defined as the value of the award itself (Sung, Nam, and Chung, 2010).

Various stakeholders could gain an advantage through winning a design award (Brunswick and Seymour, 2006). Designers could have a chance to demonstrate their design abilities by winning design competition.

Design departments of companies also could use the award scheme to prove their design abilities. Winning an award is important for them to survive within the company as a department. After a while, winning a series of awards could become one of the company’s strategies (Brunswick and Seymour, 2006; Lee, 2008).

Design awards bring reputation to company not only in the local market but also in the global market. Awarded products become visible especially with the award exhibitions for overseas buyers, which increases international marketing channels (Lim, 2008).

Awards provide benefits to design consultancies also. They could use awards to convince the clients about their excellent design capabilities (Fuse Project, 2008; Nova Design, 2008; Ziba Design, 2008).

Consumers could be influenced positively by awarded products while making purchase decision (Zec, 2007). Therefore, design awards could be strategic element for companies to raise the sales.

One of the example which use design award scheme as a strategically is Samsung. Awards contributed them to be an international brand and a leading corporation in design (Lee, 2008).

3. COMPARISON OF FOUR DESIGN AWARD SCHEMES

Four award schemes have both common and different features. Design Turkey Industrial Design Awards is the newest among these four award schemes. The first Design Turkey Industrial Design Awards was implemented in 2008. The scheme received 444 applications and 55 of them are awarded. A total of 410 entries were received in the fourth and the latest Design Turkey Industrial Design Awards scheme in 2014 and 65 entries were given “good design award”. The other three

award schemes (IF Design Award, Red Dot Design Award and Good Design Award), on the other hand, have been implemented for more than fifty years.

In 2016, 5.200 innovations from 57 countries were applied by manufacturers and designers to the Red Dot Award: Product Design. 1,304 products were awarded as “Red Dot” and only 79 entries took the “Red Dot: Best of the Best”; 107 won an Honourable Mention (Red Dot, 2016). IF Design Award scheme received 5,295 entries by 2,458 participants from 53 countries in 2016. From all disciplines (product design, communication design, packaging design, service design, professional concepts and architecture and interior architecture), the IF label was given to 1,821 entries and 75 entries were honored with the coveted IF gold award (IF Design Awards, 2016). A total of 3,658 applications were received in Good Design Award scheme in 2015. 1,337 were honored with Good Design Award and 33 entries received Good Design Long Life Design Award (Good Design Award, 2016). All categories of IF Design Award, Red Dot Design Award and Good Design Award schemes are widely open to manufacturers, consultancies and designers from all over the world.

In Design Turkey Industrial Design Awards, international applications are only accepted for conceptual design awards. The projects, which apply for Design Turkey conceptual design awards, must not have been scheduled to be manufactured and must have been exhibited in a public sphere between the dates determined. Design Turkey Product Design Awards is open to only products designed by Turkish citizens, designed by designers residing in Turkey or design companies registered to a chamber of trade in Turkey, manufactured by companies established according to Turkish Trade Law or Law of Debts and products whose trade mark is registered by companies established according to Turkish Trade Law or Law of Debts (Design Turkey, 2016).

All of four awards have categories, which is divided in different manner. IF Design Awards mainly contains 7 disciplines: product, packing, communication, interior architecture, professional concept, service design and architecture. There are 19 categories under the product design area. The categories of Design Turkey Product Design are similar with IF Product Design, but there are 13 categories. Good Design Awards is divided in six layers as product, space, media, system, activity and front edge. There are 14 categories in product section. Some categories are identified with verb like product for writing/ producing which is different from the other three awards. The Red Dot Product Design has the largest number of categories with 31. While in IF Product Design categories bicycles are in the same category with automobile, in Red Dot Product Design categories there is a category as “bicycle and bicycle accessories”. For all of four awards the categories are described in detail with product purpose and usage. The categories for each award are demonstrated in Table 1.

Table 1: Design Award Categories

Design Turkey Product Design Categories (13)	
1. Packaging and Fast Moving Consumer Goods	8. Urban Products
2. Lighting Products	9. Sports, Hobby, Game, Toy and Children Products
3. Electronic products	10. Medical Devices and Equipment
4. Electrical Household Devices and Personal Care Products	11. Transportation Vehicles and Accessories
5. Home, Kitchen, Office Equipment and Accessories	12. Sanitary Ware and Building Components
6. Home Furniture	13. Capital Goods and Machinery
7. Office Furniture	
Red Dot Product Design Categories (31)	
1. Living rooms and bedrooms	17. Jewellery
2. Households	18. Interior design
3. Kitchens, kitchen furnishings and kitchen appliances	19. Interior design elements
4. Tableware and cooking utensils	20. Materials and surfaces
5. Bathrooms, spas and personal care	21. Urban design and public spaces
6. Heating and air conditioning technology	22. Office furnishings and office chairs
7. Lighting and lamps	23. Stationery
8. Garden furnishings, garden and BBQs	24. Industry, machinery and robotics
9. Outdoors, trekking and camping	25. Tools
10. Sports	26. Life science and medicine
11. Bicycle and bicycle accessories	27. Vehicles (land, water and aerospace)
12. Leisure, games and fun	28. Vehicle accessories
13. Musical instruments and equipment	29. Consumer electronics and cameras
14. Babies and children	30. Communication
15. Fashion, lifestyle and accessories	31. Computers and information technology
16. Watches	
IF Product Design Categories (19)	
1. Automobiles / Vehicles / Bikes	11. Home Furniture
2. Sports / Leisure	12. Kitchen

3. Babies / Kids	13. Household / Tableware
4. Watches / Jewellery	14. Bathroom
5. Audio	15. Building Technology
6. TV / Cameras	16. Public Design
7. Telecommunication	17. Medicine / Healthcare
8 Computer	18. Industry / Skilled Trades
9. Office	19. Textiles / Wall / Floor
10. Lighting	
Good Design Product Design Categories (14)	
1. Product to be put on a daily basis	8. Audio/broadcast equipment
2. Product for writing/ producing	9. Information device
3. Product for cooking	10. Transportation equipment/facilities
4. Product for learning/ studying	11. Product for commercial transaction
5. Medical/health/ beauty product	12. Equipment/ facilities for public space
6. Household goods	13. Furniture
7. Hobby product / sporting goods	14. Building facilities

The criteria of award schemes are different from each other. Design Turkey criteria are divided in two for good design and superior design. The criteria good design and superior design are similar but the descriptions under these criteria are different. There are mainly six criteria: distinctiveness and innovation, benefits for the user, aesthetics, health and safety, design quality for manufacture and sustainability. Red Dot Product Design evaluates nine criteria: degree of innovation, functionality, formal quality, ergonomics, durability, symbolic and emotional content, product periphery, self-explanatory quality and ecological compatibility. IF Product Design evaluates 11 criteria: design quality, workmanship, choice of materials, degree of innovativeness, environmental compatibility, functionality, ergonomics, visualization of use, safety, brand value/branding, and universal design. Good Design Award criteria comprise four main viewpoints of human, industrial, social, and time perspectives. Human perspective includes key points like usability, understandability, friendliness, safety, security, environment, sympathy, attractiveness and creativity. Industrial perspective comprises new technology and materials or through creativity, using appropriate technology, method, and quality and the creation of new industry or business. In social perspective, there are keywords like the creation of new culture such as a new method, lifestyle, communication, and the realization of the sustainable society, suggestion about new value, such as a new method, concept, and style. Time perspective includes past contexts and accumulated achievements to propose new value, highly sustainable solution from medium and long-term perspectives and continual improvements in accordance with the times. Except Good Design Award, all of these award schemes select jury members among internationally well-known professionals. Good Design Award judgment committee comprise of Japanese well-known professionals.

The aims of Design Turkey Industrial Design Awards, which is related with design promotion, are “to increase design awareness in the industry and society by promoting award winning designs through award ceremony, exhibitions, publications and press” and “to emphasize the place of Turkey in design world by organising national and international activities”. To realize these aims promotional activities are carried out. At first, awards are announced to the press and public through an award ceremony on the opening day of the exhibition. After the jury evaluation finalized, award certificates and trophies are given to the companies and designers of those award winning product designs. Together with the exhibition a conference is organized where academicians and professionals with national and international respectability, are invited and where updated information and approaches are shared. Following the exhibition, award-winning designs are exhibited in domestic and foreign exhibitions. Award-winning designs and their designers are publicized in the Design Turkey Award Winning Designs Catalogue. Award winning designs are published according to the years, sectors and product types on the web site. Award winners can use the Design Turkey Awards logo in their promotional activities.

IF Design Award declares that, their aim is to strengthen public awareness of design. They organize design-oriented activities with extending the communication network to realize this. Winners can use IF Design Award Logo without any time and area (advertisements, online banners, press releases) limit. In addition, there is the IF ranking logo indicating the position of winner in the IF ranking (Figure 3).

Figure 3: IF Ranking Logo (<http://ifworlddesignguide.com/if-ranking/>)



Award-winning designs are presented in IF design exhibition Hamburg. An internet platform exists where awarded designs are featured in. Winners can receive a free profile on this platform. In addition, IF design app, which has iOS & Android versions, presents award-winning entries of the IF Design Award from the last three years. IF also launches its schedule of international press after the jury session to support the winners' communications. An award ceremony and design party is carried out for award winners as well. Professional photographers take photos, which can be downloaded and used for communication measures. Winners receive certificate during the IF design award night in printed and digital as well. Certificates can be used without any limitations for promotion activities.

The Red Dot Design Award gives the winners certificates during the winners' exhibition and the Designers' Night. "Red Dot: Best of the Best" receive both certificate and Red Dot Trophy. Red Dot Design Yearbook is published which includes award-winning entries. All products that win the Red Dot are presented for at least a year in The Red Dot Design Museum. In addition, all awarded products are put show on four-week winners' exhibition. "Red Dot: Best of the Best" are staged in the museum's imposing White Hall. The results of the completion are launched international press by the Red Dot communications department. The competition has distinguished media partnerships like ArchiExpo, Design42Day and Yanko Design. The Red Dot App also exists and winners can present their awarded products in the app. The app has iOS and Android versions which can be freely downloaded. Additionally, winners of the Red Dot Design Award are able to show their products for a year in Online Presentation platform.

Good Design Award aims to make the society to recognize the idea behind the designed things and to provide the insights for them. Award-winners can use G-Mark logo. Good Design Award winners take an award certificate for each winning application. The winners took Good Design Best 100 and Special Awards are also presented with a trophy (Figure 4). All previous winners are presented in online gallery.

Figure 4.: Good Design Certificate and Trophy (<https://www.g-mark.org/about/?locale=en>)



Award winners have opportunity to participate in the G Exhibition, an exhibition of the year's winning designs. Award winners also can attend to the awards ceremony and gather with the jurors. The awarded designs are published in the Good Design Award annual. This award scheme also provides opportunities for being featured in magazines, invited to international exhibitions and trade shows.

The aim of all of four design schemes is to increase design awareness in the industry and society by promoting award winning designs. However, promotion activities to realize this lightly different from each other.

First of all, they have different logo shapes but use the same colors, red and white combinations, in their logos. Red is one of the most used color in brand logos due to its feature of arousing, exciting, and stimulating (Labrecque and Milne, 2012). As seen in Table 2, all of award schemes give winners right to use the logos in their promotion activities which brings reputation to winners in both local and global market. IF Design Award additionally gives IF ranking logo to companies which are within the ranking.

Figure 5: Design Award Logos



All of four award schemes carry out award ceremony and present the winning entries in exhibition. All of them have their special certificates and trophies. Online platform where the winning entries and winners are presented exists on all of them. Winners of design awards publicized in four design schemes, either. Only IF Design Award and Red Dot Design Award have mobile applications which include winning entries. Only IF Design Award and Red Dot Design Award launch international press which supports the winners' communications. Design Museum only exists on Red Dot Design Award scheme. Only Design Turkey Industrial Design Awards organize a conference together with the exhibition where academicians and professionals with national and international respectability.

Table 2: Awards' Promotional Items

	Logo	Ranking Logo	Award Ceremony	Certificate and trophy	Exhibition	Online Platform	App	Press	Publication	Design Museum	Conference
Design Turkey	x		x	x	x	x			x		x
IF Design Award	x	x	x	x	x	x	x	x	x		
Red Dot	x		x	x	x	x	x	x	x	x	
Good Design	x		x	x	x	x			x		

Among the top 11 winner companies in IF Ranking 2016 (Philips, Samsung, LG, Sony, Panasonic, Bosch, Phoenix Design, Hewlett Packard, BMW, Apple, and ASUS) 9 of them (Philips, Samsung, LG, Sony, Bosch, Phoenix Design, Hewlett Packard, BMW, Apple, and ASUS) are also winners of Red Dot Design Award and 6 of them (Philips, Samsung, LG, Sony, Panasonic, and ASUS) took Good Design Award, either (Table 3).

Table 3: Companies and Their Awards

	IF Design Award	Red Dot Design Award	Good Design Award
Philips	x	x	x
Samsung	x	x	x
LG	x	x	x
Sony	x	x	x
Panasonic	x	-	x

Bosch	x	x	-
Phoenix Design	x	x	-
Hewlett Packard	x	x	-
BMW	x	x	-
Apple	x	x	-
ASUS	x	x	x

4. CONCLUSION

Design awards become one of the major promotion activities which provide companies and designers with reputation and publicity. Especially international design awards help companies and products to be globally visible. The studies also support that that 'companies that win design awards perform better than the ones that do not' (Sung, You, Lu and Ho, 2009; Reinmoeller and Steen, 2004). Consumers' buying decision could be impressed in positive way when they come across with the awarded products. This could increase the companies' market share also. In summary, design awards provide many advantages to companies and as seen in table 3, most of well-know companies are aware of the values of winning design award and attend these design award schemes.

In this study four design schemes are compared according to different dynamics like their categories, participation rules, and promotion activities. They have both similarities and differences according to each other. Design Turkey Awards only approves international participators to conceptual design category. Therefore, they could add product design category to increase both the award's and the winners' reputation in global context.

REFERENCES

- Brunswicker, S. and Seymour, R. (2006). 'Surprise! Look who's capturing the value created from a design excellence award'. International Conference on Strategic Innovation and Creativity in Brand & Design Management, Seoul, South Korea, 29 November 2006.
- Design Turkey. Retrived May 15, 2016, from <https://www.designturkey.org.tr/>
- Er, A.H. (2002). Does Design Policy Matter?: The Case of Turkey in a Conceptual Framework. In Lee, S.-I. (Ed.) Design Policy and Global Network. pp.160-191. Seongman: Korea Institute of Design Promotion KIDP & International Council of Societies of Industrial Design ICSID.
- Fuse Project (2008). 'Awards'. Retrieved May 16, 2016, from <http://www.fuseproject.com/awards.php>
- Gemser, G. and Wijnberg, N. M. (2002) The economic significance of industrial design awards: a conceptual framework, Design Management Academic Review, vol. 2, no. 1, pp. 61-71.
- Good Design Award. Retrived May 15, 2016, from <http://www.g-mark.org/about/>
- IF Design Award. Retrived May 15, 2016, from <http://ifworlddesignguide.com/press-release/791-hannover-26-jan-2016>
- Lee, S. J. (2008). Manager, Design Planning Group, Corporate Design Center, Samsung Electronics Co. Ltd [telephone interview by W. O. Sung], 29 December 2008.
- Lim, M. S. (2008). "Design Korea" swifts top three major international design awards'. Retrieved 16 May, 2016, from http://article.joins.com/article/article.asp?total_id=3364721
- Nova Design (2008). 'News & awards'. Retrieved May 16, 2016, from <http://www.enovadesign.com/news.aspx?WebType=3&LeftImgID=21>
- Park, J., Nam, K. Y., & Chung, K. W. (2010). Promoting design nationally: Influential factors. Design Management Journal, 5(1), 32-39.
- Raulik, G., Cawood, G., & Larsen, P. (2008). National design strategies and country competitive economic advantage. The Design Journal, 11(2), 119-135.
- Raulik-Murphy, G., & BDes, M. A. (2010). A comparative analysis of strategies for design promotion in different national contexts (Doctoral dissertation, University of Wales).
- Raulik-Murphy, G., Cawood, G., Larsen, P., & Lewis, A. (2009). A comparative analysis of strategies for design in Finland and Brazil.
- Raulik-Murphy, G., Cawood, G., & Lewis, A. (2010). Design Policy: An Introduction to What Matters. Design Management Review, 21(4), 52-59.
- Red Dot. Retrived May 15, 2016, from <http://en.red-dot.org/5698.html>
- Reinmoeller, P., & Steen, M. V. (2004). Design and corporate performance: Investigating the relationship in Japan. In International Conference on Innovation by Brand and Design Management (pp. 11-14).
- Sung, T. J., You, M., Lu, Y. T., & Ho, S. S. A Study of the Effects of the Type of Design Award on Design Capability and Business Performance.

Sung, W. O., Chung, K. W., & Nam, K. Y. (2009). Reflections on design excellence through international product design award schemes. *The Design Journal*, 12(2), 171-194.

Sung, W. O., Nam, K. Y., & Chung, K. W. (2010). Strategic use of international product design award schemes. *Design Management Journal*, 5(1), 72-86.

Sung, W. O., Song, M. J., Park, J., & Chung, K. W. (2007). Changing roles of design promotion organizations in the global context and a new theoretical model for a design promotion system. *Proceedings of the IASDR*.

Zec, P. (2007). 'Design on stage – The Red Dot Design Award'. *Design Management Review*, 18(1), 60–67

Ziba Design (2008). 'News/awards'. Retrieved May 16, 2016, from <http://www.ziba.com/NewsEventsAwards.aspx?yr=2008>Xia, Y., Singhal, V. R., & Peter Zhang, G. (2015). Product Design Awards and The Market Value of The Firm. *Production and Operations Management*.



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APPLE IS TRYING TO RESOLVE MANY OF THEIR MARKETING AND MANAGEMENT PROBLEMS

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ABSTRACT

This study mainly focusing on Apple marketing, selling products and Apples customer's feedback. It could be successful in terms of business that innovate from Apple company to its customers yet the most important assets of the organization relationships with the media across all the productions units of apple. However, apple is facing poor human resources and procedures. In this study we are mainly focusing on SWOT analysis which innovates products and diversified portfolio of apple to show the strength and the stability of Apple. It increasing the demands of the products entering new markets that gives the employer new key to make them innovate more and create more. On the other hand, Apple is facing a very poor Human Resource planning as part of recruitment that paved way for dissatisfaction among the employees. In terms of expansion by Apple to Asian markets should be built new markets in China. From the customer's perspective quality and efficient are the most important priorities for them. It's a must that devising marketing strategies meet the stakeholder's expectations. In order to initiate new market in different countries and that is based on two essential elements confidence and propaganda like media advertisement in order to gain a lot of profits and to make balance between the expenses and profit. It is very important point for the stakeholders to get return on their investments (ROI) such as a lot of exports to other countries. So that will be a guaranteed and confidence for both sides stakeholders and employees. In conclusion the market of Apple Company is getting better worldwide because of their qualified products that meet the customers' expectations.

Keywords: Asian markets, quality, SWOT analysis, innovate

JEL Codes: M10, M30

1. INTRODUCTION

Apple has been criticized for its lenient attitude towards the increasing number of accidents and ill-treatment of its employees working in china. These events have hit the crux of brand image of apple which might lead to boycotting in the near future. The study would involve critical evaluation and formation of a marketing plan that will aid apple in recovering its lost trust and confidence amongst its stakeholders and also to enhance the Human resource practices especially with regards to the plants located in China. SWOT analysis aids in identification of both internal and external factors affecting apple across the globe with regards to the case of southern china. The proposed recommendations would be based on the specific, measurable, attainable, reliable and timely objective that would address the prevailing issue (Troy, 2011).

2. LITERATURE REVIEW

2.1. Issue

Managing Markets has become one of the most essential tasks for both growing and established organizations. Apple being successful as a brand amongst the customers has ensured that its corporate image and values are reflected in its human resource practices. Amidst its success in the past decade the company has been exposed more number of criticisms especially with regards to the mistreatment and increasing accidents of its employees in china. Foxconn plant in southern china is contently under media surveillance as the number of news from this plant is alarming. It is evident that a apart of sustaining the corporate image of an organization it is essential to ensure that the top management pays more attention to the resources of managing markets. Apple could be successful in terms of business and renowned innovation but the most important asset of the organization human capital could not be exposed to threat any more (Collin, 2011). Maintaining good relationships with the media across all the production units of apple would not have highlighted the issue to this

extent. Even though it is evident from the HR audit that 62% of the essential facilities did not meet compliance the issues is further fuelled due to the attention of media towards apple and its careless approach to offer vibrant human resource practices.

2.2. Proposed Marketing Plan

Given the existing scenario that Apple is facing in the light of its poor human resource policies and procedures the impact of the events on the brand image of the company has been affected crucially. The case does not call for analysis of the market position or the market share rather it focus on reengineering the existing marketing and advertisement campaigns. There is a strong need for understanding the pitfalls in human resource management and the campaigns must involve proper communication of its progress to its stakeholders (Griffith, 2008). The marketing plan would initiate with the analysis of Strength, Weakness, Opportunity and Threats followed by which a marketing plan is proposed. The marketing plan would involve targeting each one of the stakeholders in communicating the developments of apple with regards to the human resource issues.

3. DATA AND METHODOLOGY

3.1. Swot Analysis

3.1.1. Strengths & Opportunities

- Innovative products and diversified portfolio of Apple is one of the greatest strength that apple has as its strength.
- Existing marketing channels across the globe to communicate on the developments of products and business portfolio at any given point of time.
- Clear understanding of the stakeholders based on their priority enhances the scope for increasing the bonding between the customers and apple.
- Increasing demands of the products increases the scope for entering new markets there by promoting the existing brand value.
- Employer branding has been a key ingredient that has nurtured innovation and creativity across all the tiers of management at apple this could be nurtured by ensuring superior human resource practices.

3.1.2. Weakness & Threats

- Supply and demand factors were the key driving forces behind increased working hours of employees at Foxconn.
- Lack of human resource planning as part of recruitment and selection has paved way for dissatisfaction amongst the employees.
- Poor public relations practices highlighting the prospects and the development of the employees exert the threat of reduced trust amongst the stakeholders of apple across the globe.
- Non adherence to global employment legislations and audits (results of audit conducted at southern china 2011) in might lead to shut down of various manufacturing plants across the globe.
- Increasing criticism and allegations would lead to negative word of mouth marketing across the existing and potential customers. Another threat underlying the case is the possibility of not meeting the expectations of the stakeholders

4. FINDINGS AND DISCUSSIONS

4.1. Lack of Corporate Communications Initiatives at Apple: Stakeholder View

Assessing the SO and WT (Strength – Opportunities, Weakness – Threats) it is evident that Apple has been a giant in the electronics industry and has more number of core competencies under its belt. Unlike other players in the electronics industry Apple has more bonding with its customers across the globe through its products (Newman, 1994). The company has been able to reach out customers on the global context with its innovative and creative products. Thanks to the role of human capital management that has proved that Apple could multiply its product portfolio and use the success of its product for marketing its brand value to the customers. The company has been able to save huge number of costs in the marketing department through its positive word of mouth marketing. Unplanned marketing campaigns have been the strength of Apple as amidst its regular marketing campaigns the products and the satisfaction yielded by the customers has itself turned to be the asset building tool (Griffith, 2008).

This is evident in the case of expansion initiatives by apple in to Asian markets. Apple has been able to acquire a major proposition of its market share within a short span of time post entering in to new markets. This has reflected the global recognition of Apple and how it can aid the organization in all its strategic initiatives and accomplishments (Elearn, 2010).

From the customer perspective people are addicted to the quality and efficiency of the products from Apple, Daniel 2005 states consumer behaviour towards apple is very different from that of other companies and products, consumer are not bothered about what are the core competencies and strengths of apple in the technical perspective. Neither customers look for the corporate social responsibility initiatives of Apple in serving the environment nor the community associated and linked with its products and services. From the investors perspective the return on the investments has been very attractive given the global expansion and the ever declining profit sheets they are neither bothered about the progress and initiatives of Apple (Betz, 2007). Thus analysing the dominance of brand image and the product addiction of customers and the better yielding for the investors it could be inferred that Apple has not been so keen in enhancing its public relations management programs. The necessity of communicating the internal events and developments reflecting the work culture of apple was not alarming which has been yet another pitfall of the marketing initiatives of Apple. Apple has been biased on communicating the technical developments and the launch of the new products such as i phone io4 and io5 (Quinn, 2011).

Marketing department of Apple could not only be the only blamed department in this issue as it's a lack of demand from the internal and the external stakeholders of Apple as well as poor planning and implementation process followed by the corporate communications of apple across the globe. Given the existing case the precautionary actions would have been put in place at the early stages of apple business development (Hulbert, 2011). Cook the chief executive of Apple has been so much concerned about ensuring that the corporate communications comprising information about the health inspection and the work practices of Apple post the burst of allegations. Considering the allegations as a negative action by a community in spoiling the brand value of Apple, the justifications offered by cook must have made the public realize that the information is false and invalid. But the responses of the audit and the death of the employees as a result of lack of hazardous waste management have further increased the threat of confirming the allegations to be true (Drew, 1997).

This is evidence that there has been a lack of attention by the top management and the strategic team of Apple towards paying attention to the human capital management which in turn has now forced the organization to assure transparency in its actions. Thus the proposed marketing plan could not act individually at this juncture and the role of involving the human resource personnel and the organizational systems is essential in portraying the developments and progress that would be made by apple in addressing these allegations (FisherD, 2006).

4.2. Marketing Plan: The Need of the Hour

The proposed marketing initiatives must thus involve the task of integrating the organizational culture, working practices, contribution of employee efforts to the overall production of apple's products. The first step as a part of marketing plan will comprise:

1. Devising marketing strategies that will stop the multiplication of negative word of mouth marketing cross the stakeholders.
2. To initiate marketing strategy that will restore the lost brand image and the trust amongst the stakeholders and the critics.
3. To turn corporate communications and public relations as a competitive edge for Apple in ensuring transparency of information about the internal and external process of the company.

Thus the proposed marketing plan will comprise the accomplishment of the above listed objectives both on the short term and long term basis (FisherD, 2006).

Prior initiation of the marketing plan and the initiatives the role of the top management of Apple in revising the human resource practices in southern china and the manufacturing plant of zzz. The marketing plan thus initiates post the initiation of the strategic change management at Apple (Quinn, 2011). It is a typical change management process and the top management has to communicate the intentions behind the revision in its human resource policies and marketing objectives under corporate communications.

4.3. Revised Marketing Mix

Marketing mix of Apple has more ability to reach the customers as well as the stakeholders on restoring the lost confidence. In the case of Apple marketing plan the analysis would not comprise the making changes to the price, physical evidence, and product as they do not add value to the existing issue of Apple with regards to ill-treatment of the employees and the lack of public relations. The changes would happen in three major component of the marketing mix namely promotion, place and process (Hoffman, 2002).

Promotional activities of Apple have been taking place through social media which is highly exposed to the developments and progress of business activities. Hence the promotions of Apple must take a shift from traditional product marketing to that of eco friendly and value driven marketing (fang, 2001). At this juncture the value driven marketing must include heavy investments in advertising and marketing campaigns that focus on:

1. Promoting the organizational culture and experience of employees through video presentations (An advertisement involving views and responses of Employees working in the manufacturing plants of Apple) this has to be promoted through social media, corporate website and in all recruitment campaigns of Apple (Wingland, 1998).
2. Conducting the Employee surveys across all the existing plants and sharing the results with that of the corporate disclosure reports will enhance the confidence amongst the investors and the other stakeholders. Attaching the employee survey report with that of the investor relationship prospects which will attract more number of investors from the employee's network. Amidst these corporate social responsibility initiatives must also be in place by apple which has to be communicated to the stakeholders across the globe. Mere developments in the human resources management will state that it's a fake action initiated by Apple (Drew, 1997). Thus corporate social responsibility initiatives must be reflecting the pro active response of the company to the external needs and demands of the community and employee development practices must be a part of these initiatives so that the stakeholders would not assume it's a timely act from Apple to reduce the recent issues of poor employee management (Elearn, 2010).
3. Viral marketing campaigns must be initiated with the use of social media which must include employee centric marketing campaigns. A unique approach where in involving the employees of south china in promoting the products will definitely clear the allegations around. Instead of selling the products through product focused advertisements, an advertisement reflecting the work culture and videos of employees working in the research and development department linked with the product will definitely enhance the role of employees and efforts in the development of the products of Apple (Gronoos, 1983). Administering more number of administrators is the need of the hour in order to ensure that the viral campaigns yields better reach across the globe and queries on the HR practices and the internal practices of Apple has to be responded to the concerned stakeholders.

Changes in Place of selling the products must initiate in adding more information about the contribution of the employees to the development of the products. Selecting nongovernmental organizations on promoting the recruitment and selection of disabled candidates and running campaigns on employee engagement will further promote offline modes of selling. Amidst these selling the green products (eco driven manufacturing) of apple products by using employees as brand ambassadors working in plants of south china would be yet another vibrant marketing tactics (Troy, 2011).

Changes in the process of human resources operations and marketing mix have to be initiated as soon as possible. It is to be noted that each one of the marketing campaigns that are being mentioned as a part of the marketing plan must initiate only after making changes to the human resource practices and the policies (Russow, 2009). It is evident that the marketing promotions would not add value without changes in the human resource policies and the positive responses the employees as far as satisfaction level index is considered (Fernandez, 2004).

4.4. Measuring the Return on Investment (ROI)

Post implementation of the proposed marketing plans it is essential to measure the return on the investments made by Apple in its promotional activities. Plans must be laid at the early stage of devising the marketing plan. This comprises deriving more number of key performance indicators and key performance metrics that reflects the level of satisfaction amongst the employees (Oliver, 2008). These metrics must be incorporated with that of the performance management process there by rewarding the concerned employees in the marketing and the human resource department of Apple (Wingland, 1998).

Response and feedback surveys amongst the stakeholders focusing on the brand image of Apple and how they perceive the effectiveness of corporate social responsibility initiatives (Griffith, 2008). A two way communication process has to be put in place which will aid in measuring the social media initiatives, viral marketing campaigns, investor relationships, recruitment practices reflecting enhanced employer branding, employee satisfaction survey index. Yet another way to measure the satisfaction level of employees in southern china and other plants of apple would be done through entering a tie up with "Great place to work institute" (Fernandez, 2004).

GPTW known as Great place to work institute conducts the assessment of HR practices in the variables of trust, pride and camaraderie across all the companies in the world. Google has been topping the list for the past 2 years and the extensive interactions of GPTW regarding the results with the media have increased the brand value of Apple (Newman, 1994). Similarly after restoring of the pitfalls in human resource management Apple could also participate in the GPTW survey especially in its area of operations in southern china, if the results of the survey tend to be positive (Oliver, 2008).

4.5. Outcomes of the Marketing Plan

The proposed marketing plan will foster a trust, confidence and emotional bonding of the employees of Apple working in china as well as southern parts of china. This will promote a positive word of marketing amongst the employees as well as the external stakeholders (Oliver, 2008). The credit on this outcome is the ability and desire of the employees in backing up their own employer at the time of false criticism or allegation. When each one of the employee of Apple is treated like that of the customer it is evident that they feel themselves as a part of such a valuable organization; when false allegations takes

place there will no value for it given the role of employees in promoting the facts and reality of human resource management (Harrison, 2011).

Trust and value will add in the portfolio of investors, customers, media and the government. Frequent communications on the internal process and the value additions made by Apple to its community would result in attracting huge number of loyalty amongst the customers (Hulbert, 2011). Attractiveness on the brand of Apple amongst the investors is further increased, meeting the legal audit requirements and the legal legislations will further increase the level of support offered by the government in international expansion of Apple and its products (Harrison, 2011).

Suppliers, retailers and the participants of the supply chain management initiatives must be involved in the revised marketing plan as they must also be communicated on the changes in the marketing plan. Use of enterprise resource planning packages will help in enhancing the communication channels between the retailers will stimulate confidence amongst the stakeholders (Griffith, 2008).

5. CONCLUSION

Thus the marketing plan proposed for Apple involves making changes to its promotional activities, location of marketing and changes in the human resource operations, marketing practices. Pro Active involvement of the top level management of apple in implementing the proposed changes will address the allegations in place thus leading to a position where consumer will be unaware of the term boycotting apple. The interventions will ensure that both management and the marketing issues are addressed and Apple would continue to gain the trust and confidence amongst its stakeholders.

REFERENCES

- Armstrong, M. (2009). *Strategic Human Resource Management: A Guide to Action* (First Edition) Kogan Page Publishers.p : 09 - 13
- Betz, F. (2007). *Managing Technological Innovation: Competitive Advantage from Change* (Ninth Edition) John Wiley & Sons.p : 23 - 35
- Collin. (2011). *E-marketing* (Fourth Edition) John Wiley. p : 87 - 92
- Drew. (1997). The customer as co-producer. *European Journal of Marketing*, VII (7), 178 - 198.
- Elearn. (2010). *Managing Markets and Customers* (Third Edition) Pergamon Flexible Learnin.p : 233 -243
- fang, Y. a. (2001). Customer Satisfaction: contrasting academic and consumer' interpretations. *Marketing Intelligence and Planning*, VII (8), 24 - 69.
- Fernandez. (2004). The Impact of Human Resource Management Practices on Turnover, Productivity, and Corporate. *Academy of Management Journal*, VI (10), 635-672.
- FisherD. (2006). *Human Resource Management* (Fifth Edition) SAGE. p : 333 - 345
- Griffith, D. A. (2008). *Handbook of Research in International Marketing* (Sixth Edition) Edward Elgar Publishing. p : 456 - 476
- Gronoos. (1983). Customer value: the next source for competitive advantage. *Journal of Academy of Marketing Science*, IX (17), 139 - 145.
- Harrison, S. (2011). *Public Relations:An Introduction* (Tenth Edition) Cengage Learning EMEA.
- Hoffman. (2002). Value creation by company-consumer interaction. *Journal of Marketing Management* , 155 - 157.
- Hulbert, J. M. (2011). *Managing Marketing in the Twenty-first Century* (Sixth Edition) Wessex Publishing. p : 433 - 456
- Newell, S. (2009). *Assessment, Selection and Evaluation : The Strategic Managing of Human Resources* (Fourth Edition) Pearson Education. p : 121 - 134
- Newman. (1994). A critical review of consumer satisfaction. *Review of Marketing*, IX (4), 212 - 245.
- Oliver, S. (2008). *Public Relations Strategy* (Ninth Edition) Kogan Page Publishers. p : 231 -245
- Quinn, R. E. (2011). *Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework* (Eight Edition) John Wiley & Sons. p : 21 - 27
- Russow, L. (2009). *International Marketing* (Seventh Edition) Naper Publishing Group. p : 23 - 28
- Troy. (2011). *Marketing Strategies* (III) John Wiley and Sons. p : 34 - 37
- Tyson. (2008). An Analysis of the Use and Success of Online Recruitment Methods in the Uk. *Human Resource Management Journal*, VI (10), 257 - 258.
- Wingland. (1998). Loyalty and the renaissance of marketing. *Marketing management*, VIII (10), 47 - 49.



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APPLICATION OF TECHNOLOGY POLICIES IN TURKEY

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ABSTRACT

In the global world, the topic requiring development in technology has a great importance. Countries present very different perspectives in terms of the capacity of producing and obtaining technology. A lot of factors such as geographical position, cultural structure, educational system of the countries lie behind these differences. Technology policies of a country at macro level affect economic growth, efficiency, employment, intercountry income distribution, foreign trade and cyclical fluctuates and economic policy while effects of the same at micro level appear in cost and price structure. Technology policies play an effective role in educational system, understanding of society, social structure, tradition of industry and advanced technology use and habits of production and experience of all of them and a lot of other parameters. Besides, the technology policies applied in Turkey are very important for the activation of the current values. The concept of competition based on producing more consistent policies, accelerating, and with respect to this, rapid technological development for the future from the inferences to be made by examining the policies applied is gaining a new dimension, and the concept of competition based on cheap labor and natural resources is substituted by production technologies competitive in international markets. Turkey, by closely following the developments regarding technology within the country or in the world, should be able to readjust its technology policy depending on the developments and also provide its technology policies to be forward looking, long and stable. The objective of the study is to reveal how the technological progress will be possible with the progressions in the subtopics to be determined by means of the analysis of the concepts regarding technology and detection of their importance.

Keywords: Technology, technology policies, Turkey.

JEL Codes: L10

1. INTRODUCTION

In the globalizing world, the increasing technological innovations among countries and the use of these innovations in all aspects of everyday life are increasing the importance of science and technology policies in order to reach the social and economic development targets of the countries in today's competitive environment. It is important to know the hurdles in front of the factors that increase the use of technology, the international technology standards and the technology policies that will guide the spread of technology within the society and the adoption of it by the individuals.

Increasing the welfare level of a country and its ability to compete in the global market depends on its ability to develop products and production methods based on Research and Development (R & D) and advanced technology, and success it shows in science and technology. Because the most important factor for increasing economic development, countries' competitive power and social welfare is the progress and technological developments in scientific fields. The application of the progress and development in these areas to the production process of countries also brings with it development. In addition, technology and industrial policies need to be improved by looking at the conditions of a country, its current position in the global structure and its advantages.

Turkey's quest for science and technology has been going on for nearly forty years. Although Turkey has gone so far in this process, the desired level has not been reached yet. To increase its share in the world trade, close the big gap with information societies, rise from its semi-industrialized position as soon as possible, become an industrial society that can produce its own technology and be able to have a say in the technology race, Turkey has to determine the right science and technology policies and implement these policies to all the layers of the society with continuity.

2. THEORETICAL FRAMEWORK

We can say that a large portion of the rapid change occurring in today's world is caused by the developments in science and technology, and that our world is shaped by new technologies. Therefore, we can expect that technological change and therefore social, economic and political changes will take place at the same pace. However, it appears before us as an extremely important issue to think about alternatives to the present situation for a future we desire which we will determine with conscious preferences we will make starting from the question "what kind of a future do we want?", to look for ways to realize these alternatives, and accordingly to reveal our preferences about science and technology and to predict their effects. Technological innovation in this context gains importance not only as a way of enhancing the prosperity, in the narrow sense, the welfare, of the nations, but with its property that will enable people to do that has never been done before. The topic of the work, that is, technology policy, is directly related to the policy of scientific research and R & D expenditure and is a part or the result of them. Other important components of this policy are the number of patent applications of Turkey and the level of Turkey's high technology exports and imports. Technology policy can be functional and successful at the level of Turkey's brainpower and the financial contributions of developed countries. Institutional and legal regulations are needed to make technology policy functional and successful.

3. PURPOSE

The purposes of this study can be summarized in two headings. The first is to describe the science-technology-oriented deficits resulting from Turkey's weak R & D activities taking into account the science and advanced technology level of developed countries. Second: to emphasize that Turkey should not ignore the technology policy while competing with developed and developing countries in the global economy and thus reveal the causes, conditions and conclusions of the technological policies.

4. TECHNOLOGY CONCEPT

Technology Description

The concept of technology needs to be defined before examining the politics that determine Turkey's technology direction. Technology in a very general sense is defined as the application of information to meet human needs and at the same time the methods used in production. Technology can be expressed as "production-science" in Turkish. Technology is the production knowledge that is used or can be used in the production of goods and services, and the ability to produce and use of this knowledge. If a more appropriate definition in terms of production management is needed, it can be defined as "a system of processes, tools, equipment and machines used to produce goods and services". Technology, as the fastest changing element of the general environment, also reveals production ways and processes, changes and developments in machines used, as well as uncertainty and risk. Technology prepares the conditions necessary for the transformation of knowledge into a productive power, the reflections of automation, robotics, and information fields on the production processes and the transition to a new and advanced social formation. Technology can be expressed in two different ways, first as non-material, i.e. technical knowledge, and second as physical and material elements. Modern technologies are total quality management, in other words, management technologies (Çiftçi, 2004). It is possible to classify modern technologies, production management and method techniques as management technologies and computer-assisted equipment as engineering technologies. In addition, new technologies are gathered under two main headings. These are high R & D intensity technologies, information technologies, microelectronics (integrated circuits, computer manufacturing, robots, quality control techniques), the use of computers, information processing technologies, telecommunication technologies (space, communication technologies, remote sensing, video, telefax, service-related technologies), new materials (advanced ceramics, new plastics, new composites, new metals, optical glasses, high temperature materials, semiconductors, rare earth metals) and new technologies obtained with R&D are biotechnology (gene technologies, chemical biotechnology, biomedical, agricultural biotechnology) and energy technologies (fossil fuels, bioenergy, nuclear energy, wind energy, solar energy). R & D activities require trained staff, a high level of knowledge and a high level of financial transfer. Countries give importance to science and technology in order to develop, to produce better goods and services, to meet their needs by using fewer resources. Technology constitutes a major source of all areas of the economy, and these technologies take on important functions in strategy determination, enabling the expansion of services and the quality of services. Economic policies in accordance with the strategies, concrete and coherent strategies, efficient allocation and use of resource and a national technology policy that includes structures suitable with governance are indispensable elements for nations (Laporte, Robert, J. 2002).

5. CURRENT STATE

R & D Expenditures, Patent Production, Advanced Technology Exports

In this section, R & D expenditures related to developed and developing countries and Turkey have been examined comparatively with respect to imports and exports on the basis of patent production and technology products.

5.1. R&D Expenditures

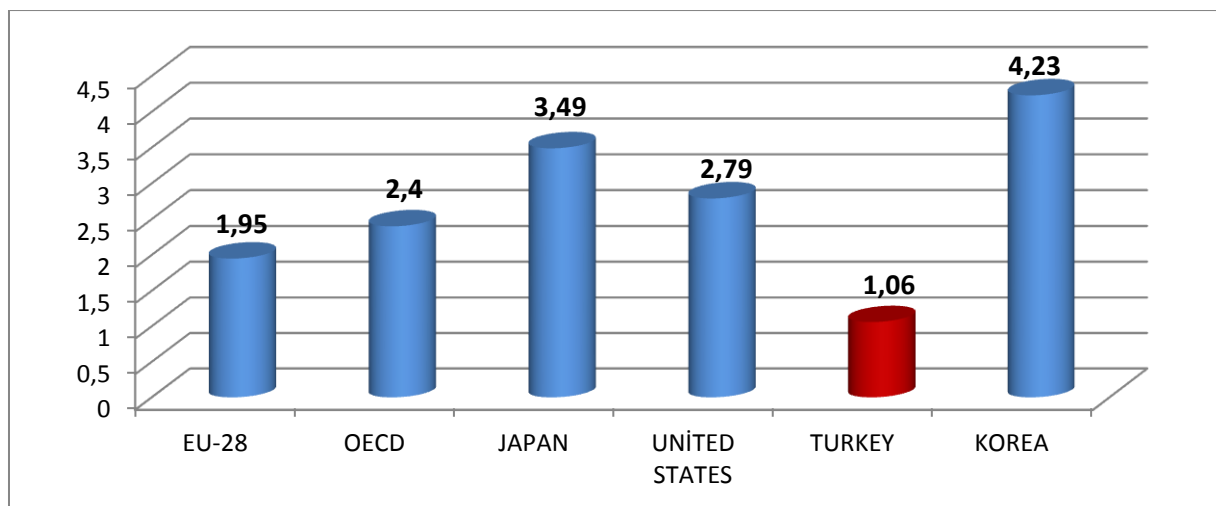
The abundance of R & D expenditures in a country shows the importance that country places on science and technology policies. R & D system consists of three main parts as basic researches, applied researches and innovation. The shares of total R & D expenditures allocated to these parts in developed countries: 15-20% for basic researches, 20-25% for applied researches and 55-65% for innovation. Funding for basic research is provided by the public (state), 50% of the funding for applied researches is financed by the public and the other 50% by the private sector and for the innovation, >90% of the funding is provided by the private sector. Worldwide thresholds for R & D expenditures were at least 1% in the 1970s and 2% in 2010, while the optimum value was > 2% in the 1970s and >3% in 2010, Turkey's share of R & D expenditure in gross domestic product (GDP) in 2014 was 1.01% according to Turkish Statistical Institute's (TUIK) data.

In addition to the expenditures allocated to R & D, it is also very important that these expenditures are made effectively. Entrepreneurship and creativity should be encouraged in Turkey. Technology support and development centers should be established. Universities that are the centers of excellence should be established. Hatcheries and techno cities centered on public and R & D units should be established. The number of techno parks and similar opportunities should be increased. Policies regarding the establishment of appropriate financing institutions and risk capital companies should be determined within a certain consistency and must be applied.

The share of personnel employed in the R & D sector in general employment within a country is an indication of the importance and support given to science in that country (Adaçay, 2007). If a country or firm wishes to successfully execute R & D activities, obtain effective results, and gain competitive advantage, they need to employ more R & D personnel in terms of quantity and quality. Today, the level of development of countries' economies is measured by high technology exports, information communication expenditures, scientific publications, number of patents and trademarks, R & D employment and indicators. Developed countries try to keep R & D's share in GDP high.

There is a constant parallel relationship between financing allocated to the R & D area from gross domestic product and scientific-technological development and therefore economic growth. In Turkey, the political staff who are aware of the importance of science-technology and innovation have been trying to realize scientific and technological progress, but the inadequacy of coordination among institutions lowers the chances of the policies implemented being successful. As it is clear from the data of 2015 (Figure 1), Korea is the first country with the highest R & D expenditure at 4.23%, followed by Japan at 3.49%, followed by the USA at 2.79% (OECD, 2015). R & D expenditure, which is a critical element for scientific and technological development is 1.01% in 2014 in Turkey while its share in GDP is 1.06% in 2015.

Figure 1: R & D Expenditures (% of GDP) 2015



Source: OECD, 2015 data (http://stats.oecd.org/viewhtml.aspx?datasetcode=MSTI_PUB&lang=en)

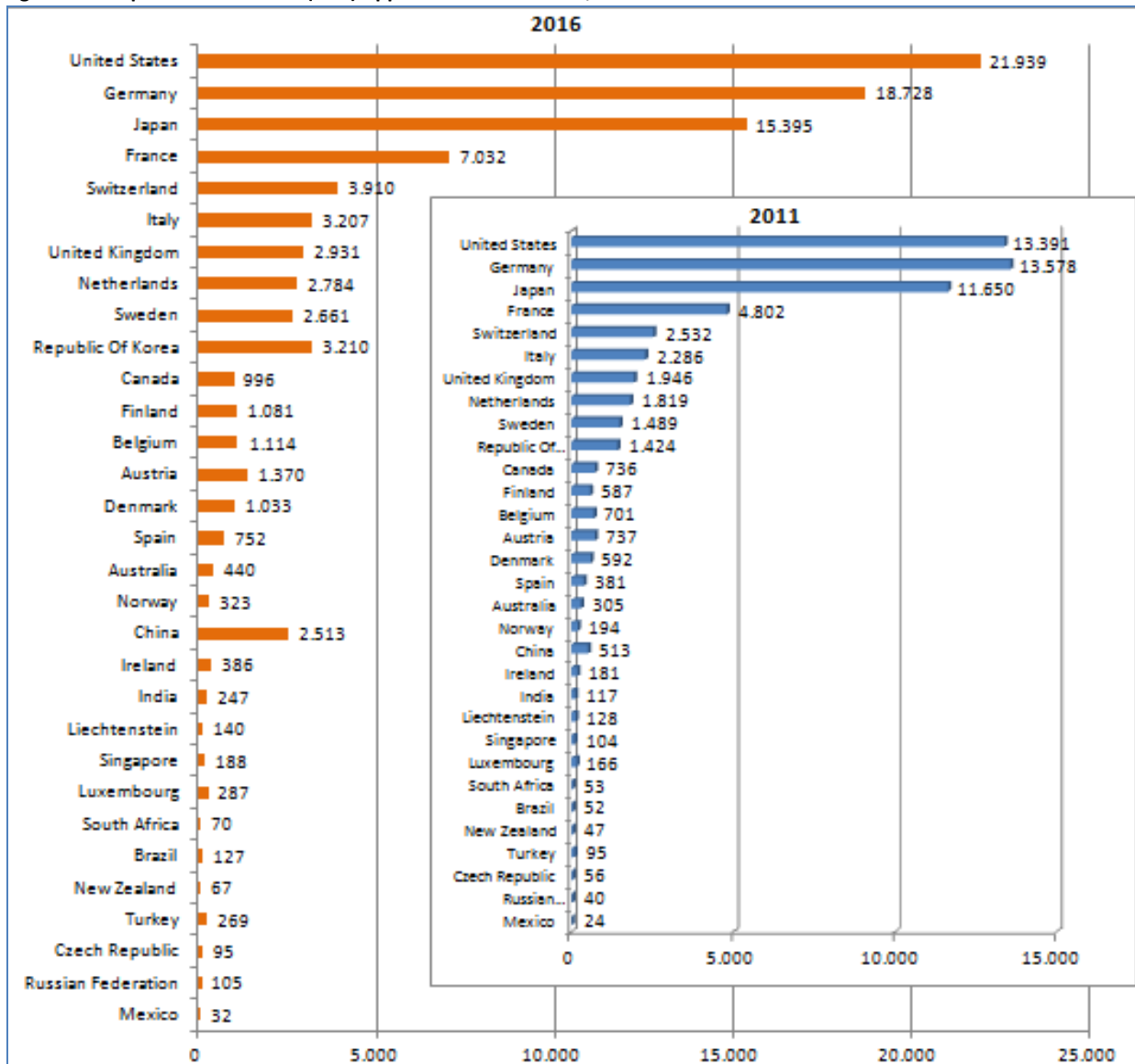
5.2. Patent Production

The EU is composed of industries with strong industrial and service sectors and therefore high levels of development. The EU has a relatively low performance compared to the US and Japan at the patent production scale. The European Patent Office (EPO) and the US Patent and Trademark Office (USPTO) highlight the controversy over quantitative aspects of technology competition between EU countries, the United States and Japan. According to EPO statistics, Germany lags behind the US but is ahead of Japan. According to USPTO statistics, on the contrary, the EU's patenting performance is

generally three times lower than the US and Japan on average. The reason why these results are different from each other is that the country sources of patent offices are different.

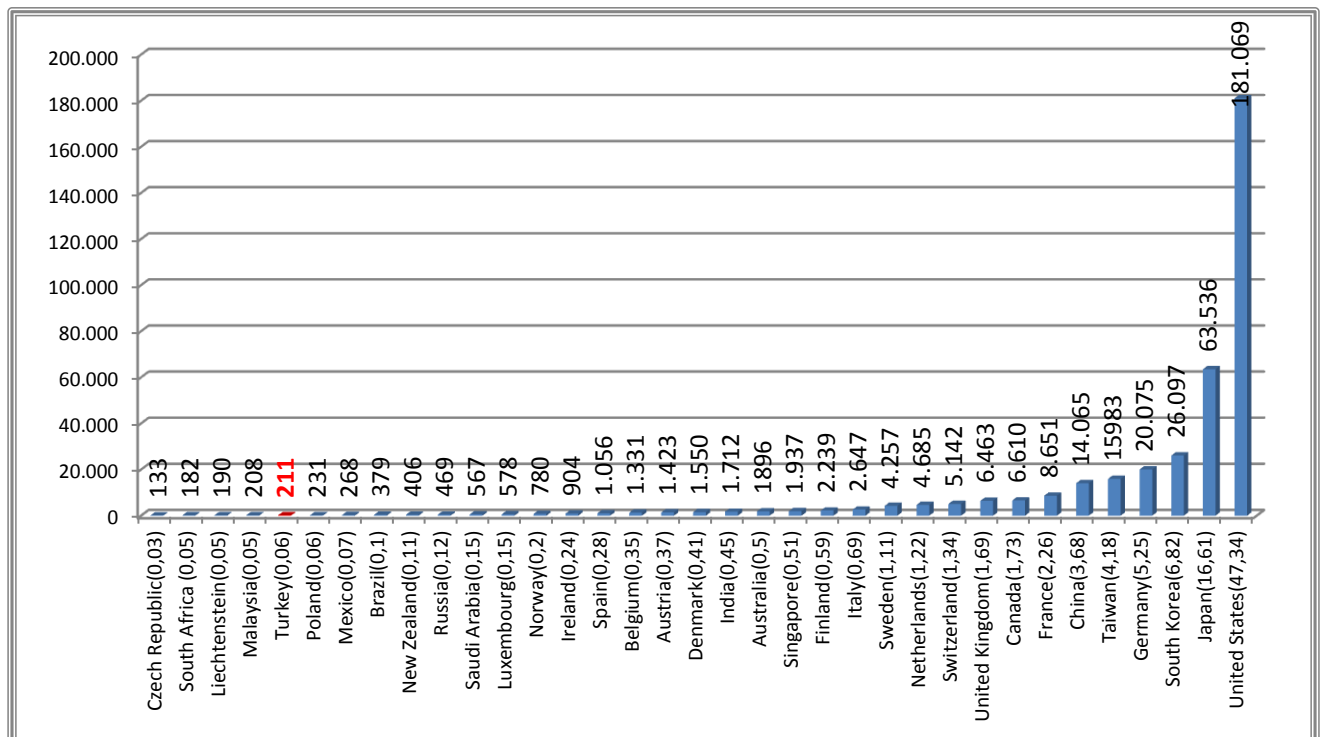
In terms of the number of patent applications made to EPO in 2016, the USA ranks first with 21,939. It is followed by Germany with 18,728, followed by Japan in the third rank with 15,395. According to the increase (growth) rates in the patent application, the performances of the countries vary according to the averages of the years 2011-2016. For example, Turkey, which made the highest number of patent applications per million people in 2011, increased the number of patents from 95 per million in 2011 to 269 in 2016 with slow and confident steps and increased this number by 9%. While the number of patents in China was 513 in 2011, it increased the number of patents over the years steadily with the number of 2513 patents in 2016 (Figure 2).

Figure 2: European Patent Office (EPO) Applications: Per Million, 2011-2016



Source: OECD, 2011-2016 data (http://stats.oecd.org/viewhtml.aspx?datasetcode=MSTI_PUB&lang=en)

According to the USPTO's approved list of patents in the year 2015 (Figure 3), the US was ranked first with 181,069 patents per million people, followed by Japan with 63,536 patents, and South Korea with 26,097. The number of patents Turkey received from USPTO is 211 and is at a very low level. According to the growth rates of the patents compared with previous years, the US has improved by 47%, while Turkey has made a progress of around 0, 06%.

Figure 3: Number of Patents Approved by US Patent Office (USPTO) Per Million People, 2015.

Source: (2015). "European Commission, European Statistics" (Prepared by utilizing from data of The World Bank, OECD, EUROSTAT)

Nowadays, a measure that is taken into consideration in determining the country's international patent number and their economic value is that the approval from a patent office should also be approved by others. To this end, in order to increase the efficiency of the global patent system, a triple patent system based on EPO, USPTO Japanese Patent Office (JPO) has been developed. The main reason for the development of the triple patenting system is that not all patents have the same value. One way to describe the high commercial value of patents is to test them through "triple patenting". Thus, patented innovations can be searched and found in three different patent offices. The US, with the comfort of being in its own domestic market, plays a dominant role in its own patenting system while the European investors have a dominant role in the EPO (EU Commission, 2004). Furthermore, a quintet patenting system (IP5) was developed composing of EPO, USPTO, JPO, Korea Intellectual Property Office (KIPO) and the State Intellectual Property Office (SIPO). The data is based on the latest world-wide patent information from the WIPO Statistical Database. Thanks to this system, Patent Activities around the world and patent competition among countries are on a more objective basis. While the world sees the absence of economic barriers between the nations, the innovators want their intellectual works to be preserved simultaneously in multiple large markets.

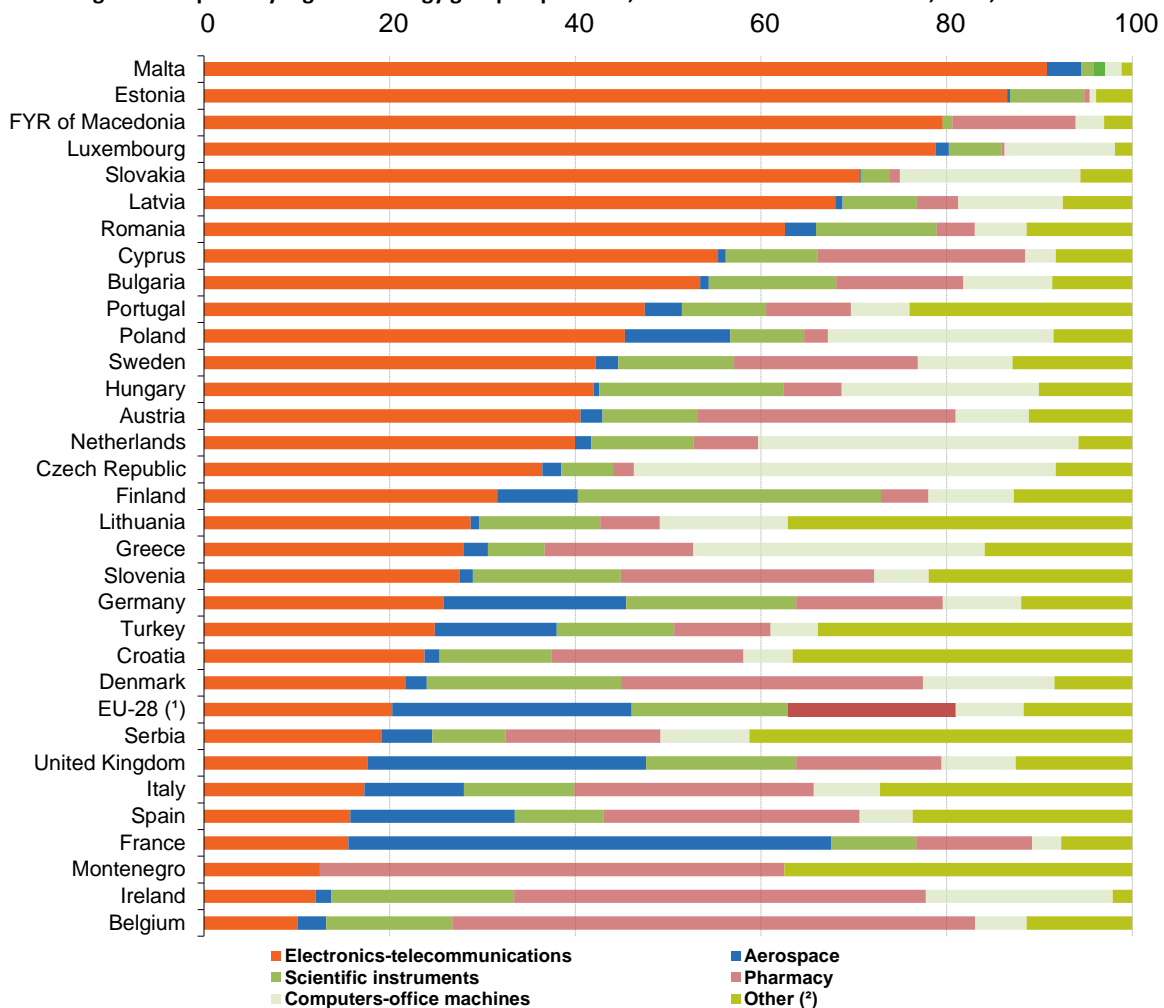
5.3. Technology Exports and Imports

Exports of high technology products reflect the ability of a country to commercialize the results of research and the outcomes of technological innovations in international markets. High technology industries have the largest share of international trade and help dynamically increase performance in other sectors.

According to detailed Graph 4, where the total exports share of technological products is comparatively projected, high-tech products represent 17.0% of all exports from EU-28 in 2014, while the 35.3% share in Malta is only 2.9% in Greece. There is a wide variation observed among countries. The two product lines together with electronics, telecommunications and aviation accounted for almost half (47.1%) of EU high technology exports. The other 42.0% comes from scientific instruments, computer-bureau machines and pharmacy. The remaining four product groups, i.e. chemistry, electrical machinery, non-electrical machinery and arms, have a share of only 10.9%. In terms of value, Germany is the high-tech exporter of the EU to the rest of the world in 2015, followed by the Netherlands, France and the UK. Seven countries; Belgium, Denmark, Germany, Ireland, France, the Netherlands and Austria, have given high-tech trade surpluses. In 2015,

more than two-thirds of countries upgraded their exports of high technology compared with 2014 levels. However, the EU registered a high-tech trade deficit in 2015 and imports were around 22 billion Euros higher than exports.

Grafik 4: High-tech exports by high-technology group of products, EU-28 and selected countries, 2014, in %



Source: EUROSTAT (2014). "European Commission, European Statistics"

In Turkey (according to Foreign Trade Statistics, December 2016), the share of manufacturing industry products in total imports is 82.9%, the share of high technology products in manufacturing industry is 16.7% and the share of medium high technology products in imports is 42.5% in 2016. The countries where Turkey imports the most are China, Germany, Russia and Italy respectively.

6. THE IMPORTANCE OF SCIENCE AND TECHNOLOGY POLICIES

Until the last twenty years, because of the fact that in the traditional economic theories technology and knowledge have not been regarded as an instrument of economic policy since they are regarded as data; technology policies have directly affected the prosperity and progress of the countries, therefore all countries are in a competitive effort to reach, use and develop technology. However, with the influence of internal growth theories, the idea that information and technology should directly influence economic performance and be used as a policy tool came to forefront and the role of technology and innovations in economic analysis began to be examined in detail. Two centuries ago, Adam Smith emphasized the importance of nations' policies and institutions, suggesting that the major differences per capita are socioeconomic and political policies (Johnson, 2000).

While the technology is spreading rapidly in the global economy, it is necessary for the nations to systematically develop and produce policies in order that the production of information and technologies can be effective and economical results can be achieved with the importance given to science and researching. This can be achieved through the development of technical training and the development of production and technology policies by making the production system compatible in accordance with these targets. In developed countries, the capacity of technology and the size of the efforts enable these countries export technology, while underdeveloped countries are technologically dependent due to the inadequate efforts and low technologic capacities. All countries desire to have new technologies that are the most important factor in their ability to compete internationally, and there are two ways of achieving technological advancement: the first is to acquire technology by transfer, in other words to buy new technology from other countries; the second is to develop and produce the technology within the country (Ağır, 2010). In developing countries, this is usually in the form of technology transfer. Lately, there have been many developments in the direction of change. Generally, appropriate new technologies are selected and efforts are made, although some problems are encountered for the adaptation, application, dissemination, and production at a higher level of the selected technology. The more effort is put into innovation, the more positive developments it will have on innovation. The modern process of innovation in science and technology is based on business, and these innovations affect long-term growth, the tax base and the balance of payments. Stable economic policy implementations of countries influence the technology in a positive way, and implementation of these policies systematically throughout the country, continuity and political stability is an important milestone. Whether science and technology policies are effective is closely linked to determined program objectives and targets must be consistent in order for this relationship to be meaningful.

In the developing and changing world, the technology policies of countries should not be considered independently of economic and institutional contents. The educational system of the countries and the public and private R & D activities constitute the technological infrastructure composed of networks of scientific and technological organizations and the infrastructure depends on the internal function of the efficiency system and how the factors and the goods market react to innovations. Countries that follow mission-focused technology policies allocate funds in large amounts to defense spending and R & D to achieve strategic leadership among nations. The most important features of these countries are concentrated in producing innovation and technology, they are centralized in decision-making, and they spend too much on space and nuclear energy programs (Ergas, 1995).

That is why today, whether a developing country or a developed country, every country seeking to gain competitive advantage in world markets, thus increasing market share, sustaining economic and social development, and desiring to be effective in tomorrow's world, has a national policy aimed at becoming more skilled in science, technology and technological innovation, or aiming at higher levels of today's competence.

Competition and development of an international country in today's conditions depends on such factors as the number of researchers, scientists and engineers, scientific publications, technological performances, the number of patents, advanced technology exports and the share of R & D in GDP. This is reflected in the structure of exports and low value added goods production and exports constitute one of the main causes of the current account deficit problem. With the long-term strategic approach, realistic / realizable projections and stable applications, innovation, branding, accelerating patents and technological development, rehabilitation of national innovation and education system, R & D staff number and quality improvement, R & D / GDP ratio and increasing private sector contribution should be the priority policy. Countries in the world are now investing in these areas, even in the EU, which is experiencing difficult times due to the debt crisis; investments to be made in R & D and innovation are regarded as a way out of the crisis.

If we try to find an answer to the question of how political will can be created, it should be remembered that a problem has often not just one, but various technological solutions, and each solution has some strengths and weaknesses. If it is desired to create a sustainable future, it seems necessary that the issue of equal distribution of resources be treated with great seriousness and technological choices should be made accordingly. When measuring the contribution of technological innovation to the economy, it is necessary to develop important criteria from the nature of the production activity to the forms of employment. While technical employees, engineers, scientists and anyone involved in the decision-making process in technical matters choose between various technological alternatives, they should consider the advantages and disadvantages of each alternative not only based on technical criteria, but also in terms of long-term sustainable, desirable and qualified living criteria, that is to say, the social, political, economic, environmental and even psychological effects of technological choices must be taken into account. It is clear that the development of technology, the need for technological innovations and development will continue since technological preferences shape not only the economy, but the whole future.

7. TECHNOLOGY POLICIES IN DEVELOPED COUNTRIES

Developed countries have succeeded in gaining competence in technology by fulfilling the systematic nature of many policy areas, from industrial policies to investment policies, from education policies to economic policies. Scientific and

technological improvements, which are among the main factors determining the competitive advantages of the nations in the rapidly globalizing world economy, are not left to their own dynamics and the conscious efforts of industrialized countries and the search for policy making have been intensifying. An important reason for this is the extraordinary proliferation of technical information in the database, while another crucial reason is the search to increase international competitiveness. Science and technology policies in developed OECD countries are based on competing in international markets by developing technological infrastructure and dynamics rather than labor, capital, natural resources and equipment (Yücel, 2006). Applicability and expansion of the social benefit ground (technology, health, economy, environment, energy, employment, transport) can be achieved consistently only with a policy that directly includes the state (USA example) so that these policies will serve both concurrent and long-term goals. In short, developed countries have resorted to the state machine with no hesitation; as long as it is necessary and in necessary measurements, as a rational tool to effectively implement the technology policy. In Germany, for example, the state is tasked with increasing the volume and potential of R & D in small-scale industries, supporting technological innovations and business incubators, establishing and encouraging reward system and industry-university cooperation. The state leads the private sector itself in creating innovations in order to test and formalize innovations (Ergas, 1995).

In order for developing countries to be at the same level as developed countries in terms of success, they need to follow the policies of importing and adapting existing technologies to domestic conditions. In this context, along with the process of acquiring new technology, it is necessary for developing countries to be able to develop, implement and succeed in the necessary institutional renewal, and more importantly, it is of utmost importance that these countries adhere strictly to the economic elements that constitute both the basis and the framework of high- tech policies. For example, Japan has a technology policy that is highly interactive in terms of international integration. In the process of globalization, Japanese politicians, rather than having no policies, have brought the technology policies to an international level to maintain national targets.

In order to close the technology gap between developed and developing countries, in the framework of formulation, the first step to be able to learn and adopt new technology and to use it by disseminating it to the relevant activity areas of the economy and to gain the ability to reproduce at a high level is to provide an education and training system that encompasses the industry, the university and the state that will make it possible to place this process on a regular and systematic basis as a whole and the rate allocated to R & D needs to catch rates in developed countries. Science is, to some extent, international, but the development of technology and the formation of R & D are national concepts.

8. TECHNOLOGY POLICIES IN TURKEY

Since the Turkish economy has been operating in a protected and closed system until recently and the industrial production activities have been carried out in the form of technology transfer, it is observed that the industry does not make much effort to produce technology in the development process since it is also not possible for industrials in production in a closed economy environment to be involved in R & D activities. In the 1980s and 1990s, with the change in the economic system, the protectionist approach in the economy was abandoned and the outward opening started and import substitute policies were abandoned and open foreign economic policies were accepted. As a result, all economic units, primarily private sector firms, began to pursue scientific and technological developments more intensively in search of innovation and product development context. The struggle of globalization and economic integration approaches to protect and increase the competitiveness of firms has begun to direct the companies towards technological change more. Within this process, with the rapid increase in the level of technology transfer, this new era in which the private sector gains weight is important but it is mainly developed in the form of direct technology transfer. The positive developments in the 1990s provided important contributions to the country's production structure, competitive strength and export performance compared to previous periods in various dimensions. However, it is clear that all these developments lag behind the desired levels. One of the most important factors behind the scenes of limited development is the lack of demonstrated performance in the context of science and technology policies. In this period, various steps were taken in order to create a science and technology policy for Turkey.

If we examine the recent periods, there are many developments in the field of science and technology that operate nationally or internationally. The most important of these formations and the controller of other formations is TÜBİTAK. Granting and giving loans to R & D activities by TÜBİTAK-TİDEB and TTTGV, which are the financing of R & D investments that are considered as the building blocks of the national innovation system, triggered efforts to establish R & D and innovation culture beyond financial support (Alparslan et al. 2008). The contribution of the state to private sector's R & D expenditures in 1995 helped increase the R & D activities of this sector and it was possible to establish a national network by preparing an information infrastructure master plan. Due to the lack of a holistic approach, flexible production and automation are lagging behind the expected targets (DPT, 2000).

In the perspective of historical development, the Turkish economy failed to catch up with the technological transformation processes in time, and remained behind in terms of adaptation processes. As can be understood from the sectoral

distribution of the GNP, when the economic structure in which the steps taken to become an industrial society is not matured enough, faced the problem of catching the contemporary civilizations that became the information societies, there occurred dilemmas which led the economy's production structure and development process and export sectors' competitiveness to be below the desired level.

More attention should be given to science and technology in order to bring the economic and social development of our country to a more advanced stage and to turn into a knowledge society quickly. This suggests that Turkey needs to take a number of measures in order to increase its competitive power and prosperity level. Serious policy designs have been put forward in Turkey, but since they have not been handled systematically and decisively, growth targets could not be achieved, sufficient success could not be achieved in export-import, and some of the planned targets could not be achieved. All of these show that enough importance has not been shown to this field which requires long-term strategic approach. The countries, for example Korea, which realized that the development projects, no matter how good they are, will not make any sense without necessary human sources, made investments in human resources since then and started to raise students that they would benefit from in the "Reverse Engineering" project in the future.

9. CONCLUSION

The aim of this study is to examine Turkey's level of technology during the European Union accession process, and this study also revealed that technology is one of the most important subjects of economic policy. Considering the practical works and the level reached in the last 20-25 years in the theory of economics, it can be seen that information, especially technology is not a free product other than the one specified in the classical economic theory and that it costs a certain amount and therefore it is an essential factor for economics, prosperity and production. It is indisputable that the basic driving force of production, thus growing is technology. Nevertheless, it is seen that the progress technology has shown has not emerged as a result of a mechanical process. The production and use of information and technology need to be done in a certain system and coordination. Therefore, it is an inevitable necessity for Turkey to develop its national information, innovation and technology systems with its policy instruments by determining its technology policies. It can clearly be observed that Turkey's technology infrastructure is far behind the EU countries in particular and OECD countries in general. In order for Turkey to adapt to the developments that take place in science and technology in the world, basic scientific and technological policies must be updated and applied in a timely manner, and the shares of particularly education, R&D and scientific expenditures in GNP must be increased in absolute terms.

In order for a qualified technology policy to be implemented effectively and to be able to move the parties to a competitive level, the monetary resource problem must first be solved. Even if governments change, technology policy is the leading one of policies that need to be developed and maintained. Technology policy has to be a contemporary, effective and sustainable policy by nature.

Technology development areas designed to encourage the establishment and development of high technology and knowledge-based industrial firms should be increased and innovation efforts should be accelerated. Innovation and R & D potential in technology should be uncovered, and factors that increase the competitiveness of the region should be focused on. R & D centers play an important role in terms of regional and national development, so the number of these centers should be increased. Training programs should be organized to reduce the lack of information on R & D and innovation support. Innovation studies in universities should be encouraged and these subjects should be included in the curriculum. Innovation and R & D-focused platforms that bring academics and companies together should frequently be organized.

In order to increase the university-industry cooperation, the studies carried out in the universities should be effectively transferred to the industrial sector. Emphasis should be placed on improving the number of qualified labor and researchers who can be employed in the field of science and technology. Works towards the establishment of R & D units within companies should be carried out.

The introduction and implementation of effective policies in a systematic and coordinated manner for the production and use of information and technology is of great importance to bring the level of development to the desired level. Science and technology are one of the most important elements of long-term economic and social development, while science and technology policies are a tool to influence the speed and direction of this development.

REFERENCES

- Adaçay, F.R. (2007), "Bilgi Ekonomisine İlişkin Temel Göstergeler Açısından Avrupa Birliği ve Türkiye'nin Karşılaştırılması", Dumlupınar Üniversitesi Sosyal Bilimler Dergisi, Sayı: 19, Aralık, s. 185-204.
- Ağır, H. (2010), "Türkiye ile Güney Kore'de Bilim ve Teknoloji Politikalarının Karşılaştırılması", Bilgi Ekonomisi ve Yönetimi Dergisi, Cilt:V, sayı:II, s.43-55.
- Alparşlan, B., Afşar, K.E. ve Akseki, U. (2008), "Neo-Liberal Politikalar-Ulusal Bilim ve Teknoloji Politikaları Ekseninde Türkiye ve Avrupa Birliği: Türkiye'nin Çevreleşmesi", 2. *Ulusal İktisat Kongresi*, 20-22 Şubat, İzmir, 1-27.
- Arestis, Phillips and Sawyer, Malcolm (1999), "The Macroeconomics of Industrial Policy", University of East London and University of Leeds, June.
- Çiftçi, H.(2004), "Türkiye'nin Bilim ve Teknoloji Stratejisi", Çukurova Sosyal Bilimler Enstitüsü Dergisi, Cilt:13, Sayı:1,s.57-73.
- DPT (2000), Bilim ve Teknoloji, Ankara.
- Ergas, H. (1995), The Importance of Technology Policy', In Handbook of the Economics of Innovation and Technological Change, Ed by Paul Stoneman, Balckwell, UKand US Cambridge Mass.
- Laporte, Robert,Jr. (2002), "Governance: A Global Perspective",Public Administration and Political Science, The Pennsylvania State University, U.S.A, February 20, s.2
- Johnson, D.G. (2000), "Knowledge, Why Life is Better?", The University of Chicag Working Paper, No: 00-06, October, 15
- OECD (2015), Grossdomesticspending on R&D (indicator). doi: 10.1787/d8b068b4-en (Accessed on 26 November 2015)
- Soyak, Alkan (2002), "Küreselleşme, Teknoloji Politikası, Türkiye: Sınai Mülkiyet Hakları ve Ar-Ge Destekleri Açısından Bir Değerlendirme", Küreselleşme Derleyen: Alkan Soyak, Ekonomi-Politik.
- Taymaz, Erol (2001), Ulusal Yenilik Sistemi, Tübitak/ TTGV/DİE, Ankara, Mart.
- Yücel, İ. H. (2006).Türkiye'de bilim teknoloji politikaları ve iktisadi gelişmenin yönü.Ankara: DPT. Sosyal Sektörler ve Koordinasyon Genel Müdürlüğü. Yayın No:2690.
- http://stats.oecd.org/viewhtml.aspx?datasetcode=MSTI_PUB&lang=en
- <http://www.inovasyon.org/pdf/BT'deAtilim.1995.pdf> (Bilim ve Teknolojide Atılım Projesi(19.04.2017)
- <https://anahtar.sanayi.gov.tr/tr/news/bilim-teknooloji-ve-yenilik-perspektifinde-turkiye-ve-secilmis-ulkeler-uzerine-notlar/667>
- <https://anahtar.sanayi.gov.tr/tr/news/bilim-teknooloji-sanayi-politikalari/661>
- <http://www.ozgurlukdunyasi.org/arsiv/298-sayi-224/955-bilim-ve-teknooloji-politikalari>
- <http://www.bilim.org/turkiyede-bilim-ve-bilim-politikalari-okurlardan-cozum-onerileri/>
- <https://www.tubitak.gov.tr/tr/kurumsal/politikalar/icerik-vizyon-2023>
- <http://www.izto.org.tr/portals/0/argebulten/subat2013teknolojigelistirmepolitikalari.pdf>
- <http://www.yased.org.tr/webportal/turkish/yayinlar/documents/arge.raporu.2013.pdf>
- <http://kaynak.unak.org.tr/bildiri/unak05/u05-24.pdf>
- <http://www.data.worldbank.org>



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THE EFFECT OF RETRO-LOOKING PRODUCTS ORIENTED CONSUMER ATTITUDE ON BRAND LOYALTY

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ABSTRACT

With the rapid development of globalization, the transition was made from industry society to information society. This has profoundly influenced economic and social life, and as a result, marketing practitioners have developed alternative methods of reaching consumers. One of these methods is the concept of retro marketing, which is defined as the presentation of a product or service by the producers to the consumers again, which recreates the feelings and aspirations of the past that the individual possesses and recalls. In the study, after examining the concept of retro marketing, it was aimed to determine the effect of consumers' attitudes towards retro-looking products on brand loyalty. The questionnaire prepared for the study was applied to 1036 people who live in İstanbul and consist of clothing consumers, and after the elimination of questionnaires with errors through reviewing, 1022 questionnaires were analyzed. Regression Analysis, Factor Analysis, Reliability Analysis, t-Test Analysis and Anova Test were performed. As a result of the regression analysis, it was concluded that the attitude towards retro-looking products affects the brand loyalty. According to the results of the analysis made to determine whether there is any difference in the attitudes of the consumers towards the retro-looking products in terms of the demographic factors, it is concluded that there is a significant difference in the consumer attitudes according to the gender, age, education status and income. According to the marital status variable, there was no difference in consumers' attitudes towards retro-looking products. According to the results of analyzes conducted to determine whether there is any difference in the brand loyalty of the consumers in terms of demographic factors, it is concluded that there is a significant difference in brand loyalty according to gender, marital status, age, education status and income.

Keywords: Retro, retro marketing, nostalgia, brand loyalty, attitude.

JEL Codes: M30; M31

1. INTRODUCTION

Transformation from industrial society to information society along with globalization, economic and social life has been influenced in every aspect. Along with all these developments, marketing practitioners have had to develop alternative methods to reach consumers. One of these methods is retro marketing, based on updating and re-introduction of forgotten brands or products and regaining their past power. One of the important structural attributes of people is their longing for the past. Businesses that are well aware of this and turn this into an advantage offer their brands and products with pleasant and positive reminders of past times. In the face of changing market conditions and increasing competition, businesses are now striving to appeal to consumers' emotions through brands and products.

Since the 90's, communication studies based on nostalgia have been made with the aim of creating an emotional bond between consumers and the brand. Markets that remind consumers of the past, reflect the past periods and feelings provide a competitive advantage by making a difference. Retro marketing, which is made in accordance with the brand identity and holds the premonitions of the beautiful feelings of the past, shows a perspective based on linking with the past. The emotional memory on the basis of nostalgia intersects with the intention of brands' addressing emotions of the consumers. Markets aiming to appeal to the consumer mind can also provide brand loyalty through sensuality, past experiences and positive memories and sincerity-based approaches.

The consumer, whose economic and emotional side is handled together and delivered to individual satisfaction, has never got rid of his uneasiness because he has been deprived of sharing his satisfaction and protecting his values. It is the retro marketing approach that provides this satisfaction to consumers who are trying to get rid of today's unhappiness and future worries by taking refuge in nostalgia, which is the expression of past values (Kotler, Kartajava, et al., 2011: 16).

Retro marketing, which was first introduced by Stephen Brown (2001), is defined as the revitalization of a past product or service. Retro products are products that usually remind you of a past memory, event, common life when they are purchased, and enjoyable to consume. As individuals consume these products, they connect with the past, and that connection removes longing for the past.

This study was conducted with the objective of determining the effect of attitudes of 1022 consumers on retro-looking products living in Istanbul, which are consumers of the clothing sector, on brand loyalty.

2. LITERATURE REVIEW

2.1 Retro And Retro Marketing

2.1.1 The Concept of Nostalgia

It is necessary to explain the concept of nostalgia in order to understand the elements of the retro brands and to determine the effects of brand management (Brown et al., 2003: 19). Retro-looking products harmonize the past with the present, combining old forms with superior functions (Brown, 1999: 365). In this sense, nostalgia is utilized in retro studies.

The concept of nostalgia was first described by Johannes Hofer in 1863 as a "originated from homesickness" (Wilson, 2005: 21). Nostalgia is a Greek based word and is described as a painful longing for returning home (Holak and Havlena, 1998: 217). At the bottom of nostalgia is the belief that the past was better than it is today and the positive feelings of the past (Davis, 1979: 18). When nostalgia is evaluated psychologically, it is expressed as a disease, when it is evaluated from sociological point of view it is expressed as the present reflection of our past life (Baker & Kennedy, 1994: 169). Nostalgia can be described as the preference of an object that is popular in a person's previous life (Holbrook and Schindler, 1991: 330). The first characteristic of nostalgia is related to emotional memory rather than cognitive memory. The second is that when past time is remembered involuntarily, it is mysterious and powerful. Finally, nostalgic memories are richer and stronger in content than they really are. With nostalgia, individuals are linked to their childhood and youth (Belk, 1990: 671). Markets try to gain competitive advantage by differentiating with nostalgia-based communication efforts.

Holak et al., (2006) have divided up nostalgia into 4 categories;

- *Personal nostalgia*: The link an individual has established with the past directly in connection with his/her memory and experience. The tendency of personal nostalgia is in the form of "good taste" for cultural products and affects consumption options. (Holbrook & Schindler, 1994:414).
- *Interpersonal nostalgia*: Individuals linking with the past in connection with memories and experiences not originating from themselves, but they heard from family, friends or circles.
- *Cultural nostalgia*: Festivals are a link to the past through social experiences that affect direct culture, such as Christmas.
- *Virtual nostalgia*: Individuals linking with the past through social experiences indirectly affecting them such as fairy tales, books, etc.

2.1.2 Retro Marketing

Retro is an English based word, and has meanings such as back, backwards, reverse. The word retro is expressed in marketing as presenting products or services used in the past by bringing them to present. This movement, which emerged as the concept of retro, has spread throughout the world. Retro marketing, conceptualized for the first time by Stephen Brown in 2001, is described as "yesterday's tomorrow, today." More explicitly, "renewal or revival of a product or service of a past period according to the conditions of the current period, which is usually, but not always, updated in terms of performance, character and taste" (Brown, 2001: 6). Retro marketing, on the other hand, conveys these feelings to the people who did not live in those periods while bringing together the consumers longing for the past with the products and services they crave (Demir, 2008: 32). Retro marketing is often described as a revision of a past product or service in terms of function, performance and taste, in accordance with today's conditions (Brown et al., 2003: 20).

Retro marketing is based on the idea that during the purchase, the product of choice having traces of something from the consumer's life. Retro marketing is implemented in three groups (Levinson, 2008:22).

- ✓ *Repro*: It is to reproduce good old products and services. It's much easier to catch the Nostalgia effect. Converse All Star basketball shoes and Harley Davidson Sportster motorcycles are the best representatives of repro

products. In repro, it's simpler to catch the nostalgia effect. As an example, we can give the Historic Collections Group, founded in 1986. This group has established a chain of past-time retro souvenir shops. At seventy retail outlets, historic decorative home furnishings and biblicals are being sold. As a rule, this group of stores are required to be established in prestigious locations (Brown, 2001: 6).

- ✓ *Retro*: It combines old and new products and services. TAG Heuer brand is currently producing a similar design for a product it produced in the 1930s. In past models, mechanical tongs are used in the watches, but nowadays microchips working with solar energy are used.
- ✓ *Repro-retro*: It refers to products and services developed starting from repro-retro nostalgia, also referred as neo-nostalgia. Fiat car brand, in the advertisement it has made due to the 110th anniversary, brought a number of models they produced starting from the first production of 1899, until today and provided nostalgia about Fiat.

Brown et al. (2003: 136-140) have based their research on retro marketing on four main themes. These are called the 4A of retro-branding. These are;

- *Allegory (brand story)*, are symbolic stories, takes or added metaphors. Successful examples of didactic messages are often found in advertisements. The Marlboro brand has achieved success by reinforcing the story of the masculine, heroic and free cowboy with the film "Magnificent Seven" and commercial work (Singh & Sonnenburg, 2012: 189).
- *Arcadia (Idealized brand society)* re-addresses the utopian sense of past societies and the past world. The past is imposed as a magical and special place. The idealized background is structured with advanced technology. The Brickbuilders name brand community, created by those interested in Lego's history and the stories associated with the brand, shares common rituals and traditions (Tuominen & Kurikko, 2012: 14) and conceptualizes the brand in this way.
- *Aura (brand essence)*, the concept of brand essence, is of great importance for brands. This concept, which means individuality or uniqueness, is one of the important characteristics of brand identity. In communication activities related to the brand, consumers create their own brand meaning together by incorporating their past. Retro marketing, besides reinforcing the brand, also prevents companies from being easily imitated by their competitors.
- *Antinomy (brand paradox)* represents contradictions to the rapidly developing scientific and technological process as well as the desire of customers to return to slower, more complex and less stressful days. Although the use of the original Mini Cooper is uncomfortable and vehicle reliability is not high, consumers like the style of the car. The new version of the brand preserves its old style with comfort, reliability and efficacy (Blythe, 2014, p.448).

The history of a company is an important variable of the historical brand identity (Gardh, 2009: 27). Retro-labeling studies based on the brand heritage are making great contributions to the brand identity. The brand history, which is the size of the brand identity, is very important in a retro campaign (Urde et al., 2007: 4). This is why the majority of companies want to emphasize their past and known expertise (Ogechukwu, 2013: 29). Familiar packaging and slogans remind the brand's past and remind individual and collective the memories and beautiful days of consumers (Brown et al., 2003: 20).

Retro marketing has become an important strategy element for marketing practitioners to awaken sleeping brands and to emphasize the long history of brands that still carry on their lives. In particular, marketing practitioners are eliminating the risks of entering with a new brand, taking advantage of past experiences of brands and building new strategies on consumers' existing attitudes. As a result, to the contrary of modern marketing, Retro marketing has brought a different dimension to the marketing literature because it has an effect prolonging the product life cycles or initiating these cycles in repetition. Despite a few criticisms, retro products reflect an irresistible effect of nostalgia on the consumers, and thus making a significant contribution to the product's memorability (Dağdaş, 2013:54)

2.2 Brand and Brand Loyalty

2.2.1 The Concept of Brand

When the historical process is examined, the brand was considered as a factor differentiating only the name or the product, but as a result of the connection between consumer and product increasingly gaining importance, it began to include the concepts of "benefit", "value perception", "idea in consumer mind" (Tunç, 2007:11).

Brand concept, which has an important place in marketing, is defined as the sum of the personality, presentation and performance that the product or service creates in the mind of consumer (Dayal, Landesberg and Zaisser, 2000: 42). American Marketing Association defines brand as a name, a term, a mark, a symbol or a design, or a combination thereof, which enables a company or a group of goods and services to be distinguished from its competitors' goods and services (Ünlü, 2005: 27). A brand is an element that signals the consumer about characteristics of the product and protects them

from the competition that will try to sell products that seem to be the same both the consumer and the manufacturer (Bozkurt, 2004: 109). In accordance with the Decree Law on Protection of Trademarks in force in our country, "Provided they ensure distinguishing goods or services of an enterprise from another enterprise's goods or services, including person names, especially words, shapes, letters, numbers and any marks such as shapes or packaging of goods that are displayed by drawing or expressed in similar way, published and reproduced by printing" are referred to as brand (Decree Law No 556, 1995: article 5). The brand includes the whole of the material and intangible values of the business as well as the name, logo, or symbol (Toksari, 2010: 1). Murphy (1990) suggests that the brand is made up of certain privileges granted to the physical product and person. Jones and Bonevac (2013) states that a brand can also be created without a name, a mark, a symbol or a logo. Ertuğrul and Demirkol (2007) indicate that the brand arouses the desire to own a product and Yaraş (2005) states that it increases the awareness for the business in the market.

The brand also summarizes the functional and emotional properties of the product from the customer's point of view, helping to recall the information in the memory and to assist the purchase decision process. As it also provides quality guarantee, it reduces the risk that the customers undertake (Erciş, Yapraklı and Can, 2009: 158).

In today's marketing process, it is seen that different meanings, feelings and messages attributed to the product are transferred to consumers through the brand. The brand has ceased from being the name given to the product and became a meaning that represents the whole institution and bears messages to the minds. The attitudes and approaches of the consumers towards the brand have vital importance for the businesses and their efforts to develop and maintain long-term relationships have brought concepts like brand loyalty to literature.

2.2.2. The Concept and Importance of Brand Loyalty

The concept of loyalty has entered into the marketing literature with the concept of 'brand loyalty' (Kotler, 2003: 197). Introduced into the literature by Copeland for the first time in 1923 with the notion of "brand insistence" (Fournier and Yao, 1997: 451). The concept of brand loyalty was most widely used by Day in 1969, and Jacoby conducted studies supporting it in 1971 (Jensen and Hansen, 2006: 442). After 1980s, it became one of the subject which the marketers concentrated on (Duffy, 2005: 284; Pitta et al., 2006: 421).

Jacoby (1971) describes brand loyalty as the realization of repetitive purchasing behavior from a brand's products or services, and emphasizes that this behavior is a function of psychological process (Jensen and Hansen, 2006: 442). In their study, Jacoby and Chestnut (1978) describe brand loyalty (in making purchasing decisions and evaluations) as exhibiting a psychological process function over time (Fournier and Yao, 1997: 452-453). Oliver (1997) describes loyalty as a commitment to re-purchase in the future, even with potential marketing activities that may affect the preferred product or service, situational influences and behaviors (Lim, 2005: 17; Barringer, 2008: 37; McMullen and Gilmore, 2008: 1085).

Dick and Basu interpret brand loyalty as the relationship between the attitudes of people to an organization (brand, store, service, dealer) and purchasing behavior, and group the associated customer profile in 4 categories (Dick and Basu, 1994:100-102):

1. *Loyal Customers*: Customer group with positive attitude and high purchasing behavior.
2. *Secretly Loyal Customers*: Group with exceedingly positive attitude but with low purchasing behavior.
3. *Artificially Loyal Customers*: Customer structure with low attitude but high purchasing behavior.
4. *Non-Loyal Customers*: Customer group with low level attitude and purchasing behavior.

Brand loyalty is a time-dependent, psychological and natural process. It should not be expected to take place in a short time (Duffy, 2005: 286). Kurtz argues that brand loyalty is realized in 3 (three) stages (Kurtz, 2008: 379). The first stage is brand recognition: the stage of getting to know the brand and its products in the market. The differences from other brands, the advantages they provide, will be understood in this process. The second stage is to start and prevail over the many ways in which brand preference is compared to competitors. The third stage is brand insistence: a situation that is insistent on brand acquisition. Commitment is real.

Brand loyalty is closely related to concepts such as competition, profitability, cost, the ability to maintain the brand's existence. Challenging competitive conditions, increasing customer expectations, customers affecting each other positively or negatively by sharing their opinions and suggestions makes brand loyalty an important concept. Together with the richness of mass communication channels, consumers are able to quickly hear a sales application that they find useful for them, and to give up quickly on the products and brands they have chosen over the years to take advantage of these advantages. Losing customers in dynamic market conditions is inevitable. The reduction of this ratio as much as possible seems to be among the main objectives of the businesses. Brand loyalty is an important tool in keeping customers. Protecting acquired gains and acquiring new acquisitions is closely related to the client potential of the business, and there

is a positive relationship between the client and the profitability (Bowen and Chen, 2001: 215-Leverin ev Liljander, 2006: 235). It is argued that even a small increase in the percentage of loyal customers will result in a high profitability for the company and even a 5% progress in customer loyalty can lead to a profit increase of up to 80% (Çatı and Koçoğlu, 2008: 168).

The Aaker offers a 5-component way to build brand loyalty and maintain the obtained brand loyalty (Aaker, 1991:50). These are;

- ✓ *Improve Customer Rights*: The brand must strive to find solutions to the problems that customers face and must bear some costs. Customers look for a reason to change the company or brand. Approaches that may cause this must be avoided.
- ✓ *Be Close to Customers*: It is beneficial for brand managers to have contact and be in communication with customers periodically. Organizing customer meetings or providing seasonal opportunities for them to easily let their voice heard provides benefit in securing brand loyalty.
- ✓ *Assess and Manage Customer Satisfaction*: It is seen that customer satisfaction is continuously assessed in periods. Customer satisfaction research plays an important role in identifying and remedying institutional deficiencies.
- ✓ *Make Investment to Solve Customer Problems*: Increasing the quality of service provided, finding new ways to solve customer problems and investing in this area are helping to expand the brand in other areas as well as causing brand loyalty.
- ✓ *Provide Extra Benefits*: The small extras that customers do not expect, but will like them, offer great advantages in brand loyalty.

Mao summarizes the factors that constitute brand loyalty under 4 main items as brand reputation, brand image, customer satisfaction, internal branding (influence of employees) (Mao, 2010:215):

- ❖ *Brand Reputation*: The level of prestige the brand has achieved in the market affects the approach to the brand and accompanying purchasing behavior.
- ❖ *Brand Image*: The positive aspects of all selected markers in the brand building phase affect brand loyalty.
- ❖ *Customer Satisfaction*: Positive effect in the quality and presentation of product or service is higher than the effect caused by only brand concept.
- ❖ *Internal Branding-Influence of Employees*: Customer satisfaction is the underlying factor of brand loyalty. One of the important factors that are effective in customer satisfaction is positive approach of employees.

3. RESEARCH METHODOLOGY

3.1. The Purpose of Study

The purpose of the research is to determine the effect of the attitudes of consumers residing in Turkey towards retro branding on brand loyalty. The study is a descriptive research since it researches whether their attitudes towards retro brands affect their brand loyalty by considering demographics of consumers who participated in the survey.

3.2. Sampling Process

The study universe consists of clothing industry consumers who are residents in Turkey. Sampling method is convenience sampling, one of the non-probability sampling methods. Primary data required for the study were gathered by means of online survey. The surveys were conducted between 20.10.2016 and 20.11.2016.

3.3. Data Collection Method and Tool

The questionnaire consists of three sections. The first section includes a 19-item scale, which measures retro tendency and was developed by Ursavaş and Gümüş in 2015 and presented at the 20th National Marketing Congress. The second section includes a 14-item scale adapted from brand loyalty scales developed by Cooper-Martin (1993) and Back and Parks (2003). The third section includes five demographic questions about gender, age, marital status, education and income status of participants. 5-point Likert scale is used in the scale of attitude towards retro products.

3.4. Research Model and Hypotheses

The hypotheses that were developed in line with the model and purpose of study are as follows:

H₁: Consumers' attitudes towards retro products affect brand loyalty.

H₂: There is a statistically significant difference among the demographic factor groups in the context of brand loyalty.

H_{2a}: There is a statistically significant difference in terms of gender factor in the context of brand loyalty.

H_{2b}: There is a statistically significant difference in terms of marital status factor in the context of brand loyalty.

H_{2c}: There is a statistically significant difference in terms of educational status factor in the context of brand loyalty.

H_{2d}: There is a statistically significant difference in terms of age factor in the context of brand loyalty.

H_{2e}: There is a statistically significant difference in terms of income status factor in the context of brand loyalty.

H₃: There is a statistically significant difference among the demographic factor groups in the context of attitude towards retro products.

H_{3a}: There is a statistically significant difference in terms of gender factor in the context of attitude towards retro products.

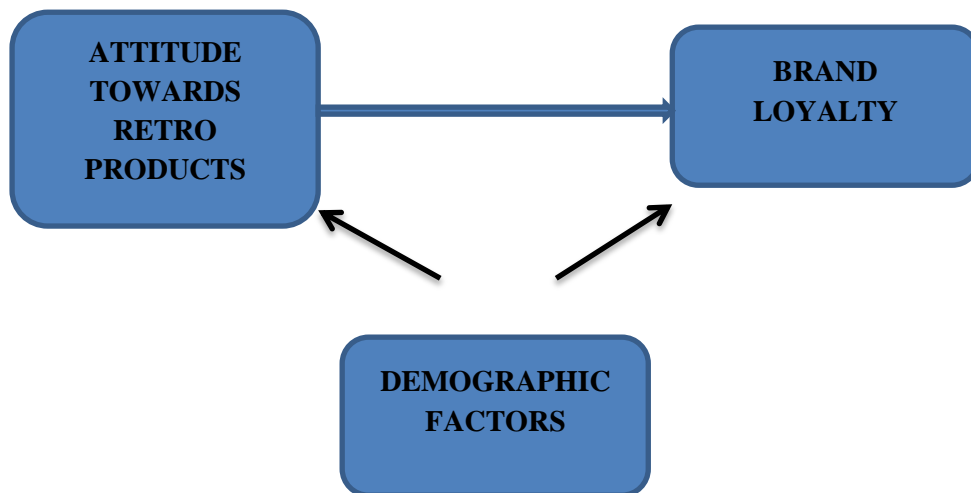
H_{3b}: There is a statistically significant difference in terms of marital status factor in the context of attitude towards retro products.

H_{3c}: There is a statistically significant difference in terms of educational status factor in the context of attitude towards retro products.

H_{3d}: There is a statistically significant difference in terms of age factor in the context of attitude towards retro products.

H_{3e}: There is a statistically significant difference in terms of income status factor in the context of attitude towards retro products.

FIGURE 1: Research Model



3.5. Data Analysis

After the elimination of incomplete and incorrectly completed surveys upon the evaluation as a result of survey conducted under the study, it was found that there are 1022 surveys which are suitable for analysis. The data obtained as a result of surveys were analyzed using the SPSS software package. Factor Analysis was used in order to research unidimensionality of scale in the study. Cronbach Alpha Test was used to determine reliability. T-test was made in order to determine whether there is a difference among the groups of gender and marital status in terms of attitude towards retro products and brand loyalty. Anova Test was used in order to determine whether there is a significant difference among the groups of age, total monthly income and educational status in terms of attitude towards retro products and brand loyalty. Regression Analysis was used to measure the relationship between brand loyalty and attitude towards retro products,

3.6. Research Findings

When we look at demographic characteristics of participant individuals, 521 (51%) of participants are women and 501 (49%) of participants are men. It is observed that educational status of participant consumers is at a high level. The group with highest percentage is consumers who are university graduates (33.9%). Age distribution of participants is as follows: 202 (19.8%) are within the age range of 18-25, 281 (27.5%) within the age range of 26-35, 256 (25%) within the age range of 36-45, 137 (13.3%) within the age range of 46-55, and 146 (14.4%) within the age range of 56 and older. In terms of income status, those who have an income between 2501-5000 TL have the highest percentage (26.5%). When we look at marital status of survey participants, 681 (66.6%) are married and 341 (33.4%) are single.

Table 1: Demographic Characteristics of Participant Consumers

	Frequency	Percentage		Frequency	Percentage
Gender			Educational Status		
Female	521	51	Primary School	191	18,7
Male	501	49	High School	207	20,3
Total	1022	100	University	347	33,9
			Postgraduate	198	19,4
			Doctorate	79	7,7
			Total	1022	100
Age			Monthly Income		
18-25	202	19,8	1000 TL and less	78	7,6
26-35	281	27,5	1001-1500 TL	172	16,8
36-45	256	25	1501-2000 TL	146	14,3
46-55	137	13,3	2001-2500 TL	226	22,1
56 and older	146	14,4	2501-5000 TL	271	26,5
Total	1022	100	5001 TL and higher	129	12,7
			Total	1022	100
Marital Status					
Married	681	66,6			
Single	341	33,4			
Total	1022	100			

3.7. Reliability of Research and Factor Analysis

The KMO value (0.891), which tests suitability of data set about attitude towards retro products for factor analysis, is a suitable and perfect value to make factor analysis. Since the Bartlett test significance value, which serves the same purpose as above, is 0,00 and meets the condition of being $p < 0.05$, it was decided that the data are suitable for factor analysis. As a result of factor analysis, which was made to measure the factors that affect attitudes of consumers towards retro products, the statements used in the scale are gathered under five dimensions.

The KMO value (0.898), which tests suitability of data set about brand loyalty for factor analysis, is a suitable and perfect value to make factor analysis. Since the Bartlett test significance value, which serves the same purpose as above, is 0,00 and meets the condition of being $p < 0.05$, it was decided that the data are suitable for factor analysis. As a result of factor analysis, which was made to measure the factors that affect brand loyalty, the statements used in the scale are gathered under three dimensions.

Table 2: Factor Analysis and Reliability Analysis on Brand Loyalty Scale

Factor	Items	Load Values	Variance Extracted %	Cronbach's Alpha (.871)
Cognitive Loyalty	When buying a clothing item I always consider the "X" brand much more than other brands.	,819	28,241	,824
	We pay more attention to the "X" brand than other brands.	,817		
	Compared to other brands, brand "X" gives me a high level of product quality.	,778		
	No clothing brand offers better products than the "X" brand.	,763		
	I believe that the "X" brand offers more benefits than other clothing brands.	,686		

Emotional Loyalty	I feel unhappy if I have to buy another brand from the "X" brand.	,796	26,589	,851
	I feel better when I use the "X" brand.	,792		
	The "X" brand excites me more than other brands.	,748		
	I love the "X" brand more than any other brand.	,657		
Conative Loyalty	I feel myself attached to the "X" brand over other brands.	,651	13,716	,701
	It is more important for me to buy the "X" brand than to buy another brand of clothing.	,831		
	I see the "X" brand as my first purchase option.	,819		
	I want to keep using the "X" brand.	,771		
	Even if other brands sell their products at cheaper prices, I still buy the "X" brand.	,760		

KMO = 0,898 Total Variance Extracted = 68,546

Tablo 3: Factor Analysis and Reliability Analysis on Attitude Scale for Corporate Social Responsibility Projects

Factor	Items	Load Values	Variance Extracted %	Cronbach's Alpha (,892)
Fashion	Retro products match the lifestyle that I chose.	,831	35,116	,874
	I prefer retro products over modern products.	,782		
	I pay more to a retro product than to a modern product.	,779		
	I would buy a retro product soon.	,761		
	Retro matches my personality.	,750		
	Retro products attracts me more than modern products.	,744		
Nostalgia	I feel that I embrace my past when using retro products.	,846	14,818	,852
	Retro makes me live good old days even today.	,787		
	Retro does not bring back good old days but brings the spirit of those times.	,743		
	Retro is important as it reminds me who I am.	,719		
Personal Motivation	Retro products make me feel safe.	,707	8,374	,891
	Using retro products arouses suspicion in me.	,751		
	Retro products are of no use.	,719		
Old-New	Retro products cause disappointment.	,716	6,471	,728
	Retro is the combination of old and new.	,751		
Luxury	Retro means being independent of time.	,628	6,210	,785
	Retro products are expensive.	,793		
	Retro products are luxury products.	,755		
	Retro products creates the perception that they are tailor-made.	,619		

KMO = 0,891 Total Variance Extracted = 70,989

3.8. Testing of Hypotheses

First Hypothesis Test

An F test was conducted to determine that the regression model was statistically valid, that is, a meaningful model ($F=4,365$, $p=0.001<0,05$), and the model was found to be significant to the test result. Since the model is meaningful, other conclusions of the regression analysis can be assessed.

Table 4: Regression Analysis Results for Determining the Effect of Consumers' Attitudes Towards Retro Products on Brand Loyalty

	R2	R2 Adjusted	F	Sig. F (p)	Beta	SEB	t	Sig.t(p)
Model 1	0,21	0,16	4,365	,001				
(Constant)					3,514	,210	16,771	,000
Fashion					,039	,048	,823	,411
Nostalgia					,042	,044	,950	,342
Personal Motivasyon					,068	,042	1,613	,107
Old-New					,189	,043	4,413	,000
Luxury					,046	,037	1,246	,213

A t-test was conducted to test whether the regression coefficients differ from zero. Because of the "old-new" factor of $p = 0,000 < 0,05$, consumers' attitudes towards retro-looking products are influenced by brand loyalty. The H1 hypothesis is supported.

Second Hypothesis Test

Table 5: Results of t-Test on Attitude Towards Retro Products by Gender

		N	Mean	T	Sig.
Retro	Female	521	,2,9980	6,422	,000
	Male	501	2,7705		

The independent-samples t-test was made to measure whether there is difference in attitudes of participants towards retro products by their gender. Since $p = ,000 < ,005$ as a result of the t-test by gender, it was found that there is difference among participants in terms of attitude towards retro products by their gender. Hypothesis H2a is supported.

Table 6: Results of t-Test on Attitude Towards Retro Products by Marital Status

		N	Mean	T	Sig.
Retro	Married	681	2,8797	,674	,500
	Single	341	2,9094		

The independent-samples t-test was made to measure whether there is difference in attitudes of participants towards retro products by marital status. Since $p = ,500 > ,005$ as a result of the t-test by marital status, it was found that there is not difference among participants in terms of attitude towards retro products by marital status. Hypothesis H2b is rejected.

Table 7: Results of Anova Test on Attitude Towards Retro Products by Educational Status

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15,948	4	3,987	10,814	,000
Within Groups	374,950	1017	,369		
Total	390,898	1021			

Since the value that was found as a result of Anova test on educational status is $p=0,000<0,05$, it was found that attitudes of participants towards retro products differ by their educational status. Hypothesis H2c is supported.

Tablo 8: Results of Anova Test on Attitude Towards Retro Products by Age

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	29,380	4	7,345	20,663	,000
Within Groups	361,517	1017	,355		
Total	390,898	1021			

Since the value that was found as a result of Anova test on age status is $p=0,000<0,05$, it was found that attitudes of participants towards retro products differ by their age status. Hypothesis H2d is supported.

Tablo 9: Results of Anova Test on Attitude Towards Retro Products by Income Status

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12,214	5	2,443	6,554	,001
Within Groups	378,684	1016	,373		
Total	390,898	1021			

Since the value that was found as a result of Anova test on income status is $p=0,001<0,05$, it was found that attitudes of participants towards retro products differ by their income status. Hypothesis H2e is supported.

Tablo 10: Results of t-Test on Brand Loyalty by Gender

		N	Mean	T	Sig.
Retro	Female	521	2,8365	3,058	,002
	Male	501	3,0326		

The independent-samples t-test was made to measure whether there is difference in brand loyalty of participants by their gender. Since $p=,002 < ,05$ as a result of the t-test by gender, it was found that there is difference among participants in terms of brand loyalty by their gender. Hypothesis H3a is supported.

Tablo 11: Results of t-Test on Brand Loyalty by Marital Status

		N	Mean	T	Sig.
Retro	Married	681	3,0380	2,874	,004
	Single	341	2,8465		

The independent-samples t-test was made to measure whether there is difference in brand loyalty of participants by marital status. Since $p=,004 < ,05$ as a result of the t-test by marital status, it was found that there is difference among participants in terms of brand loyalty by marital status. Hypothesis H3b is supported.

Tablo 12: Results of Anova Test on Brand Loyalty by Educational Status

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	17,753	4	4,438	4,747	,001
Within Groups	950,886	1017	,935		
Total	968,639	1021			

Since the value that was found as a result of Anova test on educational status is $p=0,001<0,05$, it was found that brand loyalty of participants differ by their educational status. Hypothesis H3c is supported.

Tablo 13: Results of Anova Test on Brand Loyalty by Age

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	30,565	4	7,641	8,284	,000
Within Groups	938,074	1017	,922		
Total	968,639	1021			

Since the value that was found as a result of Anova test on age status is $p=0,000<0,05$, it was found that brand loyalty of participants differ by their age status. Hypothesis H3d is supported.

Tablo 14: Results of Anova Test on Brand Loyalty by Income Status

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	31,881	5	6,376	6,916	,000
Within Groups	936,758	1016	,922		
Total	968,639	1021			

Since the value that was found as a result of Anova test on income status is $p=0,000<0,05$, it was found that brand loyalty of participants differ by their income status. Hypothesis H3e is supported.

4. CONCLUSION AND EVALUATION

Retro marketing is one of the important concepts of today's marketing world. A large number of manufacturers are offering retro products to consumers in this direction. The attitudes and perspectives of the consumers towards retro-looking products are not known precisely. The reason for this is the low number of studies on domestic and foreign literature related to this subject. In this research, the objective is to determine the effect of attitudes of clothing sector consumers' residing in Turkey towards retro-looking products on brand loyalty. It is also the objective of the study to determine whether consumers' attitudes towards retro-looking products and brand loyalty differ in the context of demographic factors. In this study, the type of research is descriptive research because it is examined whether attitudes towards retro-looking products are influential on brand loyalty, taking into account the demographic factors of consumers participating in the survey.

As a result of regression analysis in line with research hypotheses, it is concluded that "Old-New" factor of attitude sub-factors for retro-looking products has an effect on consumers' brand loyalty. As a result of the analyzes made to determine whether brand loyalty differs in terms of demographic factors, it is concluded that consumers have a significant difference in brand loyalty according to gender, marital status, age, education status and income. Analyzes to determine whether the attitude toward retro-looking products differ in terms of demographic factors have resulted in a significant difference in consumers' attitudes according to gender, age, educational status and income, but not in marital status. These findings are crucial for strategies that businesses determine for retro marketing applications.

Retro marketing practices are becoming increasingly important as one of the postmodern marketing strategies. In today's market conditions where competition is intense, businesses wishing to gain competitive advantage should pay attention to applications for retro marketing together with the other marketing strategies. People are always devoted to their past, due to their nature. The past experiences, the desire to remember the past and the power of events in the past have always influenced people. For these reasons, businesses must make their retro marketing practices continuous for their customers.

Because of the intense competition in the global market conditions, the companies are required to link consumers to their own brands and develop strategies accordingly, in order to be able to continue their existence, increase their market share and gain competitive advantage. As businesses develop these strategies, they need to consider the factors that influence brand loyalty. For this reason, efforts to determine the factors affecting brand loyalty are of great importance. Businesses may benefit from the longing for their customers' past in advertising and promotions, brands, all marketing events, packaging, relationships established with customers, etc.

It is thought that this study can contribute to the literature and can guide the marketing practitioners to the academicians as the studies about retro marketing applications are few. It will be useful to make comparison and generalization if the research is made with different sample masses in different countries, different regions and different sectors on consumers.

REFERENCES

- Aaker, D.A. (2001). Strategic Market Management: Global Perspective. New York: John Wiley & Sons, Inc.
- Back, K. J. & Parks, S. C. (2003). A Brand Loyalty Model Involving Cognitive, Affective, and Conative Brand Loyalty and Customer Satisfaction. *Journal of Hospitality and Tourism Research*, 27(4), 419-435.
- Barringer, A.R. (2008). Customer Loyalty: An Exploration Of The Relationship Between Service Quality And Customer Intent To Return And Willingness To Recommend In The Restaurant Industry. Doctoral Thesis, Capella University.
- Belk, W. R. (1990). The Role Of Possessions In Constructing And Maintaining A Sense Of Past. *Advances in Consumer Research*, 17, 669-676.
- Blythe, J. (2014). Principles and Practice of Marketing, California: Sage Publications.

- Bowen, J.T. & Chen, S. L. (2001). The Relationship Between Customer Loyalty And Customer Satisfaction. *International Journal of Contemporary Hospitality Management*, 13(5), 213-217.
- Bozkurt, İ. (2004). *İletişim Odaklı Pazarlama*, İstanbul: MediaCat Yayınları.
- Brown, S. (1999). Retro-Marketing: Yesterday's Tomorrows, Today!. *Marketing Intelligence and Planning*, 17(7), 363-376.
- Brown, S. (2001). *Marketing - The Retro Revolution*, California: Sage Publication.
- Brown, S., Kozinets, R. & Sherry, F. J. (2003). Teaching Old Brands New Tricks: Retro Marketing and the Revival of Brand Meaning. *Journal of Marketing* (67), 19 - 33.
- Çatı, K.& Koçoğlu, C.M. (2008). Müşteri Sadakati İle Müşteri Tatmini Arasındaki İlişkiyi Belirlemeye Yönelik Bir Araştırma. *Selçuk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 19, 167-188.
- Cooper-Martin, E. (1993). Effects of Information Format and Similarity Among Alternatives on Consumer Choice Processes. *Journal of the Academy of Marketing Sciences*, 21, 239-246.
- Dağdaş, G. (2013). İşletmelerde Retro Pazarlama Uygulamalarının Müşteri Bağlılığına Etkileri Üzerine Bir Araştırma. Yüksek Lisans Tezi, Selçuk Üniversitesi Sosyal Bilimler Enstitüsü.
- Davis, F. (1979). *Yearning for Yesterday: A Sociology of Nostalgia*. Free Press, New York.
- Dayal S., Landesberg, H. & Zaisser, M. (2000). Building Digital Brands. *The McKinsey Quarterly*, 2, 42-51.
- Demir, F. O. (2008). Pazarlamanın Nostaljik Oyunu: Retro Markalama. *İstanbul Üniversitesi İletişim Fakültesi Dergisi*, 33, 29-41.
- Dick, A.S. & Basu, K.(1994). Customer Loyalty: Toward an Integrated Conceptual Framework. *Journal of The Academy of Marketing Science*, 22 (2), 99-113.
- Duffy, D.L. (2005). The Evolution of Customer Loyalty Strategy. *Journal of Consumer Marketing*, 22(5), 284-286.
- Kurtz, D. (2008). *Contemporary Marketing*. USA: Thompson South-Western.
- Duffy, D.L. (2005). The Evolution of Customer Loyalty Strategy. *Journal of Consumer Marketing*, 22(5), 284-286.
- Erciş, A., Yapraklı, Ş. & Can, P. (2009). Güçlü ve Güçsüz Markalarda Marka Bilgisi, Marka İlişkileri ve Satın Alma Davranışları Arasındaki Farklılıkların İncelenmesi. *Marmara Üniversitesi İİBF Dergisi*, 26 (1), 157-190.
- Ertuğrul, S. M. & Demirkol, Ş. (2007). Turistik Ürün Talebinde Markalaşma ve Önemi. *Sosyal Bilimler Dergisi*, (2), 61-70.
- Fournier, S.& Yao, J.L. (1997). Reviving Brand Loyalty: A Reconceptualization Within The Framework of Consumer-Brand Relationships. *International Journal of Research in Marketing*, 14, 451-472.
- Gårdh, V. (2009). *Brand Heritage: Helping Strengthen the Brand Identity of Husqvarna Motorcycles*. Stockholm : Jönköping University
- Holak, S. L. & Havlena, W. J. (1998). Feeling, Fantasies and Memories: An Examination of the motional Components of Nostalgia, *Journal of Business Research*, 42, 217-226.
- Holak, S. L., Havlena, W. J. & Matveev, A. V. (2006). Exploring Nostalgia in Russia: Testing the Index of Nostalgia-Proneness1. *European Advances in Consumer Research*, 7, 195 - 200.
- Holbrook, B. M. & Schindler, M. R. (1991). Echoes of the Dear Departed Past: Some Work in Progress On Nostalgia. *Advances in Consumer Research*, 18, 330-333.
- Holbrook, M. B. & Schindler, R. M. (1994). Age, Sex, And Attitude Toward the Past As Predictors of Consumers' Aesthetic Tastes for Cultural Products. *Journal of Marketing Research*, 3(31), 412- 422.
- Jacoby, J. & Chestnut, R. (1978). *Brand loyalty measurement and management*. New York: Wiley.
- Jensen, M.J.& Hansen, T. (2006). An Empirical Examination of Brand Loyalty. *Journal of Product and Brand Management*, 15(7), 442-449.
- Jones, C. & Bonevac, D. (2013). An Evolved Definition Of The Term 'Brand': Why Branding Has A Branding Problem. *Journal of Brand Startegy*, 2 (2), 112-120.
- Kotler, P. (2003). *Kotler ve Pazarlama*. İstanbul:Sistem Yayıncılık.
- Kotler, P., Kartajaya, H. & Setiawan, I. (2011). *Pazarlama 3.0.*, İstanbul: Optimist Yayınları.
- Leverin, A.& Liljander, V. (2006). Does Relationship Marketing Improve Customer Relationship Satisfaction And Loyalty?. *International Journal of Bank Marketing* , 24(4), 232-251.
- Levinson, J. C. (2008). *Guerilla Insights* , www.gmarketing.com/tactics/weekly167.html, Erişim Tarihi: 20.01.2017
- Lim, H. J. (2005). *Contingency Approach To A Consumer Loyalty Model; An Application To The Mobile Services Context*. Doctoral Thesis, Purdue University.

- Mao, J. (2010). Customer Brand Loyalty. *International Journal of Business and Management*, 5(7), 213-217.
- McMullen, R. & Gilmore, A. (2008). Customer Loyalty; An Empirical Study. *European Journal of Marketing*, 42 (9/10), 1084-1094.
- Ogechukwu, D. A. (2013). Retro-Marketing: The Art of Bringing Back to Life/Revitalising an Old Brand (Product) – The Nigerian Experience. *Universal Journal of Management and Social Sciences*, 3(3), 16 - 48.
- Pitta, D., Franzak, F. & Fowler, D. (2006). A Strategic Approach to Building Online Customer Loyalty: Integrating Customer Profitability Tiers. *Journal of Consumer Marketing*, 23(7), 421-429.
- Singh, S. & Sonnenburg, S. (2012). Brand Performances in Social Media. *Journal of Interactive Marketing*, 26, 189 - 197.
- Toksarı, M. (2010). Tüketici Temelli Marka Değerinin Ölçümü: Kayseri’de Otomobil Kullanıcıları Üzerine Bir Uygulama. Doktora Tezi, Niğde Üniversitesi Sosyal Bilimler Enstitüsü.
- Tunç, D. (2007). Marka Tercihlerinin Oluşumunda Reklamların Tüketicinin Farklı Demografik Özelliklerine İlişkin Değişen Rolü. Yüksek Lisans Tezi, Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü.
- Tuominen, P. & Kurikko, H. (2012). Collective Value Creation and Empowerment in an Online Brand Community: A Netnographic Study on LEGO Builders. *Technology Innovation Management Review*, 12 - 17.
- Urde, M., Greyser, S. A. & Balmer, J. M. (2007). Corporate brands with a heritage. *Journal of Brand Management*, 1(15), 4 - 19.
- Ursavaş, B. & Gümüş, B. (2015). Bir Ölçek Geliştirme Çalışması: Retro Yatınlığı, 20. Ulusal Pazarlama Kongresi, Eskişehir.
- Wilson, L. J. (2005). *Nostalgia: A Conceptual History*, USA: Bucknell University Press.
- Yaraş, E. (2005). Tüketicilerin Pazarlama Kararları Ve Marka Değeri Algılamalarına Göre Kümeler Halinde İncelenmesi. *İktisadi Ve İdari Bilimler Dergisi*, 19(2), 349-372.



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NETWORK ANALYSIS OF INTERBANK CROSS-BORDER FLOWS AT COUNTRY LEVEL (2006 - 2015)

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ABSTRACT

In today's globalized world, economic activities are performed beyond the physical boundaries of countries. It can be seen as increasing activities such as trade of goods, financial flows and trade of intermediate goods. Network analysis, that has been used to analyze formations of complex systems recently, is frequently used to investigate these global economic relations. In this context, international trade networks, financial networks and global production networks (input-output networks) are some of the fields that are analyzed in an interdisciplinary way. In this study, it is aimed to analyze interbank cross-border flows at country-level by applying network analysis. Thus, we expect to investigate the systemic importance and vulnerabilities of countries in international banking sector by applying HITs algorithm from 2006 to 2015. HITs algorithm has an advantage since it takes second order adjacencies of countries into consideration. As a consequence of the analysis, it will be possible to see the effects of global and Eurozone crises on systemic importance and vulnerabilities of countries.

Keywords: Financial crises, international financial network, network analysis, international financial markets, interbank flows

JEL Codes: G00, G01, G15

1. INTRODUCTION

Network analysis has become a very popular and efficient tool to analyze complex systems in various disciplines ranging from natural science to social sciences. Economics has also become one of these disciplines that uses network tools as a result of interaction with other disciplines such as computer sciences, physics, biology, psychology etc. Fields of economics in which network tools are used mostly are international trade and finance. As a new field, global value chain also uses network analysis to analyze global production network.

There exist various definitions of complex system. According to Simon's definition, a complex system is composed of a great number of parts that have interactions with one another in a non-simple way. Properties of these parts and interactions among them cause the system be more than its parts. This feature of complex systems reveals a phenomenon which is known as the 'fallacy of composition'. An example of this phenomenon has been observed during the global crisis. Systemic risk assessment based on micro-prudential approach which depends on whether financial institutions have sufficient capital and risk assessment was criticized due to ignoring interconnectedness of these financial agents. In this case, individual success of financial institutions in risk assessment could not prevent the failure of the system as a whole. It means that individual success of financial institutions in providing an effective risk management does not guarantee the success of financial system as a whole.

After the crisis, another criticism was directed to the current market price-based volatility assessment. As is known, it is expected for stock returns to be high due to increasing risk in economic downturn whereas it is expected to be low due to decreasing risk in economic recovery term. However, Markose (2013) states that market price-based volatility was at its lowest level just before the outbreak of the crisis in 2008. This is called paradox of volatility. The author draws attention to the popularity of market price-based volatility assessment due to data availability, but also to the shortcomings of this method to study balance sheet interconnections for systemic risk.

Network approach, as one of the best ways to analyze these interconnections, has many application in the field of finance. Studies which use network analysis to analyze financial systems follow two distinct empirical methodologies. One of them is simulations and the other is topological research of financial networks. It has also been stated in a study by Bandt et al. (2013) that network analysis is a tool to measure systemic risk in terms of interconnectedness and that it depends on two methods such as a descriptive approach to network topology and an analysis of contagion mechanism. This descriptive approach presents some network metrics that help to understand network structure without modelling economic behaviour whereas contagion analysis helps to understand how failure of a financial agent spreads through the system via simulations.

Even though these methodologies are completely different aspects of network analysis, they work for an objective in common: to determine and analyze the systemicity in the network. Alves et al. (2013) explains sistematicity as a two-dimensional concept. On the one hand, a financial agent can be systemically important in the meaning of causing substantial system-wide losses. On the other hand, a financial agent can be systemically fragile to the defaults of other agents. Network analysis enables us to analyze these two different aspects of systemicity.

2. LITERATURE REVIEW

There are a large number of studies on financial networks includes either topological anaysis or contagion analysis in the literature. In one of the most pioneer studies on financial networks, Allen and Gale (2000) analyzed contagion in an interbank network. They reveals that if the interbank market has a complete network structure, then the initial impact of a financial crisis in one bank may be weakened. However, if the network is incomplete and each bank is connected with a small number of other banks, then neighboring banks feel the initial impact of a crisis much more than the previous case.

Krause and Giansante (2012) modelled an interbank network which consists of banks of different sizes and with heterogeneous balance sheets and analyzed how exogeneous failure of a single bank spreads through the system. They found that spread of a failure of a bank depends on the interconnectedness of the nodes and the tiering in the network.

Battiston and Caldarelli analyzed the role of linkages between nodes in terms of contagion and liquidity in financial network. They revealed that it was necessary to look at the interplay of network topology, liquidity and capital buffers in order to get idea about default cascades. They also analyzed DebtRank developed by the author as a measure of systemic impact of a financial institution. Depending on DebtRank, they found that there was more to systemic risk than size and position of financial institution in the network. Balance sheets of counterparties of an institution were also important to determine the impact of failure of that institution.

Acemoglu et al. (2015) established a theoretical framework for the economic forces that shape the relationship between the financial network structure and systemic risk. They revealed that as long as the magnitude or the number of negative shocks is below a threshold, more diversified structure of interbank liabilities leads to less fragility. It means that the sparsely connected network is the most fragile whereas the complete network is less fragile. In this context, these findings confirm the analysis by Allen and Gale (2000). However, if negative shocks are larger than a threshold, then completeness does not guarantee stability in terms of efficient use of the excess liquidity.

Markose et al. (2010) analyzed US banks involved in the CDS market for 2007-Q4 and 2008-Q4. This CDS network was composed of obligations between US banks and aggregated non-US sectors. According to eigenvector centrality results, JP Morgan was found to be the most dominant bank in the network. It was folowed closely by the European Banks and then by other US banks such as Goldman Sachs and Citibank. At the end of the eigen-pair analysis, the authors recommended that banks be taxed by a progressive tax rate depending on eigenvector centralities and escrow these funds.

Hub and authority centrality measures have become popular in financial network analysis recently. There are a number of analysis which use these metrics as centrality measures. In one of them, Leon and Perez (2013) analyzed Colombian financial market infrastructure of which functions are composed of trading and registration, clearing and settlement, large-value payment systems and retail payment systems. They build a weighted matrix of which components correspond to daily average gross value of transactions for 2011 within financial market structure mentioned above. The authors conclude that their findings on centralities are intuitive and that these measures also match functioning of local markets's conveniently.

In another study follows hub and authority centrality measures, Leon et al. (2015) analyzed allocation of central bank liquidity within interbank market for Colombia with network tools. Their network consists of two types of transactions that are interbank funds and central bank repos as monetary value and the data base on 2013. They detected the most central nodes (super-spreaders) that might be an important conduit for the transmission mechanism of the monetary policy of central bank in Colombia.

In another study, Leon and Berndsen (2014) used hub and authority centralities in the analysis of Colombian financial system by selecting three financial market structures such as the large payment system, the sovereign securities settlement system and the foreign exchange settlement system for 2012.

Chinazzi et al. (2012) also used hub and authority centralities in their analysis on international financial market as a weighted-directed network on country basis. They analyzed international financial network as five layers (total portfolio investments, equity securities, debt securities, long-term debt securities and short-term debt securities) for 70 countries from 2001 to 2010. The components of these adjacency matrices represented value of security from borrower (debtor) to lender (creditor). They computed hub and authority scores for both binary and weighted cases.

3. DATA AND METHODOLOGY

We aim to analyze international financial network on country basis in a similar way with Chinazzi et al. to see how topological statistics (e.g. clustering coefficient, power-law index, centralities...) capture outbreak of crisis and whether they display distinction between pre-crisis and post-crisis periods. As is seen in the literature review, centrality of financial institutions (countries herein) is also a significant point regarding to propagation of a default.

Markose based her financial network analysis on eigen-pair analysis (Markose, 2012). In both of these analysis, right and left eigenvector centralities which correspond to maximum eigenvalue of the network are identified as systemicity measure. In this context, the author defines right eigenvector centrality as systemic risk index and left eigenvector centrality as systemic fragility index.

The data used in this analysis have been obtained from Bank of International Statement (BIS) database. These data include consolidated foreign claims vis a vis individual countries by nationality of reporting basis. The values are in millions of US dollars and include the period from 2006:q1 to 2015:q1 for 18 countries (Australia, Austria, Belgium, France, Germany, Greece, India, Ireland, Italy, Japan, Netherlands, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States). Size of the network is limited due to data availability.

Each component of weighted adjacency matrix X that is built depending on BIS database corresponds to liability from borrower to lender which means that x_{ij} represents gross financial obligation flow from country i to country j . Following Markose et al. (2012), we applied the methodology to M matrix of which elements $(x_{ij} - x_{ji})$ give the netted position between country i and country j . Skew symmetrical matrix which is defined as a square matrix that fulfils $m_{ji} = -m_{ij}$ for all possible i and j is presented below for $M = X - X'$ as a 4x4 dimensional matrix.

$$M = \begin{bmatrix} 0 & x_{12} - x_{21} & x_{13} - x_{31} & x_{14} - x_{41} \\ x_{21} - x_{12} & 0 & x_{23} - x_{32} & x_{24} - x_{42} \\ x_{31} - x_{13} & x_{32} - x_{23} & 0 & x_{34} - x_{43} \\ x_{41} - x_{14} & x_{42} - x_{24} & x_{43} - x_{34} & 0 \end{bmatrix}$$

Sum of positive row values of country i represents its net liabilities to counterparties. Following Markose et al. (2012), we obtained M matrix that contains only positive elements and zero for negative values and used this matrix in our calculations.

Before presenting results, it is good to clarify that hub and authority centralities correspond to right and left centralities of eigen-pair analysis of Markose (IMF), respectively. Based on M matrix of which elements represent netted liabilities from one country to another, hub centrality score implies how central a borrower country is since a hub is a node with a large number of outgoing links. If hub centrality score of a country is high, then this country is systemically important which means that failure spreads to the network in case of the country not meeting the liabilities. In a similar way, it can be said that an authority centrality implies how central a lender is since an authority is a node with a large number of incoming links. Thus, if authority centrality score of a country is high, this country is said to be systemically fragile/vulnerable meaning that the country is exposed to default risk of its debtors.

Before discussing results, it will be useful to give some technical information about networks and the methodology used in the analysis.

As stated by Reichardt, the first step to understand complex systems is decomposition of these systems into their parts (Reichardt, 2009). Network analysis allows us to represent complex systems in terms of their parts and interactions/linkages

among them. In this context, policymakers have become interested in network analysis to determine the weaknesses of their concerns since these tools are applied to most real-world networks (OECD, 2009).

A network is defined as $G=(V, E, f)$, where V is a finite set of nodes and E is a set of links among these nodes and, f is a mapping which links elements of E to a pair of elements of V . In a weighted network, each link is given a distinct weight and the definition of network becomes $G=(V, W, f)$, where W represents the set of weights $W=\{w_1, w_2, \dots, w_m\}$. If two nodes (node i and j) are linked to each other with the link $e=\{i,j\}$ in a network, then these nodes are said to be adjacent. Networks are represented with adjacency matrices which are built as follows (Estrada, 2015):

$$A_{ij} = \begin{cases} 1 & \text{if } i, j \in E \\ 0 & \text{otherwise} \end{cases}$$

One of the extents which are analyzed to get information about the topological properties of a network is connectivity. Connectivity is measured by node degree/node strength on the node-level. Higher node degree/strength means stronger impact over the network (Howell, 2012). On the network level, connectivity is measured by density which is a ratio of actual count of links to possible maximum count of links. In a directed network without self-loop and multilink, density coefficient can be formulized as follows (Newman, 2010):

$$\rho = \frac{m}{n(n-1)}$$

in where m is the count of actual links. Density coefficient lies in the range of $0 \leq \rho \leq 1$.

Another extent to be analyzed is clustering refers to the relation between two nodes which have links with a node in common. Clustering is also an indicator of transitivity in a network. Clustering coefficient can also be measured both in the node-level and in the network-level. Clustering coefficient was first introduced for node i in a simple network as follows (Serrano and Boguna, 2006):

$$c_i = \frac{2T_i}{k_i(k_i - 1)}$$

where T_i represents the count of triangles passing through the node i . Clustering coefficient in the network-level which is denoted as C is obtained by averaging c_i values. Clustering coefficients both in the node-level and in the network-level lie in the interval $[0,1]$.

Degree distribution is another informative property about network topology. It has been indicated in the literature that most real-world networks such as movie network, www, electrical powergrid network and citation network follow power-law distribution (Barabasi and Albert). These networks which follow power-law distribution are called as scale-free networks in network literature. Scale free networks have some characteristics which distinguish them from random and small-world networks (Mitchell, 2009). First of all, they include small number of hubs which are nodes with high-degree. They also include heterogeneity of connectivity since node degrees/strengths lie on a wide scale. Another property of scale-free networks is self-similarity which means that the shape obtained will look like the previous even though we rescale and reshape the distribution by focusing on a smaller part. Finally, scale-free networks have small-world property which requires small average path length and high degree of clustering.

It is known that power-law distributions belong to the class of fat-tailed distributions which have higher peaks and fat tails compared to Poisson distribution. Power-law distribution can be shown as follows (Hein et al., 2006):

$$P(k) \approx k^{-\gamma}$$

In the statement above, $P(k)$ shows the probability of the occurrence of nodes with degree k in the network. γ has a characteristic importance for this distribution. It means that a lower value of γ leads to a higher probability of nodes with many links. In another words, a network with a lower value of γ has a higher quantity of super-nodes which have many links compared to a network with a higher value of γ . It can also be interpreted as such that higher exponent level implies less heterogeneity of connectedness (Leon and Berndsen, 2014).

One way to determine fat-tailed distributions is to look at the kurtosis. If the kurtosis has positive value, then the distribution follows fat-tail distribution (Decarlo, 1997). It is also stated that most real world networks display right-skewed distributions and these distributions approximate power-law distribution (Leon Rincon et al., 2015). Skewness measure gives information about distributional asymmetry and is used to determine which side of a distribution has a fat-tail. If the skewness measure has positive value, then the fat-tail is on the right and the distribution is right-skewed and vice versa (Lovric, 2010).

In financial networks, power-law distribution refers to such an interpretation that most of the agents have low financial linkages while a few agents high financial linkages. It is an evidence for heterogeneity of connectedness of agents.

Centrality is another important topological property of a network. However, it is more convenient to examine assortativity/disassortativity in order to perceive the importance of centrality. Assortativity means that the nodes with high degree/strength tend to have links with the nodes which have high degree/strength. However, the nodes with high degree/strength tend to have relations with the nodes with low degree/strength in disassortative case (Reichardt, 2009). There are two ways to determine assortative/disassortative structure in a network. One of them is to plot degree and ANND statistics on the same graph and to see the relationship between them. ANND is a statistic shows how connected neighbors of node i are with one another (Fagiolo et al., 2010). It is measured as the average degree of neighbors of i . It can be formulized as follows (Barrat et al., 2004):

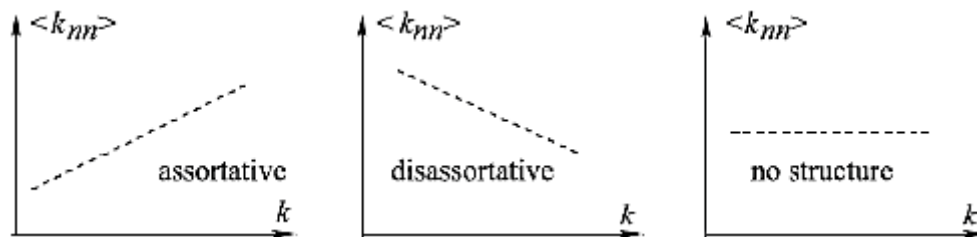
$$\langle k_{nn,i} \rangle = \frac{1}{k_i} \sum_j k_j$$

ANND for the nodes which have degree k is calculated with the formula below:

$$\langle k_{nn}(k) \rangle = \frac{1}{N_k} \sum_{\frac{k_i}{k_i=k}} k_{nn,i}$$

It is possible to decide whether there is a disassortative structure in a network. If the relation between the degree and the ANND is positive, then it is thought there is an assortative structure in the network. On the contrary, if the relation between the degree and the ANND is negative, then there is a disassortative structure in the network.

Figure 1: Assortative / Disassortative Structure



Source: Caldarelli.

The other way of determination of assortative/disassortative structure is to calculate assortativity correlation coefficient. Newman defines assortativity coefficient by adjusting standard Pearson correlation coefficient as follows (Newman; Csardi):

$$r = \frac{\sum_{ij} i_j (e_{ij} - a_i b_j)}{\sigma_a \sigma_b}$$

where $a_i = \sum_j e_{ij}$ and $b_j = \sum_i e_{ij}$ are fraction of edges start and end at node i and node j , respectively. And σ_a and σ_b are the standard deviations of the distributions of a_i and b_j . This assortativity measure lies in the interval $[-1, 1]$. If $r = 1$, then there is perfect assortativity between i and j . If $r = -1$, then there is perfect disassortativity between the nodes.

Disassortativity is one of the reasons of core-periphery structure in a network (Fuge et al.). Centrality measure enables one to determine the nodes in the core and the periphery. Besides, it can be said that centrality measures enable one to determine systemic of an agent in financial networks since dimensions of systemic importance are defined as size, interconnectedness and substitutability each of which are related to centrality concept (Alves et al., 2013). There are a lot of centrality measures such as degree centrality, betweenness centrality, closeness centrality, eigenvector centrality etc. to measure the importance of the nodes in a network.

Eigenvector centrality is the one which is most commonly used to determine significance of the nodes in a network. The logic behind the eigenvector centrality is to decompose the adjacency matrix and to find the most explanatory vector to represent it. Let A be an adjacency matrix, Λ be a diagonal matrix consist of eigenvalues of A and Γ an orthogonal matrix whose columns correspond to eigenvectors of A . Then, the equity below holds:

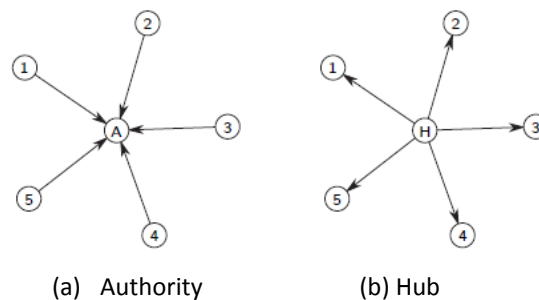
$$A = \Gamma \Lambda \Gamma'$$

If the eigenvalues are ordered from bigger to smaller such as $\lambda_1 \geq \lambda_2 \dots \lambda_n$, then the first column of Γ is the principal eigenvector of the adjacency matrix A . This eigenvector whose elements can be considered as weights of each node is accepted as the leading vector of the system. In network analysis, elements of the principal eigenvector correspond to eigenvector centrality of the nodes in the graph (Leon Rincon et al., 2015).

Eigenvector centrality is one of the centrality measures commonly used. However, it has some drawbacks. First of all, it is more convenient to use eigenvector centrality for undirected networks of which adjacency matrices are symmetrical despite it is used for directed networks in the literature. In a directed network case, network has two sets of eigenvectors which are right eigenvector and left eigenvector. Thus it may cause an issue to decide on which eigenvector centrality to use. Even this problem is overcome, there is another issue for eigenvector centrality of directed networks. If there is a node with only outgoing links and no incoming links, then this node will have zero centrality. It will cause also other nodes with only one incoming link which originates at that node to have zero centrality. In this meaning, it will cause some information loss (Newman, 2010). In this context, hub and authority centralities that are derived from HITS algorithm can be thought as an alternative to eigenvector centrality.

HITS algorithm was developed by Kleinberg to calculate hub and authority centralities of web pages which are results of a specific query on the Internet. Kleinberg based his analysis on a directed network in his original study. As is known, there are two types of link in directed networks: in-links and out-links. In this context, hubs are nodes with myriad out-links and authorities are nodes with myriad in-links.

Figure 2: Hub and Authority



Source: Knorn, 2005.

Kleinberg aimed to calculate two different centrality measure for these distinct type of nodes. Kleinberg remarked that these authoritative pages which are related to initial query should not only have large in-links. It is also necessary to be an overlap in the sets of pages which point to these authoritative pages. Similarly, hub pages should have links to multiple relevant authoritative pages. These two different classes of nodes exhibit *mutually reinforcing relationship* means that a good hub is a node that points to many good authorities and a good authority is a node that is pointed to by many good hubs. Kleinberg used an algorithm, HITS algorithm, uses an iterative process that maintains and updates two weights for each page. In this context, each web page has two non-negative weights: an authority weight $x^{<p>}$ and a hub weight $y^{<p>}$. And there are two operations (J and O) that update these weights. J updates the x weights and O updates the y weights during the iterations. Kleinberg also expressed this mutually reinforcing relationship between hubs and authorities with equations as follows (Kleinberg, 1999):

$$x^{<p>} \leftarrow \sum_{q:(q,p) \in E} y^{<q>}$$

$$y^{<p>} \leftarrow \sum_{q:(p,q) \in E} x^{<q>}$$

As it is understood from the equations above, authority weight of a node is proportional to the hub weights of the nodes point to it. Similarly, hub weight of a node is proportional to the authority weights of the nodes it points to.

First of all, Kleinberg defined a vector y which elements consist of $y^{<p>}$ values and a vector x which elements consist of $x^{<p>}$. Assuming that $G=(V,E)$ with $V=\{p_1, p_2, \dots, p_n\}$ and A is adjacency matrix of graph G , he proved that y and x converge to their equilibrium values y^* and x^* (which are hub centrality and authority centrality, respectively) at the end of this

iteration process. He concluded that x^* (authority centrality vector) is the principal eigenvector of $A^T A$ and y^* (hub centrality vector) is the principal eigenvector of AA^T (Kleinberg, 1999).

Kleinberg's algorithm uses the way which is used to calculate eigenvector centrality. However it eliminates zero-centrality problem of eigen-pair analysis by calculating hub and authority centralities of nodes simultaneously and iteratively depending on that mutually reinforcing relationship. Leon and Perez summarized this iterative process as the estimation of eigenvector centrality of two modified versions of adjacency matrix (Leon and Perez, 2013). On this basis, $M_{hub} = AA^T$ and $M_{auth} = A^T A$ can be called as hub matrix and authority matrix of which eigenvector centralities refer to hub centrality and authority centrality, respectively (Kolaczyk, 2009).

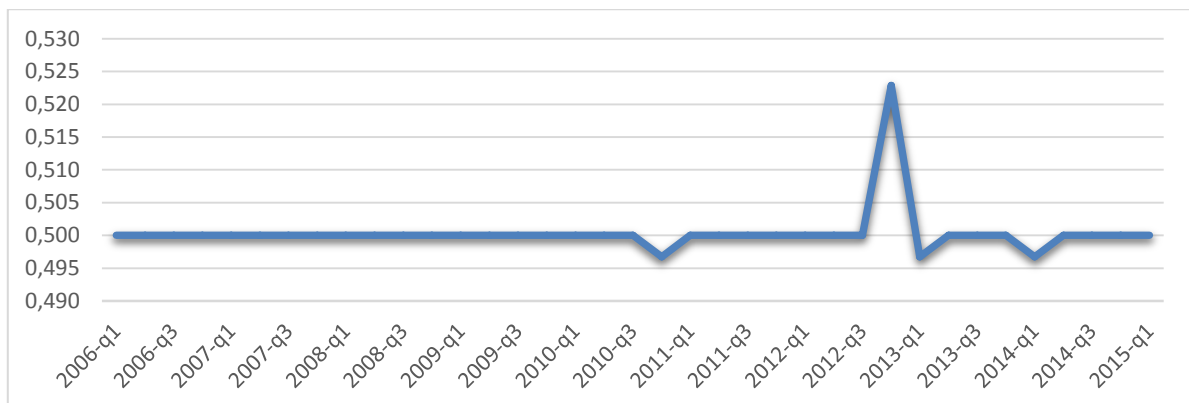
Leon and Perez explains the logic behind these hub and authority matrices like that (Leon and Perez, 2013). Multiplication of a directed (non-symmetrical) adjacency matrix with transpose of itself enables one to identify second-order adjacencies. Clearly, in the case of M_{auth} , multiplication of A^T with A sends weights backwards towards the pointing node. However, multiplication of A with A^T sends weights forwards towards to the pointed node. Since M_{hub} and M_{auth} are symmetrical matrices with non-negative elements, hub and authority centrality vectors will also contain positive and non-zero scores.

Although eigenvector centrality and hub-authority centrality measures have the same content that importance of a node in the network depends on how important its neighbors are, hub and authority centralities have some advantages compared to eigenvector centrality (Leon Rincon et al., 2015). First of all, it avoids the problems arise from directed (non-symmetrical) networks as mentioned above. It also gives two distinct centrality scores for each node as hub score and authority score which correspond to eigenvector centrality as recipient and as originator of links. This eliminates the confusion arises from the selection of right and left eigenvector centralities. Since hub and authority centralities are calculated as proportional to each other, it is possible to capture the in-between role of the nodes to their scores.

4. FINDINGS AND DISCUSSIONS

As explained in methodological part, density is a network statistic between 0 and 1 that indicates the ratio of number of actual links over number of all possible links. Figure 3 shows density coefficient over the period.

Figure 3: Density Coefficient



The coefficients does not capture the fluctuations in cross-border flows in banking sector much since the formula of coefficient only depends on the number (not weight) of the links. It is almost around 50% since the matrices used in the analysis contain only positive elements of netted skew-symmetric matrices. According to the results, there is a small decline in the beginning of the Eurozone crisis and in the first quarter of 2014, and also a small increase in the fourth quarter of 2012. However, if this coefficient were based on weights, it would be more informative about cross-border financial relationships.

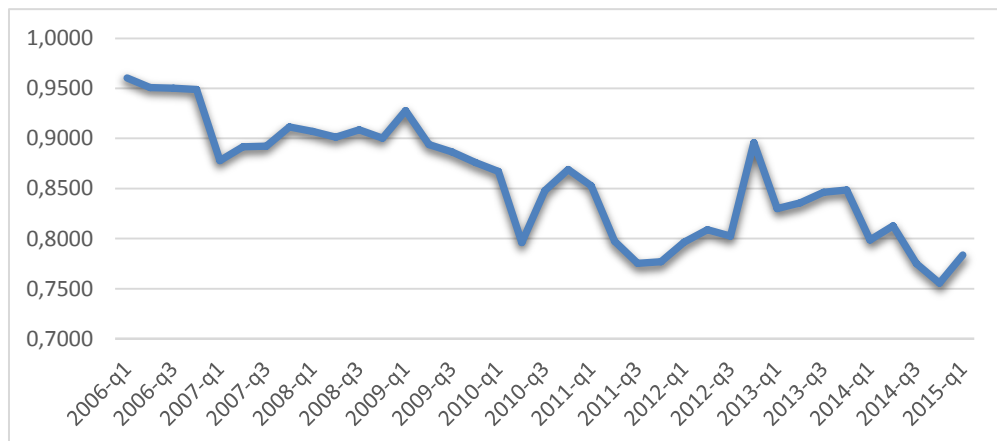
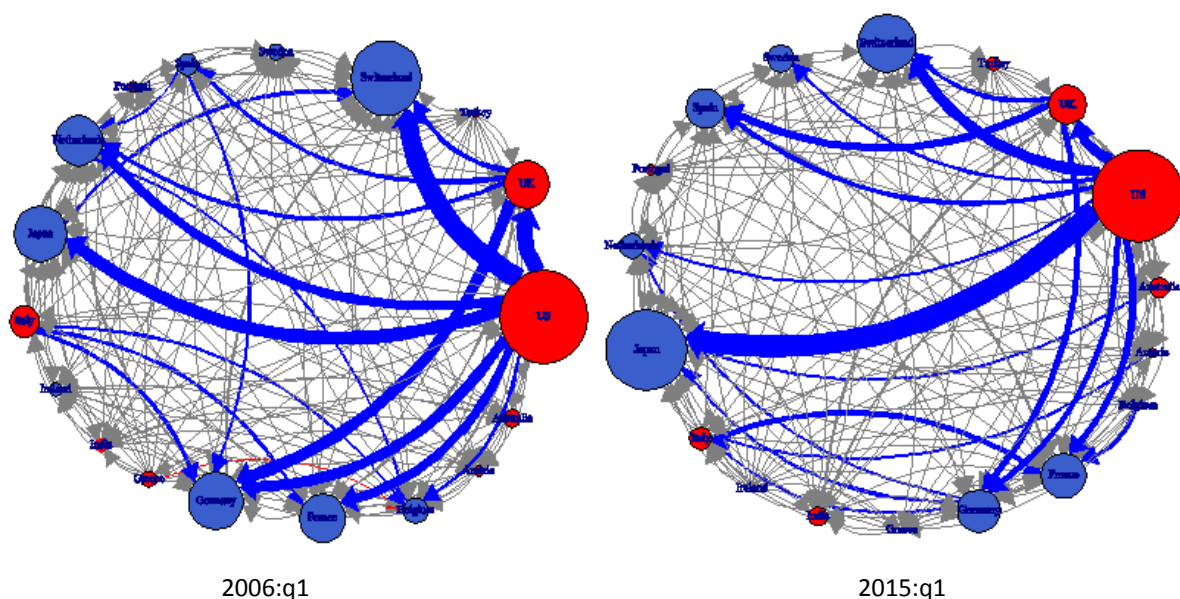
Figure 4: Clustering Coefficient

Figure 4 presents the trend of clustering coefficient within the period of analysis. General view indicates a decreasing trend within the period however there are rises and falls for some quarters. Clustering, as an indicator of transitivity, also gives an idea about the connectivity since a decrease of transitivity also implies a decrease of connections between node pairs. The first decline in clustering is in 2007 when negative effects of US mortgage crisis started. Second severe decline of clustering is at the second quarter of 2010 which corresponds to the beginning of Eurozone crisis. This decline indicates how countries' loss of credibility affects financial linkages among them. After an increase, clustering coefficient has another decline at the end of the 2011 that corresponds to the term when crisis spreads other Eurozone countries and four banks in Greece have negative equity. After another recovery period from fourth quarter of 2011 to fourth quarter of 2012, there is a gradually decline and another bottom at the end of the 2014 which corresponds to the outbreak of Greek crisis again. Clustering coefficient declines from almost 0.95 to 0.75 within the period.

Figure 5: Network Visualization

It can also be observed in the networks visualizations in Figure 5 that cross-border banking linkages among countries weakened from 2006:q1 to 2015:q2. In this graphs, red-colored countries are net borrower countries and blue-colored countries are net lenders in the international banking system. The size of net borrowers and net lenders depends on hub and authority centralities that is mentioned above, respectively.

As explained above, degree distribution is one of the important characteristics of networks. Table 1 shows kurtosis and skewness values that give an idea about the distribution for out-strength. Positive and high values of kurtosis and skewness implies that the out-strength distribution has fat-tailed and right-skewed characteristic.

Table 1: Kurtosis and Skewness Values

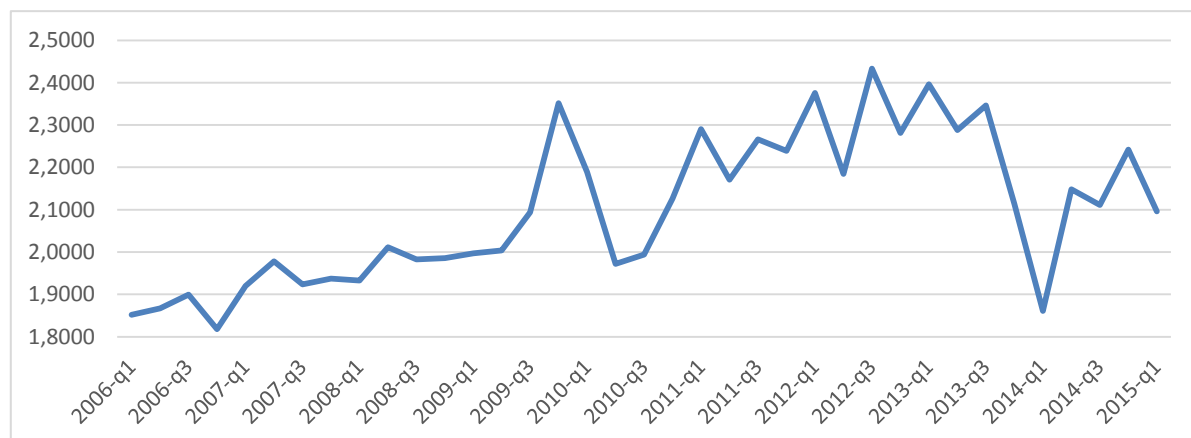
Year	Skewness	Kurtosis	Year	Skewness	Kurtosis	Year	Skewness	Kurtosis
2006-q1	3.28	12.75	2009-q2	3.1	11.95	2012-q3	3.39	13.55
2006-q2	3.2	12.31	2009-q3	2.87	10.82	2012-q4	3.14	12.29
2006-q3	3.34	13.13	2009-q4	2.86	10.77	2013-q1	3.33	13.23
2006-q4	3.36	13.24	2010-q1	3.04	11.77	2013-q2	3.4	13.61
2007-q1	3.33	13.03	2010-q2	3.2	12.48	2013-q3	3.41	13.61
2007-q2	3.29	12.8	2010-q3	3.29	13.03	2013-q4	3.34	13.23
2007-q3	3.34	13.1	2010-q4	3.37	13.42	2014-q1	2.3	7.83
2007-q4	3.25	12.61	2011-q1	3.35	13.29	2014-q2	3.28	12.89
2008-q1	3.28	12.84	2011-q2	3.37	13.39	2014-q3	3.35	13.21
2008-q2	3.25	12.63	2011-q3	3.4	13.52	2014-q4	3.39	13.42
2008-q3	3.37	13.34	2011-q4	3.46	13.85	2015-q1	3.3	12.9
2008-q4	3.43	13.7	2012-q1	3.46	13.91			
2009-q1	3.23	12.64	2012-q2	3.46	13.92			

However, it is necessary to make sure statistically about that whether the data fit power-law distribution. In this frame, the results of Kolmogorov-Smirnov test for fitness to power-law is given below:

Table 2: Kolmogorov-Smirnov Test Results

Year	γ	KS statistics	p-value	Year	γ	KS statistics	p-value
2006-q1	1.85217	0.09197	0.99996	2010-q4	2.12657	0.10302	0.99999
2006-q2	1.8671	0.09127	0.99997	2011-q1	2.29044	0.11553	0.99998
2006-q3	1.89957	0.10452	0.99943	2011-q2	2.17095	0.09399	0.99999
2006-q4	1.81773	0.08467	0.99999	2011-q3	2.26632	0.1321	0.99903
2007-q1	1.91999	0.08003	0.99999	2011-q4	2.23879	0.15652	0.99545
2007-q2	1.97806	0.09537	0.99956	2012-q1	2.37575	0.10827	0.99998
2007-q3	1.92373	0.07186	0.99999	2012-q2	2.18474	0.11345	0.99999
2007-q4	1.93725	0.07657	0.99999	2012-q3	2.43322	0.07916	0.99999
2008-q1	1.93245	0.08325	0.99999	2012-q4	2.28102	0.11542	0.99856
2008-q2	2.01169	0.10381	0.999	2013-q1	2.39642	0.08336	0.99999
2008-q3	1.98276	0.07024	0.99999	2013-q2	2.28799	0.08951	0.99999
2008-q4	1.98543	0.08205	0.99999	2013-q3	2.3464	0.08247	0.99999
2009-q1	1.99693	0.11348	0.99782	2013-q4	2.11331	0.10778	0.99982
2009-q2	2.00365	0.09561	0.9999	2014-q1	1.86104	0.13503	0.98093
2009-q3	2.09345	0.11799	0.99988	2014-q2	2.14833	0.10103	0.99996
2009-q4	2.35143	0.12862	0.99997	2014-q3	2.11088	0.09984	0.99976
2010-q1	2.18917	0.09578	0.99999	2014-q4	2.24196	0.10725	0.99984
2010-q2	1.97217	0.10466	0.99795	2015-q1	2.09619	0.12133	0.99938
2010-q3	1.99369	0.13342	0.95223				

p-probability values that are higher than 0.05 indicate that we cannot reject the null hypothesis states that the distribution follows a power-law. Power-law distribution means that there are some countries with high outgoing financial links (liabilities) while there are a lot of countries with low outgoing financial links (liabilities). In this context, power-law distribution implies a heterogeneous structure in terms of connectivity which means that some countries are more/less connected than other countries.

Figure 6: Power-law exponent - γ 

Exponent γ can be also an informative indicator about the change of connectedness property of the network. As explained above, higher γ values imply less heterogeneity of connectedness while lower γ values imply more heterogeneity of connectedness in the network. Since KS test results depends on out-strength, change of exponent γ represents the change of heterogeneity of countries' indebtedness in the international banking system. In Figure 6, there are two severe declines within the period. The first term corresponds to the outbreak of Eurozone crisis. It can be seen how credibility of countries in crisis is damaged. After that there is an out-flow from the banking system of these countries to other countries since their systemic risk increases. Finally, this situation causes them to have difficulty in borrowing. Decrease of borrowing of these systemically important countries due to outflow of money from their banking system and increase of indebtedness of other less systemically important countries due to movement of this outflow cause connectedness to become more inhomogeneous over/throughout the network.

The second decline of power-law exponent is from 2013:q3 to 2014:q1. This term includes the effects of explanations of FED about indicators of economic recovery and possibility of ending expansionary policies and asset purchases. These explanations cause a panic and upset the global financial balances especially for developing economies.

Assortative/disassortative structure is another important characteristics of complex networks. The results for assortativity correlation coefficient based on out-strength are given in Table 3.

Table 3: Assortativity Correlation Coefficient

Year	Assortativity Correlation Coefficient	Year	Assortativity Correlation Coefficient	Year	Assortativity Correlation Coefficient
2006-q1	-0.03611	2009-q2	-0.03147	2012-q3	-0.04711
2006-q2	-0.04155	2009-q3	-0.02522	2012-q4	-0.04677
2006-q3	-0.04132	2009-q4	-0.03179	2013-q1	-0.05748
2006-q4	-0.03578	2010-q1	-0.03656	2013-q2	-0.05335
2007-q1	-0.03972	2010-q2	-0.04155	2013-q3	-0.05541
2007-q2	-0.03618	2010-q3	-0.04055	2013-q4	-0.0491
2007-q3	-0.03772	2010-q4	-0.03896	2014-q1	-0.05498
2007-q4	-0.03343	2011-q1	-0.04958	2014-q2	-0.05793
2008-q1	-0.03545	2011-q2	-0.05486	2014-q3	-0.05842
2008-q2	-0.03515	2011-q3	-0.05075	2014-q4	-0.05449
2008-q3	-0.03552	2011-q4	-0.05311	2015-q1	-0.05137
2008-q4	-0.03262	2012-q1	-0.05109		
2009-q1	-0.0253	2012-q2	-0.05347		

In spite of not being high enough to imply 'perfect disassortativity', the negative assortativity correlation coefficients imply that there is a disassortative structure in the network. In other words, the countries with low financial linkages tend to be in relation with the countries that have high financial linkages.

As mentioned in methodological part, lack of assortativity is one of the indicators of core-periphery structure which involves some central nodes (hubs) and a periphery around these hubs. The way of determination of these hubs is to investigate centrality scores of the nodes.

As mentioned before, hub and authority centralities capture more information about systemic risk and vulnerability of countries in international financial network since they take second-order adjacencies into consideration. In this frame, it may be enlightening to compare first –degree and second-degree indicators of this global financial markets. Comparison of share of liabilities in total as a first-degree indicator and hub centralities as a second-degree indicator of systemic importance can be seen in the Table 4.

Table 4: Comparison of hub and authority scores with first-degree indicators (2008:q2)

Ranking	Countries	Hub centrality	Countries	Share of liabilities in total (%)	Countries	Authority centrality	Countries	Share of receivables in total (%)
1	US	0.942	US	0.461	Switzerland	0.496	Germany	0.181
2	UK	0.262	UK	0.159	UK	0.457	France	0.179
3	Italy	0.128	Italy	0.069	Germany	0.420	Switzerland	0.158
4	Spain	0.095	Spain	0.051	France	0.407	Japan	0.107
5	Ireland	0.066	Germany	0.044	Japan	0.361	UK	0.106
6	Australia	0.063	Ireland	0.036	Netherlands	0.227	Netherlands	0.087
7	Germany	0.055	Australia	0.035	Belgium	0.114	Belgium	0.074
8	Greece	0.051	Greece	0.027	Spain	0.067	Spain	0.034
9	Japan	0.051	Japan	0.021	Ireland	0.050	Italy	0.028
10	India	0.025	Austria	0.020	Sweden	0.022	Ireland	0.020
11	Portugal	0.023	Netherlands	0.018	Italy	0.015	Sweden	0.011
12	Netherlands	0.020	Portugal	0.016	Austria	0.012	US	0.006
13	Austria	0.020	India	0.016	Portugal	0.004	Austria	0.006
14	Turkey	0.014	Turkey	0.012	US	0.001	Greece	0.002
15	France	0.008	France	0.009	Greece	0.000	Portugal	0.002
16	Sweden	0.005	Sweden	0.002	Australia	0.000	Australia	0.000
17	Belgium	0.004	Belgium	0.002	Turkey	0.000	Turkey	0.000
18	Switzerland	0.000	Switzerland	0.000	India	0.000	India	0.000

Values in Table 4 belong to the term 2008:q2 that is just before the outbreak of the crisis. It can be observed that the top four countries are the same in terms of both hub score and share of liabilities. However, Ireland is fifth systemically important country in terms of high degree indicator while it has a lower level in the ranking in terms of share. Portugal is also in the same situation. Conversely, countries such as Germany, Austria, the Netherlands have a higher level in the ranking in terms of share when compared to high degree indicator. This difference stems from the importance of interconnectedness of the network.

When it comes to authority centrality, ranking is largely different from the first-degree indicator. Share of receivables tell us that Germany is the most vulnerable country since it has the largest receivables in the system. However, authority centrality also captures the second-order adjacencies. Thus, Germany has lower level in the ranking. Switzerland and the UK have higher vulnerability than Germany in terms of high-degree indicator. This result means that these countries are linked to borrower countries which have higher importance in the network than the borrower countries to which Germany is linked.

Figure 7: Hub and Authority Centralities of Some Countries and Country Groups

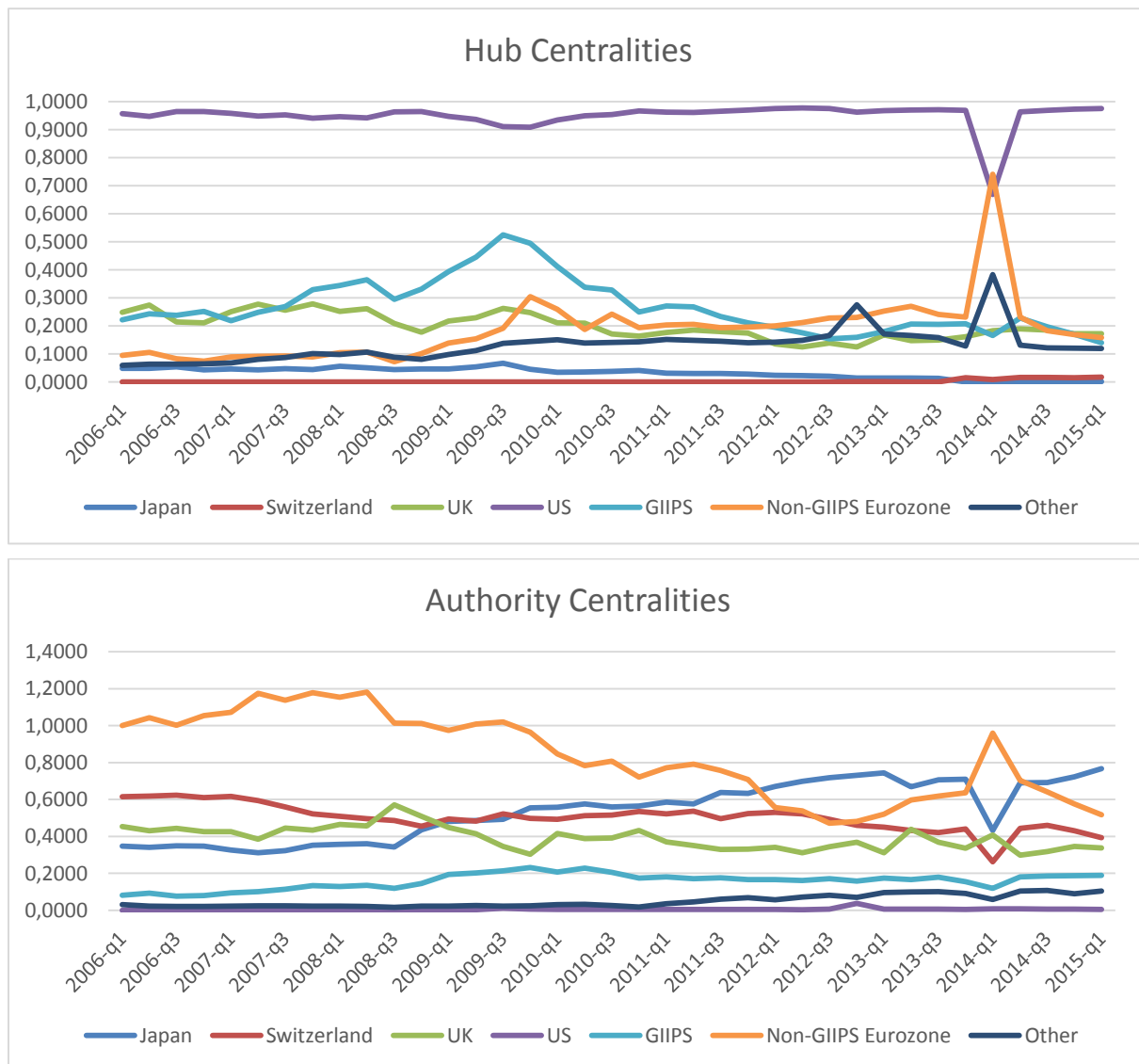
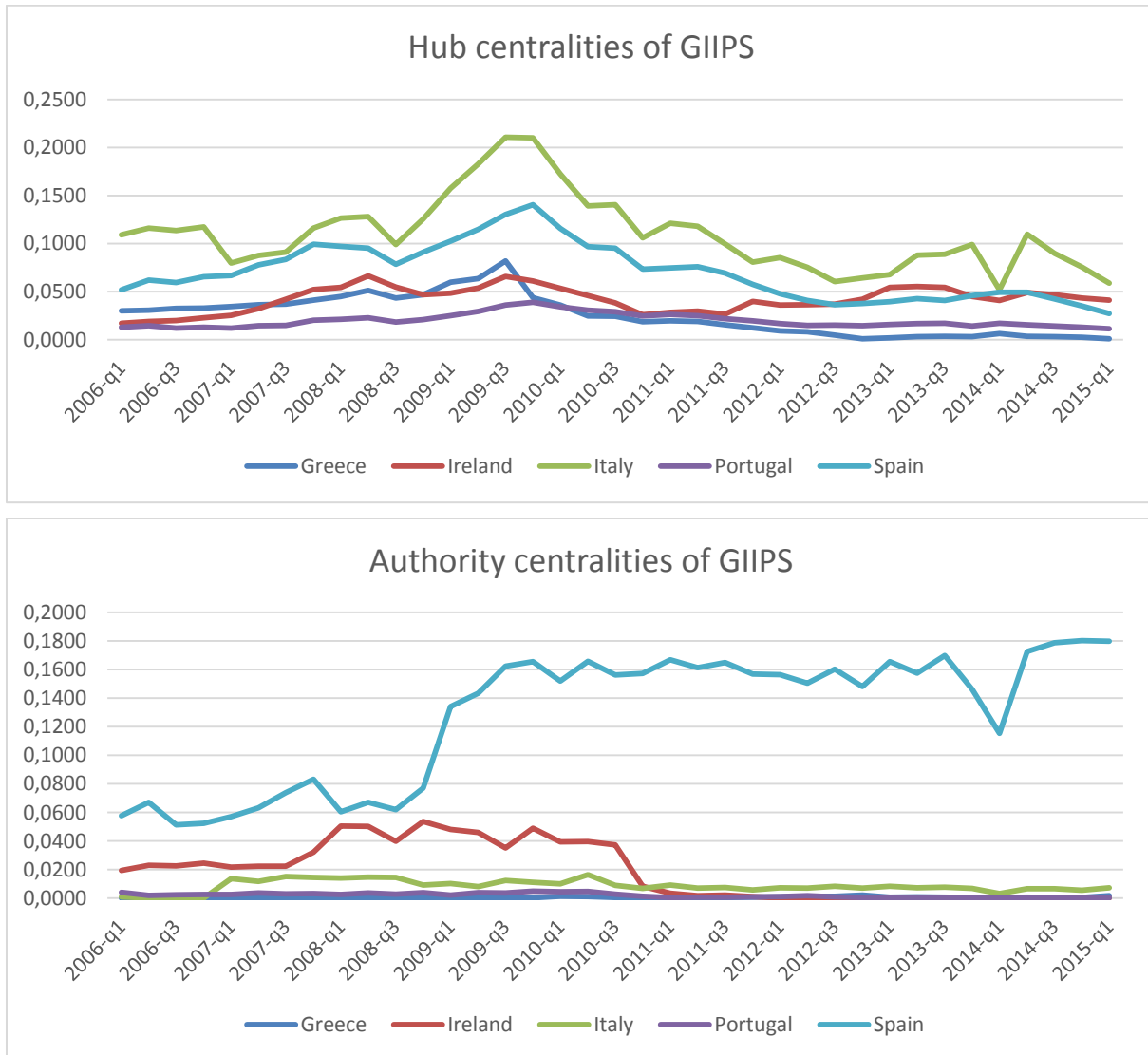


Figure 7 presents a general view for the hub centralities (systemic importance as mentioned) and authority centralities (systemic vulnerability) of some countries and country groups. First of all, US is the most systemically important country within the period except 2014:q1. Systemic importance of US is always high before the outbreak of the crisis and there is an increase after 2008:q2. However, systemic importance of US declines when Eurozone crisis starts at the end of 2009. Aggregated systemic importance of GIIPS countries (Greece, Ireland, Italy, Portugal, Spain) has its peak at the end of 2009. Systemic importance of the UK decreases after the outbreak of global crisis, however it increases with the outbreak of Eurozone crisis. It means that most of the liabilities of the UK is towards the GIIPS countries. This trend is also same for non-GIIPS (Austria, France, Belgium, Germany, Netherlands) Eurozone countries. Their systemic importance has a peak with the outbreak of Eurozone crisis while they are not affected much by 2008 crisis. However, non-GIIPS countries become the most systemically important group in 2014:q1 accompanied by a decrease of systemic importance of the US. This term corresponds to the implementation of reduction in asset purchases by US. Given this, decrease in systemic importance of US becomes reasonable. Other countries (Australia, India, Sweden, Turkey) also becomes more systemically important at this term. However, the expectations about continuation of US expansionary policies rise after estimation on growth of US economy for 2014:q1 implies economic shrinkage. Change of systemic importance after 2014:q2 in terms of US and other

groups and countries can be interpreted depending on this explanation. Japan and Switzerland are systemically vulnerable countries since these countries are important lender for this international banking network.

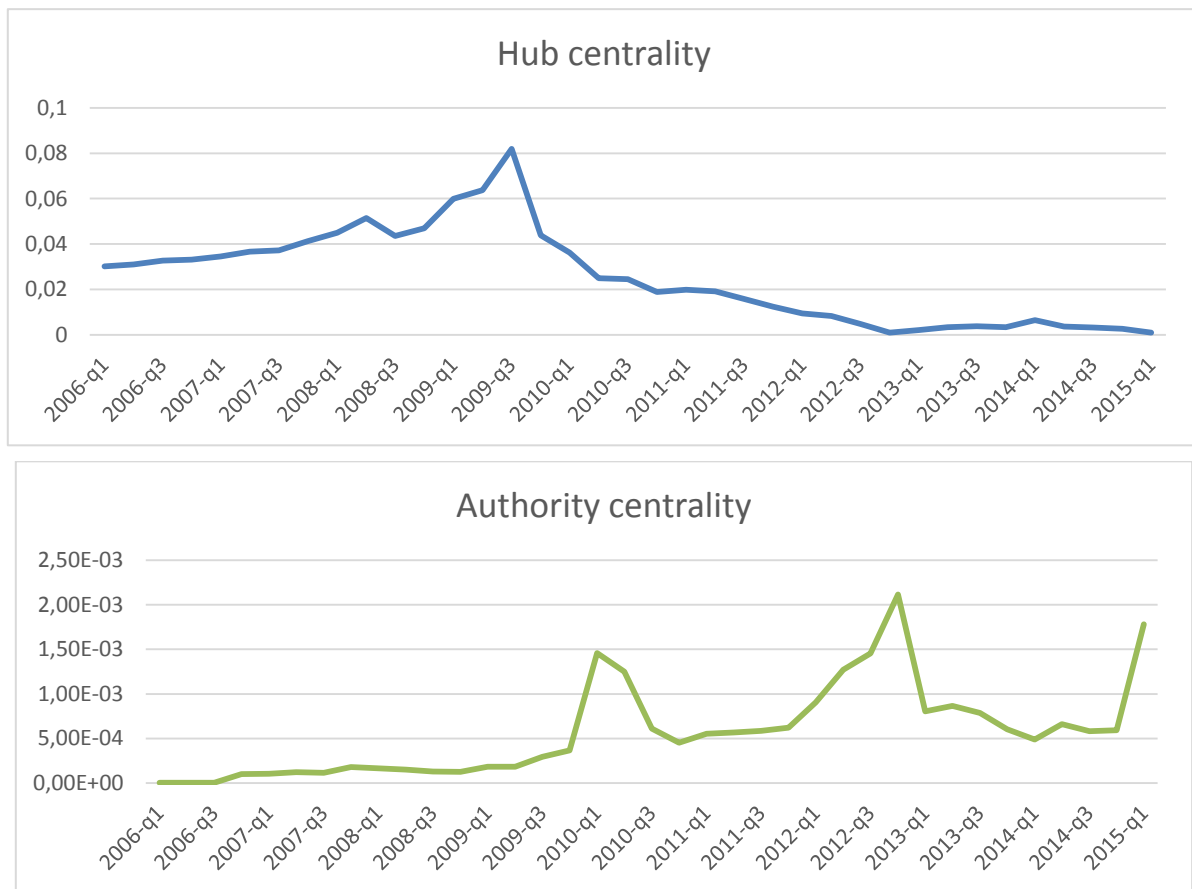
Figure 8: Hub and Authority Centralities of GIIPS



According to the results in Figure 8, Italy is the most systemically important country among GIIPS within the period. Hub centrality of Italy increases rapidly after the outbreak of the global crisis and has a peak with the Eurozone crisis. This trend is same also with the trend of hub centralities of Spain, Portugal and Greece. However, systemic importance of Ireland follows a different structure. Systemic importance of Ireland has another peak at 2013:q1 as well as global and Eurozone crises. When it comes to systemic vulnerability, it can be said that Spain becomes a systemically vulnerable country rather than being a systemically important country after global crisis. On the contrary, Greece, Portugal and Italy seem like systemically important countries rather than being systemically fragile countries.

Hence the centrality scores of Greece are lower relative to the other countries, it can be better to have a close look at them since Greece has importance in the network in financial meaning within the period. Figure 9 presents the hub and authority scores of Greece.

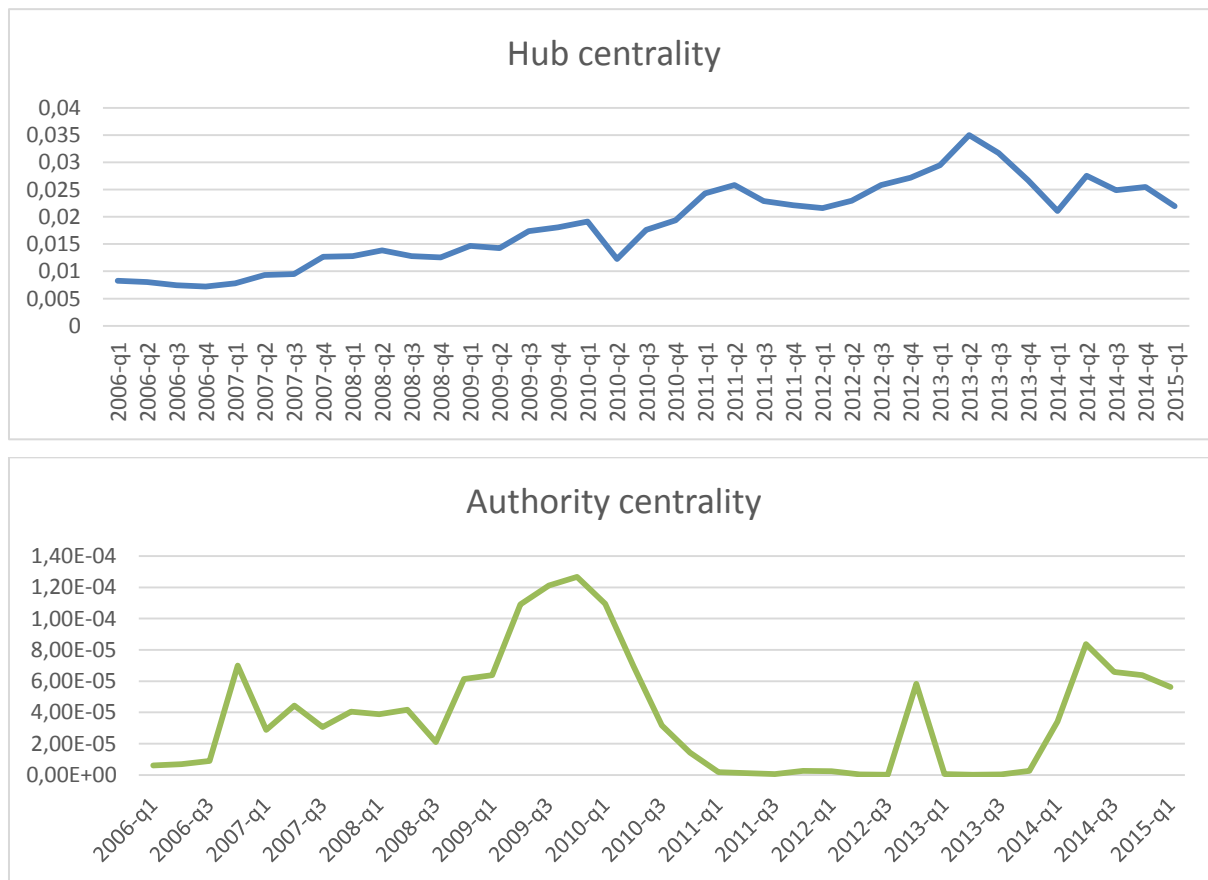
Figure 9: Hub and Authority Centralities of Greece



First of all, depending on values of hub and authority scores, it can be seen that Greece is more systemically important country rather than being systemically vulnerable country. Systemic importance of Greece increases from the beginning of the period. It reaches its peak at 2008:q2 just before the outbreak of global crisis. However, its systemic vulnerability increases as of 2009:q4 while its systemic importance decreases. Thus, it can be said that Eurozone crisis is more effective than global crisis for Greece in terms of systemic vulnerability. Systemic vulnerability of Greece starts increasing again after 2010: q4 and reaches its peak at 2012:q4 which is the term some European countries (Italy, Spain, Portugal and Ireland) suffer from crisis.

Nevertheless centrality scores of Turkey are very low compared to other countries in the network, it can be said that Turkey is a systemically important country rather than being systemically vulnerable country since its hub scores are higher than its authority scores (Figure 10). However, authority scores of Turkey are more fluctuant.

Figure 10: Hub and Authority Centralities of Turkey



The first rise of authority score of Turkey is at 2006:q4 that corresponds to term of explanation of FED to raise interest rates. Vulnerability of Turkey's banking system starts increasing sharply after the outbreak of global crisis and has its peak at 2009:q4. It can be said that Eurozone crisis does not affect the vulnerability of Turkey much. Another increase is between 2013:q3 and 2014:q2 which is the term involves declaration of US about possibility of cutting down on expansionary policies due to recovery of economic indicators.

5. CONCLUSION

We have analyzed the cross-border banking activities of 18 countries within the period 2006:q1-2015:q1 via network analysis. It can be seen in the findings that the network disassortative -core-periphery- structure. Power-law structure is another important property of the network. It has been revealed by many studies that financial networks have power-law distribution. However, power-law distribution in even such a small network implies scale-free property over again.

Our results show that network statistics capture the effects of both global and Eurozone crises. Clustering coefficient, exponent of power-law, centralities of countries are affected by the crises. However, core-periphery and scale-free structures of the network has remained same. It is also observed in the analysis that hub and authority scores are more informative indicators when compared to first degree indicators such as share of liability in total liabilities since they take interconnectedness into consideration.

This study has been done with a limited data of international banking system since all countries in the international banking system do not present their data. Undoubtedly that the results will be more reliable with more comprehensive data. Further step of this analysis might be extension of the analysis including other countries.

REFERENCES

- Acemođlu, D., Ozdaglar, A., Salehi, A. 2015, "Systemic Risk and Stability in Financial Networks", *American Economic Review*, vol. 105, no. 2, pp. 564-608.
- Allen, F., Gale, D. 2000, "Financial Contagion", *The Journal of Political Economy*, vol. 108, no. 1, pp. 1-33.
- Alves, I. et al. 2013, "The Structure and Resilience of the European Interbank Market", *ESRB Occasional Paper Series*, No:3, pp. 1-43.
- Bandt, O., Heam, J.C., Labonne, C., Tavoraro, S. 2013, "Measuring Systemic Risk in a Post-crisis World", *ACP Banque de France, Débats économiques et financiers*, no. 6,
- Barabasi, A., Albert, R. "Emergence of Scaling in Random Networks", <http://snap.stanford.edu/class/cs224w-readings/barabasi99scaling.pdf>, (13.03.2016).
- Barrat, A., Barthelemy, M., Vespignani, A. 2004, "Traffic-Driven Model of the World Wide Web Graph", *Algorithms and Models for the Web-Graph*, Third International Workshop, ed. Stefano Leonardi (Springer).
- Battiston, S., Caldarelli, G., "Systemic Risk in Financial Networks", *Journal of Financial Management Markets and Institutions*, vol. 1, no. 2, pp. 129-154.
- Caldarelli, G. "Lectures in complex networks", http://www.ifr.ac.uk/netsci08/Download/Invited/ws1_Caldarelli.pdf .
- Chinazzi, M., Fagiolo, G., Reyes, J., Schiavo, S. 2012, "Post-Mortem Examination of the International Financial Network", *University of Trento Department of Economics*, no. 02/2012.
- Csardi, G., Package 'igraph', <https://cran.r-project.org/web/packages/igraph/igraph.pdf> .
- Decarlo, L. 1997, "On the Meaning and the Use of Kurtosis", *Psychological Methods*, vol. 2, no.3, 1997, pp. 292-307.
- Estrada, E. 2015, "Introduction to Complex Networks: Structure and Dynamics", *Evolutionary Equations with Applications in Natural Sciences*, *Lecture Notes in Mathematics* 2126, J. Banasiak, M. Mokhtar-Kharroubi (eds.), Springer International Publishing Switzerland.
- Fagiolo, G., Reyes, J., Schiavo, S. 2010, "The Evolution of the World Trade Web: A Weighted-Network Analysis". *Journal of Evolutionary Economics*. c.20, s. 4, pp. 479-514.
- Fuge, M., Tee, K., Agogino, A. "Network Analysis of Collaborative Design Networks: A Case Study of OpenIDEO", http://www.markfuge.com/papers/fuge_tee_openideo_icise_final_2013.pdf, 14.03.2016.
- Hein, O., Schwind, M., König, W.2006, "Scale-Free Networks – The Impact of Fat Tailed Degree Distribution on Diffusion and Communication Processes", *Wirtschaftsinformatik*, vol.48, 267–275.
- Howell, A. 2012, "Network statistics and modeling the global trade economy: exponential random graph models and latent space models: is geography dead?", *University of California*, unpublished thesis.
- Kleinberg, J. M. 1999, "Authoritative Sources in a Hyperlinked Environment", *Journal of the ACM*, c. 46, pp. 604-632.
- Knorn, F. 2005, "Ranking and importance in complex networks", http://www.hamilton.ie/publications/Studienarbeit_Florian_Knorn_screen.pdf .
- Kolaczyk, E.D. 2009, *Statistical Analysis of Network Data Methods and Models*, Springer.
- Krause, A., Giansante, s. 2012, "Interbank lending and the spread of bank failures: A network model of systemic risk", *Journal of Economic Behavior & Organization*, vol. 83, pp. 583-608.
- Leon, C. Perez, J. 2013, "Authority Centrality and Hub Centrality as Metrics of Systemic Importance of Financial Market Infrastructure", *Borradores de Economía*, No: 754.
- Leon, C., Berndsen, R.J. 2014, "Rethinking financial stability: Challenges arising from financial networks' modular scale-free architecture", *Journal of Financial Stability*, vol. 15, pp. 241-256.
- Leon Rincon, C.E., Machado, C., Sarmiento Paipilla M. 2015, "Identifying Central Bank Liquidity Super-Spreaders in Interbank Funds Networks", *EBC Discussion Paper*, vol. 2015-010.
- Lovric, M.2010, "Skewness", *International Encyclopedia of Statistical Science*, Springer: New York.
- Markose, S., Giansante, S., Gatkowski, M., Shaghghi, A. 2010, "Too Interconnected To Fail: Financial Contagion and Systemic Risk in Network Model of CDS and Other Credit Enhancement Obligations of US Banks", *University of Essex Discussion Paper Series*, no. 683, pp.1-59.
- Markose, S. 2012, "Systemic Risk from Global Financial Derivatives: A Network Analysis of Contagion and Its Mitigation with Super-Spreader Tax", *IMF Working Paper*, no. 12/282.

Markose, S. 2013, "Systemic Risk Analytics: A Data Driven Multi-Agent Financial Network (MAFN) Approach, pp.1-29.

Mitchell, M. 2009, Complexity A Guided Tour, Oxford University Press.

Newman, M.E.J., "Mixing Patterns in Network", <http://arxiv.org/pdf/cond-mat/0209450v2.pdf> .

Newman, M.E.J. 2010, Networks An Introduction. 1st pr. Oxford University Press.

OECD. 2009, "Applications of Complexity Science for Public Policy- New Tools for Finding Unanticipated Consequences and Unrealized Opportunities".

Reichardt, J. 2009, "Introduction to Complex Networks", Structure in Complex Networks Lecture Notes in Physics, s. 766,(Springer-Verlag Berlin Heidelberg).

Serrano, M.A., Boguna, M. 2006,"Clustering in Complex Networks: General Formalism", Physical Reiew E, 74, 056114.



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TECHNOLOGY: ARE WE USING IT OR IT IS USING US?

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ABSTRACT

Technological developments lead to a level of prosperity as well as to misery. Latest industrial developments also caused serious problems in the economic, social and political context. In today's world, information as well as information technology are of great significance - this will be of increased importance. Our today's source of information is based on computer technology. Wars between countries are rather made by the power of information as per weapons. While in the past, reduplication of knowledge generation took 4.000 years, today we only need 50 years for it. The accumulation of knowledge leads to new innovations so that technology is today an indispensable factor of our world. This leads to the fact, that the world is today a global village. Today, the industry is not able to meet the demand of the information society. Developments in the information technology go hand in hand with the individual context and the fields like governance, industry, economy, social policy and entertainment. The rapid change and development of technology and information caused incorrect use of technology and information as well as the facts of not being able to follow current trends and a great competitive pressure. All the above-mentioned indicators pointed to pressures and stress on people. In addition, the cultural structure and standards are negatively impacted. People and the world suffer from the incorrect use of technology and information. The rapid change of information and the access to this information caused and increased information pollution. People were not able anymore to differ between correct and incorrect information. This information pollution affected the soul and mind of people negatively.

1. INTRODUCTION

Technological resources lead to new methods and techniques in the learning process. This is why we have many innovations and methods in the learning environment. The technological expansion caused changes in curricula: subjects as teaching technologies, information technology and collection of information were added. Also these lessons were increased while other lessons were reduced. Although it was intended to use more technology in education, in general teacher candidates of the education faculty get educated of only limited information and methods considering technological education. Also these lessons are not connected with other disciplines. This means that teacher candidates get no information about the usability of technology. They also get no information about the scope of application and how to use it. Teacher candidates with no sensibility of using technology as a method of education are influenced negatively considering their experiences, approaching, believing and attitude. This will also influence their students negatively: Technologies in education were taught wrongly, so that the students use technology also in an ineffective way. (Çağiltay ve diğ., 2001: Öksüz ve diğ.2009 :Usta, E., Korkmaz, Ö. 2010).

The use of teaching material simplifies the comprehension and learning. It is an effective way of teaching. In this manner, students may achieve their goals much easier obviously. One of these teaching material is information technology. So it is possible to simplify the understanding of events and facts in the classroom. The use of visual materials are as important as the source of material as well as its preparation. (Yaşar,2004: Karamustafaoğlu vd., 2005).

It is a known fact that the learning process is a complex matter. If you want to use technological methods and materials for teaching students, the matching of various methods would be more effective. It would be a mistake to match only one method or factor with the learning process. Technological development enables experiments, sharings and other

possibilities in teaching. On the other hand it bears the risk of reducing critical approaches. In spite of thinking, students will use made tasks and add no further information-teachers also use scripts of their colleagues. Now we fight against technological espionage/robbery, ethical violations etc.

Today, 15-years-old students of OECD countries take part of the PISA (Program for International Student Assessment) test at the end of their compulsory education. With this test, we can determine how prepared the students are considering the managing of daily situations in information society. With this test we try to determine not how much the students learned by heart at school. We rather try to determine if the students are able to manage daily life by using, analysing, thinking the methods and techniques of lessons hold at school. Also their knowledge and use of science and mathematics will be determined. In this way we try to determine their ability to communicate[20].

According to the (PISA) test of the year 2009, in which 65 countries as well as Turkey took part, Turkey achieved rang 43. in mathematics and rang 41 in reading comprehension. Students of Finland get the best results of the test. After searching for the reason of the success of Finland's students, we came to the conclusion that the following facts influenced the result:

Training of teachers,
Traditional educational path,
Prestige of teacher career,
Continuing education of teachers (Çelen ve diğer.2011).

For being a competitive business, communication, sharing of information, using og technologies in business etc. is indispensable. Today's small-medium-sized and large companies are dependent on information technology by matters like making records, archiving, money transfers, communication. It must be known that information technologies implicate also safety problems. These problems grow continuously (malicious software-data theft - technological spying - internet piracy etc.)

Companies suffer from high damages caused by deleting of folders, damaged PCs, PC crashes and for other causes (Acılar 2009).

Rapid technological development causes also cyber mobbing. Cyber mobbing stands for the cyber extortion, intimidation, threatening, physical or psychological abuse and other actions. Cyber mobbing is made via e-mail, messages or by using pictures. For realising this kind of mobbing, web sites, blogs, chat rooms or social media are used (Ari, S. , vd. 2010: Arıcak 2011).

With the technological development, today's children are spending hours in the internet. Some of them are visiting websites with offensive contents due to unknowingness or for self-assertion. Sexual offers or sexual abuse are some of the consequences. According to the report of 'World Tracker', 82 of the 200 most typed words in search machines are of pornographic content. There is a high probability that children get confronted with these contents. There are 7650 censored websites of pedophiles. The number is growing every day. The monetary amount of such pedophilic websites at approximately 5 billion Dollars. According to the report 'Annual Report of Internet Children Abuse', it is mentioned that the internet child abuse is growing faster and that the abused children are under the age of 9. Due to the report, 1.700.000 children abuse and mistreatments videos were gone viral of 36.149 children in the year 2009. 42 % of them were under seven years, 77% of them were under 9 years. Whereas the internet filter and the internet freedom was discussed, the oline children abuse grew up in the last 6 years to 149 % (Gürhan 2015).

We can classify today's internet sources into areas like: Medicine-Agriculture; Energy and Power - Information and Communication- Transport-Production. The rapid technological development caused big changes in lifestyles. It also affected disloyalty to traditional values. Rapid technological development caused and extended globalisation, new economical management behaviours, e-business, oline-jobs, e-commerces, new client types, social media marketing, etc (Alkan 2003).

Today's most visible characteristic is the technological lifestyle and the domination of certain powers on the crowd. Technological intruments are very important but they are also difficult to control. Things like internet, various TV channles, smart phones are changing people to depending ones which cannot decide or think and which have no personal priority nor free behaviour. Technology stands for more than watching and controlling us: it stands for navigating us by building us a new behaviour as well as a life and characteristics. With every instrument we use, we left traces, especially dominant classes can follow us. This causes pathologic humanisations and a healing of personality disorder of those who are watching while those who are watched lose their freedom and this lead them to hopelessness (Turan S.,Esenoğlu C.,2006) .

2. CONCLUSION

As result, if technology is not used in a fairly way, some people will benefit whereas others will suffer. It seems more important that the insistence of technology, no-debating of the importance of the social, moral, political and economical aspects of teachers and schools will lead to the fact that schools loses its meaning. One should not forget that technology leads also to negative aspects like alienation, loneliness, egocentricity. The famous Brazilian philosopher Freire said that

technology is instead of developing humans more a way of service for the 'oppressors' to make from humans 'objects'. In other words: Technology is a 'cultural invasion' of the ruling class which is against dialogue.

REFERENCES

- Bayatoğlu B.B., (2005). Bilişim Teknolojilerinin Türk Bankacılığının Yönetim Ve Organizasyon Yapısına Etkileri T.C. Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü İşletme Anabilim Dalı Yönetim Ve Organizasyon Bilim Dalı. Yayınlanmamış Yüksek Lisans Tezi
- Arun K., Türkay B., Fen G., Vd. (2014). Yeni Teknolojilerin Yönetici Rollerini Üzerindeki Etkisini Saptama Üzerine Bir Araştırma . Bjs Balkan Journal Of Social Sciences / Balkan Sosyal Bilimler Dergisi. 3. 6
- Yavuz. S., Coşkun.E., (2008). Sınıf Öğretmenliği Öğrencilerinin Eğitimde Teknoloji Kullanımına İlişkin Tutum Ve Düşünceleri Attitudes And Perceptions Of Elementary Teaching Through The Use Of Technology In Education . Hacettepe Üniversitesi Eğitim Fakültesi Dergisi (H. U. Journal of Education) 34. ss: 276-286
- Turan S., (2002). Teknolojinin okul yönetiminde etkin kullanımında eğitim yöneticisinin rolü. Kuram ve uygulamada eğitim yönetimi. 30.ss: 271-81
- Çağiltay, K., Çakıroğlu, J., Çağiltay, N. ve Çakıroğlu, E. (2001). Öğretimde Bilgisayar Kullanımına İlişkin Öğretmen Görüşleri. Hacettepe Üniversitesi Eğitim Fakültesi Dergisi,21, 19-28.
- Öksüz, C., Ak, Ş. ve Uça, S. (2009). İlköğretim Matematik Öğretiminde Teknoloji Kullanımına İlişkin Algı Ölçeği. Yüzüncü Yıl Üniversitesi, Eğitim Fakültesi Dergisi. Haziran 2009. Cilt:V1, Sayı: 1, 270-28
- Usta, E., Korkmaz, Ö. (2010). Öğretmen adaylarının bilgisayar yeterlikleri ve teknoloji kullanımına ilişkin algıları ile öğretmenlik mesleğine yönelik tutumları. Uluslararası İnsan Bilimleri Dergisi [Bağlantıda]. 7:1. Erişim: <http://www.insanbilimleri.com>
- Karamustafaoğlu O., (2006) . Fen Ve Teknoloji Öğretmenlerinin Öğretim Materyallerini Kullanma Düzeyleri: Amasya İli Örneği . AÜ. Bayburt Eğitim Fakültesi Dergisi. 1. Ss:190-101
- Yaşar, O. (2004). İlköğretim Sosyal Bilgiler Derslerinde Görsel Materyal Kullanımı ile Coğrafya Konularının Eğitim ve Öğretimi. Milli Eğitim Dergisi, Sayı: 163,104-120.
- Çelen K F., Çelik A ., Seferoğlu S S (2011). Türk Eğitim Sistemi ve PISA Sonuçları, Akademik Bilişim. 2-4
- Acılar. A., (2009). Kobi'lerde Bilişim Teknolojileri Güvenliği Sorunu: Tehditler Ve Önlemler . Afyon Kocatepe Üniversitesi, İ.İ.B.F. Dergisi. C.X I.S I
- Turan S., (2002). Teknolojinin Okul Yönetiminde Etkin Kullanımında Eğitim Yöneticisinin Rolü. Kuram Ve Uygulamada Eğitim Yönetimi. 30. 55.ss:271-28
- Arıca, O. T. (2011). Siber zorbalık: Gençlerimizi bekleyen yeni tehlike. Fatih Üniversitesi Kariyer Penceresi Dergisi, 10(6), 11-12
- Arı, S. V., Er, S. H., Özer, Ö, ve Şahin, M. (2010). Lise öğrencilerinin siber zorba davranışlarda bulunma ve maruz kalma durumlarında ilişkin görüşleri. SDÜ Dergisi Fen Edebiyat Fakültesi Sosyal Bilimler Dergisi, 21, 257-270.
- Alkan N., (2003).Tıp ve Sağlık Kuruluşlarında Yönetim. Bilgi Dünyası. 4.2.ss: 122-145 Turan S.,Esenoğlu C., (2006). Bir Meşrulaştırma Aracı Olarak Bilişim ve Kitle İletişim Teknolojileri: Eleştirel Bir Bakış. Eskişehir Osmangazi Üniversitesi. İİBF Dergisi. 1.2.ss: 71-86



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THE ROLE OF INSTITUTIONS WITHIN NATIONAL AND REGIONAL TECHNOLOGIC INNOVATIONS IN THE USA AND GERMANY

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ABSTRACT

If we a little bit elaborating Schumpeter model of technological innovation (invention → innovation → diffusion), we can confirm that every stage of innovation process is frankly interconnected. With this judgement, it is also seen that socio-economic institutions are quite influential in the emergence of technological innovation. The main purpose of this paper is to figure out why countries show different level of success; moreover, what kind of effects national education, finance and science have on national and regional technological advances. Furthermore, the role of radical and process innovation is examined in respect of national technological advance and institutional innovations. In this regard, two countries are contrast and compare, namely the USA and Germany.

Keywords: Schumpeter, radical innovation, process innovation

JEL Codes: O14, O31, O33

1. INTRODUCTION

In economics science, institutional transformation has been significant under the evolutionary developmental biology models that define humanity's historical development gradually. Breaks of institutions can be regarded as inevitable for economic advancements. Until Schumpeter put forward the importance of research and development, new technologies have been taken as a production of economic activities. However, it is also wrong that new technologies are merely on the research and development scope as it can be emerged in every stage of production chain. Besides technological and economic components, socio-economic institutions are being significant as impact factor too. Furthermore, social limits conditions and institutions influence on composing of new technologies indirectly. When countries are assessed in terms of composing of new technologies, the type of country's technological innovations are appeared in accordance with social and institutional limits conditions. It is expected that the institutions are being in flexible structure and leading radical changes via *creative destruction*. Germany has succeeded *process innovations* since 1980s. For the United States of America, it can be claimed that she is a pioneer of *radical innovations*. In this paper, it is provided an insight in the ability of transformations and breaks in the economics of both Germany and the United States. The precautions, that are taken after 2000, about institutions are not considered in this work because it seems more important to see the roots of lasting problems for years than the slowly changing process. The main aim of the paper is indeed seeking answers to the questions about how different the institutional flexibility within Germany and the USA, and the obstacles against it in these two.

2. TECHNOLOGICAL INNOVATION

Innovation or technical progress is defined as a change of production function. The term of innovation is a Latin word and primarily refers to renewal (i.e. products, firms type, structure type, methods, organisations, etc.) Innovations consists of two parts; a. radical innovations, b. process innovations. On the one hand, process innovation is a high valued improvement strategies emerged in the duration between entrepreneur and the actors taking place in innovation process. Entrepreneur could improve the goods and services as a result of the interaction between distributor and customer (Ritter, 1993:137).

Radical innovation, on the other hand, is the quantum leap in the development of new products, product manufacturing methods or organizational forms. With them, new markets and customers are gained.¹ In the models of neoclassical economics, innovations happened by chance and it has an external character. Schumpeter, however, comprehend the significance of innovations and he announces investor a leading player of innovations in his well-known work "Theorie der Wirtschaftlichen produktionsmittelvorrat neu Kombiniert" (Schumpeter, 1912). In this way, he individualized innovation movement.

Investors present new products to markets. This will lead economy to a dynamic improvement process with the support of **creative destruction**. In 1942, Schumpeter put the role of research and developments in big companies into his theory (Schatzl, 1996:10). For Schumpeter, improvement process of technical advancement is realised in three main stages, namely, invention, innovation, diffusion, respectively.

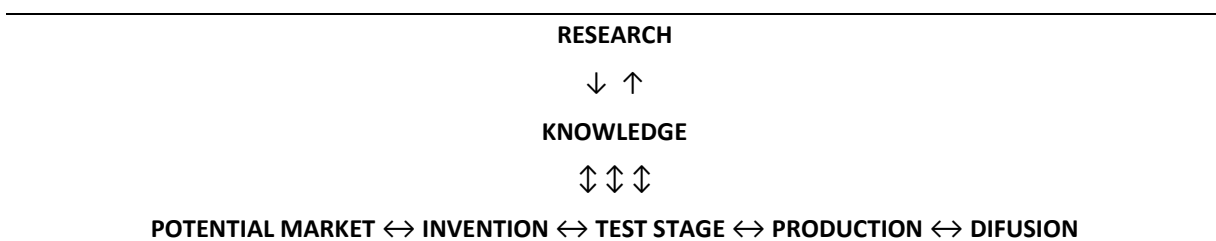
INVENTION → INNOVATION → DIFUSION

Source: Backhaus,1999:8

Here, invention refers to find or create something totally new, something entirely unknown before. In the stage two, with innovation, the invention is accepted for first time and achieve success. Then, in the last stage, there is a spread all over. Thus, Schumpeter's creative destruction demolish the old order and build the new (Schatzl, 1996:110).

If newly established firms with new technology could not be successful immediately, they are blocked from the market, so economic advancement is damaged from it. Moreover, the pressure of being creative coming from newly established firms towards the current ones is stopped since current firms tries to keep their routine. It is self-evident fact that new firms provide the essential innovations throughout the history of economics. Additionally, there are enough evidence to accept this assumption is also true for radical innovations.² Current firms generally find it difficult to marketing radical innovations.³ If innovations get grounding in scientific knowledge day by day, then new trouble has occurred because scientific invention should be harmonised throughout the economy in the first place. Here the bridge between science and economy is built mostly by new companies under the rule of scientist.⁴ Without evolution, innovation cannot survive. In Schumpeter's theory, the stages of technological innovation process have not been connected each other and there is no feedback mechanism. Information flow is only one way. In this point, it is essential to approach his model critically because the root of innovation does not rely merely on science and research but must conceive the needs of distributors and customers. The perception that innovations could come with investments all the time should be corrected.

Figure 1: Model Based on Interaction



Source: Backhaus,1999:9

Common evolution of evolutionary and innovative firms is the driving force of market economy systems. This entrepreneur composes the core of information society. Evolutionary modernism paradoxically makes it necessary to overcome integration problems. Thus, evolutionary entrepreneurs obligate to do it. Interaction between innovation and evolution also take place in some partial systems of society. If politics, law or science paralyze common evolution of economic base of innovative enterprises, development target could not be reached. Therefore, wave dynamic is eroded, economy is being a *dead sea*.

¹ Cars using higher technology day by day can be considered as an example of a process innovation while invention of computer in last century can be regarded as radical innovation.

² We can define innovations as NBIC (Nano, Bio, Info, and Cogno) innovations. Innovations that has radical/destructive nature has shown converging characteristic, that includes different research field knowledge, thus, it requires new kind of specialisation current firms do not have.

³ Among them, we can tell there are some big companies such as Toyota, Roche, General Motor.

⁴ As it is not directly relevant, we cannot detail it here but it should be known that it has been happening in the USA so successfully. It is almost regarded as a **mission** for a professor to establish a company to apply their findings, especially if they work in physical sciences.

3. THE OBSTACLES OF INSTITUTIONS FLEXIBILITY

There are two underlying thoughts behind of the thesis: "breaks are inevitable for improvements". First, institutions should be continuous to provide orientations. Continuity of institutions, on the other hand, are possible with the existence of stabiliser. New institutions have risks as once inventions get into an economy; it needs to be accepted by the society. Secondly, institutions can oppose the ambient conditions since stabilising elements has limited transformation ability. That is why, breaks in institutions are inevitable to adopt changing world conditions. The independence and flexibility which provide breaks to happen in institutions are also determine whether a country has voice into radical or process innovations. This transformation model depends on evolutionary-biological improvement that occurs via bitty breaks. Long-term recessions are stopped by sudden phenomes (Gowdy, 1992:4). From 1980's, this envision having great impact on the transition and progress approach in social science has a highly intuitional convincing since plenty of events throughout the history can be explained in this way (i.e. revolutions).

The new researches about institutional transitions focus on a culture embedded stabilising factor in. Therefore, firstly seek an answer to the question of "what is culture?". (Hermann, 1993:95). Culture is a contemporary reality that is inherited from the past to nowadays. Decisions towards future always depends on that kind of reality in the context of cultural components. Thus, new cultures are not composed for no reason. When the cultural values are detected, it can also be identified their ability to influence on transformations.

Other stabilising factors beyond the institutional breaks are insecurity, investments and interests. Those can be seen as secondary stabilising factors. Culture has two qualities that make itself valuable, namely, culture affect perception, and culture is long-term phenomenon transformed only in long-term. Additionally, these secondary stabilizers play a significant role on to shape transformation as it has an impact on culture. For instance, keeping high insecurity or interests still will largely affect culture's transformation ability. Primarily, in light of the insecurity stabilizer, the knowledge about possibility of action can be seen as follows; 1. Knowledge can be perfect and certain. 2. Knowledge can be imperfect and certain. 3. Knowledge can be perfect and uncertain. 4. Knowledge can be imperfect and uncertain. In practice, the last is the most common one we see. Although actors know all behavioural pattern, they do not entirely aware of its content, or see neither all alternatives nor evaluate its costs. Thus, decisions are made in insecure environment. If we assume that, however, people escape from insecure environment, it means safer solvation is preferred (Priddat, 1994:6). Because, in this way, uncertainty is maintained for the costs arising from the form new institutional methods or the costs coming from receiving new information of that. Because of this, it is decided to keep current institutions in its way. It is the same for investments. Individuals invest in their own "institutions". Here, they must obey the rules about jargon, codes, routines, contract, and agreement; and this brings costs together with it. That very costs are specific and high as it is unique for every institution and cannot be transmitted from one to another easily. Each firm create their own jargon, codes, routines etc. In addition to these fixed costs, marginal costs can be added top on them comfortably and cheaply. For a new institution, there are both fixed costs and variable costs. Investors ask if the investment is worth to do since even the gain from current institution is getting lower may be accepted. Investors have the perception of a current institution bring more benefits than a new one.

The last but not the least important one is political interests. The allocation effect occurs from establishing new institute do not evenly distribute to the members. On the one hand, some members rewarded by current institutions would be against to the modifying of the distributional structure. Nevertheless, if they allow to establishment of new institutionalism, there will be a cost as other members who are not rewarded yet will demand their share. On the other hand, even if all members seek a new solution—**collective action** we named—, there is still a problem. In common level, all members will benefit from the new institutionalism, but in individual level, old institutionalism seems to have more advantages (it is a familiar issue of the game theory). Hence, they will not go for new institutionalism.⁵

Insecurity, investments and interests cannot live by themselves, they are existed because of perception of the observers. Different conceptual models determine the degree of insecurity perception, affect the level of sunk investments, and settle the intensify of various interests. In this context, the culture ready to take risks takes different position than the risk-averse one. Similarly, existing conditions or priorities affect institutions' transformation abilities as the dependence on these conditions and priorities have different kind of weight compare to prisoner's dilemma. Hence, the perception of these stabilizers' cultural dimension is an important factor, so the culture could gain a solid dynamic in cultural transformation in this way. Education system, structure of banking system, governments, law, and individualism closely affect institutions flexibility. Technological innovations are possible to evaluate on a country bases. Those can be geared in a line between liberalism and corporation. Thereunder, under the social and institutional frame, a country's form of technological innovation is taken shape. Germany is a process innovation country whereas the US is the pioneer for radical innovations. Soskice (1997) mentions two groups. From his point of view, in the first group that consists of the US, England, and Ireland

⁵ Insecurity, investments and interests influence unofficial institutions rather than official ones. A specific interest of an investor culture would lead employees to embrace this culture.

(Anglo-Saxons), radical innovations occur because of their unconstrained structure while in the second one which includes Nederland, Germany, Japan, process innovations are dominant (Soskice, 1997:340-350).

4. GERMANY'S SITUATION IN TECHNOLOGICAL INNOVATIONS

Germany, especially after the WWII, has tried to close the gap between itself and the industrialized western countries in terms of space research, nuclear energy and communications technologies. However, this approach became so problematic as knowledge could not be integrated into the economy or existing technologies did not allow changes due to their high costs (Keck, 1993:134-137). Germany tends to compose core industries and chemical-medical cluster. 19 of 25 companies in this sector are established before 1913. Today, these companies are active in manufacturing automotive, electronics industry, making machines and chemical industry. The companies, they were exporters even in 1913, are still producing the biggest share in Germany's exports. After 1970s, Germany got into a recession about innovations (Keck, 1993:134-137).

Why Federal Germany is not working in radical technology as it did in 1970s?

Related questions to the issue can be ordered as follows:

- Is there any absence of the potential to increase knowledge that help to create a new technology?
- Are they focusing on economically worthless knowledge or technology instead?
- Is there any deficiency in acquiring of knowledge?
- Is there any problem to use of knowledge?

It is obvious that big research institutes are not flexible enough, thus they can neither afford the potential needs of the changing society and economy nor provide the research and technology that is transformed to products within the sectors. With the decrease in nuclear energy researches in Germany, especially big research institutions are strict in the structures (Erber, 1998:6-7). Moreover, most of the time it is seen that existing institutions cannot adapt to the rapid changes in conditions as they are not flexible enough. It may not be a result of the shortage of institutionalism, may be a consequence of the institutional lock-in effect. Institutions are generally graded, so it has ability of evolutionary transformation. Eventually, because there is no shocking mainly raised from the institutions there will be no finding its own level again in the economy field. Schumpeter's innovation process that he named as **creative destruction** means big obliteration as they cannot meet the changing requirements result of the social transformation. Exceptions also confirm that there are rare breaks within the institutions. The research institutions and economy can be related to each other only when they are interconnected (Erber, 1998:7-8). For Schumpeter, *energy of the act* combines with the knowledge, new notions, creativity, and intelligence here.

An international commission decides that research system in Germany has no ability to adapt to the rapid changes of innovative cycle or conditions accompanied by globalization (Erber, 1998:8-9). German information system is not entirely get into research fields and shows apparent lack of penetrate existing institutions to work to make them more flexible. There are various reasons why institutions are not flexible, such as, labour force employment, education structure, tax rates etc.

Germany, for Soskice, could be categorized into coordinated market economy. During the coordination process, foundations and unions are extremely important. With the liberal glance at it, it might be thought that these framed conditions would restrict investors. However, collective advantages also emerged from this too. Strong economic unions and foundations constitute well advanced regulator structures. Those, on the one hand, work to solve conflicts; on the other hand, try to create standards. German work-relations-system guarantees labour force employment; thus, it encourages the establishment of institutions with fundamental technologic qualifications that are necessary for process innovations⁶ (Soskice, 1997:340).

German education institutes/universities are not attentive to the training of entrepreneurs/investors compare to their American peers. Ability of entrepreneurs/investors are unintentionally dulled within German education system. Potential entrepreneurs/investors get through this system are employees with **high standards** but as an enterpriser they are **impotent**. They remain either potentials with high standards or being unsuccessful enterprisers. Therefore, universities and other kind of education institutes are not only a traditional manufacturer of knowledge but practitioner of it too. That is to say, this give them a key position as new combinatorics.⁷ Entrepreneurs/investors abilities gained in the universities are in

⁶ That kind of establishment may also lead to decrease in flexibility and pace. Establishment or close an institution might be harder, radical innovation would not realise.

⁷ New combinatorics are Schumpeterian investors. According to his point of view, development is coming from combination. Without its existence, every economy inevitably loses its balance and slide into recession because innovation cannot realise by itself. Thereafter, there are ability, desire, and its conditions comes to the stage. At this very point institutions step in. If we consider universities as institutions, we will see that universities have abilities, they desire, and they have facilities so that they could innovate.

the centre of international information society, knowledge-based strategy, and economic development. Conventional education and didactics cannot raise innovator-commentator (entrepreneur) individuals. This, the most active element of economics world is not in compliance with the passive and recessionary education given to children. Otherwise, learning process would be related to academic transmission. Learners' passion for building career contrast to the long and experimental learning system. Having only specialized knowledge is not sufficient; value-oriented key abilities and independent skills are strictly necessary. If not so, invention and benefits from knowledge would be blocked.⁸ (Haga and Röpke, 2007:7-13).

Innovation connotes high risk premium. Whether an innovator takes risk or not is entirely depending on the risk premium. It is under the control of tax legislation in Germany, which raise tax rates from 36.5 per cent to 41.2 per cent from 1975 to 1985 (Neuman, 1985:6-7). German Ministry for Economy (it is named as *Ministry for Economic Affairs and Energy* since 2013) Science Committee (1985) argued that high tax rates have profound negative effects on entrepreneurship, especially on the innovation tendency of them. For independent firms, high taxes and social expenditures make it harder to be raised in their field because they consider it as working harder and taking much more responsibilities for free" (Wissenschaftliche Beirat Beim Bundeswirtschaftsministerium, 1985). Moreover, Neuman (1985) emphasized that increase in taxes slow down the innovations. In this context, in the comparison of the USA with Germany, it could be said that taking risks is not a custom in Germany as it is in the USA.

Rise in wages has influence on both technical advances and its type in terms of labour savings (Neuman, 1985:6-7). Some experimental researches confirm it with its findings. For instance, Krelle (1985) finds that increase in the wage-interest relations since 1960 bring capital intensity within Federal Germany. Related to this, it can be stated that the rise in wage-interest relation impacts technical advances type in Germany. The biggest advantage of German financial system is to give loans with fixed interests and long term. In this way, entrepreneurs do not suffer from credit squeeze, furthermore, their risk position becoming lower than it does in other countries. Because German innovation system is export-oriented and has specific institutional structure, it encourages high-valued product improvement strategies. Process innovations emerges in the long-term relationship between companies and actors. For product innovation, it can be said that it is an increasing improvement in already existed products (Röpke, 2002:20-30).

Another important issue is the stimulation provided by universities and public research institutions via private sector. In Germany, donations are hardly seen whereas in the USA, donations play a key role for subsidise. Many donators in the USA consist of graduates who transmit their knowledge into business as new combinations. Many of those are young entrepreneurs who come from scientific society with the knowledge of recent data and technology. That donation revenue undertakes a mission to not to separate economy from science. Innovative establishers from research centres are being intersection point between science and economy. However, political management of this intersection point is quite hard. Global competition conditions show us Germany stay behind (Blattel-Mink, 1995:61).

There are so many foreign scientists and students living in there. However, Germany cannot realize the improvement potential they provide as a. components of evolution are neglected b. foreign scientists and students cannot apply what they know or learn. If that kind of policy was implement in the USA, there would be nothing like the Silicon Valley (Haga and Röpke, 2007:17).

Re-organisation and rebuilding of the flexibility of institutions in Germany could be possible only when stiffness and ineffectiveness are eliminated. In this certain point, it is reasonable to keep away from available formula and solutions. Here, it is effective to create a fair competition conditions and to implement an effectiveness-rising-measurements package. Also, providing independence to the actors is necessary for them to reach their productivity. Institutional competition would be encouraged solely once the fair playing rules come down to the ground. Prudential institutions are needed to create an institutional competition ground.

5. AMERICAN LEADERSHIP IN RADICAL INNOVATIONS

The USA developed radical-oriented technology policies especially during the WWII and they build a tradition derived from the big military projects. Among them, the Manhattan Project, which is responsible to create atomic bomb, is the most famous one. Later, that military experience has used for civilian goals effectively. While NASA carry out Apollo Project, they benefit from radical-oriented technology policies that almost militarily organised. Because these projects launched by the USA government, there would be no need for stratified perfection. The President of USA always get his techno-politic targets according as Congress support him financially. National security discourse is generally used for convincing the public. As whether the research foundation is used for military purpose of not has not been questioned, military budget is

⁸ What happens in education system is generally the opposite of that (at least it is in Germany). "Joy of success, openness to innovations and will of taking risk is neglected so far (Frankfurter Institute). Additionally, Peter Glotz observed that in German universities life-time learning is totally unknown, indeed it is just a word for them.

deployed for even civilian purposed technologies. Existence of the American military forces do not only improve communication-informatics technologies but also give support for researches in biotechnical and genetics field to develop biologic weapons.

For climate and environmental researches, it is still benefitted from the database of NASA, American Air and Navy force. Military researches always have potential to use in civil fields. Air Boeing 707, for example, is originally designed to carry atomic bomb. Also, today's internet is invented to provide logistical support for American army. Yet most of them lost its military purpose after this dual-use, but still from photo-cameras to transistors, most of inventions revert to the civil life (Soskice, 1994:340-345).

The new projects such as liquid panel projects, next generation internet projects or cryptography projects, today serve for both military and civil source, thus researches remain in dual-use base. The USA, therefore, give up on to separate its industrial bases into civilian or military. The USA's military strategy in the field of research and technology is relied on industrial base of all the sectors. Today, the perception is partially changed to the opposite direction and it is argued that how to use original civil technology for military purpose. This is seen specifically in civilian computer industry that is developed semiconducting materials (Soskice, 1997:338; Blatter-Milk, 1995:61-65).

Although American techno-policy was rather military-oriented in the past and civil use of this technology is generally neglected even within the dual-use model, today the USA has been much more sensitive about it as it had gone through competition weakness during 1980s. In contrast to the past, the USA does not eager to serve its knowledge about technology to the rest of the world. Concordantly, it has implemented much strict law about patent and licence as well as encouraged the companies use their potential with in the country instead. On the one hand, there are big areas which is called "manufacturing belt" and blanket the cost side of big oceans within the USA' economic core. These areas are famous especially with the automobile industry. On the other hand, there is a place named "electronic highway" in Boston and finally newly build "sun belt" region in the south of the USA, which means sun ladder and represent aviation-space industry.

The USA is the leader of radical technologies. It owes this to the institutions flexibility. Division of labour, education, tax rates and stimulation structure is formed accordingly. American schools and vocational education system is quite disorganised and getting smaller day by day. Here education and research opportunities are formed according to the market demand usually. University professors take positions in the direction of market decisions. Additionally, universities take all burden to make researches that market demand requires. In other respect, competition between education institutions compose very core of the system. Thus, all research facilities run to the processing of high-tech production that is essential for innovation progress, and the progress is backed up by American education system (Soskice, 1997:338).

For Soskice (1997), the USA has a place among the countries having liberal organisations within market economies. Here, companies and especially companies in the export sectors do not get into the institutional settlement like that is in Germany. Foundations do not play an important role in national technological innovations in the USA. This specific generation make it hard to corporate for entrepreneurs due to the strong competition policy (Soskice, 1994: 340-341). In the USA, there is not regulatory structure to put standards on the market or to determine the competitions in a sector; market is not regulated. Labour markets are largely free and unions are relatively weak in this country (Blattel-Mink, 1995:61). This pave a way to occur flexible labour market with no effort just as it is needed.⁹

The American government role is also crucial for radical innovations in the USA. The state emerges as a factor that create employment in the military and space researches (i.e. Silicon Valley). The USA's research and development spending is quite high by 3 percent of its budget. Within this framework, it is obvious that the United States is built for radical innovations. Conclusively, for the USA, keystones of being a leader for radical innovations are flexible institutions, universities, and researches supported by the government, which are embedded in liberal market economy (Musiolik, 2001:21-22).

6. COMPARISON GERMANY WITH THE UNITED STATES ABOUT INNOVATIONS

Because institutions in Germany is not flexible enough, new entrepreneurs come from research institutions cannot build a structural linkage between science and economy. The linkage is developed in the USA as mentioned reasons existence. Also, the USA, unlike Germany, shows big differences in investors contributions into the radical innovations. Capital market institutions support young entrepreneurs for their risky investments with high returns. There is a flexible and effective research stimulation system which takes its focus point as high-tech industry¹⁰ (Blattel-Mink, 1995:15). Since risky loans are usually short-term with high profit, it restrains the long-term technological advances, thus it does not seem to suit for process innovations (Keck, 1993:137-138).

⁹ In this case, it is observed that the American economy is deprived of a lack of experienced labour force. Therefore, radical innovation seems hard to apply for some countries.

¹⁰ It is claimed that one of the reasons of support for new investments in the USA is seemed as American leadership. Also, these support are raised due to "anti-cartel law".

As it is mentioned before, the USA has no structural restriction or regulations on the markets, thus the markets are not regulated. Standards are emerged from the results of competition. This structure of the USA system provides an equal specialization on each high-tech needed field (Soskice, 1997). Competition fact in the USA national innovation system prevent to occur a cellular strategy system like in Germany. Furthermore, it has a weak coordination strategy in the education system too. Labour market is mostly work by itself and labour has relatively not much power in the country (Blattel-Mink, 1995:61). Comparison the USA with Germany could give us a table as follows;

THE USA	GERMANY
Leader of Radical Innovations	Leader of Process Innovations
Flexible Institutions	Strict Institutions
Individuality, Flexible Workforce	Team Work, Strict Workforce
Donations	No Donations
Encourage Risky Investments	Loan with Fixed Interests
Export of Radical Technology	Export-Oriented
State-Supported	Private Sector
Foreign Scientists Works Freely	Foreign Scientists Cannot Apply What They Know
Unions and Foundations Are Not Significant	Unions and Foundations Are Important
There Is No Capital Intensity	There Is Capital Intensity

Also, capital intensity happened stronger in Germany than it is in the USA because wage-interest relationship increased more in Germany (Blattel-Wink, 1995: 15).

7. CONCLUSION

The USA is a leader for radical technological innovations for years because of the flexible institutions. Schumpeter's *creative destruction* well worked in the USA owe to these institutions and make the USA leader of radical innovations. Labour force, financial system, education institutions are designed for this purpose. As Hübner's opinion "It is not wrong to assume that there is a conservatism behind national technological innovations, which reflects the interests of specific actors. As a result, innovation is not taking place" (Hübner and Nill, 2001:31).

Innovations depend on releasing new products obtained as a result of research and development project on new markets. Germany sleep through the progress of radical innovations during 1980s. Thus, it can be said that the weakness of German industry in terms of radical innovation begun in 1980s. I would like to name it as **structural conservatism**.

Germany, which is on the line of process innovations, has realized its development thanks to its ingrained industry that provides high-values. That situation is criticized more and more. Besides structural characteristics such as over bureaucracy and rigidity, deformation of political, social and economic structures bring unaffordable costs that is impossible to meet by productivity increase. Germany, because of its innovation structure, as it is mentioned, might be even in trouble with reach of high-technology in long term.

Entrepreneurs are strongly depended on their traditional concepts and production style. Leader sectors of German economy have trouble with the integration of new product and technology. It is still debatable whether Germany provide enough flexibility in institutions in order to be a leader in radical innovations although it has started to take measures since 2007. However, still it is neither easy to get a substantial amount of loan from a bank if you are not the owner of Golf nor benefitted from foreign scientist effectively in Germany. That is to say, even if Germany give hundreds Green Cards away, it seems like they would not compose somewhere such Silicon Valley.

REFERENCES

- Backhaus, A. (1999). Öffentliche Forschungseinrichtungen in regionalen Innovationssystemen. Verflechtung und Wissenstransfer - Empirische Ergebnisse aus der Region Südostniedersachsen. In: Hannoversche Geographische Arbeiten 55.
- Blattel-Mink, B. (1995). Nationale Innovationssysteme Vergleichende Fallstudie, Stuttgart.
- Conrad, K. (1985) Produktivitätslücken nach Wirtschaftszweigen im internationalen Vergleich. *Studies in Contemporary Economics*, Vol.17. Berlin.
- Erber, G. (1998). Discussion Paper No. 159 Prinzipien moderner Technologiepolitik von Georg Erber Berlin, Januar 1998 JEL-Classification: O38 Deutsches Institut für Wirtschaftsforschung Königin-Luise-Str. 5 D-14191 Berlin.
- Erlangen, R. J. (2002) Endogenes Geld Innovationsfinanzierung in inputlosen System. Uni Marburg.
- Gowdy, J. M. (1992). Higher selection processes in evolutionary economic change, *Journal of Evolutionary Economics*, Vol. 2, No. 1, 1992: 1-16.
- Haga K. and J. Röpke. (2007). Neukombination (in) der Wissensgesellschaft. Marburg.
- Herrmann-Pillath, C. (2007). Wissenschaft und Kultur als Kräfte gesellschaftlicher Ordnung während der Transformation“, Carsten Herrmann-Pillath, Otto Schlecht und Horst-Friedrich.
- Hübner, K. & J. Nill. (2001). Nachhaltigkeit als Innovationsmotor, Berlin.
- Keck, O. (1993). The National System for Technical Innovation in Germany, In Nelson R., *National Innovation Systems*, Oxford.
- Krelle, R. (1985). *Theorie des wirtschaftlichen Wachstums*. Berlin.
- Musiolik, J. (WS 2001/2002). *Innovationstheoretische Ansätze in die Wirtschaftsgeographie—Konzepte und Bewertung Nationaler und Regionaler Innovationssysteme* Philipps- Universität Marburg.
- Neumann, M. (1985). *Redistributive Income Taxation and Productivity Growth*. Unveröffentlichte Manuskript. Nürnberg.
- Priddat, B. P (1994). Die Zeit der Institutionen. Elemente einer Theorie der Institutionen in der Ökonomie, Diskussionspapier Nr. 6, Juli 1994, Universität Witten/Herdecke.
- Ritter, W. (1993). *Allgemeine Wirtschaftsgeographie*, München.
- Schatzel, L. (1996). *Wirtschaftsgeographie 1 Theorie*, Paderborn.
- Schumpeter, J. (1935). *Theorie der wirtschaftlichen Entwicklung*, 4.Auflage, Leipzig.
- Soskice, D. (1994). Innovation Strategies of Companies: A Comparative Institutional Approach of Some Cross-Country Differences. In: Zapf, W & Dierkes, M. (Hg.): *Institutionenvergleich und Institutionendynamik*. Berlin.
- Soskice, D. (1997). Technologiepolitik Innovation und nationale Institutionengefüge in Deutschland in FfiederNaschold/David, Soskice/Bob, Hancke/Ulrich/Jürgens(Hrsg), *Ökonomische Leistungsfähigkeit und institutionelle Innovation*, Berlin.
- Wissenschaftliche Beirat Beim Bundeswirtschaftsministerium. (1985). *Steuerpolitik unter gesamtwirtschaftlichen Gesichtspunkten*.



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TECHNOLOGICAL BRANCH INVESTMENTS IN PHYSICAL BRANCHING STRATEGIES OF SMALL AND MEDIUM SCALE BANKS

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ABSTRACT

Despite the increasing trend in online channels, small and medium-sized banks, whose physical coverage is still low in Turkey, are still required to invest in physical channels. In that sense, investments in technological branches could be an alternative for banks. The technological branches, hybrid channels between the physical branch and the internet/ mobile channels, are also presented as a different channel model in order to increase the penetration of the bank's new geographical locations. In this regard, XTM Branches of a medium scale Bank has been taken as a technological branch example. The bank's XTM Branch investment and the physical branch option have been compared to a cost-based approach. It has been questioned how many additional potential locations in Turkey could be chosen in accordance with this Bank's Branch Location Decision Parameters if the Bank decides to invest in XTM Branches rather than classic physical branches.

Keywords: Technological branch, XTM branch, banking, branching strategies

JEL Codes: K10

1. INTRODUCTION

Owing to the profit margins that have narrowed down recently in the banking sector of Turkey, the capital and asset return ratio have been declining. This financial situation necessitates much more cost and efficiency oriented approaches in the Bank's strategies. Physical branch channels generate great increases in personnel, rent and other running cost items. When channel strategies are evaluated from a cost-oriented point of view, it is the goal of all Banks to provide their customers' channel migration with internet / mobile channels, which have a very low marginal transaction cost comparing to the physical branch channel. This phenomenon has derived the banks to improve their investment in internet and mobile channels recently and to develop marketing strategies to provide channel migration.

Allegedly, the ability to access many banking services of mobile devices and computers without having to go to physical branches has increased similarly to the spread of mobile devices in recent years. Whereas the number of active internet banking customers in Turkey has increased from 8.6 million to 20.4 million in the last 5 years (2011-2016); the number of active customers in mobile banking rose to 19.2 million from 445 in the same period (Turkish Bankers Association, Internet and Mobile Banking Statistics, December 2016).

While the customers' willingness and interest in online channel affects the efficiency of internet and mobile channel investments, there is another problem on small and medium sized banks, exclusively those with the low physical market coverage, to be dealt with. Banks usually acquire new customers with physical branches and, then migrate some transactions of these customers to online channels. The difficulty of making it possible for the customers to open accounts directly via online channels in a micro-market does not enable these Banks to increase their market share. Through this problem, it is investigated to what extent physical branch channels could be abandoned and the investment in hybrid solution proposals like technological physical branches could be an alternative.

2. PHYSICAL BRANCH REQUIREMENT in BANKING SECTOR

How the physical branch strategies will be formed while banks moving some transactions of their customers from physical channels to online platform is an important question. The factors listed below indicate that physical contact points will decline in number but will not disappear completely.

2.1. Customer's Low Online Channel Acceptance Level

One of the most important factors influencing the ability of technological developments to change our daily life is the willingness of customers to use that kind of technology. No matter how big a technological innovation companies bring out, the sustainability of these investments go hand in hand with the right marketing strategy alongside the integration and implementation of this innovation in business models. Companies have to estimate and assess how ready their business areas and customers are capable to adapt to the innovation offered to them, as well as whether they possess the human resource capacity, knowledge / accumulation, innovation ecosystem and adequate capital.

Among the studies on adaptation to technology, the most widely accepted study is the Technology Acceptance Model (TAM) developed by Davis (1986) (Thakur and Srivastava, 2014). The perceived usefulness and ease of use influence the intentions of customers to use the technology and that affects their behavior of use. An advanced version of this thesis (TAM2) was studied by Venkatesh and Davis (2000). Furthermore, three social factors (subjective norm, volunteriness and image) and three perceptual processes (job relevance, output quality and result demonstrability) which affect the behavior of customers in terms of technology use are also pointed out. The Technology Acceptance and Use Theory developed by Venkatesh et al. (2003) also analyzes the factors affecting the intentions of the customers to use the technology. Expected convenience, expected benefits, social pressure, and facilitating factors affect the customers' adaptation to technology. The study by Thakur and Srivastava (2014) demonstrates that customer safety concerns had a negative effect on mobile transactions. On the other hand, this study acknowledges that mobile service providers should primarily expand their innovative customer segments.

The studies conducted by Eastlick (1996), Gatignon and Robertson (1991), Ellen, Bearden and Sharma (1991), Meuter and Bitner (1997), Parasuraman (2000), Raub (1981), Ray and Minch (1990), Dabholkar (1996), Langeard et al. (1981) and Breakwell et al. (1986), Gist (1987), Igbaria and Parasuraman (1989) highlight that the level of complexity of the process, the perception of risk, the need to interact with other people, the fear of technology, the level of education and low income have negative affect on the ability of clients to make transactions by themselves (Meuter et al., 2005). The study by Baker et al. (2007) states that cultural and even spritual prejudices against imported technological applications and not driven by internal factors are prevalent in particularly low education level communities in developing eastern countries. In the study conducted by Rotchanakitumnuai and Speece (2003) in a far Eastern country, concerns about security and legal problems of especially corporate customers are identified as the most important obstacles for their usage of online channels. A research by Gerrard et al. (2006) in Far East also demonstrates that the perceived risk for online transactions, the lack of information, and the need to interact with people are the obstacles to online banking operations. A study by Lee and Jaramillo (2013) in three emerging countries indicates that customers' fear and insecurity feelings has negative effect on their approach to branchless banking and that the benefits of online banking are not clearly understood in all segments. The research by Paul and Lim (2015) compares customers' internet banking adaptation levels in Malaysia and the United States and encountered that customers in US have more positive attitude towards internet banking on account of cultural factors.

The study on the difficulties in promoting online banking transactions in Turkey by Okumuş (2010) points out that the lack of information and the fear of technology are important factors affecting customers negatively. It is more difficult to convince especially female customers and customers with low level of education in online banking services, and these customers opt for physical banking branches instead of these channels. The studies conducted by Pala and Kartal (2010), Usta (2005), Akın and Karaboğa (2011), Durer et al. (2009), Cebeci (2015), Özdemir and Hoecht (2008), Ustasüleyman and Eyüboğlu (2010), and Kaya and Arslan (2016) indicate that the greatest obstacle for bank customers' online migration is security and that banks should advance their online transaction security to succeed in digitalization of transactions. The research by Yildiz and Karadirek (2014) suggests that banks should place emphasis on security in order to increase the number of internet channel customers and provide extra assurance to customers that this channel could perform transactions in a complete and correct way. Oktay and Orçanlı (2014) conducted a study between academicians and found that even in this segment, transaction insecurity and difficulty of transactions are the reason for not using online branches. In the study conducted by Khalilov and Gundebahar (2012), it is asked why they are in need of a branch instead of using ATMs, which are a self-service service model. In all age groups, the answers in the foreground are "to make transactions that ATM does not do", "looking for human interaction, and confidence in the process" and "to obtain detailed information of transactions from bank personnel". Unlike the younger group, the older ones' response (to avoid incorrect operations) reveals the importance of insecurity of this customer segment in technological devices.

2.2. Inadequacy of Online Channels in Account Opening and Credit Transactions

The basic function of the banks is to mediate between the sector with more funds and the sector in need of funds. In this respect, even when the effect of all other factors is minimized, it is observed that the physical contact points of the banks are crucial in establishing both the trust of the banks to credit customers and the trust of the deposit owners to the banks. The ease of operation and the cost advantage of online channels lead customers to this channel, but physical channels continue to play a key role in assuring trust between customers and banks. In this sense, it is the optimum channel approach for banks that online services are not completely independent but serve together with physical channels. In opening online accounts, in the process of understanding and using the internet and mobile channel features and in resolving emerging problems, customers continue to receive support from branch personnel. (Yap et al., 2009)

Banks face problems in obtaining the required documents and wet signatures of the customers in accordance with the risk management and related regulations, especially during the application process of credit transactions on the internet. It is especially important that the quality and reliability of the data to be provided from the customers in the credit processes are high. However, in developing countries like Turkey, the quality of the customers' data especially in the small business segment, pose a greater credit risk in the credit transactions to be made via online channels. (Chavan, 2013) These problems lead to the fact that credit applications made from mobile/internet channels result in a low limit allocation compared to the credit applications conducted in physical branches. In order to overcome these problems, the banks take the transactions having started in online branches to the physical ones so as to correctly identify the credentials of the customers and to get the credit guarantees correctly and to end the transaction in the physical branch with an omni-channel approach. (Mermod, 2015)

Another difficulty encountered by banks is that they can not open new accounts through the internet and mobile channels. Therefore, marketing activities in physical branches result in new customer acquisitions and account openings, and then customers are transferred to technological channels through channel migration. In addition, the lack of physical contact with the customers in any environment before and after the opening the accounts in online channels leads to number of problems in the customer management process of banks. Online channels without the support of physical branches may not be enough for banks to understand the customers better, to build the customer related data, to determine correct segment, product and channel strategy, to design the necessary marketing activities, and to solve some problems faced by customers in physical market. (Koskosas, 2011) The fact that the banks establish relationships with particularly efficient customer groups through the internet environment significantly reduces customer loyalty. Customers who do not have a personal dialogue with the bank can immediately change the bank with a better offer they can find in the market. (Angelakopoulos and Mihiotis, 2011)

2.3. Physical Market Penetration of Small / Medium Scale Banks

Since the focus of this study is particularly the small and medium-sized banks, conventional banks in Turkey are grouped in accordance with their asset sizes as follows, but Participation Banks are not included in this categorization because of their different business model. Furthermore, the physical market penetrations of each group are examined separately.

Table 1: Grouping of Banks in Turkey*

First Scale Banks	Second Scale Banks	Third Scale Banks	Participation Banks
Ziraat Bank	Deniz Bank	Alternatif Bank	Kuveyt Türk Participation Bank
İş Bank	Finans Bank	Anadolu Bank	Türkiye Finans Participation Bank
Garanti Bank	Türkiye Ekonomi Bank	Fiba Bank	Albaraka Türk Participation Bank
Akbank	ING	Burgan Bank	Asya Participation Bank
Yapı Kredi Bank	HSBC	Şeker Bank	Ziraat Participation Bank
Halk Bank	Odea Bank	Tekstil Bank	Vakıf Participation Bank
Vakıflar Bank		Turkland Bank	

* Banks' audited financial data for June 2016 were used. (Turkish Bankers Association, June 2016)

There is at least one physical bank branch providing financial services in 955 of total 970 counties located in Turkey. Although this figure demonstrates that banks have a large geographical penetration rate; Ziraat Bank, the biggest public bank in Turkey, is very effective in increasing this ratio. Ziraat Bank also acts as the central bank in the countryside, fulfills all banking transactions such as payments&transfers for public institutions and organizations. Therefore, banks on the first scale were examined separately with and without Ziraat Bank.

Table 2: Branch Distributions of Banks in Different Types of Counties* in Turkey

	County of Metropolitan	Countyside County	Central County	Total
Total County Number	519	400	51	970
Number of County	First Scale Banks	391	51	955
	First Scale Banks (Except Ziraat Bank)	157	51	561
	Second Scale Banks	68	49	387
	Third Scale Banks	29	40	234
	Participation Banks	6	40	195
Number of Branch	First Scale Banks	887	607	7838
	First Scale Banks (Except Ziraat Bank)	477	475	6053
	Second Scale Banks	107	204	2304
	Third Scale Banks	31	42	680
	Participation Banks	8	111	919
Total Branch Number	9744	1033	964	11741
Percentage in Total Branch Number	83%	9%	8%	

*County of Metropolitan: Includes central and the other counties of metropolitan cities in Turkey.

Countyside County: Includes noncentral counties of non-metropolitan cities in Turkey.

Central County: Includes only central counties of non-metropolitan cities in Turkey.

Examining the distributions of the banks, it is observed that 83% of the bank branches in Turkey concentrate on the counties of the metropolitan cities. These counties (519 county in total) constitute 54% of the total number of counties in Turkey. Banking physical branch penetration in the central counties of non-metropolitan cities is also soaring. While 5% of the total number of counties constitute such counties (51 county in total), 8% of the total number of branches is prevalent in these counties. On the other hand, although 400 countryside counties constitute 41% of the total number of counties in Turkey, only 8% of the bank branches is available in these counties. 391 of these counties have at least one bank branch. However, except for Ziraat Bank, only 157 (39%) of these counties can reach banking services.

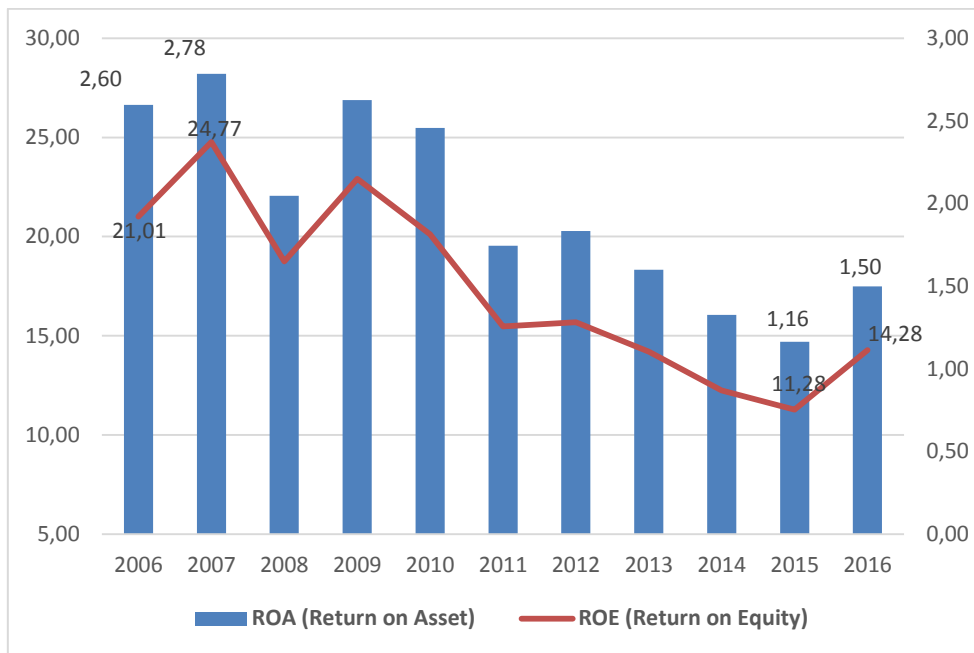
87% of the total branches of the second-scale banks, 89% of the third-scale banks and 87% of the Participating Banks are located in the counties of metropolitan cities. On the other hand, of the 400 countryside counties of the other cities, 68 have second-scale bank branches, 29 have third-scale bank branches and only 6 have branches of participation banks.

Countryside counties has a share of 12.3% of the total population, 11.6% of the potential banking population, 8.7% of the total micro enterprises, 8.4% of workplaces which has more than ten employees and 5% of the total volume of deposits and loans. It is pointed out that the physical penetration of the second and third-scale banks in these counties is quite low. 4.5% of the total branches of the second and third scale banks and only 1% of the branches of the participation banks are permanent in these counties. In that sense, increasing the physical penetration in these regions for participation banks is more significant. It is also unlikely for these banks with no physical contact with the customer to attract new customers through online channels in such locations where customers has lower technology usage rates.

3. DECREASING PROFITABILITY IN BANKING SECTOR AND COST-DRIVEN CHANNEL STRATEGY

In Turkey, profit margins of the banking sector have narrowed and profitability ratios have declined in the last decade. This has made the banks pay more attention to cost optimization in order to sustain their profitability.

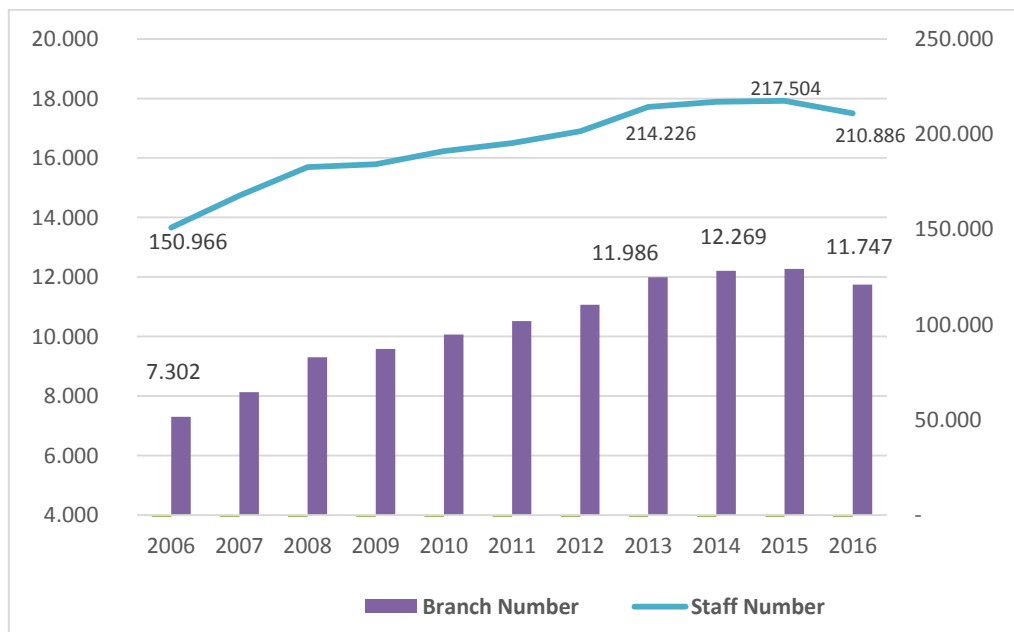
Figure 1: Banking Sector Profitability Ratios in Turkey



Banking Regulation and Supervision Agency, December 2016, "Turkish Banking Sector Interactive Monthly Bulletin".

The return on the equity of banking sector was 21% in 2006 and 24.8% in 2007, falling down to 11% in 2015. The return on assets decreased from 2.6% to 1.16% in the same period. Declining number of branches and staffs in the sector in 2016 highlights the cost-oriented approach of the banks and the effect of this approach on branching strategies. After the decline in 2016, the number of branches and staffs declined to the levels reached before 2013. This decline has led to an upward improvement in profitability ratios in 2016.

Figure 2: Branch and Staff Numbers in Banking Sector in Turkey



Banking Regulation and Supervision Agency, December 2016, "Turkish Banking Sector Interactive Monthly Bulletin".

Decreasing profitability in the sector and cost-oriented strategies obstruct the banks to open physical branches in countryside locations, especially those with low financial potential. This is an obstacle especially for the small and medium-sized banks and Participation Banks which have not yet entered in these micro markets physically.

For the sake of the reasons mentioned above, banks' physical presence in the market are varied into "unmanned branch", "technological branch", "self-service branch" and so on instead of classic bank branches. These branches are equipped with fewer staff (or no staff) and more technological channels compared to traditional physical branches and they have a business model which enables customers to perform banking transactions on the internet, mobile, ATM and newly developed set of devices. These models reveal a hybrid physical banking model and have a feature which provides the physical touch of the bank with the customers but allows the transfer of transactions to the technology concurrently.

4. A TECHNOLOGICAL BRANCH EXAMPLE: XTM

XTM Branches have a hybrid business model between classical physical bank branches and ATMs where all transactions of the customers conducted by themselves. XTM Branches are kind of physical bank branches which enable banks to increase their physical market penetration. XTM devices, in feature, are similar to a highly developed ATM. The most important reason why this device is considered in a branch concept is that it combines the ATM concept and the classic branch concept to create the ideal structure. ATMs can only do a small part of the transactions to be performed in physical bank locations. Classic branches have a structure which is far from technology and cost optimization. On the contrary, XTM Branches have much more sophisticated devices than a simple transaction set of ATMs and they also have much cheaper physical branch concept. (Khalilov and Gündebahar, 2012)

Picture 1: XTM Appearance (Kuveyt Turk Participation Bank)



XTM Branches can be deployed as unmanned branches with a self-service business model, as well as mini-branches along with sales staff to facilitate the customers' getting used to use technology. The most important cost advantage of XTM branches is the lack of need for staff such as teller, back office and security officer. Teller operations are performed by the customer totally through the device. Since there is no need for tellers and ATM-like operations are performed through XTM devices, there is no need for security officers too.

XTM Branches have the following transaction features:

- ✓ Video conferencing with call center agent
- ✓ Bank account opening (all necessary contracts are sent to the customers via device, scanned after signature and instantly saved to the system)
- ✓ Virtual keypad
- ✓ Customer-oriented screen sets
- ✓ Physical gold sale
- ✓ Immediate physical card issuing
- ✓ Easy applications to credit, POS, card etc.

XTM Branches meet the physical channel needs of the Banks with less cost and enable them:

- ✓ to increase their physical market penetration,
- ✓ to make it easier for technology-fearing customers to connect with technology by providing face-to-face communication with them,

- ✓ to carry out transactions such as account opening and credit utilization which can not be done via online channels and ATMs, at a lower unit cost than the traditional branches,
- ✓ to obtain the signatures of customers not through the tellers or sales staff but through the technological devices in case of transactions requiring wet signature.

It is possible for XTM branches, as a hybrid channel, to be an alternative for banks in their entrance into the micro-markets only if they are less costly than traditional bank branches.

5. COST-FOCUSED COMPARISON OF XTM BRANCHES AND PHYSICAL BRANCHES

The table below compares the average investment and operating costs of classical branches and XTM branches using the data of Kuveyt Turk Participation Bank. Due to the confidentiality of the bank data, real figures were not used and comparative cost information was offered in this comparison.

Table 3: The Comparison between Costs of the Branch Types

		XTM Branch	Classic Physical Branch
Capital Expenditure	Investment Cost	0.55	1
	<hr/>		
Operational Expenditure	Staff	0.35	1
	Rent	0.35	1
	Depreciation	0.67	1
	Running (Energy etc.)	0.51	1
	Other	0.69	1
	TOTAL	0.45	1

This cost structure demonstrates that XTM branches are 2.2 times cost-effective than classical bank branches. This has also resulted in the XTM branches having the same advantage over the size of the balance sheet required to reach breakeven point.

6. PHYSICAL LOCATIONS SELECTION MODEL via EXAMPLE OF THE BANK

The main argument of this study is to determine how small and medium sized banks will locate technological branches in their channel strategy and location selection models. It is unlikely that XTM branches will perform financially as well as classical bank branches owing to the low number of staff, the low probability of customers' propensity for technology, and the potential loss of trust in customers due to lack of teller staff. In this respect, the performance of the XTM branches will be as important as their cost advantage.

In this part of the study, additional physical locations to be opened in Turkey were analyzed based on the parameters used in Kuveyt Turk Participation Bank (hereinafter referred to as the Bank). XTM Branches are even less costly, so they can be effective even at locations which do not have enough potential to open a classical branch. On the other hand, it will not be possible to expect the performance of a classical physical branch from an XTM Branch due to the reasons mentioned above. In this case, it is misguided to determine the potential of the location only in terms of cost so that the XTM branch could be successful. Instead, it is tried to determine the required minimum financial potential in a location for an XTM Branch establishment by taking advantage of the location features of the existing XTM branches.

The following steps have been followed as a method of determining the potential locations for the classic branches and the XTM branches:

- ✓ The parameters and scoring methodology used by the bank in selecting branch locations were examined.
- ✓ Based on this methodology, the financial potential score of all the counties in Turkey was calculated.
- ✓ The geographical location distributions of the classical physical branches and XTM branches of the bank were investigated and the channel strategy was analyzed on a score basis.
- ✓ Scorecards of existing branches, negotiations made by bank managers and Bank's channel strategy were examined and the criterias for newly opened branch locations were clarified.
- ✓ It was calculated how many potential locations are available for these two channels among the counties where the bank has not opened physical locations so far.
- ✓ Through this method, it has been analyzed that in how many additional places where the physical branch can not be opened because of insufficient potential, the bank can increase its physical presence by using XTM branches.

6.1 Location Selection Parameters

There are many studies about the problem of location selection of banks. In many of such studies, it is possible to recognize that there are supporting results. The appropriateness of the approach of the bank's existing location model has been evaluated in accordance with the literature.

In the study conducted by Willer (1990); the working population, income distribution and individual / business potential are effective in determining the branch locations of banks. In the research by Cinar (2009) and Cebi and Zeren (2008), the demographic (urban, population growth rate), socio economic (gross national product per capita, literacy rate, rate of population with higher education, average household size, employee rate, employer rate), sectoral employment (agricultural employment rate, manufacturing employment rate, construction employment rate, services employment rate), banking (number of bank, number of branch, bank deposit per branch, credit per branch, bank deposit per capita, credit per capita) and trade potential (number of firms, number of organized industrial zone) data types are used to determine the correct branch location for banks. The study acknowledges that banking, demographic, trade potential, and socio-economic data types stand out in terms of importance, while sectoral employment data are less important. In the study conducted by Cinar (2011); population, gross domestic product, the existence of rival banks, customer potential and commercial activity were used as the leading data for bank branches' location selection. In the research by Weon et al. (2010), the level of income, the level of spending, the quantity of businesses, and the number of workers were determined as effective data for bank location selection. In the work of Stove (2014), the three most important factors in the banks' location selection are determined as the other bank branches, population and the tax paid by the districts. Other studies compiled by Basar et al. (2015) shows that while Doyle et al. (1981) uses population, the status of rival bank branches, worker and employer ratio, demographic characteristics, ease of access and number of firms; Boufounou (1995) uses population, rival bank branches, average household income, population growth rate and number of firms; Zhao et al. (2004) uses population, rival bank branches, labor and employer ratio, transportation convenience and income level as the most important data in their location selection model. Basar et al. (2015) uses transaction volume in their own studies as the main criteria for the opening of bank branches. It is pointed out that the number of potential customers in the individual segment and commercial company potential in the commercial segment are the secondary important data.

In the selection of the bank's location, it was firstly analyzed as the statistical data which mostly affects the performance of the existing branches. Then, the existing literature and interviews with the bank managers and analyzes were interpreted together. Eventually, the retail and commercial scores of the locations were calculated separately and the retail and commercial scores were weighted in accordance with the strategic financial expectations of the Bank from newly opened branches. As a result of this method, the potential banking scores of all the counties in Turkey were obtained. In the province of Istanbul, the details of the neighborhoods were included in the analysis and scored separately in line with their financial potentials.

Table 5: Parameters and Weights Used to Calculate Location Potential Score

Parameters	Commercial Score	Retail Score
Household Income	0%	15%
Potencial Customer Number	0%	35%
The Number of C+ Segment Customer	0%	8%
Number of Large-Scale Company (250+ staff)	45%	0%
Number of Micro-Scale Company (0-10 staff)	3%	0%
Number of Small-Scale Company (10-49 staff)	5%	0%
Number of Large-Scale Company (50-259 staff)	20%	0%
Total Participation Bank Branch Number	27%	32%
Foot Traffic	0%	10%
	100%	100%

While the potential banking scores of the neighborhoods in Istanbul were calculated, the "shopping volume" data was used instead of "household income".

6.2. Potential Scores of Turkey's Counties and Istanbul's Neighborhoods

There are totally 970 counties in Turkey. While 519 of these are constituted by the counties of the metropolitan cities, the non-metropolitan provinces have 51 central counties and 400 countryside counties. Based on the methodology followed, the potential banking score of 970 banks in Turkey was calculated. In terms of analysis, banking scores in accordance with the county types are important.

Table 6: Potential Banking Scores of Counties by Type in Turkey

Score Range	County of Metropolitan	Countryside County	Central County	Total
80-100	26			26
60-80	30		2	32
40-60	48		18	66
20-40	110	9	19	138
0-20	305	391	12	708
Total	519	400	51	970

According to Table 6, the total 26 counties with the highest score group in Turkey and 94% of the counties in the second highest score group are the metropolitan counties. On the other hand, 98% of the 400 counties of non-metropolitan cities seem to have the lowest banking score. 73% of the central counties of non-metropolitan cities are in the third and fourth range banking score group.

It is observed that 78% of the neighborhoods belong to the two lowest score group in the neighborhood scoring obtained in Istanbul province. When at least one bank branch is located in all the two highest score groups, only 18% of the neighborhoods in the lowest scorer group and 66% in the second lowest scorer area have bank branches. This table shows that banking sector has a branch distribution in parallel with the potencial score calculated in this model in Istanbul province.

Table 7: Potential Banking Score Distribution of the Neighborhoods in Istanbul

Score Range	Neighborhood Number	Neighborhoods with Any Bank Branches
80-100	40	40
60-80	52	52
40-60	121	106
20-40	363	238
0-20	375	68
Total	951	504

6.3. Location Penetration and Potential Scores of The Bank's Current Branches

At the time of the work, the Bank (Kuveyt Türk Participation Bank) used to operate in 379 branches in 68 different cities and 174 different counties. There are 13 cities in Turkey where the bank has not opened any branches yet.

Table 8: Distribution of the Bank Branches by County Types

County Type	Total County Number	The Number of Counties where the Bank is located	Number of The Bank's Total Branches	Number of Counties where Other Banks' Branches are located
County of Metropolitan	519	136	335	514
Clountryside County	400	1	1	391
Central County	51	37	43	51
Total	970	174	379	956

As a medium-sized bank, the Bank operates in only 18% of the total counties and 78% (136 counties) of these are the counties of metropolitan cities. There are branches in the 37 central counties of the 51 non-metropolitan cities, but not in 14 of them. Moreover, among 400 countryside counties of non-metropolitan cities, the bank operate at only one location. The Bank has concentrated its physical branch investments in metropolitan cities and central counties of other cities

mostly. While at least one bank branch is found in 99% of the counties in Turkey, there are 796 counties (82%) in which the bank does not open branch offices.

The bank has 158 branches in the province of Istanbul. While at least one of the other Banks is located in the 504 neighborhoods in Istanbul, the Bank operates in only 142 neighborhoods.

Table 9: Branches of the Bank Operating in Istanbul

Total Neighborhood Number in Istanbul	Neighborhood Number of The Bank's Branches	Neighborhood Number of Other Bank Branches
951	142	504

The potential banking scores of the counties where the bank's branches are located are as follows:

Table 10: Potential Banking Score Distribution of the Counties in Which the Bank Has Branches

Score Range	Number of The Bank's Branches	The Number of Counties in Which the Bank is located	Number of Counties in This Score Range in Turkey
80-100	154	26	26
60-80	81	32	32
40-60	89	62	66
20-40	51	50	138
0-20	4	4	708
Grand Total	379	174	970

62% of the bank branches (235 branches) are located in the two highest score groups. The Bank has its branch in total 58 counties in the two highest score groups in Turkey. In the third high-scoring group, %94 of the 66 counties have a branch of the Bank. Branches were opened in 36% of the 138 counties in the fourth group and only 0.6% in the last 708 counties in the last group.

The branching approach of the bank is quite parallel to the calculation of the potential score of the counties. This situation results in the bank not opening the classical physical branch in the geographical area where the potential score is low and it constitutes 75% of the counties in Turkey.

Table 11: Potential Banking Score Allocation of the Bank's Branches in Neighborhoods in Istanbul

Score Range	Number of The Bank's Branches	The Number of Neighborhoods in Which the Bank is located	Number of Neighborhood in This Score Range in Istanbul
80-100	46	34	40
60-80	27	26	52
40-60	35	33	121
20-40	45	44	363
0-20	5	5	375
Total	158	142	951

Evaluating 951 neighborhoods in Istanbul, it is seen that 158 branches of the bank are distributed in 142 different neighborhoods. 68% (108 branches) of the bank's branches are located in the first three high-scoring neighborhood groups. In the last score group, there are only five branches of the Bank in 375 locations.

7. POTENTIAL LOCATION REVIEW FOR XTM BRANCHES

When the branches opened by the bank beforehand are examined, it is observed that the average banking potential score of the counties opened up to now is 54. Only 4 of 174 counties, in which a branch opened until today, are between 0-20 score range. All the counties except the one where the bank opened its branches though the score is below 40 points are

the central counties or the counties of metropolitan cities. By analyzing the interviews with the bank managers and the performance data of the previously opened branches, the following criteria were determined for the Bank's physical and XTM Branch location approach:

- ✓ The counties with banking potential score with a range of 0-20 do not have a sufficient potential to open physical branches. These counties are seen as potential XTM Branch Locations.
- ✓ Since the number of staff in XTM branches is relatively low compared to physical branches, the counties with 10 or more other bank branches are regarded as the locations where the XTM Branch can not compete.
- ✓ XTM Branches can also be positioned at locations with relatively lower potential for banking as they provide cost advantages. The minimum potential banking score is 10 for the opening of XTM Branch and the number of other banks is expected to be minimum 3.

There are 792 counties where the potential score is below 40 points and the bank has not opened a branch yet. Among these, 45 counties with more than 10 other bank branches are among the potential locations for physical branch opening. Two of the four counties where the bank did not open branches beforehand and has potential banking score around 40-60 provide this criterion and they are considered as the physical branch candidates. There are no counties where the Bank did not open branch among the counties which have a score above 60 points. These results demonstrate that there remains only 47 counties in the country that has enough potential banking score without the Bank has not opened a physical branch yet. If the bank makes use of these locations, the total number of counties in which physical branches have been opened would increase from 174 to 221.

Evaluating the counties that provide the XTM Branch criteria, it was realized that the number of the location with a banking potential score higher than 10 points and a minimum of 3 and a maximum of 9 other bank branches was 219. The Bank can increase its physical penetration by opening XTM branches in another 219 counties. It is observed that the 8 of the new 219 locations are in central counties, 89 of them are in countryside counties and 122 of them are in metropolitan cities. In this way, the Bank will be able to open branches in 8 of the 14 central counties where it is not found suitable to open physical branches and thus, it will be able to increase the physical penetration in the countryside counties where the bank has opened only one branch so far.

7.1. Additional locations where XTM branch can be opened in Istanbul

When the Bank's branch locations in Istanbul are examined, the neighborhood distribution of the XTM branches opened by the Bank is as follows:

Table 12: Bank's Score-Based XTM Branch Distribution in Istanbul

Score Range	The Number of The Bank's XTM Branches	The Number of Neighborhoods in Which the Bank located its XTM Branches.
80-100	2	2
60-80	2	2
40-60	6	5
20-40	11	10
Total	21	19

In order to benefit from the cost advantage of the XTM Branch, the Bank is more engaged in the locations which have enough banking potential but not enough for the physical branch cost. Accordingly, while no XTM Branch is opened in the lowest potential score group (0-20), 81% of the opened branches are located in the second and third lowest score groups. Evaluating the performances of these XTM branches, it was noticed that the two of the five XTM Branches with the highest financial performance are in the neighborhoods of 20-40 score group and the others are in the neighborhoods of other different potential score groups (40-60, 60-80 and 80-100). This indicates that the XTM Branches could also be successful in the neighborhoods of 20-40 potential score group.

The Bank's strategic approach necessitates that XTM Branches be positioned at locations where there is a potential for banking, but where other banks do not have branch too much. Hence, the 0-20 score group neighborhoods are not regarded as the target location because of not having sufficient potential. Moreover, the neighborhoods with more than 5 other bank branches are also not evaluated as the target location because of having too much competition. In the neighborhoods of 60-80 and 80-100 score groups, the Bank's branch penetration is high. These locations are also considered as the locations where the classical physical branching could sustain. For the XTM Branches- the locations which have at least one, up to 5 other bank branches, and which are in the 20-40 or 40-60 score groups, and the Bank's current

branch is not available- are selected as the target. It has been figured out that there are 193 locations in this target neighborhood group in Istanbul. Of these, 159 are in the 20-40 potential score group and 34 are in the 40-60 potential score group. Handling these locations, the bank will increase the number of neighborhoods with physical penetration in the 20-40 score group from 44 to 203 and increase the penetration rate to 56%. In the neighborhoods of 40-60 score group, the number of physically located neighborhoods will increase from 33 to 67 and the penetration rate will increase to 55%.

8. CONCLUSION

By evaluating low level of sectoral profitability and the latest technological trends in the last decade, banks have reduced their physical branch investments in their channel strategies and began to more focus on online channels. As marginal transaction costs are rather low compared to physical branches, online platforms are channels in which customers are asked to migrate especially in particular operations.

Nevertheless, it seems that the adaptation to technology in all customer segments is not at the same pace and age, demographic and geographical differences, education and similar features affect this adaptation. In terms of banks, it is not possible to make transactions from end-to-end online channels especially owing to operational and legal obligations in account opening and credit transactions. Such and similar reasons advocate that banks still need a certain amount of physical channels. In Turkey, where physical branch investments are quite high-priced, how to increase the physical market penetration of small and medium-sized banks- whose geographical coverage is far behind large-scale banks- becomes an important question.

XTM Branches are ideal channels for small and medium-sized banks to increase their penetration in micro markets where they have not yet entered and where they are relatively low-potential. As XTM branches do not need operational staff, they are patterns of hybrid channels which can be processed with customer representatives at a much lower cost. It is a channel where the technological approach is combined with the physical contact and the customer's technological adaptations can be directed in a positive direction by a correct business modeling.

In this study, current physical market penetration and spreading strategy of a bank was investigated through the usage of this medium-sized bank's data. The conclusions demonstrate that the Bank can increase its physical market coverage level more than double in Turkey by using the cost advantage of its XTM Branches.

REFERENCES

- Akın, F., Karaboğa, K. 2011, "Bireysel Müşterilerin Şubesiz Bankacılık Hizmetlerini Kullanma Kararına Etki Eden Faktörlerin Belirlenmesi Üzerine Bir Araştırma: Bilecik Örneği", *Marmara Üniversitesi İ.İ.B.F. Dergisi*, no. 1, pp. 301-320.
- Angelakopoulos, G., Mihiotis, A. 2011, "E-banking: challenges and opportunities in the Greek banking sector", *Electron Commer Res*, vol. 11, pp. 297-319. (Springer Science+Business Media, LLC 2011, published online: 3 March 2011).
- Baker, E. W., Gahtani, S. S., Hubona, G. S. 2007, "The Effects of Gender and Age on New Technology Implementation in a Developing Country: Testing the Theory of Planned Behavior (TPB)", *Information Technology & People*, Vol. 20, No. 4, pp. 352-375.
- Banking Regulation and Supervision Agency, December 2016, "Turkish Banking Sector Interactive Monthly Bulletin".
- Başar, A., Kabak, Ö., Topçu, İ. 2015, "Banka Şubeleri İçin Uygun Yer Seçiminin Belirlenmesine Yönelik Tabu Arama Yaklaşımı: Bir Türk Bankası Uygulaması", *Endüstri Mühendisliği Dergisi*, Vol: 26, No: 3, pp. 2-22.
- Cebeci, İ. 2015, "İnternet Bankacılığına Yönelik Öğrenci Tutumlarının İncelenmesi", *The Journal of International Social Research*, Vol. 8, No. 39, pp. 793-803.
- Cebi, F., Zeren, Z. 2008, "A Decision Support Model for Location Selection: Bank Branch Case", *PICMET 2008 Proceedings*, 27-31 July, Cape Town, South Africa, pp. 1069-1074.
- Chavan, J. 2013, "Internet Banking – Benefits and Challenges in an Emerging Economy", *International Journal of Research in Business Management (IJRBM)*, Vol. 1, Issue 1, pp. 19-26.
- Cinar, N. 2009, "A Decision Support Model for Bank Branch Location Selection", *World Academy of Science, Engineering and Technology International Journal of Mathematical, Computational, Physical, Electrical and Computer Engineering* Vol:3, No:12, pp. 1092-1097.

- Çınar, N. T. 2011, "Fuzzy Topsis Methods in Group Decision Making and an Application for Bank Branch Location Selection", Journal of Engineering and Natural Sciences, Vol. 29, pp. 11-24.
- Durer, S., Çalışkan, A. Ö., Akbaş, H. E., Gündoğdu, C. E. 2009, "İnternet Bankacılığını Kullanma Kararını Etkileyen Faktörler: Türk Banka Müşterileri Üzerine Bir Araştırma", Marmara Üniversitesi İ.İ.B.F. Dergisi, Vol. 26, No. 1, pp. 133-154.
- Gerrard, P., Cunningham, J. B., Devlin, J. F. 2006, "Why Consumers Are Not Using Internet Banking: A Qualitative Study", Journal of Services Marketing, Vol. 20, No. 3, pp. 160-168.
- Kaya, F., Arslan, T. R. 2016, "İnternet Bankacılığında Müşterilerin Banka Tercihlerine Etki Eden Faktörler: Bolu İlinde Kamu Çalışanları Üzerine Bir Araştırma", Finansal Araştırmalar ve Çalışmalar Dergisi, Vol. 8, No. 15, pp. 423-449.
- Khalilov, M. C. K., Gündebahar, M. 2012, "XTM: An Alternative Delivery Channel in Turkish Banking Sector", Procedia - Social and Behavioral Sciences, vol. 57, pp. 373 – 380.
- Koskosos, I. 2011, "The Pros and Cons of Internet Banking: A Short Review", Business Excellence and Management, Vol. 1, Issue 1, pp. 49-58.
- Lee, J., Jaramillo, M. 2013, "Driving Adoption of Branchless Banking: insights from consumer education in India, the Philippines, and Zambia", Enterprise Development and Microfinance, Vol. 24, No. 3, pp. 218-232.
- Mermod, A. Y. "Customer's Perspectives and Risk Issues on E-Banking in Turkey; Should We Still be Online?", <http://www.icommercecentral.com/open-access/customers-perspectives-and-risk-issues-on-e-banking-in-turkey-should-we-still-be-online.php?aid=38152,05/03/2017>.
- Meuter, M. L., Bitner, M. J., Ostrom A. L., Brown, S. W. 2005, "Choosing Among Alternative Service Delivery Modes: An Investigation of Customer Trial of Self-Service Technologies", Journal of Marketing, Vol. 69, pp. 61-83.
- Oktay, E., Orçanlı, K. 2014, "Atatürk Üniversitesinde İnternet Bankacılığının Kullanımını Etkileyen Faktörlerin Belirlenmesi", Uşak Üniversitesi Sosyal Bilimler Dergisi, Vol. 7, No. 2, pp. 57-91.
- Okumus, A., Bozbay, Z., Dağlı, R. M. 2010, "Banka Müşterilerinin İnternet Bankacılığına İlişkin Tutumlarının İncelenmesi", Erciyes Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, Vol: 36, pp. 89-111.
- Ozdemir, S., Trott, P., Hoecht, A. 2008, ""Segmenting internet banking adopter and non-adopters in the Turkish retail banking sector", International Journal of Bank Marketing, Vol. 26, No. 4, pp. 212-236.
- Pala, E., Kartal, B. 2010, "Banka Müşterilerinin İnternet Bankacılığı ile İlgili Tutumlarına Yönelik Bir Pilot Araştırma", Yönetim ve Ekonomi, Vol.:17, No. 2, pp. 43-61.
- Rotchanakitumnuai, S., Speece, M. 2003, "Barriers to Internet Banking Adoption: A Qualitative Study Among Corporate Customers in Thailand", International Journal of Bank Marketing, Vol. 21, No. 6, pp. 312-323.
- Soba, M. 2014, "Banka Yeri Seçiminin Analitik Hiyerarşi Süreci ve Electre Metodu ile Belirlenmesi: Uşak İlçeleri Örneği", Mustafa Kemal University Journal of Graduate School of Social Sciences, Vol:11, Issue: 25, pp. 459-473.
- Thakur, R., Srivastava, M. 2014, "Adoption Readiness, Personal Innovativeness, Perceived Risk and Usage Intention Across Customer Groups for Mobile Payment Services in India", Internet Research, Vol. 24, No. 3, pp. 369-392.
- Turkish Bankers Association, June 2016, "Bank Ranking by Asset Size".
- Turkish Bankers Association, December 2011, "Internet and Mobile Banking Statistics".
- Turkish Bankers Association, December 2016, "Internet and Mobile Banking Statistics".
- Usta, R. 2005, "Tüketicilerin İnternet Bankacılığını Kullanma Nedenleri Üzerine Bir Araştırma", Dogus Üniversitesi Dergisi, vol. 6, no. 2, pp. 279-290.
- Ustasüleyman, T., Eyüboğlu, K. 2010, "Bireylerin İnternet Bankacılığını Benimsemesini Etkileyen Faktörlerin Yapısal Eşitlik Modeli ile Belirlenmesi", BDDK Bankacılık ve Finansal Piyasalar, Vol. 4, No. 2, pp. 11-38.
- Venkatesh, V., Davis, F. 2000, "A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies", Management Science © 2000 INFORMS, Vol. 46, No. 2, pp. 186–204.
- Weon, H. J., Eui, H. W., Sik, K. Y. 2010, "The Study of Location Strategy for Bank through the Analysis of Inter-regional Financial Transaction Network", International Journal of u- and e- Service, Science and Technology, Vol. 3, No. 1, pp. 21-30.
- Willer, D. 1990, "A Spatial Decision Support System For Bank Location: A Case Study", National Center for Geographic Information and Analysis Department of Geography State University of New York at Buffalo, Technical Report 90-9.
- Yap, K., Wong, H. W., Loh, C., Bak, R. 2009, "Offline and online banking –where to draw the line when building trust in e-banking?", International Journal of Bank Marketing Vol. 28 No. 1, 2010 pp. 27-46.

Yıldız, S., Karadirek, G. 2014, "Elektronik Hizmet Kalitesi Algılamaları: Bireysel İnternet Bankacılığı Kullanıcıları Üzerine Bir Uygulama", Gümüşhane Üniversitesi Sosyal Bilimler Elektronik Dergisi, No. 10, pp. 303-329.

Yuen, Y. Y., Yeow, P. H. P., Lim, N. 2015, "Internet Banking Acceptance in the United States and Malaysia: A Cross-cultural Examination", Marketing Intelligence & Planning, Vol. 33, No. 3, pp. 292-308.



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STRATEGIC INNOVATION APPROACH

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ABSTRACT

In recent years, the concept of innovation has become the most debated topic in literature and in particular, the strategic importance of innovation management for businesses is emphasized. In this context, the strategic innovation approach, which emerged as a synergy of innovation and strategic management, seems to play an important role in achieving sustainable competitive advantage. The aim of this article is to emphasize the importance of innovation and strategic innovation approach.

Keywords: Strategy, innovation, strategic innovation, strategic innovation approach.

JEL Codes: M10, M13

1. INTRODUCTION

The fact that today's economic developments and competition are so intense that it has led to a growing interest for the concept of innovation. Innovation, on the one hand, has become a driving force for economic development, while on the other hand it has become a competitive means of having strategic significance in achieving a sustainable competitive advantage for the success of the enterprises. In this context, enterprises are now turning to a strategic innovation approach that emerges as a synergy of innovation and strategic management.

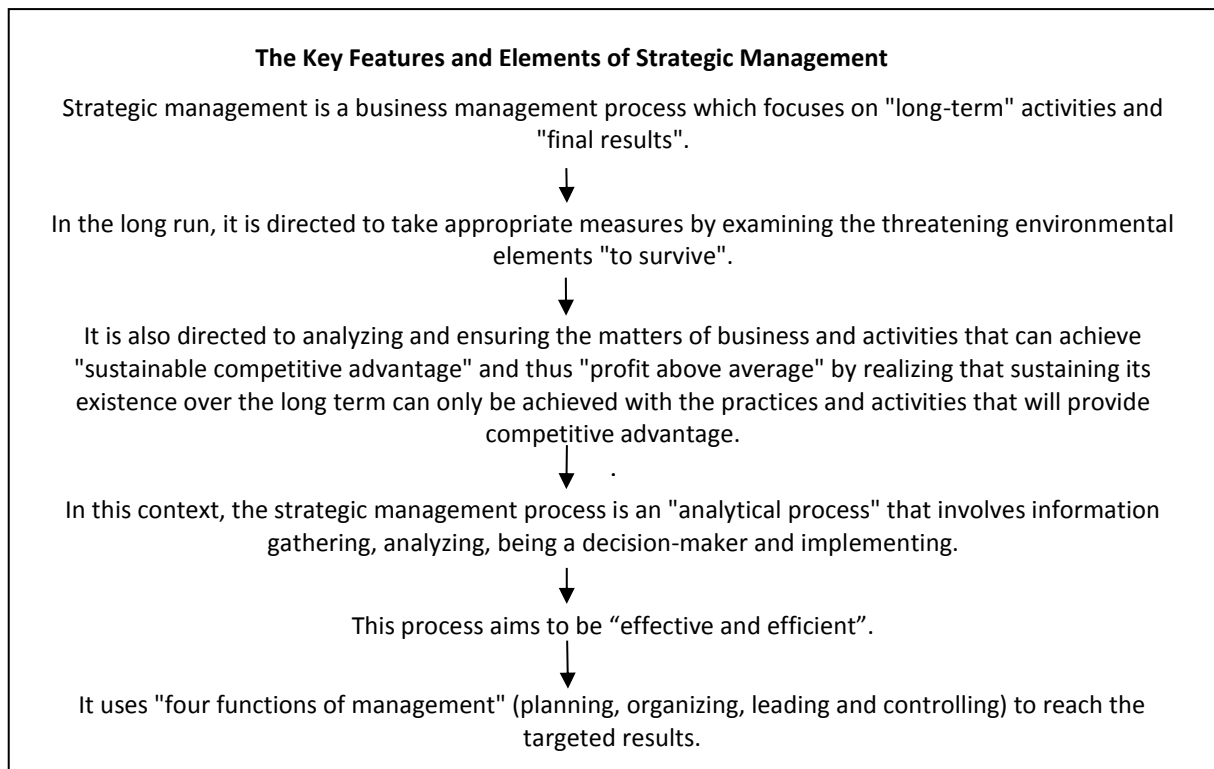
In this study, strategic innovation approach was analyzed and its role and importance on success of enterprises was emphasized.

2. INNOVATION AND STRATEGY

Innovation has its origin in the word *innovatio* derived from the Latin verb *innovare* that means "refreshing, altering, and changing". While it was used as *innovation* in French, this word was started to be used with the meaning "a new product or practice that emerges as a result of a work or experiment" for the first time in English before the year 1588. Concerning the areas of use for innovation, it has such a meaning; "making a new thing in a product, device or application and making it better and more useful rather than a brand new discovery" (Akalin, 2007: 483,484). The innovation is defined in English dictionary as "the introduction of new things, ideas or ways of doing sth; a new idea, way of doing sth, etc. that has been introduced or discovered" (Hornby, 2010: 775).

The concept of strategy comes from the Greek word "strategos", and it refers to a "military general" and combines "stratos" (the army) and "ago" (to lead) (David, 2005: 24,25). The strategy first began to take its place in the business world by developing in military and political fields. The strategy is defined as identifying the roadmap, policies and tactics to be used to achieve an objective. Strategic management, on the other hand, means achieving the goal by successfully implementing this roadmap, which includes the necessary policies and processes (Çiftçi, 2011: 12, 13).

Strategic management can be defined as "the set of decisions and actions used to formulate and implement strategies that will provide a competitively superior fit between the organization and its environment so as to achieve organizational goals" (Daft, 2003: 239). The key features and elements of strategic management are illustrated in Figure 1 below:

Figure 1: The Key Features and Elements of Strategic Management

Source: Prepared by utilizing from Ülgen and Mirze, 2004: 26

Supporters of modernist strategic management advocate the argument that businesses should strive to achieve competitive advantage in order to sustain their long-term survival. Competitive advantage can be only obtained through the value creating strategies. Sustainability of competitive advantage is possible only when the value-creating strategies of enterprises cannot be imitated or applied by competitors (Ülgen and Mirze, 2004: 30,31).

The most important philosophers who contributed to innovation are Gabriel Tarde, Joseph A. Schumpeter and Peter Drucker. The French sociologist Gabriel Tarde was described as the first major theorist of innovation and entrepreneurship. In addition, he was the first theoretician who defined and used the concepts of innovation and invention (Eggink, 2013: 2840).

Schumpeter, who had a great influence on the development of the economy in the 20th century, is considered one of the most influential economists of all time. He has a wide range of articles covering such topics as "*the dynamics of economic and social evolution, the integration of economic, sociological and political perspectives into capitalism*" and finally the "*history of economic ideas*" (Michaelides and Theologou, 2009: 3,5).

According to the Peter Drucker, innovation is defined as "*the act that endows resources with a new capacity to create wealth*". Innovation becomes a specific instrument for entrepreneurship and creates a resource (Drucker, 1993: 30).

Innovation's basic dynamic is "*not everything new, but innovations that transform or be transformed into economic and social added value*". Therefore, it is a fact that something that doesn't have a social and economic added value cannot be regarded as innovation. According to the *social value* dimension of innovation, something new is likely to be an innovation if it has the ability to meet a need of its user at a higher level than the existing ones or it can offer a much newer value that is not available. While the *economic value* dimension of innovation can be considered - in a narrow sense - as an economic return to the side that realizes innovation, it is considered that national and regional economies in which innovation has emerged gain a series of competitive benefits by exploiting the externality of this innovation, in broad terms. In short, innovation makes the cooperation of parties with each other inevitable (government, individuals, businesses and society) by the values and externalities that can be created together with both the commercialization and the emergence process (Uzkurt, 2010: 37).

Innovation implies that production inputs can be transformed into sellable outputs to produce goods and services that are at a better quality - more attractive to the consumers - and less costly - easier for consumers to obtain - than the qualities / costs of goods and services that can be obtained from the current factor prices. In this regard, the innovative enterprise also refers to the business organization that performs this transformation process within the network formed that is both within the firm as a separate strategic audit unit and by the allied companies (Lazonick, 2007: 47,48). Therefore, the importance of innovation is further heightened so that businesses can be more innovative and provide competitive advantage.

Innovation has become an indispensable source of dynamism for both today's national economies and businesses. However, in order for businesses to succeed in innovation and to maximize the profits of new products and services to be offered to the marketplace, things-to-do can be briefly summarized as follows (Uzkurt, 2010: 38-50):

- An innovation strategy must be established for a successful innovation.
- A successful innovation needs a supportive cultural infrastructure and business structure.
- An effective communication network should be established with relevant resources for the production of innovation ideas and their provision from the outside.
- The right decisions should be made about what kind of innovations should be done.
- There is a need for an outward-oriented network system based on sharing and interacting internally for a successful innovation.
- The approaches that support innovation should be adopted within the enterprise.

3. STRATEGIC INNOVATION APPROACH

Such concepts as globalization, competition, changing customer demands, uncertainty, changing technology, environmental conditions and changing demographic structure of the workforce have driven businesses to be more productive and efficient in every area. Under these changing environmental conditions, businesses have had to develop more innovative products, methods and strategies in every area (Yeşil, 2013: 177). In this context, strategic innovation as a new approach emerged.

Many researchers use the concept of strategic innovation as a combination of strategy and innovation. According to Hamel, strategic innovation is "*the ability to understand and change the industry dynamics*". This condition should create wealth for stakeholders and create new value for customers by redesigning the service and redefining the market. Concerning the definitions made, strategic innovation can be said to have three consequences. Accordingly, strategic innovation leads to new markets; develops new business models; increases value for organization and customer (İplik, Topsakal and Doğan, 2014: 19).

According to another opinion, strategic innovation is "*a holistic and systematic approach focused on generating beyond-incremental, discontinuous or breakthrough innovations*". Moreover, innovation becomes strategic when it makes a notably significant difference in valuing customers, partners, consumers and the enterprise as an intentional and repeatable process (Palmer and Kaplan, 2007: 4,5). The differences between the traditional approach and the strategic innovation approach are shown in Table 1.

Table 1: Traditional Strategy versus Strategic Innovation

Traditional Approaches		Strategic Innovation Approach
•	<i>Adopt a present to future orientation-takes today as the starting point</i>	<i>Starts with the end in mind-identifies long-term opportunities and then "bridges back to the present"</i>
•	<i>Accept established business boundaries/product categories</i>	<i>Seeks to create new competitive space/playing fields</i>
•	<i>Seek articulated consumer needs</i>	<i>Seeks unarticulated consumer needs</i>
•	<i>Follow traditional, linear business planning models</i>	<i>Marries process discipline with creation inspiration</i>
•	<i>May have a one-size-fits-all organizational model</i>	<i>May experiment with entrepreneurial new venture or other organizational structures</i>
•	<i>Focus on incremental innovation</i>	<i>Seeks breakthrough, disruptive innovation-while continuing to build the core</i>
•	<i>Are technology-driven (seek consumer satisfaction)</i>	<i>Is consumer-inspired (seeks consumer delight)</i>

•	<i>Assume a rule-maker/taker (defensive/follower) posture</i>	<i>Assumes a rule-breaker (revolutionary) posture</i>
•	<i>Seek input from obvious, traditional sources</i>	<i>Seeks inspiration from unconventional sources</i>

Source: Palmer and Kaplan, 2007: 4

One of the most important items listed in Table 1 is definitely the fact that innovation is now turning from incremental innovation to disruptive innovation with the strategic innovation approach. Accordingly, disruptive strategic innovation is clearly a more aggressive strategy in creating competitive advantage. The purpose of incremental strategic innovation is to create a competitive advantage, but does not aim to break down/ruin the existing market (Kataria, 2013: 18).

Strategic innovation approach is an approach that creates new opportunities based on achieving sustainable competitive advantage, meeting the needs of customers that may be important but not felt before, rewriting the rules of competition or entering into the new segments of the market that have not yet been discovered. Businesses need to adopt a strategic innovation approach that will give them a competitive advantage. Strategic innovation approach being a new approach has some features (İraz, 2005: 111,112). These are listed in Table 2.

Table 2: Some Basic Characteristics of Strategic Innovation Approach

•	Contributors of strategy plan should be diversified.
	When strategies are started to be applied in the business, employees should also be involved in the strategic planning process in order not to encounter unexpected results. Because the thought of taking advantage of new product ideas and opportunities often emerges at lower levels of business. The first step of the strategic innovation approach is to create ideal conditions that will trigger extraordinary thinking and idea production by taking different opinions from different and multiple sources. In the second step, the top management should create a strategy plan by evaluating the new contributions full of fresh ideas.
•	Market research should only be used to investigate unknowns.
	In the strategic innovation approach, senior management behaves intellectually honest and reveals that they don't not know anything about " <i>understanding emerging markets and delivering new values</i> ". As a sole basis for their decisions, they give up relying solely on the results of market research and prepare explorations to test the theoretical hypotheses that suggest potential opportunities for the market.
•	Tolerance approach should be applied to faults during innovation process.
	Innovation is not an error-free process and you must be prepared against possible errors. The process of strategic innovation is composed of partly trial and errors until finding the best and partly planning.
•	Comparison should be made with different sectors.
	The strategic innovation approach ensures raising standards as much as possible and creating new values by taking full advantage of the potential of benchmarking and taking practitioners around the world as reference outside their own sector.
•	Success must be measured by top management's change of mind.
	If an enterprise is concerned only with maintaining profitability, the assumptions underlying the traditional strategic planning may remain valid. However, if it is more important to have a sustainable competitive advantage, then the strategy needs to be revisited and considered. In short, success will depend on what will change on the basis of thought.

Source: Prepared by using İraz, 2005: 112-115

Through the strategic innovation to be built with the strategy and innovation together, it can be possible to gain competitive advantage and transform the strategies into action with such factors as valuing knowledge, creativity, creating new business models, providing new opportunities, being market-oriented, being open to different opinions and thoughts, future orientation, being exploratory, creating new values, having a mission and vision, cooperating and being extroversion (Satı and Işık, 2011: 555).

4. CONCLUSION

The fact that businesses are able to adapt to changing realities in a highly competitive environment together with the effect of globalization is very important in terms of not losing their position in the market. In this regard, innovation is an important tool both for businesses to survive and compete and to ensure social well-being. However, businesses need a more effective tool in today's intense competitive environment. At this point, the strategic innovation approach that emerged with the synergy of innovation and strategy has gained considerable importance. It is vital for the businesses seeking sustainable competitive advantage to adopt this new approach.

REFERENCES

- Akalın, Ş. H., (2007). "Innovation, İnovasyon: Yenileşim", *Türk Dili Dil ve Edebiyat Dergisi*, XCIII(666), (Online) www.akalin.gen.tr/Eklenti/2,innovationinovasyonyenilesimpdf.pdf?0, 21.01.2017, 483-486.
- Çiftçi, T. (2011). "Üç Adımda Stratejik Yönetim İstihbarat-İstikamet-İcraat", *İstanbul Sanayi Odası (ISO) Yayın*, No: 2011/32, İstanbul, (Online) www.iso.org.tr/sites/1/upload/files/18_stratejik_yonetim-211.pdf, 15.02.2017, 1-95.
- Daft, R. L. (2003). *Management*, Sixth Edition, Thomson Learning-South Western, USA.
- David, F. R. (2005). *Strategic Management Concepts and Cases*, Tenth Edition, Pearson Education Inc., USA.
- Drucker, P. F. (1993). *Innovation and Entrepreneurship*, Harper Business Edition, USA.
- Eggink, M. E. (2013). "A Review of the Theoretical Context of the Role of Innovation in Economic Development", *World Academy of Sciences, Engineering and Technology, International Journal of Social, Behavioral, Educational, Business and Industrial Engineering*, 7(11), 2840-2846.
- Hornby, A. S. (2010). *Oxford Advanced Learner's Dictionary*, 8th Edition, Oxford University Press.
- İplik, F. N., Topsakal, Y. and Doğan, O. (2014). "Strategic Innovation: An Empirical Study On Hotel Firms Operating in Antalya Region", *An International Journal of Akdeniz University Tourism Faculty, Advances in Hospitality and Tourism Research (AHTR)*, 2(1), 16-29.
- İraz, R. (2005). *Yaratıcılık ve Yenilik Bağlamında Girişimcilik ve KOBİ'ler*, Çizgi Kitabevi, Konya.
- Kataria, S. (2013). *Strategic Innovation: A Review and A Theoretical Framework*, Thesis, University of Twente, Management of Governance Business Administration, January, (online) essay.utwente.nl/62857/1/Thesis_Strategic_Innovation_S_Kataria.pdf, 26.02.2017, 1-57.
- Lazonick, W. (2007). "Yenilikçi İşletmeyi Anlamak- İktisat Kuramı ve İşletme Tarihinin Bütünleşmesine Doğru", *Dünya İşletme Tarihi*, Ed. Franco Amatori & Geoffrey Jones, çev. Abdullah Ersoy, 1. Baskı, Dost Kitabevi, Ankara, 45-77.
- Michaelides, P. G. and Theologou, K. (2009). "Joseph Schumpeter and Gabriel Tarde on Technological Change and Social Evolution", 13th Annual International Conference of the European Society for the History of Economic Thought, Thessaloniki, Greece, April, 23-26, *MPRA (Munich Personal RePEc Archive) Paper*, No.67189, (online) https://mpra.ub.uni-muenchen.de/67189/1/MPRA_paper_67189.pdf, 21.04.2017, 2-29.
- Palmer, D. and Kaplan, S. (2007). "A Framework for Strategic Innovation-Blending Strategy and Creative Exploration to Discover Future Business Opportunities", *InnovationPoint LLC*, (Online) <http://www.fast-bridge.net/wp-content/uploads/resources/A%20framework%20for%20strategic%20innovation.pdf>, 21.24.2017, 1-22.
- Satı, Z. E. and Işık, Ö. (2011). "İnovasyon ve Stratejik Yönetim Sinerjisi: Stratejik İnovasyon", *CBÜ Sosyal Bilimler Dergisi*, 9(2), 538-559.
- Ülgen, H. and Mirze, S. K. (2004). *İşletmelerde Stratejik Yönetim*, Literatür Yayıncılık, İstanbul.
- Uzkurt, C. (2010). "İnovasyon Yönetimi: İnovasyon Nedir, Nasıl Yapılır ve Nasıl Pazarlanır?", *Ankara Sanayi Odası Yayın Organı*, Temmuz/Ağustos (Online) www.aso.org.tr/b2b/asobilgi/sayilar/4dosyatemmuzagustos2010.pdf, 17.03.2017, 37-51.
- Yeşil, S. (2013). *Küreselleşme ve Değişen Çevre Dinamikleri Işığında Yeni Yönetim Yaklaşımlarından Seçme Konular*, 1. Baskı, Seçkin Yayıncılık, Ankara.



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CRITICAL FACTORS FOR OIL PALM PLANTATION WORKERS ACCEPTANCE AND USE OF MECHANIZATION TECHNOVATION TOOLS

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ABSTRACT

Oil palm plantation workers, still rely on manual tools and using mechanization technovation tools has been big issues as they rejected to use. Thus, in emphasizing technovation tools in a human activity, this study aims to examine several factors influencing acceptance and use technovation machine tools in Malaysia based on the revised Unified Theory of Acceptance and Use of Technology (UTAUT) model. A total of 126 oil palm plantation workers answer the questionnaire. This model was analyzed using SPSS technique and conducting reliability test, correlation analysis and regression analysis. The results reveal that performance expectancy, facilitating condition and intention to use were supported as important factors to accept and use of technovation. However, effort expectancy and social influence have been rejected because not significantly influence intention to use technovation. The results of study give implications and suggestions to future researchers and practitioners in order to address problems regarding technovation acceptance.

Keywords: UTAUT, technovation, mechanization tools, oil palm plantation workers, Malaysia

JEL Codes: O3; Q1

1. INTRODUCTION

Technological innovation or called as technovation is part of the leading process of the development country and to become as one of the dominant factors in the success of the organization (Bagherinejad, 2006). It is a process-based-product that combines technology and innovation. Therefore, in a well-developed environment nowadays, it is undeniable that the use of technology brings great importance to improve competitiveness and performance of the organization. However, to remain competitive in the market, organizations need to be wise in choosing the right technology and constantly make innovation (Bin & Salles-filhoa, 2012). The innovation of technology is very important because it has potential in providing more creative solutions when facing many challenges. Technovation also plays a significant role to boost economic development and improve existing technological advances (Liao, Fan, & Xi, 2011). Existing technovation always do enhancements and performance improvements. This benefit is to ensure successful market of technovation and its benefits can be received by users. It is supported by Govindaraju et al., (2005) who identify technovation as a major agent for development and improvement of productivity, sustained growth in employment and ensuring a better quality of life.

Technovation starting from the emergence of new technology until it is commercialized and widely used. Assistance from mechanization tools is really needed to ensure every work job run smoothly and efficiently. Therefore, acceptance and use technovation in the workplace aims to help ease the burden on workers and increase daily work productivity. In this study, mechanization technovation tools refer to the machinery which is not operated manually. Currently, many technovation tools that have been created from a variety of sources. However, there exist a number of obstacles and issues in regard to

acceptance and use the technovation namely high cost, complicated utilisations, inconvenient and so on. Such issues will impact the acceptance and use of technovation among potential users of technology. The decision to accept and use technovation tools is depending on the worker's perceived and perception towards the technovation tools (Chi & Yamada, 2002). Therefore, it is important to know from workers for better understanding how they decide to use or not and what they expect or perceived about the technovation tools. Accordingly, the overall aim of this paper is to solve problems through identifying the critical factors that can influencing acceptance and use technovation among users especially oil palm plantation workers. This will be done by reviewing and analyzing Unified Theory of Acceptance and Use of Technology (UTAUT) model.

2. LITERATURE REVIEW

2.1 Technovation Acceptance and Use

Acceptance and use of technovation mean the process of integration between science, technology and system-based which focus on the introduction of new technovation to individuals or organization (Bagherinejad, 2006; Nemoto et al., 2010). It is one of the critical components to the success of the country's economic development (Diaconu, 2011; Nemoto et al., 2010). The acceptance and use process include factors that can affect and give impact on individuals and organizations such as ability, environment, education, networks and others. Various factors were considered before committing the technovation acceptance process. According to King, Rollins (1995) and Straub (2009), there are several things to consider when trying to move any technovation tools such as easy, useful for achieving existing requirements and low capital investment. In addition, many researchers agree that consumers are more willing to use technovation tools when its provide more advantage, easy to use and high level of reliability (Mac Callum et al. 2014; Shahbaz et al. 2012; Strong et al. 2013). It can be concluded that factors influencing of technovation acceptance are varied according to the particular situation. Table 1 shows the various determinants of technovation acceptance and uses based on various fields and respondent.

Table 1: Past studies related on factors influencing acceptance and use of technovation

Author/Year	Field	Respondent	Factors
Punnoose (2012)	e-learning	Master students	-perceived usefulness -subjective norm -perceived ease of use
Elogie et al. (2015)	smart phone	undergraduate students	-relative advantage -complexity
Sargent et al. (2012)	construction	company employees	-effort expectancy -internal facilitating condition -top management support
Lim & Ting (2014)	e-shopping	user	-perceived usefulness -perceived ease of use -attitude
Pardamean & Susanto (2012)	blog technology	student	-social influence -performance expectancy
Sun et al. (2013)	mobile health services	elderly user	-subjective norm -perceived ease of use
Alwahaishi & Snásel (2013)	mobile internet	user	-performance expectancy -perceived playfulness -social influence -facilitating condition
Kung-Teck et al. (2013)	teaching and learning technology	teacher	-perceived usefulness -attitude

2.2 The UTAUT Model

There are many competing models which try to explain human behavior in order to accept new technology. Each of these models brings different influence factors. This study used a UTAUT model as it is a general acceptance of the theory which does not depend on the context. This model is a new model consolidation of all theory and technology acceptance model resulting from a review by Venkatesh et al. (2003). To develop UTAUT model, Venkatesh et al. (2003) have synthesized eight (8) models of user acceptance and motivation. Eight of the theories are Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Motivational Model (MM), Theory of Planned Behavior (TPB), Combined Model TPB/TAM (C-TPB-TAM), Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT) and Social Cognitive Theory (SCT). The result of a

combination of these theories, UTAUT proposes four (4) core constructs that determine the behavioral intention and behavior using which; performance expectancy, effort expectancy, social influence and facilitating condition. This model also has four (4) moderating variables which are age, gender, experience, and voluntariness. UTAUT components (Venkatesh et al. 2003) and the details are contained in Table 2.

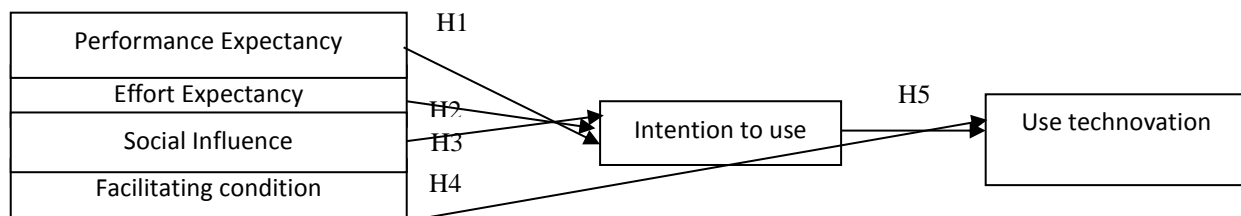
Table 2: Description of the UTAUT components

Component	Description
Use behavior	Show real user behavior either accept or reject new technology.
Intention to use	All of the UTAUT factors are the key determinant of behavioral intention or actual use.
Performance expectancy	Refers to the extent to which individual believes that using technology will help them improve work performance. The construct is same as expected useful in TAM and comparative advantage in DOI.
Effort expectancy	The extent to which an individual believes that using technology, it does not require any particular effort or in order words, easy to use these technologies. This construct has the same meaning as perceived easy to use and complexity.
Social Influence	Social influence means the extent to which an individual assumed that other important people believe he/she should use the new technology.
Facilitating condition	Individuals believe that an organizational and technical infrastructure exists to support the use of new technology.

3. DATA AND METHODOLOGY

The framework was developed based on research objectives and problems. This study has made changes to the UTAUT model which not maintain moderators as the original UTAUT model. This is because, the moderators were not relevant to the scope of study such as gender, and since the majority of the workers are men. This study focus on the use of physical technovation tools or mechanization tools in the Malaysian oil palm plantation such as Cantas machine, grabber, mini tractor, badang and much more. The oil palm industry has been chosen as a scope of study because this industry is one of the main drivers of Malaysia's agriculture sector. However, this achievement was overshadowed by a conventional method or manual tools which require a lot of labor. The respondents were oil palm plantation workers who use technovation tools while working. Distribution of the questionnaires was conducted in Peninsular Malaysia and the selection of oil palm plantation in randomly.

Figure 1: Research Model



There are five main factors in this research which are performance expectancy, effort expectancy, social influence, facilitating condition, intention to use and use behavior. Research hypotheses for this study are drafted based on research model that has developed in Figure 1. The hypothesis of this study are summarized as follows:

- H1- There will be positive relationship between performance expectancy and intention to use mechanization technovation tools.
- H2- There will be positive relationship between effort expectancy and intention to use mechanization technovation tools.
- H3- There will be positive relationship between social influence and intention to use mechanization technovation tools.
- H4- There will be positive relationship between facilitating condition and use mechanization technovation tools.
- H5- There will be positive relationship between intention to use and use mechanization technovation tools.

The survey consists of two (2) parts namely demographic for part 1 and related on UTAUT for part 2. The questionnaires using a 5-point Likert scale with a standard answer; (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, (5) strongly agree. The 5-point Likert scale was used to replace the original 7-point Likert scale of UTAUT by Venkatesh et al. (2003) because the answer from respondents can be more genuine and transparent (Adelson & McCoach 2010). A total of 126

questionnaires were adopted to analyze the study. Data analysis technique used is the first generation of statistical techniques, Statistical Package for the Social Sciences (SPSS) version 22.0.

4. FINDINGS AND DISCUSSIONS

From the results of a study conducted, a total of 126 oil palm plantation workers has answered the questionnaire. All the respondents were male and aged between 19-50 years. Most of the workers have a level of education at primary school level, namely a total of 47 people and a total of 48 secondary schools. However, there are also workers who did not attend school as much as 24 percent. The majority of the workers are married, which is about 65 percent while the rest is a widower and single status.

4.1. Reliability analysis

Reliability analysis is used to measure the stability and consistency the instrument either it is reliable to measure research's variables and help to assess goodness of measures. This study measure reliability through Cronbach's coefficient Alpha. According to Cavana et al. (2000), the value of alpha coefficient 0.60 is considered poor but acceptable, in range 0.70 is moderate and over 0.80 is good. From the result of reliability test as stated in Table 3, it is clear that all the values were falls between 0.70 and 0.88 which considered as moderate and good. Thus, the instruments were valid and reliable to conduct a study.

Table 3: Reliability Statistic

Variables	Cronbach's Alpha	Number of items
Performance expectancy	0.88	4
Effort expectancy	0.81	4
Social influence	0.70	5
Facilitating condition	0.71	6
Intention	0.81	3
Use technovation	0.70	4

4.2. Correlation analysis

Correlation examines the association between two variables and it is measured by the correlation coefficient. Table 4 shows the inter correlations coefficients (r) among variables. All of the correlation coefficients were significantly significant with weak, moderate and strong correlation. The highest correlation is ($r = 0.692$, $p < 0.01$) that is between performance expectancy and use behavior. The correlation between social influence and use technovation presents the weakest association. However, all the correlations of variables have a positive relationship. Therefore, clearly shows that relationship between variables was confirmed and in the same direction as existing UTAUT model.

Table 4 : Correlation of Variables

	1	2	3	4	5	6
1 Performance	1.00					
2 Effort	0.450**	1.00				
3 Social	0.325**	0.401**	1.00			
4 Facilitating	0.688**	0.440**	0.417**	1.00		
5 Intention	0.480**	0.264**	0.279**	0.559**	1.00	
6 Use technovation	0.692**	0.332**	0.236**	0.796**	0.603**	1.00

** Correlation is significant at the 0.01 level (2-tailed).

4.3. Regression Analysis

There are five (5) hypotheses that need to be tested in answering research objectives. In order to test the hypotheses, the researcher performed a regression analysis. This analysis is used to interpret the findings of the study.

Table 5 : Regression Analysis

Variables	Technovation acceptance and use behavior				Hypothesis
	Unstandardized beta	Standard error	Standardized beta	t-stat	
Performance expectancy	0.588	0.064	0.679	9.127	H1 Supported
Effort expectancy	0.026	0.083	0.024	0.314	H2 Rejected
Social influence	0.007	0.088	0.006	0.083	H3 Rejected
Facilitating condition	0.859	0.080	0.668	10.690	H4 Supported
Intention	0.253	0.069	0.229	3.671	H5 Supported

The results are presented in Table 5. It shows that performance expectancy, facilitating condition and intention to use have a significant and positive relationship. In other words, the hypotheses were supported. Nevertheless, effort expectancy and social influence have a positive impact but not significant on intention. This is contrary to the previous findings by Bakar et al. (2013) and Li et al. (2014). The hypotheses, H2 and H3 were not supported.

5. CONCLUSION

The study concludes that performance expectancy, facilitating condition and intention to use affected the acceptance and use technovation tools decision of oil palm workers. In other words, oil palm workers have an intention to use technovation tools if they find that it can help them in enhancing their work performance. They will also have the intention to use if the technovation tools are easy to use and there are other facilities which help them to use it such as training and management support. However, the influence of friends or people around them does not affect the use of technovation tools. From the results, there are several numbers of implications for both theory and practical. In theory, UTAUT model need to be expanded in the different context and specific area of technology acceptance and use behavior. From a practical standpoint, the study can help related parties or industry practitioners in identifying precisely the factors that can promote and increase technovation usage. The study recommended that government should conduct an enforcement campaign and do enforcement to increase utilization of mechanization technovation tools.

REFERENCES

- Adelson, J. L., & McCoach, D. B. (2010). Measuring the Mathematical Attitudes of Elementary Students: The Effects of a 4-Point or 5-Point Likert-Type Scale. *Educational and Psychological Measurement, 70*(5), 796–807. <http://doi.org/10.1177/0013164410366694>
- Alwahaishi, S., & Snásel, V. (2013). Consumers' Acceptance and Use of Information and Communications Technology: A UTAUT and Flow Based Theoretical Model. *Journal of Technology Management & Innovation, 8*(2), 9–10. <http://doi.org/10.4067/S0718-27242013000200005>
- Azlina Abu Bakar, Fahmi Zaidi Abdul Razak, W. S. W. A. (2013). Assessing the effects of UTAUT and self-determination predictor on students continuance intention to use student portal. *World Applied Sciences Journal, 21*(10), 1484–1489. <http://doi.org/10.5829/idosi.wasj.2013.21.10.2920>
- Bagherinejad, J. (2006). Cultivating technological innovations in Middle Eastern countries: Factors affecting firms' technological innovation behaviour in Iran. *Cross Cultural Management: An International Journal, 13*(4), 361–380. <http://doi.org/10.1108/13527600610713440>
- Bin, A., & Salles-Filho, S. (2012). Science, Technology and Innovation Management: Contributions to a Methodological Framework. *Journal of Technology Management & Innovation, 7*(2), 73–86.
- Cavana, R.Y., Delahaye, B. L. & Sekaran, U. (2000). *Applied Research: Qualitative and Quantitative Methods*. Sydney: John Wiley & Sons Inc.
- Chi, T., & Yamada, R. (2002). Factors affecting farmers' adoption of technologies in farming system: A case study in Omon district, Can Tho province, Mekong Delta. *Omonrice, 10*, 94–100. Retrieved from <http://clrri.org/lib/omonrice/10-12.pdf>
- Diaconu, M. (2011). Technological Innovation: Concept, Process, Typology and Implications in the Economy. *Theoretical and Applied Economics, 563*(10), 127–144.
- Elogie, A. A., Ikenwe, I. J., & Idubor, I. (2015). Factors influencing the adoption of smartphones by undergraduate students at Ambrose Alli University, Ekpoma, Nigeria. *Information Technologist, 12*(August). <http://doi.org/http://www.ajol.info/index.php/ict/article/view/121119>
- Govindaraju, V. C., Sundram, V. P. K., Kamil, M. H. M., Ibrahim, Z., & Ghapar, F. A. (2005). Science, Technology and Innovation in Malaysia: What Do The Key Indicators Suggest? In *IRPA Seminar on (Vol.25, p.27)*. Putrajaya.
- King, R. N., & Rollins, T. (1995). Factors Influencing The Adoption Decision: An Analysis of Adopters and Nonadopters. *Journal of Agricultural Education, 36*(4).

- Kung-Teck, W., Osman, R., Pauline Swee Choo, G., & Rahmat, M. K. (2013). Understanding Student Teachers' Behavioural Intention to Use Technology : Technology Acceptance Model (TAM) Validation and Testing. *International Journal of Instruction*, 6(1).
- Li, Q., Yang, D., & Chen, X. (2014). Predicting Determinants and Moderating Factors of Mobile Phone Data Flow Service Adoption. *2014 Seventh International Joint Conference on Computational Sciences and Optimization*, 390–394. <http://doi.org/10.1109/CSO.2014.82>
- Liao, Y., Fan, Y., & Xi, Y. (2011). A Technological Innovation Management Based on the Audit. *International Business Research*, 4(2), 170–174. <http://doi.org/10.5539/ibr.v4n2p170>
- Lim, W. M., & Ting, D. H. (2014). E-shopping : An Analysis of the Technology Acceptance Model. *Modern Applied Science*, 6(4), 49–62. <http://doi.org/10.5539/mas.v6n4p49>
- Mac Callum, K., Jeffrey, L., & Kinshuk. (2014). Factors Impacting Teachers' Adoption of Mobile Learning. *Journal of Information Technology Education*, 13, 141–162. Retrieved from <http://jite.org/documents/Vol13/JITEv13ResearchP141-162MacCallum0455.pdf>
- Nemoto, M. C. O., Vasconcellos, E. P. G. de, & Nelson, R. (2010). The Adoption of New Technology : Conceptual Model and Application. *Journal of Technology Management & Innovation*, 5(4).
- Pardamean, B., & Susanto, M. (2012). Assessing User Acceptance toward Blog Technology Using the UTAUT Model. *International Journal of Mathematics and Computers in Simulation*, 6(27), 203–212.
- Punnoose, A. C. (2012). Determinants of intention to use eLearning based on the technology acceptance model. *Journal of Information Technology Education:Research*, 11(1), 301–337. Retrieved from <http://www.scopus.com/inward/record.url?eid=2-s2.0-84877639303&partnerID=tZ0tx3y1>
- Sargent, K., Hyland, P., & Sawang, S. (2012). Factors Influencing the Adoption of Information Technology in a Construction Business. *Australasian Journal of Construction Economics and Building*, 12(2), 72–86.
- Shahbaz, M., Saleem, W., Syed, A., Aslam, M., Arshad, J., Farooq, A., ... Shaheen, M. (2012). Evaluating the factors responsible for slow rate of technology diffusion in Livestock Sector of South Asia and developing a framework to accelerate this process: A case study using data analysis for Pakistan's Livestock Sector. *Life Science Journal*, 9(3), 23–30.
- Straub, E. T. (2009). Understanding Technology Adoption: Theory and Future Directions for Informal Learning. *Review of Educational Research*, 79(2), 625–649. <http://doi.org/10.3102/0034654308325896>
- Strong, R., Irby, T., & Dooley, L. (2013). Factors Influencing Agricultural Leadership Students' Behavioral Intentions: Examining the Potential Use of Mobile Technology in Courses. *Journal of Agricultural Education*, 54(4), 149–161. <http://doi.org/10.5032/jae.2013.04149>
- Sun, Y., Wang, N., Guo, X., & Peng, Z. (2013). Understanding the Acceptance of Mobile Health Services: a Comparison and Integration of Alternative Models. *Journal of Electronic Commerce Research*, 14(2), 183–200.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27(3), 425–478.



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ANALYSİNG THE ENTREPRENEURSHIP PERFORMANCE FOR OECD COUNTRIES VIA ENTROPY-MAUT INTEGRATED TECHNIQUE

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ABSTRACT

The purpose of this article is to analyse the entrepreneurship performance for OECD countries based on the OECD data for the years 2014-2015. The set of entrepreneurship indicators are part of the OECD-Eurostat Entrepreneurship Indicators Program (EIP). EIP develops policy-relevant and internationally comparable indicators based on an analytical model and measurement infrastructure that allows gathering comparable data. The indicators that are used in this model are; employees by business size, enterprises by business size, self-employed with employees, self-employed without employees and starting a business. We measure the entrepreneurship performance of OECD countries by using the Entropy-Maut hybrid model. Entropy method has been used to determine the weights of the above mentioned indicators and also these weights have been used with MAUT (multi-attribute utility theory) to rank entrepreneurship performance which is an important indicator for the economic development. Our aim is to rank groups of countries with similar entrepreneurial indicators and to determine the drivers of entrepreneurship in each group.

Keywords: Entrepreneurship, multi attribute utility theory, entropy, Ranking, OECD.

JEL Codes: K10

1. INTRODUCTION

It is well-known that entrepreneurship and entrepreneurs are important drivers of economic growth, employment, innovation and productivity. Entrepreneurship contributes to output and growth by acting as a conduit for knowledge spillovers, fostering competition through the increased number of enterprises, and by increasing diversity through providing enterprises with various and different activities. (Audretsch, D.B., 2007). It has become widely acknowledged that entrepreneurship is a vital force in the economies of developed countries, (Audretsch, D., Fritsch, M., 2003; Decker, R., et al 2014). The level of entrepreneurship, differs strongly across countries (Van Stel et al 2005). This variation is related to differences in levels of economic development, and as well as diverging demographic, cultural and institutional characteristics (Blanchflower 2000; Wennekers 2006). . In other words: the relative stability of differences in entrepreneurial activity across countries suggests that factors other than economic ones are at play (Grilo and Thurik 2005). Over the decades, researchers have created several entrepreneurship indicators, but none has been able to reflect the complex nature of entrepreneurship. Given its experience in international data development, many countries and groups turned to the OECD for assistance and guidance in developing such a framework for entrepreneurship performance. These initiatives and requests led the OECD to create an Entrepreneurship Indicators Programme (EIP) that seek to improve entrepreneurship indicators. EIP develops policy-relevant and internationally comparable indicators based on an analytical model and measurement infrastructure that allows gathering comparable data.

The purpose of this article is to analyse the entrepreneurship performance for OECD countries based on the OECD data for the years 2014-2015. The set of entrepreneurship indicators are part of the OECD-Eurostat Entrepreneurship Indicators Program (EIP). The indicators that are used in this model are; employees by business size, enterprises by business size, self-employed with employees, self-employed without employees and starting a business. Employees by business size is measured as the number of employees in manufacturing. Enterprises can be classified in different categories according to their size; for this purpose, different criteria may be used, but the most common is number of people employed. In small and medium-sized enterprises (SMEs) employ fewer than 250 people. SMEs are further subdivided into micro enterprises (fewer than 10 employees), small enterprises (10 to 49 employees), medium-sized enterprises (50 to 249 employees). Large enterprises employ 250 or more people. Those who are self-employed with employees are people whose primary activity is

self-employment and who employ others. Those who are self-employed without employees are people whose primary activity is self-employment and do not employ others. Starting a business covers two factors which are important when starting a business: Access to training on how to start a business shows the percentage of women and of men declaring that they have access to training on how to start or grow a business. Access to money is the percentage of women and of men declaring that they have access to money to start or grow a business. Our aim is to rank groups of countries with similar entrepreneurial indicators and to determine the drivers of entrepreneurship in each group.

2. LITERATURE REVIEW

Entrepreneurship is considered to be an important mechanism for economic development through employment, innovation and welfare effects. The simplest kind of entrepreneurship is self-employment. After the mid-1970s, the self-employment rate started to rise in most modern economies. Blau (1987) observes that, while the proportion of self-employed started increasing in the early 1970s and then rose until at least 1982. Acs et al. (1994) comments that out of 23 OECD countries, 15 experienced an increase in the self-employment rate during the 1980s.

Some studies have found a positive relationship between entrepreneurship and economic growth (Audretsch, D.B., 2007; Vázquez, E., et al 2010; Salman, D.M. and Badr, K., 2011), while other studies have argued that entrepreneurship impact on economic growth would be undefined. It was found that the impact of entrepreneurship on the economic growth depends on the stage (the level of economic development and many other factors). (Audretsch and Fritsch 2002; Van Stel, et al, 2005; Wennekers et al 2005).

The level of development is also important regarding the entrepreneurial intensity. GEM studies gather countries according to their main engine for growth: factor-driven economies for the less developed ones, efficiency driven economies for the middle class and innovation-driven economies for the more developed ones. It is well-known that the level of entrepreneurship, relative to the labor force, differs strongly across countries (Van Stel, et.al 2005). This situation is related to differences in levels of economic development, and also to diverging demographic, cultural and institutional characteristics (Blanchflower 2000; Wennekers 2006).

There is evidence of a U-shaped relationship between the self employment and per capita income. In other words, while per capita income and technological developments can be attributed to economic development, differences related with cultural and institutional characteristics are at play. (Grilo and Thurik 2005, Grilo and Irigoyen 2006)

Van Stel et al. (2007) examine the relationship between regulation and entrepreneurship in 39 countries and show that the minimum capital requirement for starting a business decreases entrepreneurship rates across countries, while administrative procedures such as time, the cost or the number of procedures needed to start a business do not. If the cost of starting a new firm is low, the employee may decide to establish a new enterprise.

EU countries have been compared with respect to the ease of starting a business. Countries such as Germany, Austria and Malta show considerable room for improvement, while the western EU countries have high overall scores on this measure. Apart from Poland and the Czech Republic, this is also the case for the Eastern European countries. (Elert, et al. 2017)

3. METHODOLOGY

In this study, the methods of Entrophy&Maut integrated forms are used. These methods are acceptable for doing fair classification for the indicators of Entrepreneurship. Multi-Criteria Decision Analysis (MCDA) have a widespread applications area in the world and lately it can be seen at integrated form (Ahp- Topsis ; Ahp –Maut; Entrophy-Maut....etc).

3.1 Entropy

One of the main important objective weighting measure is the Shannon entropy concept. Firstly, it has been defined by Rudolph Clausius (1865) as a measure of uncertainty and irregularity in the system (Zhang, 2011). Firstly , it was widely used primarily in physics area but today including mathematics and engineering sciences also social sciences it has been using with the different applications. Entropy Weight method is used to measure the amount of useful information provided by the available data (Wu, 2011). In social sciences, It is seen this method is often preferred to determine the index weight. The following steps are shown below:

Step 1: Set the the evaluation matrix (with the dimension mxn)

$$A_{ij} = \begin{bmatrix} x_{11} & x_{12} & \dots & x_{1n} \\ x_{21} & x_{22} & \dots & x_{2n} \\ \cdot & & & \cdot \\ \cdot & & & \cdot \\ \cdot & & & \cdot \\ x_{m1} & x_{m2} & \dots & x_{mn} \end{bmatrix}$$

Step 2: Standardized each criteria with the help of equations represented by following equality.

$$r_{ij} = \frac{x_{ij}}{\max_{ij}} \quad (i = 1,2,3 \dots m ; j = 1,2, \dots \dots n)$$

$$r_{ij} = \frac{\min_{ij}}{x_{ij}} \quad (i = 1,2,3 \dots m ; j = 1,2, \dots \dots n)$$

Step 3: Determine all index values's entropy

$$e_j = -\frac{\sum_{i=1}^m f_{ij} \ln f_{ij}}{\ln m} \quad (i = 1,2 \dots m ; j = 1,2 \dots \dots n)$$

$$f_{ij} = \frac{r_{ij}}{\sum_{i=1}^m r_{ij}} \quad (i = 1,2 \dots m ; j = 1,2 \dots \dots n)$$

$$W_j = \frac{1 - e_j}{n - \sum_{i=1}^m e_j} \quad \text{and} \quad \sum_{j=1}^n W_j = 1 \quad (j = 1,2 \dots \dots, n)$$

3.2 Maut (Multi Attribute Utility Theory):

Multi Attribute Utility Theory takes into account the preferences in the form of the utility function which is indicated over a set of attribute (Pohekar, Ramachandran, 2004). The utility function sets preferences by assigning a numerical index to different levels of any criterion (Mustafa, Ryan, 1990). For a single criterion (x), the utility of satisfaction of a consequence x' is denoted by $u(x')$. The utility is measured as the sum of the marginal utilities (Figueira, Greco, Ehrgott, 2005). This method includes both multi-attribute decision-making for discrete decision problems and multi-objective decision-making for continuous problems. In this study, It has been preferred to study for discrete type. The most common method of multicriteria utility function of the discrete decision is the additive model (Keeney, Raiffa, 1993).

$$U_i = \sum_{j=1}^m w_j U_{ij} \quad \text{for all } i$$

U_i = Total utility value for all of alternative of "i"

U_{ij} = Utility value for the alternative of i (criteria for the j)

n = Number of criteria

m = Number of alternatives

MAUT method includes six important steps;

Step 1: Set the criteria (C_1, C_2, \dots, C_n) and alternatives

Step 2: Calculate weighted values (with entropy)

$$\sum_{i=1}^m w_j = 1$$

Step 3: Set the the decision matrix

Step 4: Calculate the normalized utility values;

$$u_i(x_i) = \frac{x - x_i^-}{x_i^+ - x_i^-} \quad (\text{for criteria to be maximized})$$

$$u_i(x_i) = \frac{x_i^+ - x}{x_i^+ - x_i^-} \quad (\text{for the criteria to be minimized})$$

x_i^+ = the best value of the alternatives

x_i^- = the worst value of the alternatives

Step 5: Calculate total utility

$$U_i = \sum_{j=1}^m w_j U_{ij} \quad \text{for all } i$$

Step 6: Rank the alternatives, choose an alternative which has got the most utility.

Table 1: Main and sub-indicators

Main Indicators	Sub-indicators	Indicator Abb.
Starting a business	Access to training men	I_1
	Access to training women	I_2
Self employed without employees	Men	I_3
	Women	I_4
Self employed with employees	Men	I_5
	Women	I_6
Enterprises by business size	0-9	I_7
	10-19	I_8
	20-49	I_9
Employees by business size	0-9	I_{10}
	10-19	I_{11}
	20-49	I_{12}

Table 2: Raw Data Set

	I_1	I_2	I_3	I_4	I_5	I_6	I_7	I_8	I_9	I_{10}	I_{11}	I_{12}
AUT	64,46	61,51	7,08	6,02	45,08	2,38	18576	2842	2182	37753	36713	66211
BEL	54,74	43,88	11,72	7,09	5,83	2,37	29944	2331	1992	31654	29219	63020
CAN	73,30	64,71	10,37	8,31	5,80	2,50	31670	7440	6030	188278	0	178264
CZE	36,83	26,12	15,46	9,58	4,72	1,79	157909	4427	3866	63220	55737	111107
DNK	60,29	51,75	5,64	3,14	4,87	1,69	10686	1800	1374	21299	23414	41678
FIN	87,49	85,11	10,70	6,45	5,98	2,05	17035	1707	1279	24783	22599	39286
FRA	40,08	28,04	8,04	5,15	42,92	2,17	205876	12761	9554	352687	200593	331465
DEU	53,89	38,27	6,05	4,40	6,10	2,39	138436	37010	16420	374510	505031	549519
GRC	33,18	43,06	26,71	18,21	20,67	4,33	55447	1132	936	85704	12653	28561

HUN	36,38	36,27	5,97	42,83	22,80	3,00	40097	3131	2360	62418	42196	71659
ITA	43,00	46,36	18,40	12,00	7,85	32,57	328486	39402	18988	472884	467354	546849
NLD	58,30	47,35	12,97	9,91	5,28	2,07	53105	3382	2657	67334	54519	92168
POL	39,87	30,09	16,97	10,59	32,23	2,52	157056	8580	7327	191564	117228	217096
PRT	54,40	49,46	11,30	8,27	19,88	2,82	54420	5527	3943	91572	74896	120176
	I_1	I_2	I_3	I_4	I_5	I_6	I_7	I_8	I_9	I_{10}	I_{11}	I_{12}
SVK	38,07	28,07	14,00	8,18	3,99	1,80	60348	2201	1187	34543	30310	36455
ESP	54,83	46,76	14,01	8,69	6,16	3,16	140164	12397	9176	242480	163444	276753
SWE	61,57	64,00	7,02	3,78	5,07	1,63	47482	2752	2072	51538	37395	63475
TUR	34,74	17,71	18,63	8,57	5,78	1,19	303590	0	18076	657265	0	560908
GBR	54,72	50,24	14,22	8,15	43,53	1,22	95804	13081	9485	221546	174793	320089
USA	66,22	60,35	42,89	5,75	3,22	1,16	228477	46273	37114	705930	630393	1142110
Total	1046,35	919,11	278,13	195,06	297,74	74,79	2174608	208176	156018	3978962	2678487	4856849

Table 3: Entropy Weights

	I_1	I_2	I_3	I_4	I_5	I_6	I_7	I_8	I_9	I_{10}	I_{11}	I_{12}
	-0,17	-0,18	-0,09	-0,11	-0,29	-0,11	-0,04	-0,06	-0,06	-0,04	-0,06	-0,06
AUT	-0,15	-0,15	-0,13	-0,12	-0,08	-0,11	-0,06	-0,05	-0,06	-0,04	-0,05	-0,06
BEL	-0,19	-0,19	-0,12	-0,13	-0,08	-0,11	-0,06	-0,12	-0,13	-0,14	0,00	-0,12
CAN	-0,12	-0,10	-0,16	-0,15	-0,07	-0,09	-0,19	-0,08	-0,09	-0,07	-0,08	-0,09
CZE	-0,16	-0,16	-0,08	-0,07	-0,07	-0,09	-0,03	-0,04	-0,04	-0,03	-0,04	-0,04
DNK	-0,21	-0,22	-0,13	-0,11	-0,08	-0,10	-0,04	-0,04	-0,04	-0,03	-0,04	-0,04
FIN	-0,12	-0,11	-0,10	-0,10	-0,28	-0,10	-0,22	-0,17	-0,17	-0,21	-0,19	-0,18
FRA	-0,15	-0,13	-0,08	-0,09	-0,08	-0,11	-0,18	-0,31	-0,24	-0,22	-0,31	-0,25
DEU	-0,11	-0,14	-0,22	-0,22	-0,19	-0,16	-0,09	-0,03	-0,03	-0,08	-0,03	-0,03
GRC	-0,12	-0,13	-0,08	-0,33	-0,20	-0,13	-0,07	-0,06	-0,06	-0,07	-0,07	-0,06
HUN	-0,13	-0,15	-0,18	-0,17	-0,10	-0,36	-0,29	-0,32	-0,26	-0,25	-0,30	-0,25
ITA	-0,16	-0,15	-0,14	-0,15	-0,07	-0,10	-0,09	-0,07	-0,07	-0,07	-0,08	-0,08
NLD	-0,12	-0,11	-0,17	-0,16	-0,24	-0,11	-0,19	-0,13	-0,14	-0,15	-0,14	-0,14
POL	-0,15	-0,16	-0,13	-0,13	-0,18	-0,12	-0,09	-0,10	-0,09	-0,09	-0,10	-0,09
PRT	-0,12	-0,11	-0,15	-0,13	-0,06	-0,09	-0,10	-0,05	-0,04	-0,04	-0,05	-0,04
SVK	-0,15	-0,15	-0,15	-0,14	-0,08	-0,13	-0,18	-0,17	-0,17	-0,17	-0,17	-0,16
ESP	-0,17	-0,19	-0,09	-0,08	-0,07	-0,08	-0,08	-0,06	-0,06	-0,06	-0,06	-0,06
SWE	-0,11	-0,08	-0,18	-0,14	-0,08	-0,07	-0,27	0,00	-0,25	-0,30	0,00	-0,25
TUR	-0,15	-0,16	-0,15	-0,13	-0,28	-0,07	-0,14	-0,17	-0,17	-0,16	-0,18	-0,18
GBR	-0,17	-0,18	-0,29	-0,10	-0,05	-0,06	-0,24	-0,33	-0,34	-0,31	-0,34	-0,34
USA	-2,96	-2,94	-2,85	-2,76	-2,59	-2,32	-2,65	-2,35	-2,50	-2,53	-2,29	-2,50
(1-EJ)	3,96	3,94	3,85	3,76	3,59	3,32	3,65	3,35	3,50	3,53	3,29	3,50
Entropy weights	0,09	0,09	0,09	0,09	0,08	0,08	0,08	0,08	0,08	0,08	0,08	0,08

In the Table 1, the main and sub-indicators used for the analysis are seen. In the Table 2, the data for the indicators are given. In the Table 3, entropy weights of the entrepreneurship indicators are calculated. According to Table 3, the indicators I_1, I_2, I_3, I_4 have got a weight share of % 9 and $I_5, I_6, I_7, I_8, I_9, I_{10}, I_{11}, I_{12}$ have got a weight share of % 8. After getting entropy weights, ranking for the countries are provided by using Maut method. In the Table 4, firstly all of the utility values are calculated for the each indicators shown by I_1, I_2, \dots, I_{12} . The preferred country will have the highest total score.

According to Maut rankings; USA is the best ranked country and Italia is the second one and the worst ranked country is the Slovak Republic. Turkey is in the sixth rank among the 20 OECD countries.

Table 4: Total Utility

	I_1	I_2	I_3	I_4	I_5	I_6	I_7	I_8	I_9	I_{10}	I_{11}	I_{12}	Total utility
AUT	0,053	0,059	0,003	0,006	0,083	0,003	0,002	0,005	0,003	0,002	0,004	0,003	0,227
BEL	0,036	0,035	0,015	0,009	0,005	0,003	0,005	0,004	0,002	0,001	0,004	0,003	0,122
CAN	0,068	0,063	0,011	0,011	0,005	0,003	0,006	0,012	0,011	0,019	0,000	0,011	0,222
CZE	0,006	0,011	0,023	0,014	0,003	0,002	0,039	0,007	0,007	0,005	0,007	0,006	0,130
DNK	0,046	0,046	0,000	0,000	0,003	0,001	0,000	0,003	0,001	0,000	0,003	0,001	0,104
FIN	0,092	0,091	0,012	0,007	0,005	0,002	0,002	0,003	0,001	0,000	0,003	0,001	0,219
FRA	0,012	0,014	0,006	0,004	0,079	0,002	0,052	0,021	0,019	0,038	0,024	0,022	0,294
DEU	0,035	0,028	0,001	0,003	0,006	0,003	0,034	0,062	0,035	0,041	0,061	0,038	0,345
GRC	0,000	0,034	0,050	0,033	0,035	0,008	0,012	0,002	0,000	0,007	0,002	0,000	0,183
HUN	0,005	0,025	0,001	0,087	0,039	0,004	0,008	0,005	0,003	0,005	0,005	0,003	0,191
ITA	0,017	0,039	0,030	0,019	0,009	0,077	0,084	0,066	0,040	0,052	0,056	0,038	0,528
NLD	0,042	0,040	0,018	0,015	0,004	0,002	0,011	0,006	0,004	0,005	0,007	0,005	0,158
POL	0,011	0,017	0,027	0,016	0,058	0,003	0,039	0,014	0,014	0,020	0,014	0,014	0,247
PRT	0,036	0,043	0,014	0,011	0,033	0,004	0,012	0,009	0,007	0,008	0,009	0,007	0,192
SVK	0,008	0,014	0,020	0,011	0,002	0,002	0,013	0,004	0,001	0,002	0,004	0,001	0,080
ESP	0,037	0,039	0,020	0,012	0,006	0,005	0,034	0,021	0,018	0,026	0,020	0,018	0,256
SWE	0,048	0,063	0,003	0,001	0,004	0,001	0,010	0,005	0,003	0,003	0,005	0,003	0,147
TUR	0,003	0,000	0,031	0,012	0,005	0,000	0,078	0,000	0,038	0,073	0,000	0,039	0,279
GBR	0,036	0,044	0,020	0,011	0,080	0,000	0,023	0,022	0,019	0,023	0,021	0,021	0,321
USA	0,056	0,058	0,089	0,006	0,000	0,000	0,058	0,078	0,081	0,079	0,076	0,081	0,661

4. CONCLUSION

We measure the entrepreneurship performance of OECD countries by using the Entropy-Maut hybrid model. 20 OECD countries are included in this model because of data limitations related with the mentioned indicators. The data is covering years 2014-2015. First of all we found the weights of each indicator. Then considering the entropy weights, we ranked OECD countries by using Maut method. As a result, we constructed a new index for entrepreneurship data. According to ranked results; the countries which are in the best ranking according to five main indicators are; USA, Italy, Germany and Great Britain. The countries that have low rankings are Belgium, Denmark and Slovak Republic. Turkey is in the sixth rank among the 20 OECD countries.

REFERENCES

- Acs ZJ, Audretsch DB, Evans DS 1994 The determinants of variations in self-employment rates across countries and over time. Discussion Paper 871, Centre for Economic Policy Research, London
- Audretsch, D. B., Verheul, I., Thurik, A. R., & Wennekers, S. (Eds.). 2002. *Entrepreneurship: Determinants and Policy in a European-US Comparison*. Boston and Dordrecht: Kluwer Academic Publishers.
- Audretsch, D.B., Fritsch, M., 2002. Growth regimes over time and space. *Regional Studies* 36, 113–124.
- Audretsch, D., Fritsch, M., 2003. Linking entrepreneurship to growth: The case of West Germany. *Industry and Innovation* 10, 65–73.
- Audretsch, D.B., 2007. Entrepreneurship capital and economic growth. *Oxford Review of Economic Policy* 23, 63–78.
- Blanchflower DG 2000. Self-employment in OECD countries. *Labor Econ* 7(5):471–505
- Blau D. 1987 A time-series analysis of self-employment in the United States. *J Polit Econ* 95(3):445–467
- Clausius, R. , (1867)“*The Mechanical Theory of Heat – with its Applications to the Steam Engine and to Physical Properties of Bodies*”. London
- Decker, R., Haltiwanger, J., Jarmin, R., Miranda, J., 2014. The role of entrepreneurship in US job creation and economic dynamism. *The Journal of Economic Perspectives* 28(3), 3–24.
- Elert, N., Henrekson, M. , Stenkula , M. 2017. Institutional Reform for Innovation and Entrepreneurship: An Agenda for Europe, IFN Working Paper No. 1150.
- Grilo I, Thurik AR. 2005 . Latent and actual entrepreneurship in Europe and the US: some recent developments. *Int Entrep Manag J* 1(4):441–459
- Grilo I, Irigoyen JM. 2006. Entrepreneurship in the EU: to wish and not to be. *Small Bus Econ* 26(4):305–318
- Keeney, R. L. and Raiffa, H. (1976). *Decisions with Multiple Objectives: Preferences and Value Tradeoffs*. Wiley, New York. Reprinted, Cambridge Univ. Press, New York (1993). MR0449476
- Saaty, T.L. *The Analytic Hierarchy Process*; McGraw-Hill: New York, NY, USA, 1980.
- Shannon, C.E. “*A mathematical theory of communication*”. *Bell Syst. Tech. J.* 1948, 27, 379–423
- Salman, D.M., Badr, K., 2011. Linking Entrepreneurship and Total Factor Productivity What are the Economic Setting Required? Paper prepared for the 17th annual international conference of the ERF.
- S.D. Pohekar, M. Ramachandran Application of multi-criteria decision making to sustainable energy planning—A review Birla Institute of Technology and Science (BITS), Pilani 333 031, India
- Van Stel, A., Carree, M., Thurik, R., 2005. The effect of entrepreneurial activity on national economic growth. *Small business economics* 24, 311–321.
- Vázquez, E., Gómez, S., Vieira, E., 2010. Entrepreneurship and economic growth in Spanish and Portuguese Regions. *Regional and Sectoral Economics Studies* 110–126.
- Wennekers, S., Van Wennekers, A., Thurik, R., Reynolds, P., 2005. Nascent entrepreneurship and the level of economic development. *Small business economics* 24, 293–309.
- Wennekers ARM .2006. Entrepreneurship at country level: economic and non-economic determinants, PhD thesis, Erasmus Research Institute of Management (ERIM), Rotterdam
- Wu, Jian-Zhang, and Qiang Zhang. "Multicriteria decision making method based on intuitionistic fuzzy weighted entropy." *Expert Systems with Applications* 38.1 (2011): 916-922.
- Zhang, H., Gu, C. L., Gu, L. W., & Zhang, Y. (2011). The evaluation of tourism destination competitiveness by TOPSIS & information entropy—A case in the Yangtze River Delta of China. *Tourism Management*, 32(2), 443-451.



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KNOWLEDGE MANAGEMENT AS A TOOL TO CREATE VALUE: CASE STUDY IN ALGERIAN ENTERPRISES

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ABSTRACT

Actually, many enterprises around the world have started taking more attention to their changing environment, mainly with the rise of the big data and information among enterprises as well as their stakeholders, thereby, enterprises are trying to improve their performance and creating more value, via the best exploitation of their available resources. Therefore, this work aims to study the impact of knowledge management in value creation within the Algerian enterprises. In addition, we try to give a whole situation of the KM application in the Algerian enterprises through the practical study. From one hand, the result of this study is very important in the term of the Algerian leader's interest about creation value through knowledge management, but from another hand, they need more efforts to increase their capacities and improving the practice of knowledge management in their enterprises as an official organizational structure.

Keywords: Knowledge management, value creation, knowledge value, KAVS, algerian enterprises

JEL Codes: D83, N75, I25

1. INTRODUCTION

Companies today are living in a very changing environment. They conduct their activities in accordance with predetermined and very defined local and international conditions. These conditions impose on managers to properly mastering the mechanisms and necessary strategies to survive and to face different increasing competitive challenges. Economy, culture, society, natural space, technology and the state of competition influence to a large extent, they do not determine absolutely, business behavior it being understood that each of these particular variables intervene in a manner and pace that is peculiar to it. Nevertheless, the company assimilates, fits reacts. Like any living organism, it accepts or rejects more or less external constraints. Its strength lies in its strategic and ability to transform these constraints into opportunities to change the impasses prosperity deposits, malfunctions into effective action. Creative ideas, innovations, new production methods, diversification of structures, new organizations, the specifics knowledge of the organization and markets, the use of technology, are powerful strategic levers that allow adaptation and differentiation, change and organized the successful action. In this environment characterized by complexity, the information technology (IT) are becoming very dominant, and represent a strong platform and a very useful tool for capturing and collecting permanent information, and allowing to transformer these information to new knowledge, to improve the enterprise performance and realize sustainable competitive advantage. There are many other tools and methods that allow to the managers to create and disseminate new knowledge within the organization such as SECI model of Nonaka and Takeuchi, Feedback Experience, Knowledge Management Discovery Process ... ect.

A successful strategy for implementing a knowledge management system need to combine harmonically between the different aspects on two levels, first an operational level, methods, tools and tactics and second on the strategic level, they need to integrate human capital, knowledge process management, the organizational factors and the contribution of IT to achieve the main objectives. Knowledge considered as intangible or immaterial asset, it is now the main source of productivity and business competitiveness. It is presented in two categories within organization: Explicit knowledge and tacit knowledge. « ...According to Nonaka and Takeuchi (1995), explicit knowledge is formal and systematic and it can be expressed in words and numbers. Moreover, it can easily be processed by computers ... Tacit knowledge in turn, is very

personal and difficult to make visible because of its abstract character. Tacit knowledge includes subjective views, intuition and perceptions as well as experience, ideas, values and feelings... »¹

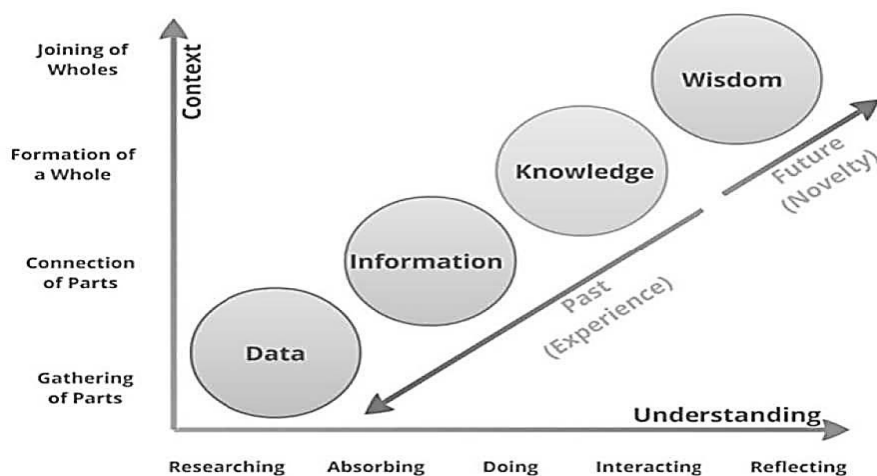
Introducing Knowledge Management

In the twenty-first century, the knowledge management consider as the crucial and decisive factors that determined the competitive position of the enterprise in the market (Richards, 2002).It can also be widely regarded as one of the most valuable and efficient capitals in the enterprises and it can be a powerful foundation for developing of large number organizational strategies. The organizational approaches have been altered from emphasizing tangible resource to focusing on intangible resources. As an intangible asset, knowledge is a vital indicator for organizational success that needs to be managed skillfully (Allameh et al., 2014).

1.1 Knowledge Characteristics

In general, it exists three types of Knowledge characteristics, which are data, information and Knowledge but according to other researchers we can find four characteristics the last three types plus the wisdom. In our study we adopt the four types or witch called often The DIKW Pyramid or The DIKW Hierarchy.

Fig. 1: Model of Ackoff's DIKW hierarchy



Source: Williams, (2014).

1.2. Knowledge Categories and Types

1.2.1. Knowledge categories

In his various studies as well as mentioned in his different books concerning the Knowledge Management and Information Technology Management, "Petter Gottschalk" classifies the Knowledge in three principal categories: Core, Advanced and Innovative knowledge.

Core knowledge

*"...This is the type of knowledge that can create efficiency barriers for entry of new companies, as new competitors are not up to speed in basic business processes. Since core knowledge is present at all existing competitors, the firm must have this knowledge even though it will provide the firm with no advantage that distinguishes it from its competitors"*².

Core knowledge is that minimum scope and level of knowledge required just staying in business. Having that level of knowledge and capability will not assure the long-term competitive viability of the firm, but does present a basic industry knowledge barrier to entry.

Advanced knowledge

"...Advanced knowledge enables a firm to be competitively viable. The firm may have generally the same level, scope or quality of knowledge as its competitors although the specific knowledge content will often vary among competitors,

¹ Puusa, A. and Eerikäinen, M. "Is Tacit Knowledge Really Tacit?" Electronic Journal of Knowledge Management, Vol. 8, p. 309

² Gottschalk, P. (2007). Business dynamics in information technology, ed. IGP. Pp. 114

enabling knowledge differentiation. Firms may choose to compete on knowledge head-on in the same strategic position, hoping to know more than a competitor.”³

What makes the firm competitively visible and active?, such knowledge allows the firm to differentiate its products and services from that of a competitor through the application of superior knowledge in certain areas. Such knowledge allows the firm to compete head on with its competitors in the same market and for the same set of customers.

Innovative knowledge

” Innovative knowledge is that knowledge that enables a firm to lead its industry and competitors and to significantly differentiate itself from its competitors”².

Allows a firm to lead its entire industry to an extent that clearly differentiates it from competition. Such knowledge allows a firm to change the rules of the game by introducing new business practices. Such knowledge enables a firm to expand its market share by winning new customers and by increasing service levels to existing customers.

1.2.2. Knowledge Types

Explicit Knowledge

Typically, the explicit knowledge refers to knowledge that has been expressed into words and numbers. Such knowledge can be shared formally and systematically in the form of data, specifications, manuals, drawings, audio and videotapes, computer programs, patents, and the like. It should also be noted that although explicit knowledge might resemble data or information in form.

Also the rules about how to process a travel reimbursement, which becomes embedded in an enterprise resource planning system, is considered explicit knowledge.

Tacit Knowledge

In contrast, tacit knowledge includes insights, intuitions, and hunches. It is difficult to express and formalize, and therefore difficult to share. Tacit knowledge is more likely to be personal and based on individual experiences and activities.

Tacit knowledge may also include expertise that is so specific that it may be too expensive to make explicit; therefore, the organization chooses to let it reside with the expert.⁴

1.3. Knowledge Management

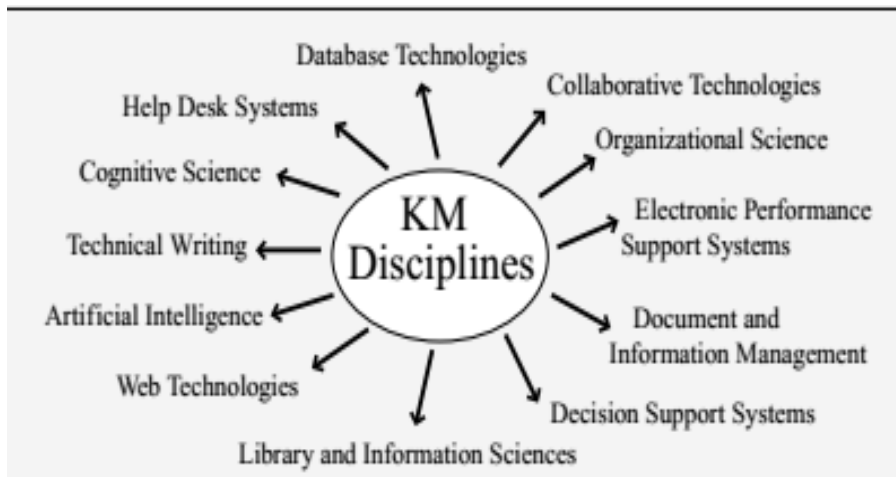
The twenty-first century, the knowledge management consider as the crucial and decisive factors that determined the competitive position of the enterprise in the market (Richards, 2002). It can also be widely regarded as one of the most valuable and efficient capitals in the enterprises and it can be a powerful foundation for developing of large number organizational strategies.

The organizational approaches have been altered from emphasizing tangible resource to focusing on intangible resources. As an intangible asset, knowledge is a vital indicator for organizational success that needs to be managed skillfully (Allameh et al., 2014).

According to Dalkir, K (2005), and as it illustrated in the following figure, the multidisciplinary nature of Knowledge Management represents a double edged sword. It becomes very important to be able to list and describe what set of attributes are necessary and are in themselves sufficient to constitute knowledge management both as a discipline and as a field of practice.

³ *Ibid.*, p. 3.

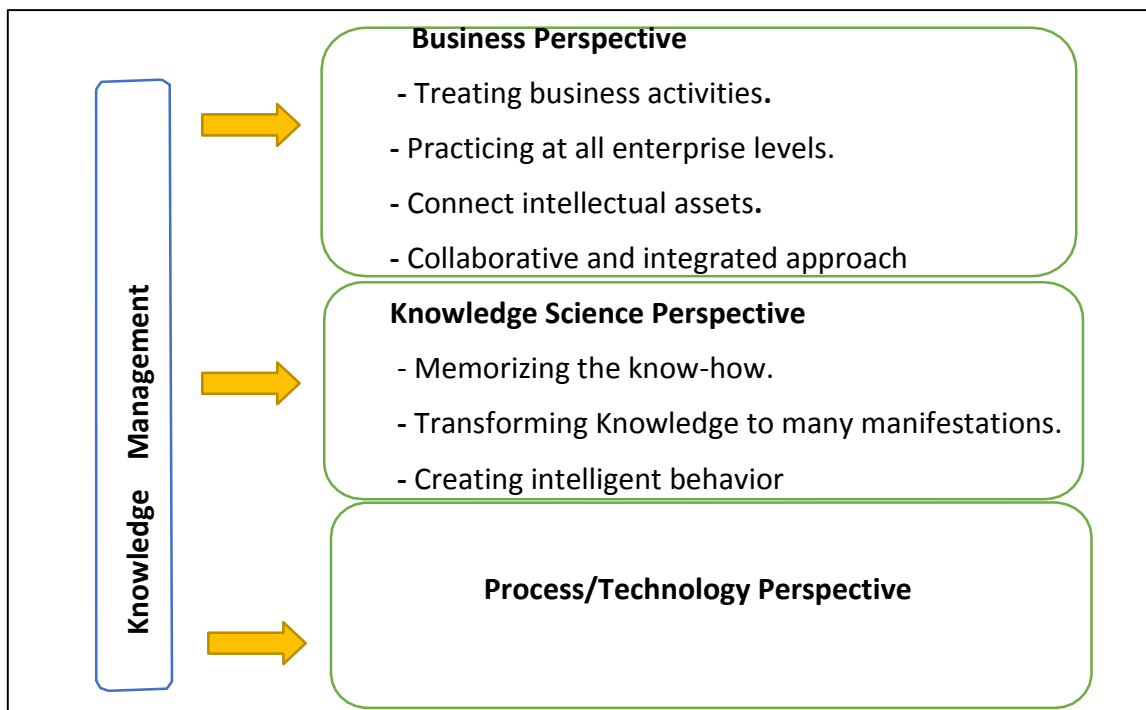
⁴ For more distinction between Explicit Knowledge and Tacit Knowledge, see [Holste and Fields,\(2010\)](#),

Figure 2: The Interdisciplinary Nature of Knowledge Management

Source: Dalkir. K, 2005

1.3.1. KM Definition

There are numerous definitions of knowledge management proffered by researchers. But from another side, we can define it very simply as the conversion of tacit knowledge into explicit knowledge and sharing it within the enterprise. Uriarte. F. A (2008), define the Knowledge Management as "... the process through which organizations generate value from their intellectual and knowledge based assets... knowledge management is concerned with the process of identifying, acquiring, distributing and maintaining knowledge that is essential to the organization." KM is defined by Jennex. M E, (2007) as "the practice of selectively applying knowledge from previous experiences of decision making to current and future decision-making activities with the express purpose of improving the organization's effectiveness..."⁵

Figure 3: KM Perspectives

- Information to actionable Knowledge

⁵ Jennex. M E, (2007). Knowledge Management in Modern Organizations. Ed IGP. p. 4.

- Usable knowledge form.
- Sharing between people

From the business perspective

The definition of KM as a business activity has to take in account two primary aspects:

- 1** - Treating the knowledge component of business activities as an explicit concern of business reflected in strategy, policy, and practice at all levels of the enterprise.
- 2** - Making a direct connection between an organization's intellectual assets, that is to say, the both explicit and tacit and the positive business results.

From here, the KM can consider as a collaborative and integrated approach to the creation, capture, organization, access and use of an enterprise's intellectual assets.

From the cognitive science or knowledge science perspective

Knowledge as like as the insights, understandings, reflection and practical know-how, is the fundamental resource that allows us to function intelligently in the right way.

Over time, the knowledge is also transformed to other manifestations, such as books, technology, practices and traditions within enterprise. These transformations result in cumulated expertise and when used appropriately can increase the enterprise effectiveness.

From the process/technology perspective

Knowledge management is the concept under which information is turned into actionable knowledge and made available effortlessly in a usable form to the people who can apply it.

1.3.2. Different definitions of Knowledge Management⁶

1. Knowledge management is the collection of processes that govern the creation, dissemination, and utilization of knowledge. – Brian Newman
2. Knowledge management is the management of the organization towards the continuous renewal of the organizational knowledge base – this means, for example, the creation of supportive organizational structures, facilitation of organizational members, putting IT-instruments with emphasis on teamwork and diffusion of knowledge (e.g., groupware) into place. – Thomas Bertels
3. Knowledge management is an audit of “intellectual assets” that highlights unique sources, critical functions and potential bottlenecks which hinder knowledge flows to the point of use. – Denham Grey
4. Knowledge management consists of activities focused on the organization gaining knowledge from its own experience and from the experience of others, and on the judicious application of that knowledge to fulfill the mission of the organization. – Gregory Wenig
5. Knowledge management is a business activity with two primary aspects: (a) treating the knowledge component of business activities as an explicit concern of business reflected in strategy, policy, and practice at all levels of the organization; and (b) making a direct connection between an organization's intellectual assets – both explicit (recorded) and tacit (personal know-how) – and positive business results. – Rebecca O. Barclay *and* Philip C. Murray
6. Knowledge management is the process through which organizations generate value from their intellectual and knowledge-based assets. – Megan Santosus *and* Jon Surmacz
7. Knowledge management is the systematic process of finding, selecting, organizing, distilling and presenting information in a way that improves an employee's comprehension in a specific area of interest. – *University of Texas*
8. Knowledge management is a process with four parts that comprise a loop: knowledge is created, knowledge is captured, knowledge is classified and modified, and knowledge is shared. – Wally Bock
9. Knowledge management is the way that organizations create, capture and re-use knowledge to achieve organizational objectives.– *Wally Bock*
10. Knowledge management is the way organizations create, capture, enhance, and reuse knowledge to achieve organizational objectives.– Asian Development Bank
11. Knowledge management is a collection of activities, processes and policies, which enable organizations to apply knowledge to improve effectiveness, innovation and quality. – UN Knowledge Management Workshop

⁶ Uriarte. F. A, (2008). Introduction to Knowledge Management. Ed. ASEAN Foundation. pp. 27-31.

12. Knowledge management is the identification and mapping of intellectual assets within an organization, the creation of knowledge for competitive advantage, the conversion of vast amounts of available corporate data into accessible information and the distribution of best practices. – Economic and Social Commission for Western Asia

13. Knowledge management is the process through which organizations generate value from their intellectual and Knowledge-based assets. – CIO Magazine

14. Knowledge management is concerned with organizing knowledge repositories so as to allow for easy retrieval and exchange of the information stored therein. – Felix Weigel

15. Knowledge management is the process of capturing value, knowledge and understanding of corporate information, using IT systems, in order to maintain, re-use and re-deploy that knowledge.– *OIC Document Management*

16. Knowledge management is a streamlined approach at improving knowledge sharing across the entire organization. – Tenrox PSA

17. Knowledge management is information or data management with the additional practice of capturing the tacit experience of the individual to be shared, used and built upon by the organization. – KMTool Community

18. Knowledge management is organizing information from disparate sources into a context that reflects the business and the decisions and processes of the business. – Peter Novins

19. Knowledge management is the strategy and processes to enable the creation and flow of relevant knowledge throughout the business to create organizational, customer and consumer value. – David Smith

1.3.3. Knowledge Management Objectives

There are some typical knowledge management objectives (Dalkir, 2005 &Uriarte, 2008). These last are summarized in the following points:

- 1 - Facilitate a smooth transition from those retiring to their successors who are recruited to fill their positions.
- 2 - Minimize loss of corporate memory due to attrition and retirement.
- 3 - Identify critical resources and critical areas of knowledge so that the corporation “knows what it knows and does it well—and why.”
- 4 - Build up a toolkit of methods that can be used with individuals, with groups, and with the organization to stem the potential loss of intellectual capital.
- 5 - Marketplaces are increasingly competitive and the rate of innovation is rising.
- 6 - Reductions in staffing create a need to replace informal knowledge with formal methods.
- 7 - Competitive pressures reduce the size of the work force that holds valuable business knowledge.
- 8 - The amount of time available to experience and acquire knowledge has diminished.
- 9 - Early retirements and increasing mobility of the work force lead to loss of knowledge.
- 10 - There is a need to manage increasing complexity as small operating companies are transnational sourcing operations.
- 11 - Changes in strategic direction may result in the loss of knowledge in a specific area.

2. KMV Configuration in the Algerian Enterprises

2.1. The Case Study Sample Presentation

2.1.1. The Characteristics of Selected Sample

Purpose of the study

Our aim from the present case study is to define from one side, the real situation of KM application in the Algerian enterprises and from another side, the value created within the enterprise according to the leaders' engagement.

The sample selection and the response rate

In this study, we have contacted about 62 enterprises spread over various Wilaya, using rited questionnaires (personal interviews in Tlemcen) and questionnaires online with Google Drive (email and Facebook messages in different regions). But the result is not enough at all, from one hand, we have recovered only 25,80% of questionnaires equivalent to 16 enterprises whose 12.5% recovered data are from Google Drive. And from another hand, all the answers by Internet are from Tlemcen which require that all enterprises in this case are from Tlemcen.

Identification of the enterprise

In this part, we have to present the size of enterprises, property type and the enterprises' different activities. All data in this chapter will be analyzed using statistical software (Minitab Ver.17).

Size and Property type

The following figure represents the different size of the enterprises. The sample contents all categories of size: two micro enterprises (12.5%), five small enterprises (31.3%), four medium enterprises (25%) and five big enterprises (31.3%). The private enterprises represent the majority with 62.5% equivalent to ten enterprises. In contrast the public enterprises are equal to six enterprises.

Figure 4: Enterprises'size

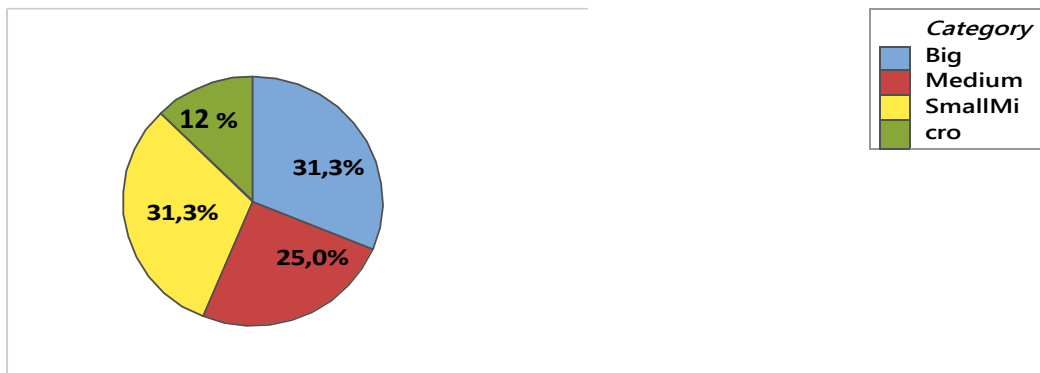
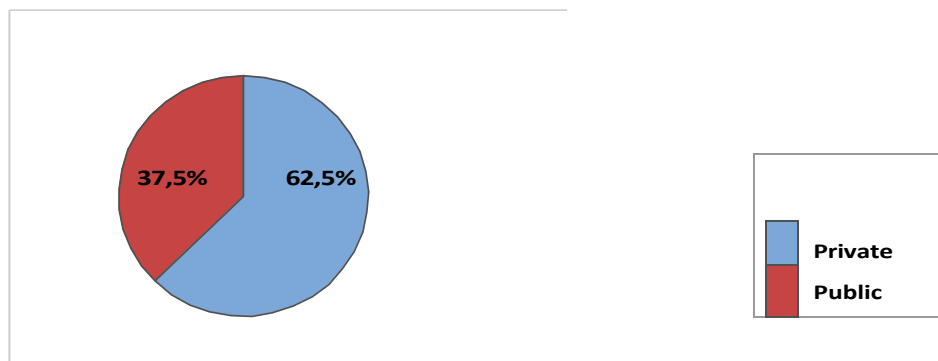


Figure 5: Enterprises Property Type



More characteristics (Activities)

Generally, we can find in the table 1, the name of the enterprises and their principal activities ordered by Size, Property type and creation date. This last as well as figured in the table represent a various age from 1971 until 2013.

Table 1 : Enterprises' characteristics

Enterprise Name	Creationdate	Size	Property Type	Main Activity
SDO- Direction de Tlemcen	----	Big	Public	Distribution of electricity and gas
STARR	1971	Big	Public	Earthworks, Construction, Road Construction
SOGERHWIT	1973	Big	Public	Public Works, Hydraulic Works
SEROR	1982	Big	Public	Public works(bridges, dams and hydropower facilities, buildings)

AlgérieTélécom-Direction opérationnelle	2003	Big	Public	Telecommunications
Sarl SOCOPE	2002	Medium	Private	Vehicle dealer ship public works
EURLBHT Contructions	2010	Medium	Private	Public Works, Construction
EURL BIAConstruction	2013	Medium	Private	Public Works, Construction
EMACO, Spa	1972	Medium	Public	Production & Commerc. Building Materials
Groupe Gourmala	1988	Small	Private	Public Works, Hydraulics
SARL S.B.C	1994	Small	Private	Agglomerated-tiling
SARL SNEF	2001	Small	Private	Textiles, manufacturing blankets, Spinning, Weaving
SARLTECHAM	2007	Small	Private	Modular Construction, Land scaping workspace
Zino broderie	2010	Small	Private	Industrial embroidery
SARL El ouahab	2005	Micro	Private	Dry fruits
Djellab Moulay Habib	2006	Micro	Private	Mechanical construction

2.2. The characteristics of KM in the Algerian enterprise

2.2.1. Knowledge Creation

From one side, 68.8% of enterprises have a KM Service or group (Fig. 6), in same time we can observe that only 37.5% of enterprises have a monitoring unit to collect relevant information and 25% of them rely on R&D to increase and create new knowledge. And from another side, all enterprises (100%) consider the knowledge as organization assets and 87.5% of them consider these last as a strategic asset (Fig.7).

Figure 6: Having a Knowledge Management Service

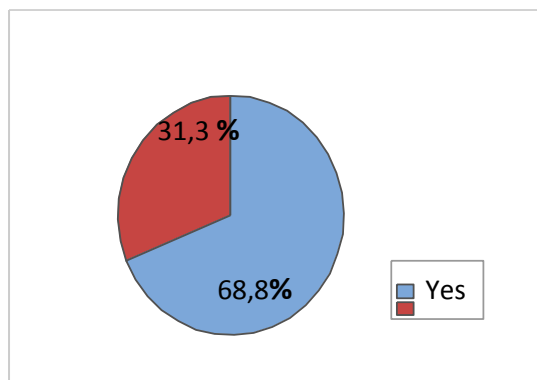
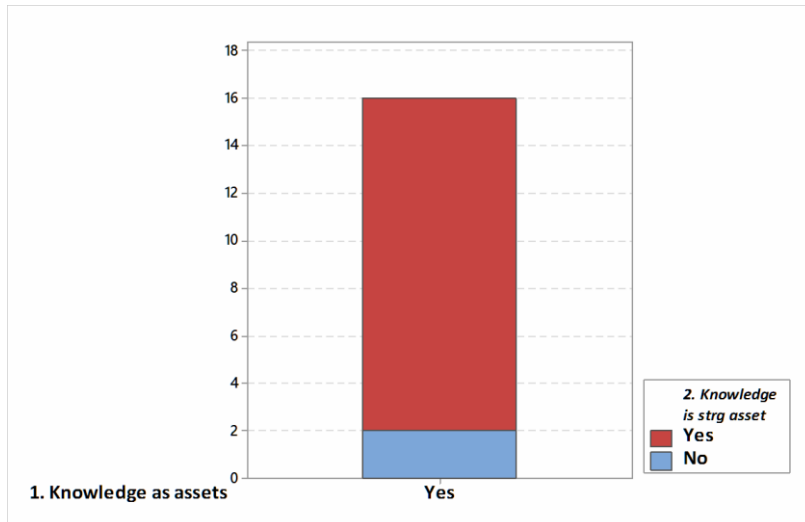


Figure 7: Stacked Enterprises For Knowledge As Assets By Strategic Asset



In term of collecting information all enterprises (100%) are able to collect the necessary information and 87.5 % of them can deal this information according to their needs (Fig.8). But only 43.8% have KM Process in their own systems (Fig. 9).

Figure 8: Cluster of Enterprises by Collecting Information and Dealing information

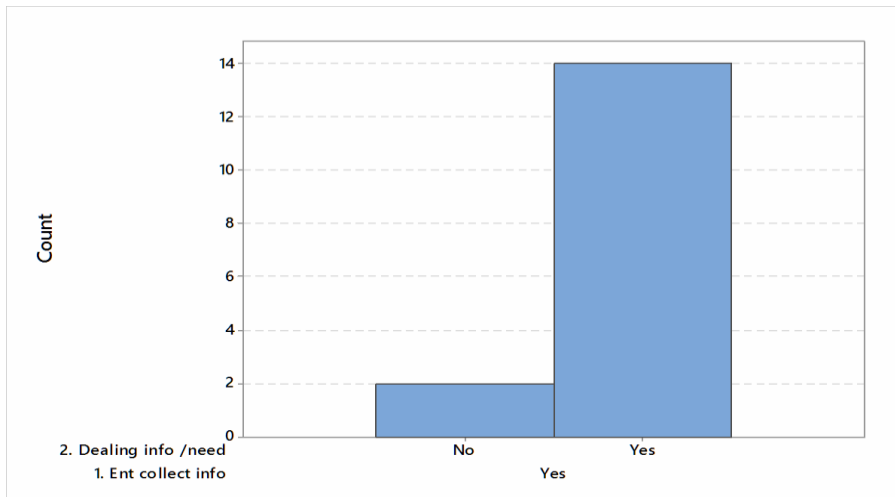
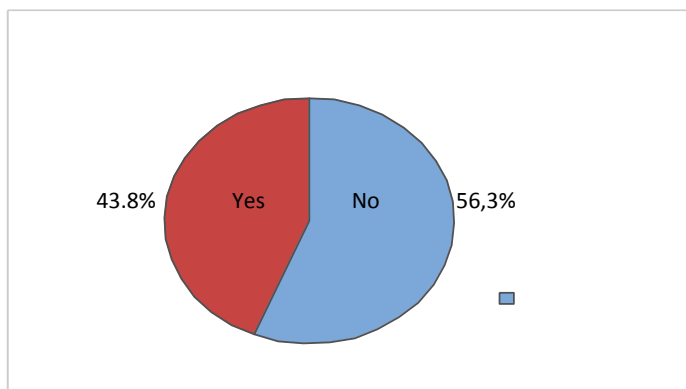
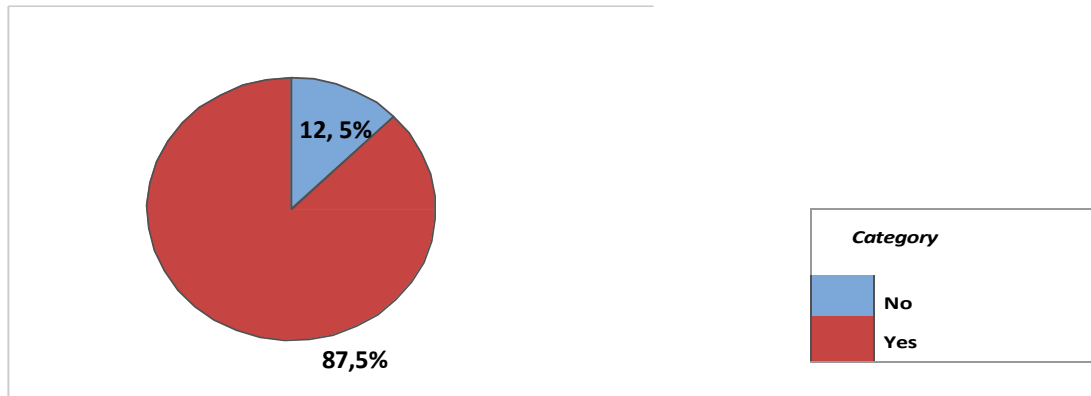


Figure 9: Having KM Process



87.5% of enterprises consider that their employees play an important role in the process of knowledge creation (Figure 10).

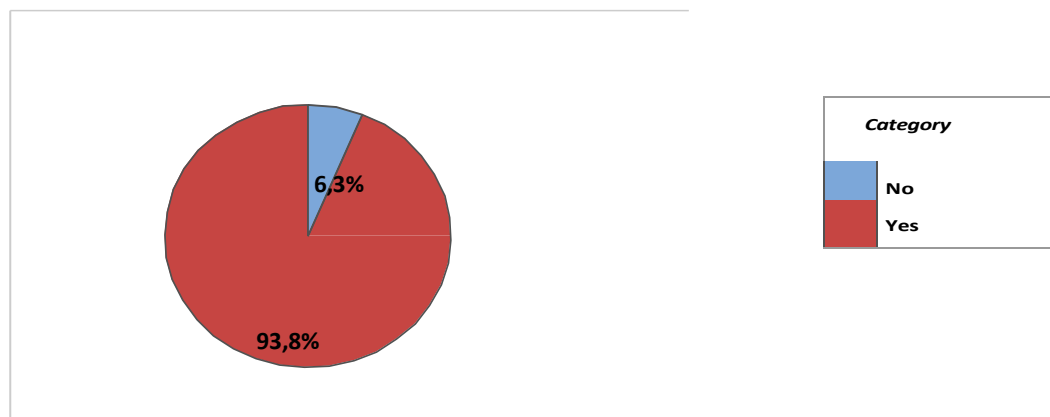
Figure 10: Employees Role in Knowledge Creation



2.2.2. Knowledge Storage and Sharing

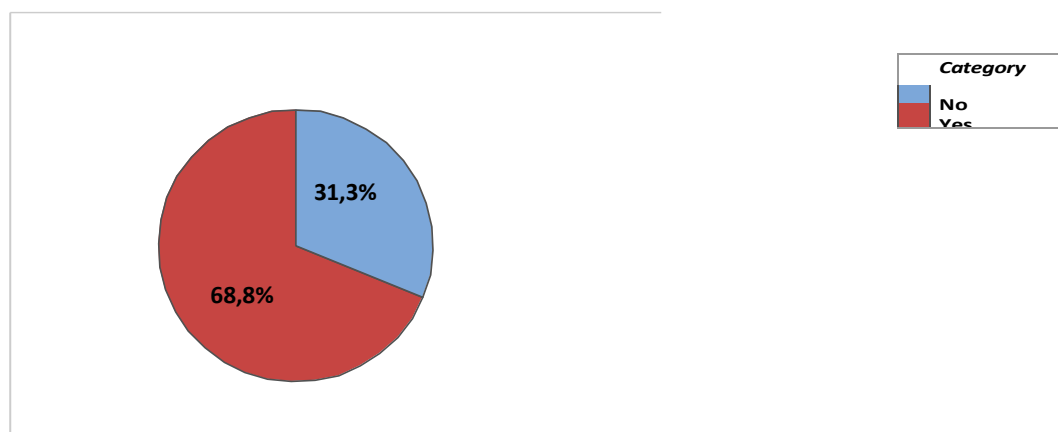
About 56.3% of enterprises use paper to store Knowledge. In contrast we can find 75% use electronic media as a tool for storage. The majority of enterprises 93.8% considers training and interne learning as a tools to store and transfer knowledge (Figure 11).

Figure 11: Training as a Tool To Store and Transfer Knowledge



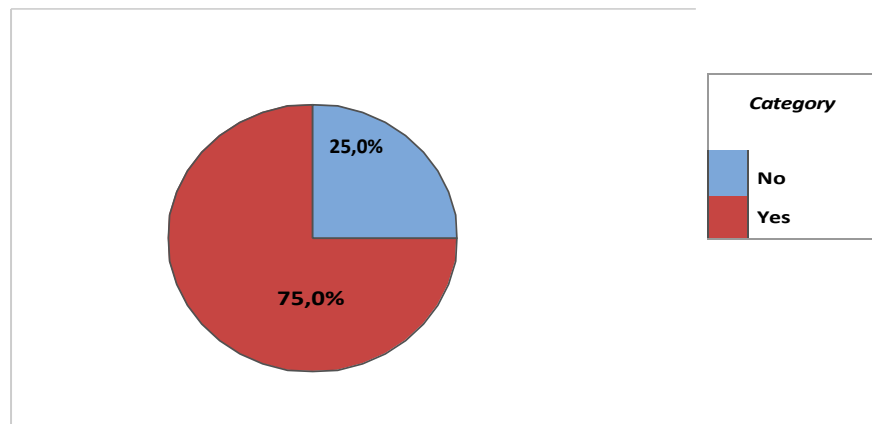
From another hand, only 37.5% of enterprises use textbooks or manuals to store and share their knowledge. In contrast, there are 68.8% of enterprises integrate Knowledge in their managerial and manufacturing procedures to share it (Fig.12).

Figure 12: K Integration In Managerial and Manufacturing Procedures



All enterprises are agreeing with 100% that the work as a team allows to the employees the best sharing and creating a new knowledge. Following to this information, we note that only 75% of enterprises declare that their knowledge creators are rewarded (Figure 13).

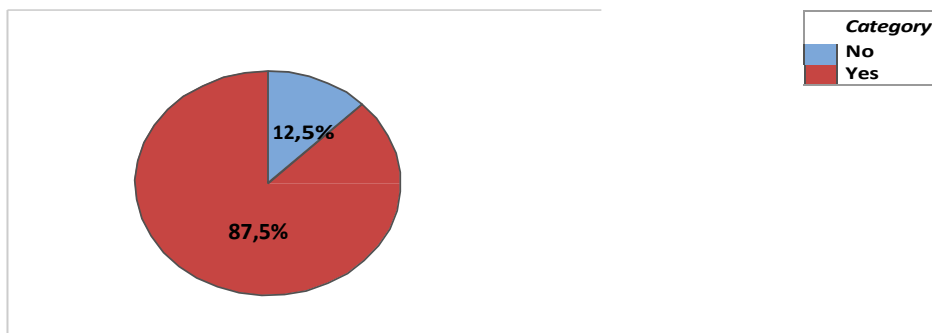
Figure 13: The Knowledge Creators Are Rewarded



2.2.3. Knowledge Utilization

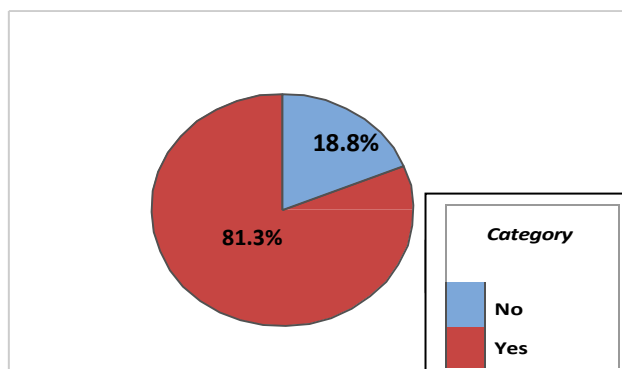
87.5% of the cumulative knowledge in Algerian enterprise is very helpful and a best tool to develop and manage the new projects (Figure 14).

Figure 14: Using Cumulative Knowledge to Manage New Projects



All enterprises (100%) use the Knowledge to solve their problems and 56.3% of them allow to their employees the access to the appropriate knowledge. 68.8% of this knowledge is considered as a strategic resource. For more efficient, 81.3% of enterprises integrate their competent employees into the product development process (Figure 15).

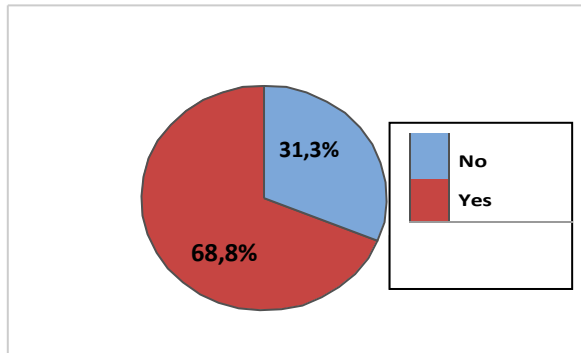
Figure 15: Employees Integration into The Product Development Process



2.2.4. Knowledge Management and ICT

The ICT play a very important role in developing information within enterprise. In our case, we can observe that 50% of enterprises use IS and ERP to develop the knowledge. And 68.8% of them are ready to adopt a new technologies as mobile application to enhance the knowledge creation process (Fig.16).

Figure16: Adopt New Technologies To Develop KM



2.3. KMVC In The Algerian Enterprise

2.3 1.The impact of KM on Decision Making In the next Figure (Fig. 25), we note that the majority of leaders (93.8%) rely on knowledge to make decisions

2.3 2. The impact of KM on enterprise profitability

The efficient of knowledge in terms of profit represent 75% in our study, 62.5% in increasing the turnover and 87.5% in creating added value and saving time.

2.3 3. The Knowledge Management Value Configuration

2.3.3.1. The Value Chain

To improve the performance and reducing costs in the Algerian enterprises through KM represent 93.8% in this case. In Addition, 87.5% of them use KM to increase their productivity and 68.8% to increase and improve the creativity. As a result, 62.5% of enterprises use KM to acquire a competitive advantage.

	yes	no
Using KM to improve performance	93,8%	6,3%
Knowledge is profitable in terms of Costs	93,8%	6,3%
Using KM to increase the productivity	87,5%	6,3%

2.3.2.The Value Shop

Solving customer's problems is one of the priorities in the enterprise. Using KM to satisfy and retain the customers represent 81.3%, in this study and 87.5% to enhance the quality.

	yes	no
KM using to satisfy and retain the customers	81,3%	18,8%
Knowledge is profitable in terms of Quality	87,5%	12,5%

2.3.3.The Value Network

The information collected by putting the partners or more practically the customers in connection each to other, visualized in the next table, 62.5% of leaders share their Non-strategic knowledge with their partners. The same rate (62.5%) we can note in the use of Internet as tool to communicate with different partners. One of the recent web technics using to analysis data and creating customers' knowledge are the social networks. These last are weakly used by the Algerian enterprises, only 37.5% of enterprises use this technic.

	yes	no
Non-strategic Knowledge sharing with partners	62,5%	37,5%
Using internet in communication with partners.	62,5%	37,5%
Using social networks to collect information	37,5%	62,5%

The previous statistics reflect, from one side, the importance of creating value in the enterprise

and from another side the negligence in some case of knowledge activities.

Table 2: The Contribution of KM to Create Value in Algerian Enterprises

The Value Chain	The Value Shop	The Value Network
Improving performance 93.8%	Solving problems 100%	Sharing non-strategic Knowledge 62.5%
Reducing costs 93.8%	Enhance the quality 87.5%	Communicate by Internet 62.5%
Increase productivity 87.5%	Sharing non-strategic Knowledge 62.5%	Using social networks 37.5%
Increase creativity 68.8%	Satisfy and retain the customers 81.3%	Adopting new technologies 68.8%
Competitive advantage 62.5%		

3. CONCLUSION

The Knowledge Management as a discipline was and stills the debate of large number of researches around the world. As seen in this work and mainly in the last section, the Algerian Enterprises take in consideration the importance of investment in the KM as intellectual capital. However, the reality of KM practice within Algerian Enterprises as well as we conclude in this study, content two situations. In the first, we note that less than 40% of enterprises do not have a real knowledge Management services or department to develop and manage the organization knowledge. The R&D is not deemed as important element to develop and create a new knowledge, it represents only 25% of leader's importance. In the second situation, the practice of KM as some separated activities, is one of the majority characteristics in the Algerian enterprises. All (100%) of enterprises are able to collect and treat information. In contrast, only 43.8% have a knowledge management process. The training and interne learning represent 93.8% of importance as a tools to store and transfer the knowledge. The employees play an important role in knowledge creation (87.5%). From another side, we have a weak integration of ICT in knowledge management process. The Knowledge Value Configuration in our case, it was explained through the Algerian leader's interest in the majority of the enterprises. The next table summarizes the obtained results in term of The Contribution of KM to create value according to the model of Gottschalk (2007).

In general, these results are positive, in the terms of the Algerian leader's interest about creation value through knowledge management, but to get a significant relation between the integration of the knowledge management in the Algerian enterprises and the value creation, they need more collaboration with their partners and more efforts to increase their capacities and improving the practice of knowledge management from one side and from another they should clearly define their Knowledge Management process as official process and an integrated part of their organizational structure, not only as separate and secondary activities.

REFERENCES

- Becerra-Fernandez, I. & Sabherwal, R. (2015). Knowledge Management: Systems and Processes. Ed. Routledge.
- Bergeron, B. (2003). Essentials of Knowledge Management. Ed. Wiley.
- Dalkir, K. (2005). Knowledge Management in theory practice. Ed. Elsevier.
- Gottschalk, P. (2007). Business dynamics in information technology. Ed.IGP.
- Gottschalk, P. (2007). Knowledge management systems: value shop creation. Ed. IGP.
- Hou, H. T. (2012). New Research on Knowledge Management Models and Methods. Ed. InTech.
- Ichijo, K. & Nonaka, I. (2007). Knowledge Creation and Management: New Challenges for Managers. Ed. Oxford university press.
- Jennex, M. (2005). Case studies in knowledge management. Ed. IGP.
- Jennex, M. (2007). Knowledge Management in Modern Organizations. Ed. IGP.
- Lesca, H. & Lesca, N. (2014). Strategic Decisions and Weak Signals: Anticipation for Decision-Making. Ed. ISTE & Wiley.
- Lesca, H. & Lesca, N. (2011). Weak signals for strategic intelligence: anticipation tool for managers. Ed. ISTE & Wiley
- Matta, N. et al. (2016). Daily Knowledge Valuation in Organizations: racevability and Capitalization. Ed. ISTE & Wiley.
- Meier, O. (2009). DICO du manager: 500 clef pour comprendre et agir. Ed. Dunod.
- Nonaka, I. & Teece, D. (2001). Managing Industrial Knowledge: Creation, Transfer and Utilization. Ed. SAGE Publications.

- Allameh, S. et al., (2014). Developing a model for examining the effect of tacit and explicit knowledge sharing on organizational performance based on EFQM approach. *Journal of Science & Technology Policy Management, Emerald*, Vol. 5 No. 3, pp. 265-280
- Bayyurt, N. et al. (2013). System dynamics modeling of a knowledge management process: A case study in Turkish Airlines. 9th International Strategic Management Conference. Ed. Elsevier, p. 546.
- Benabderrahmane, Y. (2012). Knowledge Management, ICT deployment and MHR organizations: the case of Algeria, doctoral thesis in management science, University of Paul Valery-Montpellier III, published in HAL review, pp. 228.
- Carlucci, D. & Schiuma, G. (2006). Knowledge Asset Value Spiral: Linking Knowledge Assets to Company's Performance. *knowledge and Process Management*, Vol 13,Wiley, p. 38
- Datoussaid, A. (2015). Corporate strategy and revenue growth in a high intensity knowledge regime: The case of small and medium Algerian companies, doctoral thesis in management science, University of Tlemcen, pp. 255.
- Ermine, J-L, et al. (2012). Une chaîne de valeur de la connaissance. *Management international, HEC Montréal*, Vol. 16, pp. 29-40.
- Esper, T. et al. (2010). Demand and supply integration: a conceptual framework of value creation through knowledge management. *Journal of Academy of Marketing Science*, Spring, p. 08
- Holste, J. & Fields, D. (2010). Trust and tacit knowledge sharing and use. *Journal of Knowledge Management. Emerald*, Vol. 14 Iss: 1, pp.128 - 140
- Lachachi, A. (2014). La contribution des savoirs dans la performance 'entreprise. Doctoral thesis in management science, University of Tlemcen.
- Lachachi, A. (2011). The formalization of knowledge management in the managerial approach: cases of territorial management of Telecom Algeria Tlemcen, Magister thesis in HRM, University of Tlemcen, pp. 228.
- Lee, M-C. & Han, M-W. (2009). Knowledge Value chain model Implemented for Supply Chain Management Performance. International Joint Conference on INC, IMS and IDC, IEEE computer society, the 5th edition, pp 606-611
- MALLET, C. (2006). Knowledge Management, ICT and organizational value creation: A proposal for an evaluation model, international conferecy of Strategic Management, International Conference of Strategic Management, Geneva, 15th edition, pp. 25
- Puusa, A. & Eerikäinen, M. Is Tacit Knowledge Really Tacit? *Electronic Journal of Knowledge Management*, Vol. 8 pp. 309
- Richards, D. (2002). Knowledge in Action: Blurring the Distinction between Tacit and Explicit knowledge. *Journal of Decision Systems*. Volume 11 – No. 2, pp. 149 - 164.



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AN INVESTIGATION OF AWARENESS LEVEL OF THE CONSTRUCTION EMPLOYEES ON OCCUPATIONAL SAFETY

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ABSTRACT

Occupational safety is an essential element in the prevention of occupational accidents, but more importantly, employees should be aware of the necessity of occupational safety and must avoid dangerous movements that can cause accidents. The safe behavior of employees can be considered as the most important factor in preventing occupational accidents, especially in the construction industry where work place accidents are very common. Working conditions in the construction sector have been changing because of rapid development of technology. Also, demand for different construction types has been increasing. The most difficult task is undertaken by workers to meet this increased demand. Working conditions have become inharmonious because of the need to meet the demand and the construction with the costumer and also the difference between the working areas. This situation brings about the employees are treated like machines and forced to work in hazardous areas. The most common reasons of accidents in this sector are mainly the various dangers arise from the structural features of the sector, lack of knowledge about the conditions of occupational health and safety, not to change the standard working style and the desire of employers to make more profit. The aim of occupational safety in this sector is to diminish the level of the workplace accidents and to make workers conscious of the issue consequently transforming their safety attitudes to a culture. The aim of this paper is to investigate the opinions of workers in construction areas on occupational health and safety. For this purpose, a questionnaire is conducted and applied in various construction sites in Niğde. The obtained results are thoroughly analyzed by SPSS 24 packet programme.

Keywords: Construction, occupational health, occupational safety, SPSS, survey

JEL Codes: J28, O38, I23

1. INTRODUCTION

Fatal occupational accidents that have occurred in the construction sector in recent years have once again revealed how important and necessary work safety practices are in this area. With the increasing number of occupational accidents, people have started to think that the protective approaches against these accidents are either incomplete or wrong, or those approaches are not applied, or the people responsible for applying these approaches do not fully fulfill their duties. In spite of the existence of the legal regulations to prevent these accidents, the existence of written rules only is not sufficient for the perception, internalization, and enforcement of these rules by employees/employers / occupational health and safety professionals. In construction work, there is generally a protection approach known by everyone in terms of safety precaution, which is the belief that the use of personal protective equipment is sufficient. However, the aim of the work safety studies is to secure the workplace first and then to take precautions for the safety of employees if necessary. Even this misconception can be regarded as one of the most important reasons for the happening of occupational accidents. Construction workers and employers are not aware of the importance of security measures, so they consider these measures to be unnecessary, difficult to implement and causing material loss, and both parties struggle to keep working with their own truths by acting as illegitimately as possible. Employers often ignore the fact that their employees do not obey the rules that prevent occupational accidents. Even some of the employers do not consider it necessary to insure their

employees. Researching and discovering the causes of occupational accidents and occupational diseases scientifically has the potential to virtually eliminate almost all of the occupational accidents. Prepared with this in mind, our survey was carried out with 50 employees working on various construction sites in Niğde under the heading "Occupational Health and Safety Research". In our survey, there are parts about employees' personal information (education, marital status, working hours, etc.), their knowledge about occupational accidents and occupational diseases, their experiences and opinions, and their knowledge about occupational safety in their workplaces. The aim of this study is to find out what employees working in construction sites think about occupational health and safety, how occupational safety is perceived among construction sector workers, whether employers fulfill their obligations related to occupational health and safety, and whether occupational safety is regarded necessary. The data obtained as a result of the survey was analyzed and interpreted by SPSS.

2. GENERAL CHARACTERISTICS OF CONSTRUCTION SECTOR AND IMPORTANCE OF OCCUPATIONAL SAFETY IN THE SECTOR

2.1. General Characteristics of Construction Sector

The construction sector is considered different from other sectors due to its characteristics and needs different applications. One of the distinguishing features of the construction sector is that each construction work is based on a project and each project is different from each other (Tüzer, 2012). The reasons why projects differ from each other is that the construction sites, the height of the building, the number of employees working and the equipment used differ from each other. Apart from that, the construction industry has other features that are different from other sectors: workers in this sector are unqualified, work experience of workers is low and the working methods they are accustomed to may be dangerous and because the construction industry needs seasonal workers, workers are hired on a temporary basis, therefore, the number of uninsured employees is high (Demirkesen & Arditi, 2011). These are not the only features that distinguish the construction sector from other sectors; the frequency of fatal occupational accidents in the sector causes this sector to be under the spotlight. These features and differences, which the construction sector has, have made the sector to be more focus of interest than other sectors. Basically, we can list the features that distinguish the construction sector from other sectors except for the ones we have already mentioned as follows (Güner, 2004; Yılmaz, 2009; Sandaloğlu, 2014):

1. Constructions are temporary works and working periods are pre-determined.
2. Employees are likely to be employed/fired on a continuous basis.
3. Unqualified employees are employed.
4. Working places are often far from employees' families.
5. The production type and the diversity of materials used to cause the rules of occupational safety to be applied to vary.
6. In the construction sector, the production site is temporary while the product is permanent.
7. Working in building sites is hard and dangerous.
8. Branching out in the construction industry is quite high and each branch has its own risks.
9. Since human relationships last only until the end of the project period, relationships between people do not usually continue after the project.
10. In the construction sector, subcontractors are used in almost every business, including large firms.
11. No matter how advanced the technology is, the more labor-intensive production is preferred, which causes the jobs to not finish in time and to be of poor quality.

2.2. Causes of Occupational Accidents in the Construction Sector

Occupational safety is the work done to prevent employees from suffering physical/ mental and psychological damage due to their working environment, the work equipment they use and the work they do. Occupational safety has taken its place both in legislations and in practice as compulsory in every workplace and sector regardless of hazard level. But the most important reason why occupational safety attracts so much attention in the construction industry is work accidents and deaths as a result of job insecurity. Each project is different, but the work is fundamentally similar and flightiness of occupational safety officers and employees' working under their own rules cause errors to be ignored, unregistered work, even job accidents being regarded as normal deaths. Perhaps one of the factors that have an important role in the occupational accidents is trying to provide job security with the information that is not available in the working area. In

addition to the ones mentioned above, the causes of occupational accidents in the construction sector can be summarized as follows (Tüzer, 2012; Güner, 2004; Yılmaz, 2009; Sandaloğlu, 2014; Okatan & Yüzbaşıgil, 2011):

1. Pressure of finishing the jobs as quickly and low- cost as possible,
2. Failure to ensure cooperation in the workplace due to the fact that most of the jobs are provided by subcontractors,
3. Working unconsciously,
4. Long working hours and environmental-ecological impact,
5. Absence/inadequacy of employees' occupational safety training and on-the-job training,
6. The low rate of unionization and the difficulty of acquiring the working rights,
7. Employees doing jobs outside their areas of responsibility,
8. Misusing or not using work equipment,
9. Regarding it unnecessary to comply with the rules of safety and fatalism,
10. Incautious and careless working due to low fees,
11. Lack/inadequacy of necessary supervision in work fields,
12. Insecurity of work places,
13. Occupational safety professionals do not work independent from the employers and therefore can not play an active role in correcting the insecurities.

2.3. Occupational Safety in Construction Sector

The construction sector can be regarded as a sector open to occupational accidents due to working at height, exterior painting and siding, scaffolding and dismantling, construction of electrical installations. However, the fact that this sector is open to occupational accidents does not mean that the accidents will always occur and cannot be prevented. Unfortunately, when you speak of occupational safety in our country, the only thing that comes to our mind is wearing personal protective equipment (PPE), i.e. helmets, safety belts. However, occupational safety requires taking precautions at workplace rather than taking precautions on the worker. The use of personal protective equipment does not prevent the accident from happening but only helps to reduce the effect of the accident on the individual. Instead, collective protection measures should be preferred and only in this way it may be possible to prevent occupational accidents. It is also accepted by employers to take precautions on employees, therefore they do not want to bear the cost of purchasing protective equipment, and therefore accept job security as a cost-enhancing factor. However, the fact that the workplace is safe reduces the cost of the employer, leads to higher quality work, and even increases profitability.

The preparation of the health and safety plan while in the project phase and the active implementation of security measures will ensure that all workers in the construction site are protected from occupational accidents (Karaman, Çivici, Kale, 2011). If the plan is not implemented and remains on the paper, it will not be possible to prevent work accidents in construction works. Regulation on Occupational Health and Safety in Construction Works, which is in force in our country, obliged the workplaces to prepare "Health and Safety Plan" in construction works. The aim is to prevent work accidents. However, as seen from the work accidents, the plans are either not prepared or not paid adequate importance to or not applied even if they have been prepared.

The people who undertake tasks from start to finish of the project are in fact responsible for the provision of work safety. In order to prevent work accidents in the construction sector, the civil engineer must specify in detail the nature of the materials, the durability of the structures, what the workers will do, what kind of work will be used on the site and which equipment will be used. For this reason, the fact that engineers can become experts, especially the fact that civil engineers have this right, is promising in preventing job accidents and occupational diseases. The one who does a job best is the one who knows that job best, so, construction engineers are really needed to prevent accidents in the construction sector.

In order to prevent work accidents in work areas, and ensure the health and life safety of employees and the people around the construction sites, the following practices must be strictly applied in accordance with the legislations. These are:

1. Health and safety signs inside and outside the construction sites must definitely be used.
2. The construction site must be kept under constant supervision and nonconformities must be eliminated immediately,

3. Employees should be trained within certain periods of time before and after starting work,
4. The distribution of tasks among the employees should be clearly defined and nobody should do any other work outside this responsibility,
5. Personal protective equipment must be suitably used, clean, maintained, and must not be left at random places,
6. Workplaces must be designed in accordance with weather conditions and employees must not be affected by external conditions for any reason,
7. Equipment, pointed tools, unshielded machines, hand tools, parapets used in works at height, floor openings must not be used until they are safe.
8. Occupational safety experts and other occupational health and safety officers must be professionally trained, must take the necessary precautions and must not hesitate to contact the relevant departments in case,
9. Field inspections must be carried out on a daily basis, incorrect working methods must be determined and if necessary, each worker must be told how to do the job correctly.

3. CONSTRUCTION SECTOR EMPLOYEES' PERSPECTIVES AND ATTITUDES ON OCCUPATIONAL SAFETY

A survey found that the construction industry was at risk of 51,9496% in terms of occupational safety. It is clear from this result that the construction works have a dangerous structure that can cause work accidents and occupational diseases (Kuruoğlu, Kuruoğlu, Akyıldız, 2007). Employees working in the construction sector are generally considered to have low qualifications, to not obey rules, and believe in fatalism. For this reason, no matter what precautions are taken in the construction sites, occupational accidents cannot be prevented because of dangerous movements of employees. Apart from this, those who have dedicated their years to working in this area can also argue that they know best how to do their work and they do not need to be taught about their works. Have these thoughts changed after fatal work accidents happening so frequently today? Do employers/ specialists or other relevant persons/ units ignore the occupational safety precautions due to their cost while employees demand life security? The answers to these questions will reveal important information about work accidents. We should also try to find answers for these two questions: Do employees lose their lives because they are not well informed about their legal rights? Does everyone fulfill their responsibilities to change the dangerous working habits that have come up to day-to-day? The survey was conducted within this scope and the results were as follows. With the survey we conducted in the construction sector, we searched for employees' answers and tried to find out whether the employees cared and knew about occupational safety. The data obtained as a result of the survey was analyzed by the SPSS program under the heading of findings.

4. FINDINGS

4.1 Reliability Analysis

This analysis aims to demonstrate the consistency between the answers given to the survey and the answers to the other questions. This situation makes it clear that those who took the survey actually cared about it. In the reliability analysis, the alpha (α) coefficient is mostly used and a range for this value is predicted. When we look at the reliability analysis of our survey, it is seen that α is 0,80 in Table 1, which shows that the survey is very reliable.

Table 1: Reliability Analysis

Alpha Coefficient	Total Number of Answered Value
0,801	35

4.2. Frequency Analysis

This analysis demonstrates a brief summary of the data and reveals the number of responses given to the variables. With this analysis, we are able to interpret our survey results in a general way. The results obtained from the frequency analysis are as follows:

Table 2: Educational Status

	Frequency	Percentage (%)	Valid Percentage (%)	Cumulative Percentage (%)
Valid	Primary School	11	22,0	22,0
	Secondary School	15	30,0	52,0
	High School	13	26,0	78,0
	Vocational High School	5	10,0	88,0
	University	5	10,0	98,0
	Junior college	1	2,0	100,0
	Total	50	100,0	100,0

The first variable is determined as educational status. When we look at the frequency values obtained as a result of the survey, we can see under the frequency column that 11 primary school graduates, 15 secondary school graduates, 13 high school graduates, 5 vocational high school graduates, 5 university graduates and 1 junior college graduates participated in the survey. Another variable is whether they have had a work accident up till then. When this variable was analyzed, the values in Table 3 were obtained.

Table 3: Have You Had a Work Accident Before?

	Frequency	Percentage (%)	Valid Percentage (%)	Cumulative Percentage (%)
Valid	Yes	11	22,0	22,0
	No	39	78,0	100,0
	Total	50	100,0	100,0

The data obtained shows that 11 out of 50 respondents had a work accident before and 39 did not have a work accident before. This means 22% of them have had work accidents. In the analysis of the variable indicating whether employees caught an occupational disease, it has been found out that a smaller proportion of employees caught occupational diseases.

Table 4: Do You Have an Occupational Disease?

	Frequency	Percentage (%)	Valid Percentage (%)	Cumulative Percentage (%)
Valid	Yes	2	4,0	4,0
	No	48	96,0	100,0
	Total	50	100,0	100,0

As seen in the table above, only 2 out of 50 participants state that they caught an occupational disease. When Table 3 and Table 4 are interpreted, it is understood that the incidence of occupational accidents is more frequent than that of occupational diseases, or that although employees caught occupational diseases, they did not mention it. Today, employees are obliged to receive occupational health and safety training (Law no. 6331, Article 17). This not only plays an active role in preventing work accidents but also raises awareness of employees and removes any losses. In this context, when we asked the participants whether or not they have received occupational health and safety training in their workplaces, the results in Table 5 were obtained:

Table 5: Have You Received any Training on Occupational Health and Safety?

	Frequency	Percentage (%)	Valid Percentage (%)	Cumulative Percentage (%)
Valid	Yes	33	66,0	66,0
	No	17	34,0	100,0
	Total	50	100,0	100,0

33 of 50 employees stated that they had received occupational health and safety training while 17 stated that they had not received occupational health and safety training. This poses a serious problem for the construction industry, which is

among hazardous sectors. When we asked the construction workers whether they were aware of the personal protective equipment provided in the area of occupational health and safety to prevent them from being affected by the hazards or to minimize this risk (Table 6), 13 people said they had no information about personal protective equipment (PPE).

Table 6: Do you know what personal protective equipment is?

		Frequency	Percentage (%)	Valid Percentage (%)	Cumulative Percentage (%)
Valid	Yes	37	74,0	74,0	74,0
	No	13	26,0	26,0	100,0
	Total	50	100,0	100,0	-

Thirty-seven people, however, stated that they knew what personal protective equipment is. As a result of this analysis, it can be seen how important it is to inform employees through occupational health and safety trainings.

Table 7: Do You Have any Suggestions or Complaints About Occupational Health and Safety?

		Frequency	Percentage (%)	Valid Percentage (%)	Cumulative Percentage (%)
Valid	Yes	22	44,0	44,0	44,0
	No	28	56,0	56,0	100,0
	Total	50	100,0	100,0	-

Employees are generally assumed to have no expectations of work health and safety. However, we see in the table above that 22 out of 50 people, i.e. 44% of respondents, indicated that they had suggestions or complaints about occupational health and safety. In this case, it is not possible to say that the employees are indifferent to the measures taken or not taken. There are occupational safety specialists and occupational physicians who are involved in providing occupational health and safety at workplaces. It is important for employees to have a dialogue with the expert and the workplace physician and to be able to access them easily. In the case of any problems, employees should have the right to remedy this problem by informing the officers. We can see that 29 employees responded negatively (Table 8) to the question "Do you know the name of your occupational safety specialist and occupational physician in your workplace?" This means 58% of employees do not know whom they can reach when there is a problem.

Table 8: Do You Know The Name of Your Occupational Safety Specialist and Occupational Physician in Your Workplace?

		Frequency	Percentage (%)	Valid Percentage (%)	Cumulative Percentage (%)
Valid	Yes	21	42,0	42,0	42,0
	No	29	58,0	58,0	100,0
	Total	50	100,0	100,0	-

On the other hand, 23 respondents answered yes while 27 (54%) respondents (Table 9) responded that the measures were not adequate to the question "Are the health and safety precautions in your workplace adequate?"

Table 9: Are the Health and Safety Precautions In Your Workplace Adequate?

		Frequency	Percentage (%)	Valid Percentage (%)	Cumulative Percentage (%)
Valid	Yes	23	46,0	46,0	46,0
	No	27	54,0	54,0	100,0
	Total	50	100,0	100,0	-

In Table 10, we can see a result that is contrary to the general opinion that "employees do not care about occupational safety; they do not care about themselves". It can be seen that all 50 employees who participated in the survey are aware of the importance of occupational safety.

Table 10: Do You Think Occupational Safety Is Important?

		Frequency	Percentage (%)	Valid Percentage (%)	Cumulative Percentage (%)
Valid	Yes	50	100,0	100,0	100,0

Our latest variable is about fate, a notion that is quite unsuitable for occupational health and safety, but still has many supporters. When we asked employees participating in the survey whether it was fate to have an occupational accident, the data in Table 11 appeared.

Table 11: Do You Think It Is Fate To Have An Occupational Accident or Catch an Occupational Disease?

		Frequency	Percentage (%)	Valid Percentage (%)	Cumulative Percentage (%)
Valid	Yes	19	38,0	38,8	38,8
	No	30	60,0	61,2	100,0
	Total	49	98,0	100,0	-
		1	2,0	-	-
	Total	50	100,0	-	-

Of the 50 respondents, 49 responded to this question and 19 said yes while 30 said that occupational accident was not fate. When we evaluate the results, we can see that employees are not indifferent to occupational health and safety and that they are aware of the fact that health and safety precautions are important. However, another problem we realized while applying the survey was that employees were afraid of asking the employer for something or telling the employer about their problems, which indicated that health and safety precautions are both incomplete and that no work was being done to complete it. Before responding negatively to the survey questions about workplace accidents, training or safety, the employees were anxious asking "Will the employer know about our answers?" or they were worried that they could lose their jobs if their employer knew about their answers.

4.3. Chi Square (Independence) Test

The chi-square test is based on whether the difference between observed frequencies (G) and expected frequencies (B) is statistically significant. The chi-square distribution is usually used to test two independent qualitative criteria. The zero hypothesis (H_0) indicates that two criteria are independent and the research hypothesis (H_1) indicates that there is a relationship between two criteria (Güngör, Bulut, 2008). We will try to reveal the relation between some of the data obtained from the survey with Chi-square test. First we will check whether there is a relationship between occupational health and safety practices applied at workplaces and the wages paid to employees.

Our hypotheses are as follows:

H_0 : There is no significant relationship between wages paid to employees and occupational health and safety practices applied at workplaces.

H_1 : There is a significant relationship between wages paid to employees and occupational health and safety practices applied at workplaces.

Table 12: Wages Paid To Employees*Occupational Health and Safety Practices Applied at Workplaces Chi-Square Test

	Value	Degree of Freedom	P Value
Pearson Chi Square Value	9,742	1	,002
Correction Applied Chi Square Value	8,052	1	,005
Number of respondents giving valid responses	50		

a. 0 cell (0.0%) is smaller than the expected value of 5.

According to the analysis results above, the Pearson Chi-Square value appears readable in the Chi Square test. That is because 20% of the cells in the item a below the table are smaller than 5 and our value is concluded as 0%. When evaluating this data, H_0 is rejected and H_1 is verified since the Pearson value (, 002) is smaller than 0.05. This implies that there is a significant relationship between the wages paid to the employees and the occupational health and safety practices applied in the workplace. Another hypothesis has been set up between health and safety precautions at the workplace and employees' regarding occupational accidents or diseases as fate.

Our hypotheses about it are as follows:

H_0 : There is no significant relationship between the adequacy of the health and safety precautions at the workplace and employees' regarding occupational accidents or diseases as fate.

H_1 : There is a significant relationship between the adequacy of the health and safety precautions at the workplace and employees' regarding occupational accidents or diseases as fate.

According to the analysis results in Table 13, the Pearson Chi-Square value appears readable in the Chi-square test. That is because 20% of the cells in the item a below the table are smaller than 5 and our value is concluded as 0%. When evaluating this data, H_1 is rejected and H_0 is verified since the Pearson value (, 754) is greater than 0.05. This means there is no significant relationship between the adequacy of the health and safety precautions at the workplace and employees' regarding occupational accidents or diseases as fate.

Table 13: The Adequacy of the Health and Safety Precautions at the Workplace * Employees' Regarding Occupational Accidents or Diseases as Fate Chi-Square Test

	Value	Degree of Freedom	P Value
Pearson Chi Square Value	,098 ^a	1	,754
Correction Applied Chi Square Value	,000	1	,986
Number of respondents giving valid responses	49		

a. 0 cell (0.0%) is smaller than the expected value of 5

The following results were obtained in the Chi-Square test conducted to find out whether there is a relationship between the adequacy of health and safety precautions at workplaces and whether or not employees have suggestions or complaints about occupational health and safety:

Table 14: The Adequacy of Health and Safety Precautions at Workplaces * Whether or not Employees Have Suggestions or Complaints about Occupational Health and Safety Chi-Square Test

	Value	Degree of Freedom	P Value
Pearson Chi Square Value	12,239 ^a	1	,000
Correction Applied Chi Square Value	10,321	1	,001
Number of respondents giving valid responses	50		

a. 0 cell (0.0%) is smaller than the expected value of 5

According to the analysis results in Table 14, the Pearson Chi-Square value appears readable in the Chi-square test. That is because 20% of the cells in the item a below the table are smaller than 5 and our value is concluded as 0%. When evaluating this data, H_0 is rejected and H_1 is verified since the Pearson value (,000) is smaller than 0,05. This means there is a significant relationship between the adequacy of health and safety precautions at workplaces and whether or not employees have suggestions or complaints about occupational health and safety.

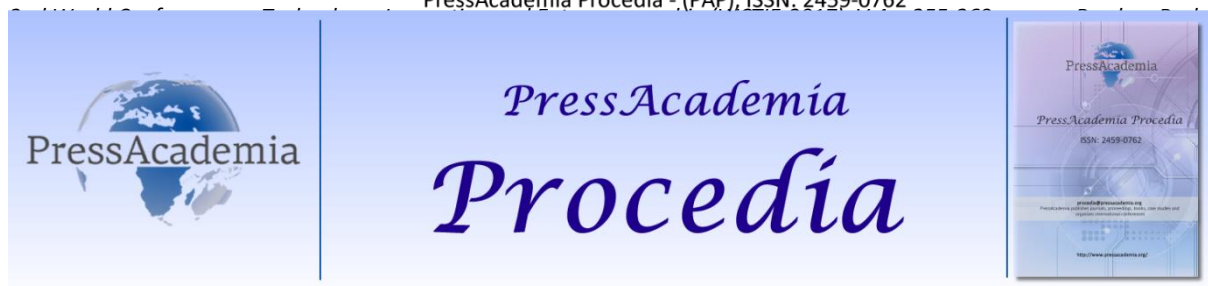
5. CONCLUSION

It is seen in the analysis results that the prejudice that has always been accepted as true that the employees do not care about their own lives and do not obey the rules has proved wrong. If employers and other related people want to implement occupational health and safety precautions, they can easily include employees into these practices. Another analysis supporting this result shows that employees also have requests and complaints related to occupational health and safety which can be seen in the adequacy of the health and safety precautions taken at the workplaces. Another analysis shows that there is a significant relationship between wages paid to employees and occupational health and safety practices carried out at workplaces. This shows that employers pay attention to applying occupational health and safety in workplaces where wages are not seen as a cost. The most important and desired result is that occupational accidents are not regarded as fate. This analysis has shown that this perception may change over time. It can be argued that the concept of fate is just a pretext for not practicing occupational safety. Under the pretext of fate, persons avoid taking responsibility and even accept nonhuman working conditions. When employers actually fulfill all their responsibilities regarding occupational safety, employees will also act in a manner that is truly in accordance with these rules. However, first of all, it is necessary for employers to convince their employees that they really attach importance to this issue. Thus, when there are no more occupational accidents, it will be seen that there is no such thing as an occupational accident.

The construction industry has its own unique working conditions and this sector is one of the most dangerous sectors, a sector in which hazards can be seen most and accidents and diseases can often be experienced. However, it will not be hard to prevent occupational accidents and occupational diseases with proper practices. In this context, one of the first things to do is to make everyone, not just occupational health and safety officers, accept the necessity and importance of occupational health and safety. For this reason, before telling the employees to obey these rules, it is important to explain to them why they should obey the rules. This means that we need to convince employees to comply with occupational health and safety regulations, and this can only happen with the security culture that will be provided in the workplaces. Another important issue is that those in charge of occupational health and safety do not have comprehensive knowledge of occupational safety or that they prefer not doing the right thing for some reasons. In this regard, a rewarding system can be used, in particular for both employees and occupational health and safety officers. The rewarding system provides motivation for employees, which increases the interest of people in this area and further reduces the rate of accidents. Occupational safety training is important in ensuring occupational health and safety. If employees are not trained on the job they are doing, they can cause occupational accidents with inappropriate behavior. It is known that employers and those who provide training in occupational health and safety do not pay attention to the training periods determined according to the provisions of the "Regulation on the Procedures and Principles of Occupational Health and Safety Trainings of Employees." It is also known that this training is apparently completed by giving only a written document. In this regard, the relevant ministry should conduct training by means of active audits; the ministry should even provide these training at workplaces with the competent staff if necessary. In addition to training, workplace periodic checks, periodic health checks, work accidents, near-miss reports, occupational diseases and risk assessment reports should be kept in the workplaces in an orderly manner, and most importantly, occupational health and safety practices should be shared not only among experts but also to all employees.

REFERENCES

- Demirkesen, S.,Arditi,D. 2011, " Occupational Safety Training in Building Sector", Turkey Engineering News Journal, Volume: 469, 5, p. 49-55.
- Güner, A.F., Giritli, H. 2004, "Total Quality Management in Construction Industry and Implementations in Turkey", Journal of itü, Volume 3, 1, p. 19-30.
- Güngör, M., Bulut,Y. 2008, "On The Chi-Square Test", Journal of Eastern Anatolia Region Research,Volume 7, 1, p. 84-89.
- Karaman, E., Çivici, T., Kale,S. 2011," Role and Importance of Occupational Health and Safety in the Construction Sector", 3. Occupational Health and Safety Symposium, Çanakkale.
- Kuruoğlu, Y., Kuruoğlu, M.,Akyıldız, B. 2007, "Fiziksel Güce Dayalı Çalışan İnşaat İşçilerinin İş Sağlığı ve Güvenliği Kapsamında Bulanık Mantıkla Risk Analizi", 4. Construction Management Congress, İstanbul.
- Okatan, A., Yüzbaşıgil, R. 2011, "Accidents and Safety Precautions in the Construction Sector", 3. Occupational Health and Safety Symposium, Çanakkale.
- Sandaloğlu, O. 2014, "The Evaluation Of The Construction Sector In Terms Of The Occupational Health And Safety", Graduation Project, Yeni Yüzyıl University Institute of Health Sciences.
- Tüzer, F. 2012, "A Study On The Occupational Health And Safety In Construction Works In İstanbul", Master's Thesis, İstanbul Kültür University Graduate School of Natural and Applied Sciences.
- Yılmaz, D. 2009, "State Of Occupational Health And Safety And Environmental Management Systems In İstanbul Urban Transportation Construction Sites With Respect To Public Safety", Master's Thesis, Yıldız Teknik University Graduate School of Natural and Applied Sciences.



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BEGINNING OF THE END CAPITALISM: MACRO EFFECTS OF THE 2008 FINANCIAL CRISIS -THE CASE OF TURKEY

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ABSTRACT

Economic turmoil of worldwide began to Express discourse since 2007. Hazard has shown itself that repayment of subprime mortgage loans, fall in property prices and it give the signal of financial institutions. A large increase in all commodities and agricultural products took place in the early 2000s. Food prices reached their highest level in 2008. US dollar fell considerably against other currencies. Immovable property market(residential) occurred because of a large fall in paralel with the decline of the US dollar. US residential prices tended to rise since the early 2000s. The reason being the trend of mortgage loans. Mortgage loans in the market that it has created excessive optimism, and it created an environmet that allows even low-income people to easily find loans to buy housing. Residential subprime mortgage market collapsed with the passing down of prices and the borrower has led to the bankruptcy of low-income families.

Keywords: Crisis, subprime, mortgage, low-income

JEL Codes: G01; G10

1. INTRODUCTION

Since the beginning of the 19th century, which is the period when everything has started to be measure with money, also known as capitalism, various crises have occurred(Bozan, 2015). The crises that took place in the 1800s were mostly financial, speculative and because of war, and the crises that took place after 1900s were mostly from financial reasons (Yücel and Kalyoncu, 2010, p: 53). The economic crises with a potential to affect the economy of a country at its fullest can be addressed formally at two different points. Firstly, crises named as real sector crises appear differently according to the goods and services market and the labor market. It emerges as a crisis of inflation and recession in the goods and services market, and as a crisis of unemployment in the labor market. Secondly, the emerging economic crises manifest themselves in the form of a financial crisis. The main reason for financial crises is the crises that occur in the monetary markets (Yücel and Kalyoncu, 2010, p: 54). When the macroeconomic effects of the crises emerging in the financial markets are examined, especially in banking, significant output is generated (Ural, 2003, p: 15). Financial crises, which are the major indicators of the uncertainty in banking, find much place in today's global economy and become increasingly important.

The global crisis, which began in the US in September 2008 and immediately affected all economies, underlining the credit and real estate bubble; (Afşar, 2011, p: 148), because the crises emerged in the financial markets were the last and spread around the world. In this study; the perception of financial crisis and its types are considered as basic, the origin of the 2008 global crisis, its global effects, and whether there is an economic vulnerability in expressing this crisis as "tangential" in Turkey has been investigated.

2. CONCEPT OF FINANCIAL CRISES

The concept of crisis came from the Greek word "krisis" as etymological origin, and means "depression" in social sciences (Turgut, 2006, p: 35). The phenomenon named as financial crisis can be called as the negative effect of financial institutions

on the financial markets (Işık, Duman and Korkmaz, 2004, p: 46). Mishkin¹ describes the financial crisis as follows: "*Financial crisis, adverse selection and moral hazard problems are a deterioration in the financial markets. This deterioration in the financial markets has inactivated the transfer of mutual funds to the most productive investment opportunities*". Under these conditions, when the economic cycles are considered, inefficient investment expenditures mean inefficient production, naturally causing the size of the crisis to multiply exponentially.

Financial crises can have devastating effects on financial institutions. In this context, firstly, the originating point of financial crises should be determined. According to Mishkin, financial crises arise from the following four items:

- 1- Balance sheet breakdown of financial institutions
- 2- Increase in interest rates
- 3- Uncertainty
- 4- The deterioration of the balance of non-financial institutions (Delice, 2003, p: 58).

According to other authors, the financial crises that affect the system in general are largely due to general macroeconomic imbalances from individual financial institutions.

2.1. Types of Financial Crisis

Financial crises are divided into four subdivisions that can not be distinguished from each other: Monetary Crises, Banking Crises, External Debt Crises and Systemic Crises (Sachs, 1998, p: 243).

2.1.1. Monetary Crises

Monetary crises are also called currency crises. Especially, in the systems where fixed exchange rate is adopted, crises arise as a result of foreign exchange fluctuations from the national currency due to a sudden change in the demands of the participants in the market and the depletion of the foreign exchange reserves under the possession of the Central Bank (Turgut, 2007, p.36). The theoretical infrastructure of money crises has been tried to be established with two models which have a continuity with one another. Krugman (1979) and Flood and Garber (1984) form first-generation models of money crises, while Obstfeld (1986) reveals second-generation models. According to Krugman (1979) model, while the fixed exchange rate is valid, the increase of the national credit volume over the money demand causes the constant decrease of the country reserves and generation of a speculative perception regarding the currency of the country (Karabacak, 2010, p: 253). According to the study of Obstfeld (1986), which expresses the second generation models, continuing with the fixed exchange rate contrary to the Krugman model implies that the necessity of implementing a more liberal monetary policy is the end result of the dilemma (Karabacak, 2010, p: 253).

2.1.2. Banking Crises

These are the crises that arise as a consequence of the liquidity problems of commercial banks. They occur as a result of the instantaneous demand increase from transactional accounts or as a result of the extension of the debt budget (Arslan and Çütcü, 2012, p: 217). The banking crisis tends to last longer than the currency crises and has a more severe impact on the economy (Delice, 2003, p: 61). As a result of speculative attacks due to the constant exchange rate in pre-crisis period, the international reserve is significantly reduced, and the increase that will eventually take place in the non-returning lending results in banking crises (Turgut, 2007, p: 37). From the 1970s to the 2000s, monetary and banking crises coexisted. Such crises are called "Twin Crises" (Kaminsky and Reinhart, 1999, p: 475).

2.1.3. Foreign Debt Crises

It is an inability to pay the public or private sector foreign debt of a country. This crisis arises when the external borrower fails to fulfill its obligations and be bound by the new payment plan (Delice, 2003, p: 61). Each country has its own credit notes when it is considered as public and private sector. Individuals or institutions with a tendency to give out debt make assessments in accordance with these credit notes and generate lending motivation in a suitable way. Persons or institutions that are motivated to lend try to give up new loans and try to withdraw existing loans when they think that the debtor can not pay their debts. If risk perception is high, a decrease in private capital inflows will occur (IMF, 2002, p: 6). While there is a situation where the money crisis and banking crises can affect the whole world financial system, the external debt crisis is limited only between the debtor and the creditor (Turgut, 2007, p: 38). The debtor and creditor will take the status of determining position depending on whether the foreign debt crisis is temporary or not. In any case, the debtor will want to solve the liquidity problem and close the debt, while the creditor will need to review the lending status in accordance with the dynamics of economy (Turgut, 2007, p: 38).

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2.1.4. Systemic Crises

Systemic crisis is the concept used for the shocks that cause a negative perception on real economy which interrupt the important functions of financial system such as credit, payments and asset assessment (Yucel and Kalyoncu, 2010, p: 56). In times of political change, the economic policies implemented in the country can not demonstrate the desired effect, and it can cause serious breakdowns in financial markets. Since these breakdowns in the markets will cause changes in the economy, newly implemented economic policies in the country will not be able to provide the desired effect. During periods of systemic crisis, losses in production come to the foreground, national income falls, economic losses increase, and the country faces serious economic problem (Turgut, 2007, p: 39).

3. 2008 GLOBAL CRISIS

With the contribution of technological improvements, there has been a remarkable development in the financial markets over the last 20 years. The phenomenon of globalization has evolved into a structure becoming stronger after years of transformation in the 1980s and gained a structure without any geographical borders in terms of finance. The system has also abolished the concept of time and the markets have been functioning for 24 hours. The origin of the global crisis, which began in the United States before September 2008 and then spread to other parts of the world, is the largest real estate and credit bubble in history (Afşar, 2011, p: 148). As a result of the excessive politicization of rating agencies, the failure of regulatory and supervisory agencies to be insufficiently audited, lack of transparency and excessive securitization can be indicated as the reasons of crisis (Alantar, 2008, p: 2).

3.1. Mortgage System

The so-called mortgage system operates on both primary and secondary markets: Primary markets are the markets where buyers and sellers are directly involved, without any intermediary (Berberoğlu, 2009, p: 120). Secondary markets are the markets that provide funding from the capital markets to the primary markets. They have the role of intermediary market (Berberoğlu, 2009, p: 120). Mortgage loans are mainly provided by financial institutions as long-term loans to those who want to own a house, and mortgages are put as collateral. The mortgage remains until the debt is paid, but when the debt is fully paid and the debtor becomes the owner, then the collateral is abolished.

In the operation of the mortgage system, the following order is pursued:

- 1-The person who wants to own the property finds the real estate.
- 2- Negotiations begin with seller after finding the property.
- 3- The person who wants to purchase the property will go to the most suitable bank and request credit.
- 4- Bank implements the necessary research.
- 5- If the result of research is appropriate, then the credit is provided (Bayhan, 2015)

In the mortgage system, if the debtor cannot or will not pay its debt in the period it has undertaken, then it can sell the real estate for which it has made collateral and collect its receivables. The mortgage market in the US had a volume of about \$ 12 trillion, making the US mortgage market the world's largest. The major cause of this vast market size is the high risk mortgage loans provided in 2008 and before (Afşar, 2011, p: 148). In 2008, when these loans have reached to a level of no refund, the system was self-locked and faced with the greatest crisis of its history. This crisis had very severe global results.

3.2. Impacts of Global Crisis

2008 Global crisis is different from 1929 depression and other crises and it is the first global based crisis. In 1929 depression, which is considered as the greatest crisis before 2008 Global Crisis did not effect the reserved socialist countries (Eğilmez, 2013). The global crisis, beginning with the mortgage crisis in 2006 and reaching to a peak point with the 2008 Lehman Brothers crisis, is a macro result for both the developed and developing countries of the world.

Table 1: Impact of Global Crisis on Growth (World Line - %)

WORLD	2006	2007	2008	2009	2010	2011	2012
Growth	4.0	4.0	1.5	-2.2	4.1	2.9	2.5

Source : IMF

As seen in Table 2, in the year 2006, when the crisis started, and in 2007, there was no decrease in the economic growth rates in the world and in 2008, when Lehman Brothers crisis occurred, it has tended to decrease again and the world has economically declined in 2009. The impact of crisis was felt around the world in 2009. Growth was restored in 2010, but in

the following years the economy grew at a slower pace. As a result of this, the world needs to generate new ways to grow economically and that the old systems are not adequate for growth.

Table 2: Impact of Global Crisis on Inflation (World Line - %)

WORLD	2006	2007	2008	2009	2010	2011	2012
Inflation	3.7	4.1	6.0	2.4	3.7	4.9	3.9

Source : IMF

As seen in Table 3, while the global crisis peaked in 2008, when the peak of the crisis began, there was a decrease of about 3.6% in the inflation in 2009, the year when the impact of crisis was witnessed. The reason of this is the major decrease in demand (Eğilmez, 2013). Inflation, which has been on the increase since 2010, when the impact of the crisis has started to ease, tended to decline by 1% in 2012 compared to 2011, due to the contraction in economic growth.

Table 3: Impact of Global Crisis on Trade Increase (World Line - %)

WORLD	2006	2007	2008	2009	2010	2011	2012
Trade Increase	9.2	8.0	3.1	-10.6	12.5	6.0	2.5

Source : IMF

As seen in Table 3, in 2006, when the crisis began, in the crisis, the peak of the trade declined until 2008, and in 2009, it contracted. As a result of this contraction, it can be shown that the decrease in trade is due to the lack of production and the decrease of trade. One of the reasons of this contraction is the businesses shut down as a result of 2008 global crisis. In 2008, approximately 250 businesses were closed for bankruptcy in the geographical region formed by EU, USA and Japan. (POSTA, 2009).

Table 4: Impact of Global Crisis on Unemployment (World Line - %)

WORLD	2007	2008	2009	2010	2011	2012	2013
Unemployment	5.5	5.6	6.2	6.1	6	6	6

Source: ILO

As shown in Table 4, the effect of the crisis in 2006 has caused 5.5 % unemployment in 2007 and a similar unemployment figure appeared in 2008 when the crisis has increased impact. However, the impact of the global crisis in 2008 has affected all over the world in 2009, and as a result, unemployment increased by half a percentage point in 2009. When we think of this rate as the world population, the end result is that the millions of people are left unemployed. In 2010 and following years, when the impact of crisis has started to decrease, the unemployment has declined, however, the period before the crisis could not be reached. We can say that the increase of population and no new businesses to replace the ones that have been shut down is the main reason for this.

4. REFLECTIONS OF 2008 GLOBAL CRISIS ON TURKEY

Although Turkey is a country that experienced many crises in the 1980s and before that, post-1980 crises are the ones that had huge impacts. The major crises that Turkey has experienced since 1980 are known as crises of 1994, 1998 and 2001 (Karabicak, 2010, p: 255). As these crises mostly affect the people who demand funds and the people and institutions that provide funds, the crises of 1994 and 2001 are called financial sector crises. However, the 2008 global crisis can be defined as the real sector crisis because it affects the sectors outside the financial sector that produce directly the goods (Yücel and Kalyoncu, 2010, p: 60). The global crisis has started in US in 2008 and spread all around the world, and it was felt in Turkey, which was passing over the 2001 crisis and caused various macro economical impacts and results.

Table 5: Growth Rates in Turkey by Years (%)

TURKEY	2006	2007	2008	2009	2010	2011	2012
Growth	6.9	4.7	0.7	-4.8	9.2	8.8	2.1

Source : IMF

As seen in Table 5 there is a noticeable decline in the economic growth rates since 2006, when the crisis began in Turkey. The Turkish economy, which grew only 0.7% in 2008 with the impact of the global crisis, which began to be felt more and more since November 2008, and it had a contraction rate of 4.8 % in 2009 due to decrease in production and trade. However, in 2010, following the active role of government in market and due to various incentives, the Turkish economy has seen a historical growth rate of 9.2%. However, in the years following 2010, there has been an evolution towards the 5% growth rate that the country has targeted.

Table 6: Inflation Rates in Turkey by Years (%)

TURKEY	2006	2007	2008	2009	2010	2011	2012
Inflation	9.6	8.3	10	6.5	6.4	10.4	6.1

Source: TUIK

As seen in Table 6, in the period from 2006, when the crisis started in Turkey, to 2007, there was an approximate 1.3 % of decrease in inflation. For this reason, it can be shown that there is a decrease in demand. In 2008, when the global crisis was at its peak, the inflation has increased and the growth rates have declined dramatically. In addition, when we look at the unemployment rates, we see 11 % increase (PARA & BORSA, 2014). This is a state of "stagflation". In other words, inflation and recession occurred together. Both high prices and high level of unemployment have been encountered. As of 2009, there was a downward trend in inflation, in line with the low growth rate and low demand level.

Table 7: Export Figures in Turkey by Years (billion \$)

TURKEY	2005	2006	2007	2008	2009	2010	2011
Export	73.4	85.5	107.2	132	102.1	113.8	134.9

Source: TIM

As can be seen in Table 7, while exports continued to show a steady upward trend until the peak year of the crisis in 2008, the crisis tended to decline from November 2008, and it declined by 30 billion \$ in 2009, becoming 102 billion \$. This decline occurred all around the world, the lack of production, the shrinking of trade and the drop in the demand have been effective. However, in the following years, both public policies and incentives have led to an upward trend in exports.

Table 8: Unemployment Rates in Turkey by Years (%)

TURKEY	2006	2007	2008	2009	2010	2011	2012
Unemployment	10.2	10.3	11	14	11.9	9.8	9.2

Source: TUIK

As seen in Table 8, in the year 2006 when the crisis began, the rate of unemployment, the closing enterprises, the decrease in production, etc., which had a steady upward trend until the peak of the crisis in 2008, reached a rate of 14% in 2009 and the single-digit unemployment figures. However, the measures taken have tended to decline since 2010 due to factors such as incentives for the establishment of new businesses, and a positive shift in public policies towards employment.

5. CONCLUSION

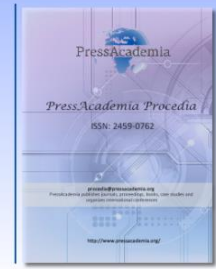
The world was shaken by the global financial crisis, which began in 2006 and reached to its peak in 2008, that began in the US and then affected all financial markets. Although various measures have been taken, the global crisis has been felt strongly in all countries, and 2009 and 2010 have been lost years for many markets. These losses are seen in growth rates, trade volumes, changes in inflation rates, and unemployment figures when we look at the world as a whole. When we look at the underlying causes of the global financial crisis, it seems that the credit and real estate bubbles are the main reasons behind. The idea that the mortgage system could offer the people with low-budgets an opportunity to have a house was attractive at first and the system entries were realized without thinking the result. However, when the credits received in the system could not be recovered, the business has ended in a complete failure in terms of buyers and intermediaries. Those people who wished to own house have also lost their immovables that they have accumulated in their hands as well as mortgages. As the intermediaries could not be refunded, they have witnessed processes ending with bankruptcy. In terms of Turkey, the banking system forms the basis of the financial market (Afşar, 2011, p: 169). Because majority of financial sources in Turkey are collected by the banks. In many countries, especially in the USA, the banks have suffered billions of dollars in losses and faced bankruptcy, the Turkish banking system has not been affected by the 2008 global crisis. In the 2001 financial sector crisis, 18 banks in Turkey were bankrupt; however no banks were bankrupt in 2008 global crisis. The reason of this is the banking system with a solid infrastructure without any shortage of foreign currency. Although the Turkish banking system was "tangential" to the crisis, macroeconomic data in Turkey has suffered losses in parallel with world markets in the years 2009 and 2010, the peak year 2008 and the following two years, but the impact was not as negative as it was in US and other countries affected. However, claiming that Turkey was not affected from the crisis at all does not reflect the truth.

REFERENCES

- Afşar, M. 2011, "The Global Crisis and Reflections at Turkish Banking Sector", Eskisehir Osmangazi University Faculty of Economics and Administrative Sciences Journal, vol:6, no:2, pp. 143-171
- Alantar, D. 2008, "The Global Financial Crisis: An Assessment of the Causes and Consequences", Finance and Finance Articles, Retrieved at April 02,2017, from <http://finanskulup.org.tr/maliyefinans/html>.
- Arslan, İ., Çütücü, İ. 2012, "Reflections and Suggestions of Financial Crisis", 4th International Congress on Entrepreneurship, Manisa, pp.216-224
- Bayhan, A. 2015, "What is Mortgage? Information about the types and Functioning", Retrieved at April 02,2017, from <http://paratic.com/mortgage-kredisi-nedir-turleri-nelerdir/>
- Berberoğlu, M.2009, "Mortgage System and its Applicability in Turkey", International Journal of Economic and Administrative Studies, vol:1, no:2, pp. 119-146
- Bozan, E. 2015, "Capitalism and Capitalism 5 Basic Policy", Retrieved at April 02,2017, from <http://ekonomist.co/akademi/kapitalizm-ve-kapitalizmin-5-temel-ilkesi-6854/>
- Delice, G. 2003, "Financial Crises: Theoretical and Historical Perspective", Erciyes University Faculty of Economics and Administrative Sciences Journal, pp. 57-81
- Eğilmez, M. 2013, "Where are we in the Global Crisis?", Retrieved at April 01,2017, from <http://mahfiyegilmez.com/2013/04/kuresel-krizin-neresindeyiz.html>
- IMF, 2012, "Eye of the Storm: New-Style Crises Prompt Rethink About Prevention and Resolution Measures", Finance & Development, pp. 4-7
- Kaminsky, G., Reinhart, C.M. 1999, "The Twin Crises: The Causes of Banking and Balance of Payments Problems", American Economic Review, vol:89, no:3, pp.475-500
- Karabıçak, M. 2010, "The Reasons of Global Crisis and Turkish Dimension of the Global Crises", Suleyman Demirel University Faculty of Economics and Administrative Sciences Journal, vol:15, no:3, pp. 251-270
- POSTA, 2009, "How many Sank company in crisis?", Retrieved at March 26,2017, from <http://posta.com.tr/krizde-kac-sirket-batti-mrauf-ates-yazisi-357>
- Sachs, J. 1998, "Alternative Approaches to Financial Crises in Emerging Markets", Capital Flows and Financial Crises(Ed.), pp.243-262
- Turgut, A. 2007, "Types, Causes and Indicators of Financial Crisis", TUIS Journal of Business Law and Economics, vol:20, no:4, pp. 35-46
- Ural, M. 2003, "Financial Crisis and Turkey", Dokuz Eylul University Faculty of Economics and Administrative Sciences Journal, vol:18, no:1, pp. 11-28
- Yucel, F., Kalyoncu, H. 2011, "Leading Economic Indicators and the Breakthrough Channels of Financial Crisis: The Case of Turkey", Finance Journal, pp.54-59.



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ACADEMICS PERFORMANCE IN MALAYSIAN PUBLIC UNIVERSITIES

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ABSTRACT

The quality of universities normally depends on their excellence and performance of academicians. Academicians normally teach efficiently besides giving full commitment to their respective institution. Academics are requested to perform better by fulfilling a series of requirements by the universities. For instance, if academics are not satisfied, they may not be committed to deliver the best. In addition, there is a possibility that their performance may not achieve the target. These research aims to determine academics performance, specifically the academicians in Malaysian Public Universities, since the past few years, the rapid growth in number of universities in Malaysia has driven management to set a more ambitious goal. Academics are requested to have a better performance by fulfilling a series of requirements such as actively involved in journal publishing. This is in-line with Malaysia's quest that is to be a leading education hub in the Asia region. However, it has been established that academics remain committed to their chosen vocation and continuously demonstrate commitment to their students despite undertaking increasing workloads, administrative duties and conducting researches. The significance of this study is to contribute benefits to various parties whether the university, public universities and the State. Results from the study are expected to contribute towards the development of knowledge, especially in the field of human resources development in order to enhance the commitment of the academic staff at public universities nationwide. The findings of this study could also assist public universities in gaining loyalty among academics who then contribute to obtaining a high-class standard of education in the Asia Pacific Region.

Keywords: Job performance, academics, commitment

JEL Codes: O37, N75, M25

1. INTRODUCTION

Job performance normally refers to the degree to which an individual implements his or her role with reference to certain specified standards set by the organization. In these studies, the role of academics is broad and important. They are directly responsible in shaping the quality of the students. The successfulness of education always relates to the excellence and quality of the academics in the institution. The quality academics may deliver their lectures efficiently besides giving full commitment to their work place. In fact, to become the hub of a world class higher education, it is important for public universities to ensure that their academic staff perform well and has high organisational commitment. Therefore, to be able to play the role effectively, academics need to be committed to their job as educators. The satisfaction normally depends on what the employees can get or receive from the job. Besides teaching, academics are required to conduct research and publish their works. They are also expected to be involved in administration as well as clerical work which add to the workload. This may result as mood disruption, stress and dissatisfaction or discontent. To avoid or overcome this, steps must be taken to ensure that the academics are satisfied with their job. A good teaching environment and adequate equipment will prevent academicians from feeling dissatisfied with their job. Most of them believe that good ventilation in work area will improve their job satisfaction and teaching methods. If an organization is unable to provide a good working condition for their employee, employees' dissatisfaction will increase and this will result in a drop in their performance. Therefore, there is a strong need to understand the factors that contribute toward job performance among academics so that steps can be taken by the management to create a conducive working environment that is in line with their expectation.

2. LITERATURE REVIEW

In their study on The Impact of Organizational Commitment on Employees Job Performance, Negin Memari, Omid Mahdih and Ahmad Barati Marnani (2013) discover that job performance is positively and significantly correlated with organisational commitment. Their findings also reveals that the demographic variables such as, age of the respondents both in public and private sectors has no significant variation in their job performance. The results also indicate that the males were higher performers' from female. According to Faranak Joolideh and K. Yeshodhara (2009) in their study on Organisational Commitment Amongst High School Teachers of India and Iran, they found that, Indian teachers had better organizational commitment in the affective and normative components, whereas Iranian teachers were found to have better organizational commitment in the continuance component. In both countries age groups and subject taught by teachers did not have any influence over their organizational commitment. In their study on Relationship of Work Influence, Sense of Community and Individual Spirituality towards Organizational Performance, Hazalina Mat Soha, Abdullah Osman, Sharul Nizam Salahuddin, and Safizal Abdullah (2016) determined that work influence factors are significant in influencing organizational performance in secondary school.

According to Dr Rebecca C. Tolentino (2013) in her study on Organizational Commitment and Job Performance among 248 academics and administrative staffs in an accredited university in Manila, she found that the respondents have a strong desire to remain with the university. Both the academic and administrative staff desire to stay in the university because they feel they ought to. The feeling is driven by their loyalty to the university. Academic staff has stronger affective and normative commitment than the administrative while the administrative staff have a stronger continuance commitment than the academic.

Finally, study conducted by Huam Hon Tat, Teo Pei-Ni and Amran Md Rosli (2012) found that there are three factors of job satisfaction which is job design, salary and welfare, and management. The study found that only one factor of job satisfaction which is job design has significant relationships with affective commitment.

3. DATA AND METHODOLOGY

These study employed a self-administered survey as a means to collecting data. A total of 300 questionnaires was distributed to respondents from the selected universities in Klang Valley and Melaka. Self-administered questionnaire form is the most common method for surveying or measuring people's interests, beliefs or perceptions (Ruziah, 2007; Aishah, 2006). The general objective of these study is to explore what are the factors that contribute toward job performance among academics in Malaysian public universities. Beside that, it also aims to determine what are the types of commitment that mostly dominant the academicians. A total of six measures were selected from established sources. These include measures of organisational commitment (Allen and Meyer, 1991; 3 measures), job satisfaction (Paul E. Spector, 1994; 1 measure), job performance (Radhakrishna, 1990; 1 measure) and religiosity (Abbas Ali, 1998 and Worthington, 2003; 1 measure). In addition, a set of 12 items of demographic characteristics is also included.

4. FINDINGS AND DISCUSSIONS

Out of 300 respondents, only 220 people who responded to a questionnaire that was given. The percentage of respondents who responded was 73.3%. Earlier findings shows that, a total of 182 respondents were Malays (82 %), followed Chinese (7.3%), Indians (4.5%), and other races (5.5%). The majority of respondents were aged from 30-34 years (28.6%), then followed by 35-39 years (21.8%), 40-44 years (20.5%), 45-49 years (16.4%), 50-54 (16%) and above 55 years (16%). The result show that majority of respondents are from married person 83.6%). In terms of length of service, majority of the academics have work for 10 – 15 years (78.6%). A total Of 10.5% respondents have been working from 16 – 20 years, followed by 21 – 30 years (6.4%) and more than 31 years (4.5%). Meanwhile for the basic income, there are 20.5% with total income RM 6501 to RM 7000, 19.1% get RM6001 to RM 6500, 11.8% get lower RM6000, 10.9% get RM 7001 to RM 8000, 9.5% get more than RM9000, 6.8% get RM 8001 to RM 8500, and 0.5% get RM 8500 to RM 9000.

As shown in Table 1, the relationship between organisational commitment were investigated against job performance. The reliability for job performance is 0.92. According to Sekaran (2010), reliabilities in the ranges of 0.70, is acceptable and those above 0.80 is considered as good. The results also indicates that there are significant relationship between job performance with organisational commitment ($r = .357^{**}$, $p = .000$). It can be concluded that job performance is positively related to organisational commitment. The variance of the variables is 12.7%.

Table 1: Summary of Reliability Analysis

Variables	Number of Items	Number Items Discarded	Cronbach's Alpha
Affective Commitment	8	0	.870
Continuance Commitment	8	0	.857
Normative Commitment	8	0	.852
Job Satisfaction	14	0	.889
Job Performance	16	0	.929
Religiosity	23	0	.948

Table 2: Descriptive Analysis

Variables	N	Minimum	Maximum	Mean	Standard of Deviation
Affective Commitment	220	1.25	5.0	3.820	.63300
Continuance Commitment	220	1.00	5.0	3.243	.69103
Normative Commitment	220	1.25	5.0	3.503	.70013
Job Performance	220	3.00	5.0	4.1014	.46020

5. CONCLUSION

Base from the findings, we can conclude that the academics performance in Malaysian public universities can be considered good. Majority of them may be satisfied with the salary and benefits allocated to them. Apart from that, only a few of the academics not be happy with the management as their work may not be appreciated significantly. In addition, some of the academics are worried of what would happen if they quit their job without having another lined up. The increasing number of universities in Malaysia since the past few years, has driven management to set a more ambitious ultimate goal. Academics are requested to have a better performance by fulfilling a series of requirements, such as actively involved in journal publishing.

Implications from this study are useful for the education industry, but at the same time crucial for the society in large since the academicians are the people who educate the future leaders who will one day the pillars of the nation. Additionally, future researchers may be able to take in the limitations and recommendations into account when conducting their

researches. Overall, this research study has provided a useful and investigable research for future studies on the performance of academicians in Malaysian public universities.

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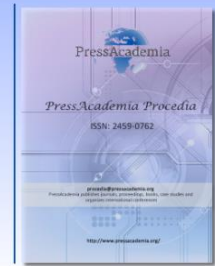
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REFERENCES

- Faranak Joolideh, K.Yeshodhara, (2009). *Organizational commitment among high school teachers of India and Iran. Journal of Educational Administration*, Vol. 47 Issue: 1, pp. 127 – 136
- Hazalina Mat Soha, Abdullah Osman, Sharul Nizam Salahuddin, and Safizal Abdullah (2016). *Relationship of Work Influence, Sense of Community and Individual Spirituality Towards Organizational Performance*, *Procedia Economic and Finance* 35 (2016) 563-573
- Huam Hon Tat, Teo Pei-Ni, Amran Md Rasli. (2012). *Job Satisfaction and Organizational Commitment in a Malaysian Public University's Library*. *International Journal of management Sciences and Business Research*. Vol. 1, Issue 6.
- Munirah Salim, Halimahton Kamarudin, Mumtaz Begam Abdul Kadir. (2008). *Factors affecting Organizational Commitment among lecturers in higher educational institution in Malaysia*. Retrieved from www.mara.gov.my
- Negin Memari, Omid Mahdieh, Ahmad Barati Marnani. (2013). *The impact of organizational commitment on employees job performance. A Study of Meli Bank*. *Interdisciplinary Journal of Contemporary in Business*, Vol. 5, No. 5
- Rebecca C.Tolentino. (2013). *Organizational Commitment and Job Performance of the Academic and Administrative Personnel*. *International Journal of Information Technology and Business Management*, Vol.15, No.1
- Sekaran, U., & Boogie, R. (2010). *Research methods for business: A skill building approach* (5th ed.). West Sussex, UK: John Wiley & Sons Ltd.



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PLACE AND IMPORTANCE OF HUMAN RESOURCES MANAGEMENT IN HOTEL OPERATIONS

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ABSTRACT

As nowadays technology production is out of monopoly of certain countries, it also possible for countries that don't have necessary equipment for technology production to acquire them by copying. In this context every other resource except human resources can be bought, substituted or acquired by various means. Human resource is hardest to acquire and the most expensive. The most important feature of the tourism sector whose importance is ever-growing today and the future is it being a service sector. Therefore, the only way to reach maximum quality of touristic products is manpower. Within hotel operations, running services and satisfying customers are largely provided by the effort of personnel. For this reason; human resources is very important for the efficiency of hotel operations. Operations that adopts a modern manner of management, practices human resource management techniques that ensures the employment of right person, in the right place and the right time. It is clear that competitive power increases by the correct planning of human resources in an operation. In hotel operations, "human" factor is the one that creates both the income and expenditure. Good management of human resources factor will ensure efficient use of manpower in businesses. In a sector such as hotel managements, that face-to-face relationships and the case of "service of a human to a human" happens densely, management of human resources is only possible by a Human Resources Management which requires special knowledge and skill in this field. Human resources management is a discipline that educates the personnel, improve their knowledge and skill, motivate and ensure them being satisfied with their work. For hotel operations to adopt and practice the mentality of human resources management will ensure their continued existence. Keywords: Place And Importance, Human Resources Management, Hotel Operations

Keywords: Place and Importance, Human Resources Management, Hotel Operations

JEL Codes: N25, M15, I23

1. INTRODUCTION

As nowadays technology production is out of monopoly of certain countries, it also possible for countries that don't have necessary equipment for technology production to acquire them by copying. In this context every other resource except human resources can be bought, substituted or acquired by various means. Human resource is hardest to acquire and the most expensive. The most important feature of the tourism sector whose importance is ever-growing today and the future is it being a service sector. Therefore, the only way to reach maximum quality of touristic products is manpower. Within hotel operations, running services and satisfying customers are largely provided by the effort of personnel. For this reason; human resources is very important for the efficiency of hotel operations. Operations that adopt a modern manner of management, practice human resource management techniques that ensure the employment of right person in the right place and time. It is clear that competitive power increases by the correct planning of human resources in an operation.

In hotel operations, "human" factor is the one that creates both the income and expenditure. Good management of human resources factor will ensure efficient use of manpower in businesses. In a sector such as hotel managements, that face-to-face relationships and the case of "service of a human to a human" happens densely, management of human resources is only possible by a Human Resources Management which requires special knowledge and skill in this field. Human resources management is a discipline that educates the personnel, improve their knowledge and skill, motivate and ensure them being satisfied with their work. For hotel operations to adopt and practice the mentality of human resources management will ensure their continued existence.

2. PLACE AND IMPORTANCE OF HUMAN RESOURCES ON HOTEL OPERATIONS

2.1 Human Element in Hotel Operations

Tourism sector, which falls into services sector in modern economic structure, apart from other sectors, looks like a sequence of sectors. Since there are productions in accommodation, catering, transportation, communication, entertainment and similar economic sectors, it demonstrates a widespread and complicated sectorial structure.ⁱ The most important feature of the tourism sector whose importance is ever-growing today and the future is it being a service sector, therefore only way of reaching quality in touristic products, depends on manpowerⁱⁱ. No other economic sector is related to humans or individuals as much as tourism sector is. The most important element, while on one hand creating tourism demand by individual activities and direct actions, on the other hand adding meaning to tourism supply and rendering it possible to respond to demands, is again, individualsⁱⁱⁱ. Modern management approaches value human dimension of an organization greatly. Since human dimension remains at the forefront of service sector, therefore of hotel operations, this condition gains importance more apparently. For as much as accommodation sector has the obligation to employ qualified workforce. That is, because principals of hotel management is based on "manpower". Importance of human element as a production factor is felt deeper in hotel operations compared to others. In hotel operations, answering phones, cleaning rooms, welcoming and admitting customers, preparing food and beverage, doing the dishes, service and fixing equipment, electrical and water installations etc. all done by working personnel. Primary element of "hospitality services", which is the most important function of hotel operations, is manpower. Since human dimension remains at the forefront of service sector, therefore of hotel operations this condition gains importance more apparently. Accommodation sector is a sector that has the obligation to employ qualified work-force.^{iv} Qualification of human resources employed in hotel operations has great importance. Most important feature separating personnel who have appropriate demographic features, professional competency and experience from the others is qualitative values. Qualification of present human resources has an important influence on the success of a business manager. What is more important than the quantity of personnel in a business is the values they have in terms of qualification. Quality of the work done only shows itself with employees' experience and qualifications. Qualifications of work-force are closely associated with general and occupational level of education of employed personnel. Education, apart from opportunities such as general, technical and occupational knowledge, physical or secret talents, undertakes a series of duties such as connecting and integrating personnel to the business, drawing them into close cooperation and ensuring social symphysis.

Importance of teamwork on the success of businesses is gradually increasing. Communication between employees is one of the most important subjects in hotel operations. Increasing effectiveness of employees, facilitating works, ensuring cooperation between employees and conveniently reaching subjects that the management want to transmit to the employees is achieved by implementing efficient communication techniques. Even though communication techniques to be implemented should be improved by business management, it is necessary for employees to have natural communication skills. Human resource, having tourism consciousness which can be explained as honouring guests and ethics, is important for success in hotel operations. If human resources in hotel operations do not have appropriate features, that business is subject to a great deficiency.^v Two primary elements draw attention behind the need for manpower in hotel operations. First of them is the impossibility of implementing most of the work done without manpower no matter how much technology is used. For example, while organization of beds is done by personnel working in housekeeping, front office personnel are responsible for solving problems all customers have in entry and exit and other times. Second is, expectation of people involved in travels to have the service provided by human intervention in every stage of tourism. Personnel element, along with having an important role in organization's success, is much more important in service sector such as hotel operations. That is, because in hotel operations, most of the personnel is in direct relation with customers. Customer satisfaction is effected by politeness of personnel, helpfulness and personal traits as much as accommodation and catering standards or other facilities.

2.2 Place and Importance of Human Resources Management in Hotel Operations

Since mechanization and automation is not possible except for certain ratios on certain production lines, due to tourism sector being a labour-intensive sector, human factor comes to prominence. Ever-growing importance of this element in businesses caused the personnel to be seen as the most important resource in businesses that want to catch the competitive advantage. From this point of view, in hotel operations that falls into service sector and business success mainly depends on employees, this resource gains even more importance. Therefore maximum efficacy of personnel in hotel operations depends on investing on and satisfying them.^{vi} In short, human factor is a very important and irreplaceable factor. When this factor is put to its place within the equation that shows the success of businesses, gains even more importance against other factors involved that has a relatively stationary structure. In fact, when we speak of continuing existence of an organization, business, corporation or establishment, still the first thing that comes to mind, is that structure having people within.

Human resources have a great role in implementation of organizational objectives in hotel operations. For this reason, in the course of time between marketing of touristic product and services, human element is effective. Human resources in hotel operations has a quite big importance due to general features of tourism. In contrary to techno-intensive features of other manufacturing businesses, tourism businesses, hence accommodation businesses, show labour-intensive features. When human resources management is evaluated from the perspective of hotel operations; it will be correct to say that this kind of management approach follows a slower progression trend in hotel sector than other sectors. Personnel policies formed in hotel operations until today, showing an emphasis on cost control rather than improvement of human resources, confirms this.^{vii} Human element, having this much of importance in hotel operations, created the necessity of having a separate unit concerning this field in organization. This unit passes under the name of personnel management in hotel operations and lately it can be seen that personnel management gradually leaves its place to “human resources management”. HRM has a very active role in efficient usage of work-force. This situation, gains even more importance, especially in businesses like hotel operations which is based on human labour. Due to fact that, in hotel operations, “human” factor is the one that creates both the income and expenditure. Good management of human resources factor will ensure efficient use of work-force in businesses. In a sector such as hotel managements, that face-to-face relationships and the case of “service of a human to a human” happens most densely, management of human resources is only possible by a HRM which requires special knowledge and skill in this field. Today, when many self-proven hotels (like Four Seasons, Hilton, Kempinski, Sheraton) is examined, it is possible to see what lies behind their success is “investment on human”. For example, Hilton Hotel, which made the start of modern hotel management in Turkey possible, in the oncoming years, undertook an important role by earning the corporate trait of training personnel who will work as managers in other hotel operations. This situation can be interpreted as the Hilton hotel chains seeing their personnel as an investment element.

Competition that increases throughout the world requires hotel operations to incline towards HRM field more. Like in many fields, HRM gains a little more importance every passing day in hotel management field as well. Primary tasks of HRM in hotel operations are; work analysis, human resources planning, finding and selecting personnel, personnel training, work and success evaluation, rewarding personnel, wage management, industry relations, providing occupational health & safety and social aid and services. Effective execution of these elements, which are also the main functions of HRM, will ensure the efficient work of personnel, hence the business.^{viii}

2.3. Basic Functions of Human Resources Management in Hotel Operations

Creating a good human resources policy and improvement of worker relations in businesses, is only possible by knowing what employees expect, in return of the works they are doing, before everything else. It is possible to summarize what individuals expect from the business in return for their work like these^{ix} :

- Receiving payment which is in exchange for work done,
- Work safety,
- Normal working hours,
- Suitable and safe workspace,
- Feeling the emotion of being part of the work done,
- Individual belief of promotion in their job depending on their work and talent.

Improving good relations with employees and creating a good human resources policy by fulfilling said expectations, depends on the optimal implementation of the basic functions of HRM. Required functions to render human resources in businesses effective and efficient are explained respectively below.

2.3.1 Planning Necessary Human Resource for the Hotel

From the perspective of hotel operations, HRP, which is effective on offering better service to the customer by ensuring appropriate worker selection and employment, saving only by worker quantity, not playing expense decreasing role, is one of the main factors which influences efficiency, hence lucrativeness. Since it is not possible to accomplish HRM functions without knowing how much or how qualified worker need is, hotel operations are required to make a good HRM before passing on to other HRM functions. When these factors are kept in mind, importance of HRM can be summarised like this:

- HRM ensures a basis for creating and sustaining an effective workforce in an organization.
- This function of HRM, makes it possible to control workforce costs and increase employee efficiency, hence general efficiency of business.
- Furthermore, HRM contributes to achievement of short and long term strategic aims of the organization.

When human resources planning is examined from the perspective hotel operations, because of the labour intensive trait of hotel operations, workforce costs have a significant place among total costs. This situation makes an effective human

resources planning mandatory. With an effective human resources planning, while employee turnover rate and costs are reduced, at the same time employee morale and efficiency will increase and therefore it will be ensured that service quality and customer satisfaction will reach the highest level.^x With this, by the means of human resources planning, qualitative and quantitative criteria towards recruitment and selection of workforce the organizations need is determined.

2.3.2 Making Workforce Analysis for In-Tray

Services given in hotel operations are generally aimed at nourishment, entertainment and relaxation along with accommodation. Accommodation businesses that aim to give these services should inspect details regarding the in-tray and it should be clearly identified how these works will be carried out and which equipment will be used. Job and task definitions must be made accordingly.^{xi}

2.3.3 Finding and Selecting Employees

One of the most important functions of human resources management, finding and selecting employees, has a big role in the success of the business. Reaching business goals and effective and efficient use of workers will only be possible by human resources selecting the right employee to the right job. It is pointed out that hotel operations that lack a planned practice in employee recruitment, suffer at least 1 / 3 ratio of loss.^{xii} Need for searching employees stems from the circumstances the business is in and its purposes. These purposes are presented with employee plans and required employee quantity and quality is determined. Information regarding qualities is obtained from workforce analysis that should have been done beforehand, job definitions and job specification forms. Before starting the exercises towards finding human resources, features needed for the employee to have and jobs currently ongoing in hotel operations must be completed, for these standard information to be obtained, work analysis must be done. With workforce analysis, every job in businesses are analysed one by one and job and task definitions are made. With these definitions, subjects like what the job is consisted of, base time, work environment, number of individuals that will do the job, job hazards are determined. Afterwards comes the selection of the most appropriate applicant, among from the group of applicants that are qualified.^{xiii}

2.3.4 Personnel Training

To do their job the best way they can and take initiatives in their service progress, it must be ensured that commitment of employees, the competitive resources of hotel operations, is increased. For this reason, sustainability of practices of education and development is very important. Today many hotel operations are focused on leadership style education that is prepared by managers, which motivates workforce and guides workers.

In labour intensive industries like hotel industry, education should be approached much more extensively. Because increasing service quality, abundance of workers information capacity, can only be realized by the positive change in their skill and behaviour. Because hotel management is dynamic; quality service that is compatible with ever-changing environment and customer expectations will be possible by constant education of employees. Talents of employees have decisive role on the service quality of hotel operations. Among practices of human resources management, education and development function, is described as the key factor towards ensuring service quality. In this perspective, education is a tool that eases communication between employees and with this, ensures sharing a common language and vision. Education supports harmony between employees and helps emphasize shared values. In other words, by the means of education programs within hotel operations, employees are ensured to focus on details of quality service presentation, which is the ultimate aim of the organization. Employee behaviour, which is the critical factor of service quality and customer satisfaction, gains an organizational aspect and purpose through education and development programs. Creating and practicing educational programs in hotel operations provide great benefits for both the business and employees. These benefits can be listed like this:

Benefits of Employee Training for the Business:

- Increase in learning speed,
- Improvement of performance quality,
- Decrease in number of accidents,
- Decrease in turnover rate for employees,
- Decrease in discontinuity of employees,
- Increase in production efficiency

Benefits of Employee Training for the Employees Themselves:

- Increase in earnings,
- Easier promotion in jobs,
- Increase in self-confidence and reaching economic independence.

In order for hotel operations to comply with changing circumstances and gain competitive advantage over their rivals, "training the personnel" is fundamental.^{xiv}

3. HUMAN RESOURCES MANAGEMENT PROBLEMS IN HOTEL OPERATIONS

Most important reason for selection of qualitative method is the feature of research problem. If the research requires understanding of individual's problems, experiences and thoughts, it gains even more importance for alternative methods to be qualitative. Since the purpose of research is the examination of social events in a certain environment and certain period, it is impossible for the study to be repeated in exactly the same way. For this reason, it is not possible in qualitative researches to come up with rules and standards for every environment.^{xv}

There is a holistic view in qualitative researches. Three types of data collection technique shine out in qualitative researches. These are 1) Open and unlimited meeting 2) Direct observation 3) Analysis of written documents. In these type of researches, instrument is the researcher. For this reason, skill, knowledge, ability and accuracy of the person who is going to do research with this method is important. Research is shaped by the researcher having a good command of the subject, their perspective and responsibility.

In qualitative researches data can be collected through different sources. Data is collected by the means of observation, interview and surveys. Because it is time consuming, work is done on small samples.

In this study, data is collected by the means of structured interview. Interview (meeting), is a data collection technique by verbal communication (questionnaire). Interview, even though most of the time made face-to-face, can be done by telephone or instant sound and visual transmitters. Generally, interview has three main goals:

- Ensure or sustain cooperation,
- Treatment (by increasing self-confidence),
- Collect research data.

In this research, interview is done with the goal of gathering research data. Reason for the research method to be interview technique is to speak to the right person, ensuring questions are understood correctly, belief towards getting more sincere and frank replies and receiving much more extensive information by this way. During the interview, manager can give more detailed answers to questions that can cause discomfort or subjects they want to share. With the interview technique, maybe less samples are reached but healthier results are ensured to be achieved.^{xvi} In the research, interviews are done with 12 hotel operation officials that are in business in Istanbul. Interviews are done between the dates of 1-10 February 2011, in hours agreed mutually with hotel operation officials. Interview questions that are prepared with the help of information concerning the literature and a vast scale of questions included in the master thesis of Kolu, named "Human Resources Selection Methods Personnel Finding and Selecting Process (A Model Practice)" is used. Prepared interview questions are directed to officials and answers are requested. Results in the wake of the interview are evaluated in the findings section after interpretation. In the research, first of all, the question "How long have you been working in your current business?" is directed. Managers in 2 and 3 star hotels are determined to work for 5 and more years in the same hotels, while managers working in 4 and 5 star hotels are working in the same business for 1-4 years. To the officials participating in the research, question towards how long they have been working in tourism sector is directed. With the results by replies to these questions, it is determined that managers working in 2 and 3 star hotels have been working in tourism sector for 6-10 years, while managers working in 4-5 star hotels have been working in tourism sector for 1-5 years.

After the results of answers to the question "What is your education status", it is revealed that managers working in 2 star hotels are high school and university graduates while managers working in 3, 4 and 5 star hotels are university graduates. Question of "Do the company you are working for have a department responsible for human resources?" is directed towards participant officials. Managers working in 2, 3, 4 and 5 star hotels stated the hotels they are working in do not have a department responsible for human resources. As the result of questions directed toward the officials regarding the name of the department responsible for human resources in the business they are working for, it is determined that 2, 3, 4 star hotels do not have a department responsible for human resources, while 5 star hotels have Human Resources Department present responsible for human resources. Along with 2, 3, 4 star hotels not having human resources department, accounting department attends to personal works (wage, pay rolling). As for 5 star hotels have Human Resources Department present.^{xvii}

Separated under itself, education department is also present. This shows the importance five star hotels give to education. Along with this, Personnel and Management Department takes part as well and attends to contracts, personnel recruitment and destaffing, while Human Resources Department manages orientation, moral and material rewarding arrangements and general education like worker health, safety, hygiene etc. Question of "Is the policy regarding human resources is determined in the business you are working in?" is directed to officials participating in the research. Managers working in 2, 3 and 4 star hotels replied the hotels they are working in do not have human resources policy determined, while managers working 5 star hotels replied having human resources policy determined. Answers to the question towards identifying the unit determining human resources policy in the business they are working in showed, 2, 3, and 4 star hotels not having a department determining human resources policy, while 5 star hotels determine human resources policy together with Upper Management and Human Resources Department. After the questions towards learning whether the hotels officials are working for do human resources planning or not, it is seen that 2, 3 and 4 star hotels do not have human resources planning, while 5 star hotels have human resources planning.

Regarding which department determines human resources planning in the hotels the officials are working in, results show 2, 3 and 4 star hotels do not have a department determining human resources planning, while in 5 star hotels, human resources planning is done by Upper Management together with Human Resources Department. As a result of the interviews done, it is tried to learn which managers are exercising the function of finding and selecting personnel in the business. While in 2 star hotels personnel finding and selecting function is executed by the hotel owner, in 3 and 4 star hotels this function is exercised by the hotel manager and in 5 star hotels human resources manager and manager of the department which requires the personnel exercise together. It is seen that in 2 star hotels, personal applications and background are used as source along with recommendations by employees and acquaintances, in 3 star hotels, announcement and advertisements, personal applications and background, recommendation by employees and acquaintances, employment agency and educational institutions are used as source and in 4, 5 star hotels, in order to employ personnel, promotion, internal transfer, personal applications and background, recommendations by employees and acquaintances and internet is used as source.

Regarding how often employee performance is evaluated in 1 year, it is concluded that 2, 3 and 4 star hotels do not evaluate employee performance in 1 year, while 5 star hotels evaluate employee performance 2 times in 1 year. The question "Do in-service training activities are organized towards employees in your business?" is directed at officials participating the research. It is determined that in 2, 3 and 4 star hotels in-service training activities are not organized towards employees, while in 5 star hotels in-service training activities are organized towards employees. In 5 star hotels, an employee is subjected to training from the day they start working until the day their contract of employment is expired. Given educations are repeated in certain intervals in order to not be forgotten and emphasize their importance. On the other hand, for example in order to teach English, after an examination of employees, giving lessons by opening classes according to everyone's levels is a service practiced for all departments within sustained education activity. In the interview, officials are asked what would be the reason if in-service training activities are not organized. Results show, in 2 star hotels the reason for in-service training activities not being organized is because in-service training activities are seen unnecessary, while in 3 and 4 star hotels in-service training activities is not required since workers are qualified enough in their job and in-service training activities are seen unnecessary. Officials participating to the research are asked "Which individuals in-service training is applied on?" It is determined that 2, 3 and 4 star hotels do not practice in-service training, while in 5 star hotels in-service training is practiced by different arrangements, like all newly employed employees, employees whose assignments are going to change or promoted, those displaying high performance (to gain new perspectives by sending them to different countries, providing education), those displaying low performance to undergo re-education as to find where the problem originates from and solutions, manager candidates and managers given management trainings. It is tried to learn whether practices towards increasing employee motivation exist or not, and as a result it is determined, that in 2 and 3 star hotels there are no practices towards increasing employee motivation while in 4 and 5 star hotels there are practices towards increasing employee motivation. As a result of the question what kind of practices are there in order to increase employee motivations, along with 2 and 3 star hotels not having practices towards increasing employee motivation, according to managers, it can be said that promotions within the business are seen as a motivation increasing activity. As for 4 and 5 star hotels that are determined to have practices towards increasing employee motivation. In 4 star hotels, while material rewarding is done by selecting employee of the month, moral motivation is done by doing personnel meetings and listening complaints and requests. In 5 star hotels; there is a moral and material rewarding system. It is possible to say material rewarding is done by, bonuses every 3 months, double wage for the newly-wed, child support for those with children, completely ensuring social rights and social aids(fuel aid, provision aid etc.).

Moral rewarding method shows valuing personnel at first by fulfilling vital needs best way possible. I am conveying that nourishment fields are no different than a restaurant, necessary areas for showers are arranged, personnel clothes are cleaned and offered to the personnel ready to use by my own observations.

In addition to these, celebrating married employees, organizing personnel proms, organizing draws especially in personnel prom to allow household goods, communication devices, vacations and accommodation chances, distributing plaques and badges, sending celebration cards by the general manager in employees' birthdays, kids prom for employees' children, collective iftar dinners and birthday celebrations in personnel meetings, publishing photos of the new-born babies of the employees and individuals if they are working in the same business and cutting cake, inter-personnel bowling, chess, football, climbing, racing competitions, all these causes are big factors in increasing job efficiency of the employees.

4. CONCLUSION

Hotel operations which undertake pioneering role in tourism sector; is gaining more importance everyday with individuals' increasing holiday awareness . While nowadays rapidly growing technology undertaking pioneering role in all sectors and businesses, in hotel operations technology stays behind human labour. While in production businesses employee quantity and quality is seen to decrease, hotel operations preserve its trait of being labour intensive. Main factor of this is hotel operations being service businesses and majority of the expected customer service being done by employees. When people come to a hotel for accommodation, they are first welcomed by employees, while registration procedures are done by front office clerks, rooms are cleaned by housekeeping employees, their meal is prepared by cooks, services are done by service attendants and all their needs are fulfilled by employees until the moment they leave the hotel. For this reason, success of hotel operations requires having an effective human resources along with a good economic and physical structure.

In businesses like hotel operations which produces service and based on humans, success and continuity largely depends on employees' efficiency and quality. As for the basis of offering a quality service, lays the need of having a high level of morale for the employees. Effort and performance of the employees towards achieving targeted goals will increase as much as the morale and motivation of employees increase. HRM, whose main purpose is to use the human resources most effectively and efficiently possible, employing right persons for the right jobs; in other words, choosing the individuals who have the necessary knowledge, skill and ability for the job and assign these people to the most appropriate units or divisions, ensure the employees' promotions are done appropriately by their performance, motivating employees, carrying out performance evaluations of the employees objectively, paying salaries of the employees fairly, has a big role in hotel operations continuing their existence and leading the way in competition. For the business to achieve its goals, it is necessary to determine how qualified and how much personnel is needed for which jobs and when it will be required. Human resources planning is the basic planning process for the organization's human resources requirement. Success of the human resources planning largely depends on how closely human resources division correlates human resources planning with the organization's business planning. In hotel operations, services are heterogenic. Carrying out services, together with machines and equipment, mostly depends on manpower. Also, carrying out services is only possible by different divisions working together. For this and many similar reasons human resources are important for hotel operations. In this research, place and importance of human resources which has an important place among factors effecting success and failure of hotel operations, is tried to be examined in accordance with information gathered from the managers. It is seen by the results of the interviews done with the officials of hotel operations; with the increase of star counts in hotel operations, importance given to human resources increase and human resources management practices take more places accordingly.

REFERENCES

- Ahmet Aktaş, Turizm İşletmeciliği ve Yönetimi, Azim Matbaacılık, Antalya 2002, s.194
- Ali Yıldırım ve Hasan Şimşek, Sosyal Bilimlerde Nitel Araştırma Yöntemleri. 2. Baskı, Seçkin, Yayıncılık Ankara 2000, s.19
- Alparslan Usal ve Osman Avcı Kurgun, Turizm İşletmelerinde Maliyet Analizleri, Detay Yayıncılık, Ankara 2001, s. 195
- Asım Saldamlı, "Otel İşletmelerinde Stres Kaynakları ve Çalışanlar Üzerinde Etkileri: Beş Yıldızlı Otelde Bir Uygulama", Çukurova Üniversitesi Sosyal Bilimler Enstitüsü, Sosyal Bilimler Dergisi, Sayı 6, 2000, s.292
- Barış Erdem, "Otel İşletmelerinde İnsan Kaynakları Planlamasının Yeri ve Önemi", Balıkesir Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, Cilt 7, Sayı 11, 2004, s.39-41
- Cengiz Demir ve Berrin Güzel, "Planlama", Editör: Cengiz Demir, Konaklama İşletmelerinde İnsan Kaynakları Yönetimi: İlkeler ve Uygulamalar, Nobel Yayın Dağıtım, Ankara, 2005, s. 76.
- Cengiz Demir, Konaklama İşletmelerinde İnsan Kaynakları Yönetimi İlkeler ve Uygulamalar, Nobel Yayın Dağıtım, Ankara 2005, s.85
- Ekrem Özdemir ve Ali Talip Akpınar, "Konaklama İşletmelerinde İnsan Kaynakları Yönetimi Çerçevesinde Alanya'daki Otel ve Tatil Köylerinde İnsan Kaynakları Profili", KOÜ Sosyal Bilimler Enstitüsü Dergisi, Sayı 2, 2002, s.90.
- Hüseyin Alkış ve Yüksel Öztürk, "Otel İşletmelerinde Motivasyon Faktörleri Üzerine Bir Araştırma", Elektronik Sosyal Bilimler Dergisi, Cilt 8, Sayı 28, 2009, s. 214

Necla Kolu, Otel İşletmelerinde İnsan Kaynakları Seçim Yöntemleri Personel Bulma ve Seçme Süreci (Örnek Bir Uygulama) Yüksek Lisans Tezi, Sakarya Üniversitesi Sosyal Bilimler Enstitüsü, 2006, s.119-121.

Niyazi Karasar, Bilimsel Araştırma Yöntemi, 20. Baskı, Nobel Yayın Dağıtım, Ankara 2009, s.165- 166

Oktay Alpugan, Küçük İşletmeler Kavramı, Kuruluşu ve Yönetimi, Ankara, Özgün Matbaacılık, 1998, s.314.

Orhan İçöz, Turizm İşletmelerinde Pazarlama İlkeler ve Uygulamalar, 2. Baskı, Turhan Kitabevi, Ankara 2001, s.15

Oya Aytemiz Seymen, İnsan Kaynakları Yönetiminde İşgören Performansının Konaklama İşletmeleri Açısından Değerlendirilmesi ve Bir Model Önerisi, Yayınlanmamış Yüksek Lisans Tezi, Balıkesir Üniversitesi Sosyal Bilimler Enstitüsü 1995, s. 6

Özkan Tütüncü ve Mahmut Demir, "Konaklama İşletmelerinde İnsan Kaynakları Kapsamında İşgücü Devir Hızının Analizi ve Muğla Bölgesi Örneği", Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, Cilt 5, Sayı 2, 2003, s. 12.

Saime Oral, Çiçek Olgun ve Gürhan Aktaş, "Turizm Bilincinin Oluşturulmasında Yaygın Eğitimin Yeri ve Önemi", 1.Turizm Sempozyumu, 17-18 Kasım, Ankara, 1994, s.221

Tamer Bolat, Turizm işletmelerinde İnsan Kaynakları Yönetimi, Hafta Sonu Semineri VII, 24-26 Kasım Erciyes Üniversitesi Nevşehir Turizm İşletmeciliği ve Otelcilik Yüksek Okulu, 2000, s. 148.

ⁱ Ahmet Aktaş, Turizm İşletmeciliği ve Yönetimi, Azim Matbaacılık, Antalya 2002, s.194

ⁱⁱ Saime Oral, Çiçek Olgun ve Gürhan Aktaş, "Turizm Bilincinin Oluşturulmasında Yaygın Eğitimin Yeri ve Önemi", 1.Turizm Sempozyumu, 17-18 Kasım, Ankara, 1994, s.221

ⁱⁱⁱ Orhan İçöz, Turizm İşletmelerinde Pazarlama İlkeler ve Uygulamalar, 2. Baskı, Turhan Kitabevi, Ankara 2001,s.15

^{iv} Asım Saldamlı, "Otel İşletmelerinde Stres Kaynakları ve Çalışanlar Üzerinde Etkileri: Beş Yıldızlı Otellerde Bir Uygulama", Çukurova Üniversitesi Sosyal Bilimler Enstitüsü, Sosyal Bilimler Dergisi, Sayı 6, 2000, s.292

^v Özkan Tütüncü ve Mahmut Demir, "Konaklama İşletmelerinde İnsan Kaynakları Kapsamında İşgücü Devir Hızının Analizi ve Muğla Bölgesi Örneği", Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, Cilt 5,Sayı 2, 2003, s. 12.

^{vi} Tamer Bolat, Turizm işletmelerinde İnsan Kaynakları Yönetimi, Hafta Sonu Semineri VII, 24-26 Kasım Erciyes Üniversitesi Nevşehir Turizm İşletmeciliği ve Otelcilik Yüksek Okulu, 2000, s. 148.

^{vii} Oya Aytemiz Seymen, İnsan Kaynakları Yönetiminde İşgören Performansının Konaklama İşletmeleri Açısından Değerlendirilmesi ve Bir Model Önerisi, Yayınlanmamış Yüksek Lisans Tezi, Balıkesir Üniversitesi Sosyal Bilimler Enstitüsü 1995, s. 6

^{viii} Barış Erdem, "Otel İşletmelerinde İnsan Kaynakları Planlamasının Yeri ve Önemi", Balıkesir Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, Cilt 7, Sayı 11, 2004, s.39-41

^{ix} Oktay Alpugan, Küçük İşletmeler Kavramı, Kuruluşu ve Yönetimi, Ankara, Özgün Matbaacılık, 1998, s.314.

^x Cengiz Demir ve Berrin Güzel, "Planlama", Editör: Cengiz Demir, Konaklama İşletmelerinde İnsan Kaynakları Yönetimi: İlkeler ve Uygulamalar, Nobel Yayın Dağıtım, Ankara, 2005, s. 76.

^{xi} Ekrem Özdemir ve Ali Talip Akpınar, "Konaklama İşletmelerinde İnsan Kaynakları Yönetimi Çerçevesinde Alanya'daki Otel ve Tatil Köylerinde İnsan Kaynakları Profili", KOÜ Sosyal Bilimler Enstitüsü Dergisi, Sayı 2, 2002, s.90.

^{xii} Cengiz Demir, Konaklama İşletmelerinde İnsan Kaynakları Yönetimi İlkeler ve Uygulamalar, Nobel Yayın Dağıtım, Ankara 2005, s.85

^{xiii} Alparslan Usal ve Osman Aşar Kurgun, Turizm İşletmelerinde Maliyet Analizleri, Detay Yayıncılık, Ankara 2001, s. 195

^{xiv} Hüseyin Alkış ve Yüksel Öztürk, "Otel İşletmelerinde Motivasyon Faktörleri Üzerine Bir Araştırma", Elektronik Sosyal Bilimler Dergisi, Cilt 8, Sayı 28, 2009, s. 214

^{xv} Ali Yıldırım ve Hasan Şimşek, Sosyal Bilimlerde Nitel Araştırma Yöntemleri. 2. Baskı, Seçkin, Yayıncılık Ankara 2000, s.19

^{xvi} Niyazi Karasar, Bilimsel Araştırma Yöntemi, 20. Baskı, Nobel Yayın Dağıtım, Ankara 2009, s.165- 166

^{xvii} Necla Kolu, Otel İşletmelerinde İnsan Kaynakları Seçim Yöntemleri Personel Bulma ve Seçme Süreci (Örnek Bir Uygulama) Yüksek Lisans Tezi, Sakarya Üniversitesi Sosyal Bilimler Enstitüsü, 2006, s.119-121



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A THEORETICAL STUDY ON WORKPLACE RECREATION: SUGGESTION ON ITS APPLICABILITY IN TOURISM ENTERPRISES

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ABSTRACT

In tourism, which is a labor-intensive sector, the fact that employees work under excessive stress and pressure can cause work exhaustion, job dissatisfaction and inefficient work. Tourism business managers have begun to care much more about the impact of workplace recreation on productivity in order to prevent all of this. Workplace recreation, when implemented by the managers, can contribute to job satisfaction and productivity by allowing the employee to spend leisure time more efficiently and productively by providing working time and leisure time balance. Therefore, the aim of this study is to carry out a theoretical examination on the workplace recreation and to present various suggestions to the sector managers in tourism for their applicability in tourism enterprises, as well as evaluating the benefits of business recreation to tourism businesses, employees and the economy of the country. For this purpose, efforts have been made to reveal the relationship between leisure time and work efficiency in this study and then evaluations and suggestions about the applicability of workplace recreation in tourism enterprises have been presented. This study presents a theoretical framework guiding future researches.

Keywords: Leisure time, workplace recreation, work productivity, tourism enterprises

JEL Codes: I83, Z32

1. INTRODUCTION

The way to success today goes through effective and productive work and using the time programmatically in the direction of determined priorities. There is always the opportunity to enjoy, rest and see the problems in a regular and systematic way (Batlaş and Batlaş, 1998: 14). Workplace recreation is necessary for those who have to adapt to the stressful lifestyle of industrialization and urbanization, to overcome tension in the workplace and maintain their psychological balance. In industrialized societies, work and living conditions alienate individuals to their own societies. This alienation is a very negative influence. These negative situations are eliminated so that the individuals can renew themselves by creating leisure time and recreation opportunities (Önsoy, 1984). Despite the fact that employees were not entitled to a paid leave during the 1880s, it is exhibited that they went on vacation during periods such as Easter and Official Bank Holiday. However, in the last century, the annual working period has been reduced from 3,000 to 2200 hours, therefore the resting periods of the individuals have increased. The 3-8 Theory that recently emerged on leisure time includes 8 hours of work, 8 hours of relaxation and 8 hours of rest. Countries that have considered leisure time and vacation as an important right for employees in the 20th century accepted the annual paid leave right on different dates (Hacıoğlu et al., 2015: 18-19). In addition, the health conditions of employees and the inadequacy of their working environment led to the emergence of the workplace recreation in the United States towards the end of the 19th century and to the more serious consideration towards it; at the beginning of the 20th century the workplace services for employees were increased to prevent conflicts between employees and employers (Kesim, 2016: 132-133). Growth of the world economy, technological developments and acceleration of transportation and increase of welfare level have increased the leisure time of people. The increase in leisure time necessitated the tendency to use leisure time (Güngörmüş and Yetim, 2006: 654). Efficient use of leisure time is both a part of education and an educational tool. This tool is an important key to personal productivity as well as a basis for the individual's physical, mental and social development (Dawer and Pangraz, 1975). Routine lifestyle influences work efficiency, health and psycho-social levels of employees that are worn out in the face of today's stressful living conditions and the difficulties brought about by intense working life. As a consequence, numerous disadvantages such as serious heart

diseases, obesity, loss of immunity system, loss of manpower and efficiency, frequent illness and non-response to treatment in the individuals can be removed or reduced by the good evaluation of leisure time (Hazar, 2014: 12). Overworking employees that cannot balance work and family life, having problems in both aspects. As a result, the productivity of the employees is adversely affected, the behaviors such as the tendency for being late, leaving work etc. increase. In this context, overworking, workaholic employees should be determined by their managers and directed to efficient (Temel, 2006: 104). The fact that working time and leisure time are not managed in a balanced manner is among the reasons leading to job dissatisfaction in working life. Therefore, the aim of this study is to carry out a theoretical examination on the workplace recreation which cannot get much place in the tourism sector in our country. In 2009, a research writing by American Daily Beast indicated that USA was the first country in the world to spend most of its leisure time watching TV, followed by Turkey in the fourth place (Koç, 2015: 392). As a society that cannot use its leisure time with passive recreational activities, efforts have been made to develop various suggestions for the managers of tourism enterprises within the context of workplace recreation as part of better planning of leisure time at workplaces. Tourism enterprise managers can make active recreational activities at the workplace taking these suggestions as basis and then increase the efficiency of their employees.

2. THE CONTRIBUTIONS OF THE PARTICIPATION IN THE LEISURE TIME ACTIVITIES TOWARDS THE WORK PRODUCTIVITY

Leisure and recreation studies were first conducted in the United States in the 1950s among socio-economic structures and activities, on the concepts of race and nationality in the 1960s and on the lifestyle and participation due to the increase in the elderly population in 1970s. While these issues were approached individually until 1980s, they were approached collectively after 1990s (Lee et al., 2001). In the Turkish society, leisure and recreation habits have been established in the Seljuk period by the birth of guilds and the tradition of ahi community. The male members of the guild participated in meetings with dinner and engaged in workplace recreation. *Ahilik* (artisan solidarity organization), during the Ottoman period, took part in recreational activities which brought sports and festivals conducted for the villages and even for the immigrants. The organization's top priority during these activities was to raise the youth with sportsmanship (Kesim, 2016: 133). According to Pennington-Gray and Kertetter (2001), upon the examination of the historical development process of leisure time, reducing working hours in business life and increasing the vacation periods in return have occurred in the following categories: (1) *daily working hours were reduced* by reducing working hours from 10 to 14 hours to 8 hours, (2) reducing weekly working time to 6 days from 5 days, and provided 2 days of leisure time per week *to reduce weekly working hours*, (3) the annual leave of 2 weeks (which began to be implemented in various European countries since 1936) was increased to 4 weeks, during which the annual pay period started to be reduced and the *annual working hours were reduced*, (4) the early retirement and teaching patterns changed, reducing the work life and thus multiplying the leisure time (Hacıoğlu et al., 2015: 21-22). The definition of leisure time by the International Association of Tourism Experts (AIEST) is as the amount of time that can be used after one person has satisfied the needs of being, job or work (İnce, 2000: 11). Leisure time can also be expressed in short as the time when people are saved from activities that they have to perform in order to maintain their life (for example, eating and drinking, sleeping, work, etc.). According to İnce (2000: 11), leisure time can be classified as (1) *touristic leisure time*, (2) *sportive leisure time*, (3) *artistic leisure time*, (4) *social leisure time*. Hacıoğlu and Gökdeniz (1998) listed the characteristics of the leisure time as follows:

- Providing the functions of decreasing the physical and mental exhaustion brought by the working life, resting and spending spare time,
- Being an important task bearing responsibility to the individuals,
- Allowing entertainment and renewal allowing the escape from monotony,
- Being capable of contributing to physical, mental and spiritual development and of developing personality during new conditions (Hacıoğlu et al., 2015: 28).

Leisure time is a time period that is needed in eliminating all kinds of negativities such as stress, physical fatigue and psychological deprivation caused by the work of the individuals (Demir and Demir 2014: 82). The feeling of stress and oppression within the working life creates a negative effect on the work productivity and individuals need to act more, innovate and change (Gökdeniz, 2003: 60). Apart from people's routine lives; relaxation, enjoyment and increased productivity at work are achieved through recreational activities in leisure time (Karaküçük, 1997: 84). If productivity is conceptually taken into account, in short, it is the ratio of the outcome (e.g. goods or services) obtained to the input or inputs (e.g. manpower, capital, technology, etc.). Efficiency, used synonymously with productivity, is a measure of being efficient, a ratio showing how much of the inputs (resources) used to produce outputs are transformed into productive output (Taner, 2005: 6). People who work tirelessly all year round intend to spend the remaining time and money out of which has been spent on their obligatory needs, on making use of the leisure time and participating the activity of tourism. Achieving the awareness that leisure time is an important need increases the demand for tourism and recreational activities

(Crotts and Raaij, 1995: 73). The studies indicate that participation in both physical and non-physical leisure activities decreases depression and anxiety, produces a positive mood, increases respect for oneself and ideas, facilitates personal interaction, enhances general psychological well-being and life satisfaction in business life (Iso-Ahola, 1997). One of the studies exhibit that the use of physically-active leisure time a 50% reduction in mortality rates for health (Blair and Connelly, 1996). The evaluation of leisure time is a necessity that emphasizes its weight and possibilities tremendously as a result of the amount of production emerged and achieved thanks to the industrialization and the regulation of working life. Fletcher (1993) notes that working time-leisure time factors are examined as options among factors influencing unhappiness in business life by the employees. Clark et al. (1988) revealed that productivity increases with teamwork. Roberts et al. (1989) found that people who take inefficient leisure time are less healthy than those who use leisure time efficiently. The main reason why people do not abandon physical activity is due to the proven effectiveness of exercises in reducing heart diseases, heart attacks, colon cancer, diabetes and obesity. The reason for the failure in establishing the balance between business life and leisure is people's increased work exhaustion. Work exhaustion occurs as an individual stress event, a psychological symptom of emotional exhaustion, breaking of personal relationships, and a decrease in individual achievement (Maslach and Goldberg, 1998). Stanton-Rich and Iso-Ahola (1998) found as a result of their study on work exhaustion and leisure time that the more effective leisure time a person has equals to the higher the leisure time satisfaction and personal success and the lower the emotional burnout level and lower ratio of breaking personal relationships. Passive leisure time activities (such as watching TV) are a temporary solution to work exhaustion. However, personal success and personal effectiveness arise from the need for intentional, mental and physical leisure activities and can provide continuous protection against exhaustion (Csikszentmihalyi, 1990). The factors preventing the increase in the productivity in the workplace include (1) the insufficiency of the individuals forming the management level, (2) the insufficiency of the organization, (3) the lack of motivation factors to incentivize the manpower to work more within the organization, (4) the insufficiency of the physical working conditions, (5) lack of a good employee evaluation system, (6) high employee replacement speed rate, (7) lack of a fair and balanced payment system and (8) the failure to fulfill the leisure time needs of the employees (Boyaci, 1991: 70-71). The importance of workplace recreation becomes more prominent, especially considering the fact that the needs of leisure-time employees in a labor-intensive industry, such as the tourism industry, are considerably high. Proposals for implementation of workplace recreation in the tourism sector have been tried to be developed for tourism business managers.

3. A THEORETICAL FRAMEWORK OF THE APPLICABILITY OF THE WORKPLACE RECREATION IN TOURISM SECTOR

Towards the end of the 19th century, several initiatives were launched in the United States for employees due to inadequate health conditions and worsening working conditions. The purpose of these initiatives is to improve the daily living conditions of the employees and help them work in better conditions in the workplace and integrate with the workplace (Kesim, 2016: 132). Kozan (2006) defines Workplace Recreation as the artistic, cultural and sportive activities, excursions and organizations held in public institutions and bodies in the private sector for increasing work productivity and employee health (Göker, 2014: 198). Recreational activities in the area of business productivity contribute employees in developing their morale and motivation, socializing, achieving psychological and physical satisfaction, strengthening emotions such as helping each other and solidarity (Göker, 2014: 198). Industrial and workplace recreation is the provision of special facilities for employees, special individuals, to increase commercial profits. Thus, a happy workforce can be achieved that can generate more profits with more efficiency and output. Recreational services and facilities offered by businesses to workshops would affect the following factors (Torkildsen, 2012: 306);

- More love for humanity,
- Being healthy for work,
- Decrease in the personnel replacement,
- Company image,
- Company principles,
- Employee stress.

According to Mendell (1984), businesses provide workplace recreation to increase work efficiency, enhance employee motivation, and provide cost efficiency; the enterprises providing health benefits to the employees via fitness programs and therefore saving on healthcare expenses can be set as examples (Leitner and Leitner, 2004: 78). Table 1 below exhibits in detail the potential gains of the workplace recreation to the workplace, potential gains to its employees and potential gains to the state.

Table 1: Potential Gains of Workplace Recreation Towards the Workplace, Employee and the State

Potential Gains of Workplace Recreation Towards the Workplace	Leisure Time Skill and Life Standard Gains of the Workplace Recreation Towards the Employee	Potential Gains of Government Recreation Towards the State
Making the workplace appealing for the employees.	Skill development	Contribution to the increase in productivity in the workplaces
Increasing the production quality and productivity.	Decision-making	Economic revival as a result of the workplaces being appealing
Providing integration with the workplace,	Problem-solving	Minimizing the health expenditures in the workplaces
Decreasing the workplace accidents.	Planning	Increasing the safety and security in the workplaces with healthy, fit and happy employees (Decrease in the work accidents).
Resolving the workplace disputes.	Developing cooperation with other employees	Creating new areas of employment to the workplace recreation leaders, event specialists and individuals with sports education
Decreasing the workplace compensation claims	Being capable of evaluation	
Minimizing the resignations from the job	Escaping the monotony	
Increasing the business satisfaction.	Serving in better conditions.	
Preventing the absenteeism to work.	Getting new hobby habits.	
Reinforcing the moral levels of the employees.	Desire to maintain a healthier life.	
Harmonization between the employer and employees.	Improving the daily life conditions	
Reinforcing the relations and solidarity between the employees.	Having flexible working hours.	
Decreasing the health expenditure shares of the employers.	Showing improvements on sports, health, social and cultural areas.	
Providing integration between the workplace and surrounding public.		

Source: Kesim, 2016: 145-146

The intense physical working environment in the hotel enterprises is physically exhausting for the employees. Hotel staff nights, which could be an example for business recreation, are practiced in almost all hotel enterprises. These nights of motivation for employees indicate positive results for socialization, reward and workplace loyalty (Göker, 2014: 198). Akova and Bayhan (2015) investigated the relationship between organizational loyalty and recreational facilities in accommodation enterprises. According to the results of the research, the emotional commitment and continuing loyalty of the employees supported by recreational leisure activities opportunities were found to be higher than the ones that did not provide similar opportunities. Mokaya and Gitari (2012), on the other hand, found in their research that relaxation and feeling great (83%), stress reduction and developing concentration (62%), confidence and feeling of self-esteem (59.7%) and increased health (53,2%) are among the reasons for workplace recreation demand among the employees. Workplace recreation was found to have a positive effect on employee performance variables (92%), customer satisfaction and service quality (72%) and productivity (77.5%), which are the employee performance variables. Mbaabu (2013) examined the effects of workplace recreation on the performance and health of employees and revealed that physical fitness programs and mental health programs have had a positive impact on occupational performance and health. Sevin and Küçük (2016) concluded that, according to the results of the research, the employees' working performances have increased as the levels of participation in recreation activities in the leisure time of employees in the hotel business increase. Demir and Demir (2014) conducted research on the leisure time needs of employees in the tourism sector and the factors that affect leisure time satisfaction. According to the results of the research, the participation of the individuals in various leisure activities as an end result of socialization affects leisure time satisfaction in terms of both mental and physical condition. Sop (2014) examined the relationship between work pressure, work-leisure time conflict, job satisfaction and life satisfaction on hotel employees. According to the results of the research, it was concluded that long shift hours increased the work-free time conflict.

The high relationship between employee satisfaction and customer satisfaction has made it a priority for businesses to adopt internal marketing practices for employees today (Kozak et al., 2011: 141). The managers increasing the employees' commitment the enterprise makes a significant contribution to their ability to do their job better, to better use their professional knowledge and skills and thus to increase the quality of service. Therefore, the contribution of the employee that is integrated with the job s/he is doing and is satisfied with the job to the enterprise will be higher (Öztürk and Seyhan, 2005: 137-138). Enterprises that care about the employees sufficiently, value them and meet their recreational needs will make an important leap in the development of service quality (Öztürk and Seyhan, 2005: 127-128). As a result, any recreational activity within the workplace will increase the motivation of the employees and their commitment to the workplace. In addition, constantly routine work affects employees psychologically, so the activities they participate in will create psychological relief. Activities such as picnics, entertainment, environmental trips are very important for the efficiency of the staff. In addition to spiritual satisfaction and benefit, it also provides physical benefits (Göker, 2014: 198).

4. EVALUATION and SUGGESTIONS

The workplace recreation that started in the 19th century and later and was carried out in our country in 1976 under the leadership of İşbank's football, basketball, volleyball, tennis, table tennis and chess tournaments (Kesim, 2016: 133) today continues with the implementations of workplace recreation organized by institutional enterprises for their employees by corporate enterprises such as Koç, Eczacıbaşı, Sabancı, Migros etc. In addition to this, Dedeman Hotels (Antalya), with the motto 'Dedeman is my unique guest production', had the cafeteria specially renovated for the staff and special cups with names and special letters of each personnel's initials have been made. Thus, coffee breaks have made recreation hours more enjoyable. In Güral Wellness Convention (Sapanca); with the personnel night organization every year, lunch or dinner is eaten together with all the staff in Güral Sapanca garden to motivate the staff on certain days. Barbecue days are organized. At RichmondNuna Wellness-Spa, barbecue is organized every New Year's Eve and a New Year's Eve lottery is conducted among the staff. This lottery was arranged for the benefit of staff from hotel facilities. Lale Butique Hotel (Sapanca) organizes barbecues on certain days. On Ramadan days, all the staff goes to a place for iftar. The employees of the month receive an extra amount in their salaries. They send their personnel to vacation and everything is covered by the hotel owner. The staff is rewarded within working hours: the desserts in the kitchen or the menu of the day are being eaten in the hotel restaurant or in the garden with a conversation. Hotel owner also organizes cinema day events for his personnel. Examples of the hotel can also be given Hilton, Conrad and Ritz Carlton. In similar ways, activities in different venues are organized within the scope of various workplace recreation, but the recreational activities organized are basically not sufficient. Sahibinden.com Company has one of the best working office in Turkey. This company has recreational areas such as basketball and table tennis in the company, as well as a play station room, a TV room and a cafeteria. There is a running track in the company. There are gingers (segway) in the company to move quickly. The company uses the world's best chairs and all employees benefit from these chairs. In addition, a room was designed in the form of a jungle forest for brain storms.

The enterprises that attach importance to workplace recreation believe that the superiority in the competition would be realized with qualified and eligible manpower and they realized that quality and productivity firstly comes through the employees. Workplace recreation is recreational activities and facilities with cultural, artistic, athletic, medical and social purposes which are implemented for the employees in order to improve work environments, increase their motivation, provide physical and mental satisfaction as well as work satisfaction and productivity, reduce their rapidity of replacement and help them socialize. Workplace recreation has significant benefits for enterprises as well as for employees and countries:

(1) With workplace recreation applications in tourism enterprises;

- Work satisfaction and work productivity of the tourism employees may be increased,
- Possible accidents in the workplace may be avoided,
- The service quality of the work offered may be increased,
- The rapidity of the employee replacement may be decreased,
- The teamwork between the employees may be increased,
- The absenteeism or being late to work may be prevented,

(2) With workplace recreation applications for tourism employees; the following may be achieved;

- Being healthy individuals via achieving physical and spiritual renewal,
- Change in social and cultural life,

- Improvement in leadership and problem-solving skills,
- Being more prone to cooperation and teamwork,
- Avoiding stress and a routine life,
- Increasing the work satisfaction and organizational commitment by working in better conditions,

(3) The contributions created by the workplace recreation applications to the country economy are listed below;

- The service quality offered in the tourism enterprises may be increased and more visitors can be hosted due to the fact that the employees are more productive in the workplaces,
- The service quality in the tourism sector may be increased and contributions can be made to achieving compared superiority in economy,
- Workplace accidents may be prevented and less health expenditures may be made.

The importance of employees in increasing the service quality cannot be denied in labor-intensive a sector such as tourism, which has seasonal characteristics and long working hours. One of the important things that tourism managers in today's tourism should not ignore is to create complementary recreational programs that can improve the leadership skills of the employees working in tourism, increase their professional knowledge and skills and contribute to their development. In the literature, it is observed that work satisfaction, work productivity and organizational commitment of the employees whose recreational needs are fulfilled by the tourism enterprise managers are high (Mbaabu, 2013, Demir and Demir, 2014, Akova and Bayhan, 2015, Sevin and Küçük, 2016). Therefore, a theoretical evaluation on workplace recreation was carried out in this study and efforts were made to develop suggestions for workplace recreation for its applicability in the tourism sector. It can be argued that tourism business managers can increase the employee satisfaction and commitment and decrease the rapidity of the employee replacement by applying one or more of the following proposals for workplace recreation.

Health Recreation Suggestion - 1: It can be procured that tourism enterprise employees can benefit from fitness, spa, pool, Turkish baths when the customers are not actively using it. Spa, skin care, massages, haircuts, etc. can be offered as a free service to the employees who in particular encounter with the customers occasionally. It may be possible for them to benefit from these services free of charge to any other business that offers spa services to their wishes.

Health Recreation Suggestion - 2: In order to encourage an active life, managers should cycle or walk when going to work if the distance between the house and work is convenient. Thus, heart health can be maintained and purification from stress can be achieved.

Recreation Suggestion with Social Purposes - 3: The employees may be benefited from the sportive recreation of the coastal hotels that include water sports (such as sailing, surfing etc.) on their birthdays or when they are selected as the employee of the month. In addition, when employees have newborn babies, celebratory parties or dinner meetings on special occasions can be arranged. It will be seen that such activities strengthen community loyalty.

Recreation Suggestion with Social Purposes - 4: Corporate social responsibility projects can be carried out with employees who can show examples of social responsibility by visiting disabled people, orphans and elderly people. Also, street animals may be fed and clothing and textile products can be provided to the people in need. Thus, employees will achieve satisfaction for their happiness and happiness of others by providing support to social life.

Recreation Suggestion with Social Purposes - 5: Employees can be provided with social areas where they can relax and socialize outside work hours. Billiards, table tennis, darts, etc. can be made available on for those who work on this area. With a music box, the social space can be made more joyful. In addition, a massage chair may be included in the social area for the employees to relax and rest a bit within the facilities for the enterprises.

Touristic Recreation Suggestion - 6: A holiday package of one week or less per year may be gifted to reward employees with high levels of performance. Employees who achieve outstanding success can be provided with a free boat trip, aquapark, a theme park or a fun experience at leisure centers on this vacation.

Artistic Recreation Suggestion - 7: In addition, from time to time; the motivation of the employees may be increased with tickets for cinema, theater, concerts, festivals, folk dances etc. in order to reward small achievements.

Group Recreation Suggestion - 8: Food and beverage department employees and cooks can participate in contests where they can meet the world cuisines and make presentations, exchange information and have fun. They may have the opportunity to taste the Italian, French, Far East etc. delicacies and have a good time.

Sportive Recreation Suggestion - 9: Football, basketball, volleyball etc. teams for sportive recreation may be founded in contribution to the development of the team culture. Sports clubs may be founded, aiding the employees to preserve the physical and mental health and to make use of their leisure time more actively. These competitions may be converted to festivals/picnics and made traditional every year. Employees can be provided with recreation areas where play stations, table tennis, basketball playing areas is played.

In this study, a theoretical review was carried out on workplace recreation and recreational suggestions were developed in different categories for applicability in the tourism sector. It can be argued that the work will contribute to the field from the theoretical perspective. Future research can also carry out field research to find out more clearly the contribution of business recreation to the tourism sector and to find out how far it has been applied in the industry.

REFERENCES

- Akova, O. and Bayhan, İ. (2015). "Örgütsel Bağlılık ve Rekreatyonel İmkânlar Arındaki İlişki: Antalya'da Konaklama İşletmelerinde Çalışanların Üzerine Bir Araştırma", *Uluslararası Sosyal Araştırmalar Dergisi*, 8 (38), s.789-805.
- Batlaş, A. and Batlaş, Z. (1998). *Stres ve Başa Çıkma Yolları*. İstanbul: Remzi Kitabevi.
- Blair, S. and Connelly, J. (1996). "How Much Physical Activity Should We Do? The Case For Moderate Amounts And Intensities of Physical Activity", *Research Quarterly for Exercise and Sport*, 67: s.193-205.
- Boyacı, C. (1991). *Personel Yönetiminde Beşeri Kaynakların Korunması Açısından İş Koşullarının İyileştirilmesi ve İşte Verimliliğe Olan Etkisi Üzerine Bir Uygulama*, Antalya: Akdeniz Üniversitesi Basımevi, Yayın no: 36.
- Clark P., Hantrais L., Hassard J. and Starkey K. (1988). The porous day and temps choisi, an enquiry into the appropriation of time. (Working paper 88-4), Department of Economics and Management Science, University of Keele, Keele.
- Crotts, C.J. and Raaij, F. V. (1995). *Economic Psychoogy of Travel and Tourism*, NewYork: The Haworth Hospitality Press.
- Csikszentmihalyi, M. (1990). *Flow: The Psychology of Optimal Experience*, New York: Harper and Row.
- Dawer P.W. and Pangraz R.P. (1975). *Dynamic Physical Education For Elementary School Children*, 4 th Edition, USA: Washington.
- Demir, M. and Demir, Ş.S. (2014). "İşgörenlerin Serbest Zaman Gereksinimi Ve Serbest Zaman Doyumunu Etkileyen Faktörler", *İşletme ve İktisat Çalışmaları Dergisi*, 2 (3), s.74-84.
- Fletcher C. (1993). "The Interrelationship of Managers Work Time And Personal Time", *Personnel Review*, 22 (2), s.56-64.
- Göker, G. (2014). *Rekreasyonda Yeni Trendler* (içinde Rekreasyona Giriş, Ed. Ali Yaylı). Ankara: Detay.
- Gökdeniz, A. (2003). "Yerel Gündem 21 ve Sürdürülebilir Turizm Politikaları Çerçevesinde Eko Turizm", *Ekonomik ve Teknik Standart*, Yıl 42, Sayı 496.
- Güngörmüş, A.H. and Yetim, A.A. (2006). "Ankara'daki Beden Eğitimi Ve Spor Öğrenimi Veren Yüksek Öğretim Kurumlarında Görev Yapan Öğretim Elemanlarının Boş Zamanlarını Değerlendirme Biçimlerinin Araştırılması", *Kastamonu Eğitim Dergisi*, 14 (2), s.653-666.
- Hacıoğlu, N., Gökdeniz, A. and Dinç, Y. (2015). *Boş Zaman ve Rekreasyon Yönetimi*, Ankara: Detay.
- Hazar, A. (2014). *Rekreasyon ve Animasyon*, Ankara: Detay.
- Iso-Ahola, S. (1997). *A Psychological Analysis of Leisure and Health*. J.T. Haworth (ed.) *Work, Leisure and Well-being*. London: Routledge.
- İnce, C. (2000). *Turizm İşletmelerinde Rekreasyon ve Animasyon*, Ankara: Turhan Kitabevi.
- Karaküçük, S. (1997). *Rekreasyon*, Ankara: Ankara Basımevi.
- Kesim, Ü. (2016). *İş Yeri Rekreasyonu* (içinde Rekreasyon Bilimi, Ed. Prof.Dr. Suat Karaküçük). Ankara: Gazi.
- Koç, E. (2015). *Tüketici Davranışı ve Pazarlama Stratejileri*, 6. Baskı, Ankara: Seçkin.
- Kozak, N., Özel, Ç.H. ve Yüncü, D.K. (2011). *Hizmet Pazarlaması*, Ankara: Detay.
- Lee, J. H., Scott, D. and Floyd, M. F. (2001). "Structural Inequalities In Outdoor Recreation Participation: A Multiple Hierarchy Stractification Perspective", *Journal of Leisure Research*, 33 (4), s. 427-449.
- Leitner, M. J.; Leitner, S. F. and Associates. (2004). *Leisure enhancement* (3 rd ed.) New York: Haworth Pres.
- Maslach, C. and Goldberg, J. (1998). "Prevention of Burnout: New Perspectives", *Applied And Preventive Psychology*, (7), s.63-74.

Mbaabu, C. M. (2013). Effect of Workplace Recreation on Employee Wellbeing And Performance: A Case of The Commission For University Education (Cue). Kenyatta University: Project Submitted to The School of Business In Partial Fulfillment of The Requirement For The Degree of Master of Business Administration.

Mokaya, S. O. and Gitari, J.W. (2012). "Effects of workplace recreation on employee performance : The case of Kenya Utalii College", *International Journal of Humanities and Social Science*, 2 (3), s.176-183.

Önsoy, C. (1984). Osmaniye İskenderun Kıyı Kesiminde Ekolojik Planlama İlkelerine Uygun Alan Kullanımının Araştırılması.(Yayımlanmamış Doktora Tezi) Ç.Ü. Fen Bilimleri Enstitüsü, Peyzaj Mimarlığı Anabilim Dalı, no: 53, Adana.

Öztürk, Y. and Seyhan, K. (2005). "Konaklama işletmelerinde sunulan hizmet kalitesinin artırılmasında işgören eğitiminin yeri ve önemi", *Ticaret ve Turizm Eğitim Fakültesi Dergisi*, 1, 121-140.

Roberts, K., Lamb, K. L., Dench, S. and Brodie, D.A. (1989). "Leisure Patterns, Health Status And Employment Status", *Leisure Studies*, (8), s. 229-235.

Sevin, H.D. ve Küçük, S. (2016). "İşgörenlerin Rekreatif Etkinliklere Katılım Düzeyleri İle Çalışma Performansları Arasındaki İlişkiyi Belirlemeye Yönelik Bir Araştırma", *Journal of Recreation and Tourism Research*, 3 (1), s.24-31.

Sop, S.A. (2014). "İş Baskısı, İş-Serbest Zaman Çatışması, Meslek Memnuniyeti Ve Yaşam Doyumu İlişkisi Üzerine Bir İnceleme", *Turizm Akademik Dergisi*, 1(1), s.1-14.

Stanton-Rich, M. and Iso-Ahola, S. (1998). "Burnout and Leisure", *Journal of Applied Social Psychology*, 28: s.1931-50.

Taner, B. (2005). *Ağırlama Endüstrisinde Verimlilik Yönetimi*, İstanbul: Beta Basım.

Temel, A. (2006). "Organizasyonlarda İşkolizm ve İşkolik Çalışanlar", *İş,Güç" Endüstri İlişkileri ve İnsan Kaynakları Dergisi*, (8), 2, s.104-127.

Torkildsen, G. (2012). *Leisure and Recreation Management* (Fourth Edition). London & NewYork: Taylor and Francis.



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CHALLENGES AND DRIVERS FOR QATAR'S TRANSFORMATION INTO A KNOWLEDGE-BASED ECONOMY AND SOCIETY- WORK IN PROGRESS IN EDUCATION SYSTEM REFORMS

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ABSTRACT

Until late 1990's, core Arab traditions and a nationalistic approach were the main factors determining the structure of the educational system in Qatar. The system was old, rigid and devoid of any international benchmarking to assess its competitiveness at a global scale. However, beginning in early 2000s, the Qatari leadership, with the help of international assessments, was quick to realize that if Qatar desired a place among the leading knowledge-based economies, it had to revamp its educational system and all peripheral activities to enrich its human capital. Moreover, Qatar's need to move away from oil/gas-based economy has been a key driver to reform and enhance its education and innovation system to gradually transform Qatar into a knowledge-based sustainable economy and society, which was adopted as its National Vision 2020 (QNV 2030) and a blueprint for its sustainable development plans for the next few decades. However, while the leadership planned and focused on implementation of QNV 2030 objectives, there has been a general sense of incoherency between key stake holders and execution and implementation of conceived initiatives and reforms. This paper discusses various challenges that need to be overcome to realize Qatar's ambitious sustainable development goals based on innovation driven knowledge economy after analyzing the current progress of several reforms and initiatives within the human capital development arena. Several recommendations are proposed entailing progressive and adaptive policy-making and responsive governance of the educational and innovation framework in Qatar, which needs to invoke economic incentives and fortify intellectual property rights while nurturing expansion in innovation, education, vocational skills, information and communication technologies.

Keywords: Qatar, knowledge economy, educational system, innovation, entrepreneurship.

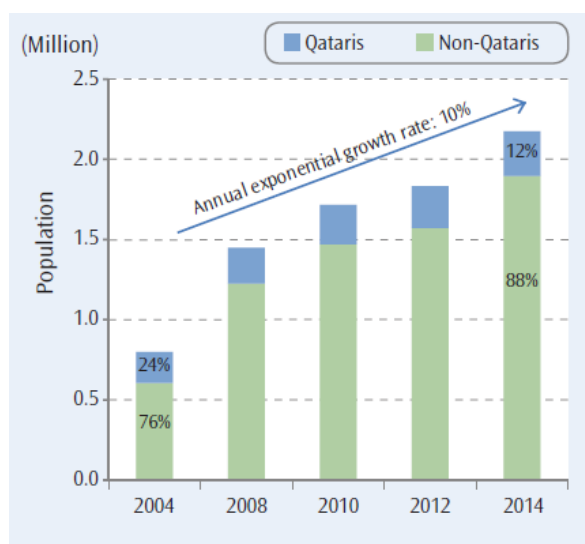
JEL Codes: M11

1. INTRODUCTION

Survival and competitiveness of nations have been long studied by various thinkers, scientists and leaders, each coming with different opinions, thoughts and insights depending on where they come from regionally, culturally and discipline-wise (Garelli, 2006; Furman, et al., 2002; Acemoglu, et al., 2013). One thing in common in all is that demographics and stock of skilled and talented population of a nation always play a crucial role and impact on the future and competitiveness of the country. Thus, human capital development has been identified as an important pillar of sustainable development and knowledge economy (United Nations, 2015; World Economic Forum, 2016) Human capital can become even a major and complex issue for countries with significant natural resources but with limited population, such as Qatar. According to Koç & Kayan (2016), sustainable development depends on a number of factors, which encompass various social aspects, political conditions and the overall state of the economy to mention the least. However, the degree of success, which a country can achieve in ensuring long-term sustainability is intertwined with the importance it places and precisely acts on its human capital development through careful planning, diligent implementation and continuous improvement of progressive and responsive educational and innovation system. When a government is truly focused upon harnessing the skills and knowledge of its population at large, it will take positive steps to formulate an effective long-term national vision in place (Rand-Qatar Policy Institute, 2007). Qatar has a vision to transform itself into a knowledge-based economy and to realize this goal, Qatar has made significant effort to alleviate its educational system (Ministry of Development Planning and Statistics of Qatar, 2011). Qatar is standing at crossroads where it faces a perplexing choice of effectively strategizing to

achieve sustainable development goals (SDGs) by (1) moving away from an oil-centered economy to a knowledge-based economy, and on the other hand, (2) carefully managing its “Qatarization” policy towards addressing the acute population imbalance between Qataris and non-Qataris, whereby, it must gradually replace a large segment of expatriates with a well-educated and skilled native workforce, properly groomed and trained to take on technically and managerially challenging assignments, especially in facets of science, technology innovation (STI) and management. The greater challenge for Qatar would be to strike a balance between the two core objectives while respecting, protecting and upholding human rights. The subject merits further research as to how Qatar may be able to achieve sustainable human development faced with rapidly changing population dynamics. Vast arrival of expatriates into Qatar during 2004-2014 has almost tripled the population of Qatar from 0.8 million in 2004 to almost 2.2 million in 2014 and around 2.7 million in 2017 as depicted in Figure 1 (Ministry of Development Planning and Statistics - Qatar, 2015). The exponential growth in population was not appropriately catered for in the National Development Strategy 2011-2016 (NDS) and Qatar National Vision 2030 (QNV). For Qatar, managing growth and avoiding uncontrolled expansion to maintain stability to its educational reforms and policies remains one of the greatest challenges to date. Recent and frequent reforms and changes in education, indeed, might have already disturbed this stability as a byproduct of aimed improvements in the skill sets of national population (Koç & Kayan, 2016). Furthermore in practice, little attention has been given to restructuring of the non-Qatari population and their educational state to enable them to attain higher wages and skill levels since it is assumed that they will join the workforce with already earned degrees, skills and knowledge; and leave when not needed any longer.

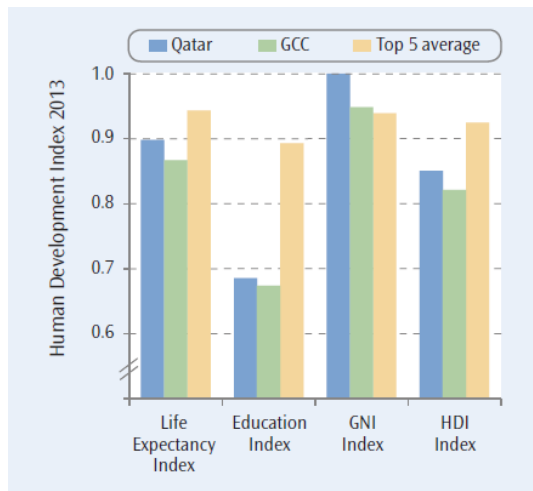
Figure 1: Qatar’s population growth between, 2004 and 2014



Sources: MDPS (2015a) and QSA (2010).

As summarized by Koç & Kayan, 2016; Brewer, et al., 2007; Berrebi, et al., 2009), Qatar has been undertaking drastic educational reforms to enhance quality of education, learning techniques and skill sets to meet global educational requirements and its own future human capital goals. As a consequence of such recent reforms, the students in Qatar have been facing major social and cultural changes, challenges and different international experiences due to an influx of expat teachers as well as students through family structures. Students from diverse ethnicities expose differences of lifestyle, language and other cultural aspects in both classroom and outside school. In light of these challenges, adaptation of curriculum changes becomes more complex for students; moreover, learning different subjects and gaining social and technical skills through a non-native language becomes a barrier in smoothly assimilating information and knowledge in such diverse student body. Qatar scored reasonably well by being ranked the 31st out of 187 countries in UNDP’s Human Development Index (HDI) study in 2014. However, when it comes to the educational segment of this index, Qatar is lagging behind the five highest HDI countries, as shown in Figure 2 (Ministry of Development Planning and Statistics of Qatar, 2015), mainly attributable to less students enrolling in tertiary education as well as low attainment levels in K-12. The fact signifies an important take-home lesson for Qatar that in order to bolster its HDI ranking, Qatar will need to focus especially on its male population and get them to enroll in higher post-secondary education, where the current enrolment rates for boys are very poor in comparison to girls enrolling in higher secondary post-secondary education.

Figure 2: Human Development Index of Qatar compared with the averages of top five countries at both GCC and Global scale. (UNDP 2014)



This study presents comparative and critical analysis of various challenges that need to be overcome to realize Qatar's ambitious sustainable development goals based on innovation-driven knowledge economy after analyzing the current progress of several reforms and initiatives within the human capital development arena. Several recommendations are presented focusing on progressive and adaptive policy-making and responsive governance of the educational and innovation framework in Qatar, which needs to invoke economic incentives and fortify intellectual property rights while nurturing expansion in innovation, education, vocational skills, information and communication technologies.

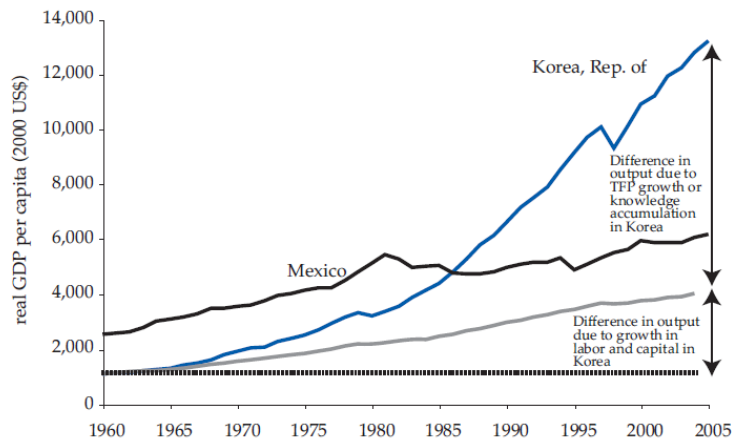
2. LITERATURE REVIEW

According to Bahgat (1999), educational policies in the last few decades within the Arab world have fallen short to adequately address societal needs vis-a-viz traditional and modern education. The Qatari schooling system places emphasis on replication and memorization of acquired knowledge elements (Rostron, 2009; Weber, 2010), and university education, through the only university then, was mostly focused in preparing Qatari nationals to take on bureaucratic assignments and roles (Bahgat, 1999, p. 130). In 2001, services of a non-profit American institution, "RAND" were acquired to critically examine the state of Qatar's educational system (Romanowski & Nasser, 2012; Rostron, 2009). It had been a point of concern for quite some time amongst the Qatari leadership, that the educational system in Qatar was "not producing high-quality outcomes and was rigid, outdated, and resistant to reform" (Brewer et al., 2007, p. iii). The analysis presented by RAND showed some glaring anomalies and highlighted that the academic performance of graduate students was unsatisfactory and the performance of graduate students was critically falling short of the expectations and demands of employers (Brewer et al., 2007; Rostron, 2009). The report further shed light on the fact that Qatar's educational curriculum is merely "emphasized rote memorization" and "unchallenging" (Brewer et al., 2007, p. xviii). In an effort to develop a strong educational system, Qatar could take lessons from countries who have successfully chartered the path of transforming their economies and societies to knowledge-based economies and societies to meet sustainability challenges of the future. For example, Suh and Chen's research (2007) reveals that Korea's economic growth was faster than most comparable economies over four decades since 1960s. The primary reason for the witnessed growth phenomena was not labor and capital investments, but rather the acute rise in total factor productivity and accumulation of knowledge in the Korean populace. For reference, the author draws a comparison between the transformation of the per capital income figures of Mexico and Korea over the period 1960-2005 as shown in Figure 3.

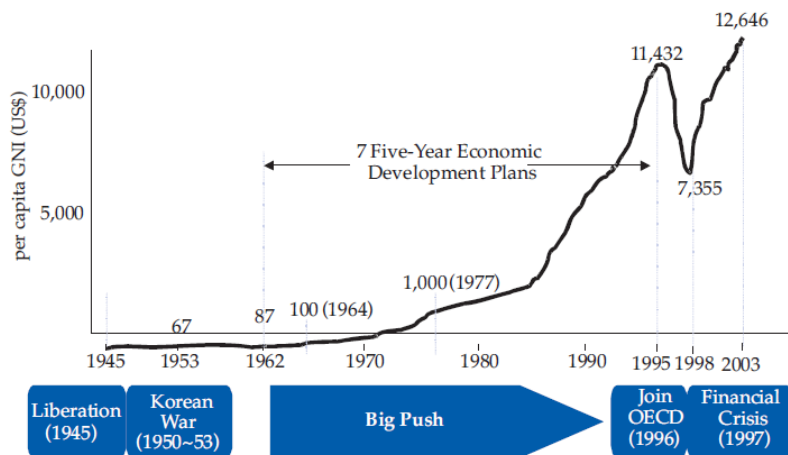
Korea's educational investment portfolio during the period 1960s-1990s merits special attention. The Korean Government was a consistent solicitor of educational loans/credits from the World Bank during the period 1969-1999. Although it took 5-7 years on average for an educational loan/credit project to get implemented, the Government was quick enough to immediately contract another loan or credit as soon as the previous project was taking off. The government of Korea while borrowing from the World Bank kept a consistent focus on three facets, i.e., goals, financing sources, and application of loans/credits. The Korean Government materialized a total of twelve education loan/credit projects over a period of 25 years (1969-1994) through consistent borrowing from the World Bank. By borrowing repetitively from the same funding source, the Korean Government officials had accumulated invaluable knowledge and experience with respect to policies and procedural requirements, thus, saving costs and avoiding unnecessary trials and errors. About 10% of the loan/credit proceeds were applied for training of instructors abroad and invitation of foreign experts. A large majority of the funds were also used for procurement of equipment and facilities for workshops and laboratories. In usage of the borrowed

funds, Korea's continued selectivity in the content, sources of educational loans, and their applications remained on target and efficiently managed without any bureaucratic hurdles or delays in execution of envisaged educational plans (Suh & Chen, 2007).

Figure 3: Effect of Knowledge on Korea's Long-Term Economic Growth (1960–2005)



The Republic of Korea and its economy was in a turmoil post World War II and the Korean War which followed soon after. However, Korean leadership soon realized that in order to progress and move forward, it had to quickly move from being solely an agricultural-based economy, to an industrialized economy. During the period 1950 to 1997, Korea's leadership in essence adopted the critical pillars of an industrialized economy. These plans encompassed intensive learning processes consisting of active technological capability building and complementary human resources development. Pro-activeness became the hallmark of Korean leadership and through accurate forecasting and dynamic support to projects and various educational reforms, they were able to foster an environment which would ensure sustainability. From an historical perspective (Figure 4), during the 1960s, Korea started off as an economy dependent upon agriculture (rice) and labor-intensive light manufacturing sectors (textiles and bicycles). Heavy investments were made to upgrade primary education standards. The Korean regime at the time desired to enter into manufacturing sophisticated commodities locally. To achieve the objective, crucial technologies were obtained through foreign licensing and production commenced on the territory Korea, allowing Koreans to be exposed and educated on state of the art technological platforms. During the mid-1970s, the Korean government erected a well-targeted industrial policy, which was a radical step towards development of heavy industries (for example, shipbuilding and chemicals etc.). Other than expanding the industrial base, additional technologies were imported, to further enhance the technological edge. Special focus was laid upon the quality and merit of K-12 education and other vocational training programs. In the 1980s, Korea resorted to deregulation of various sectors in order to foster a market-conducive environment through liberalizing trade. Simultaneously, Korea placed a renewed focus towards its higher education while investing heavily into R&D and encouraging academia-industrial collaborations through the establishment of the National Research and Development Program. In a phased manner as stated earlier, Korea continued to pursue high-value-added manufacturing in the 1990s through active promotion of indigenous high-technological innovations in a planned attempt to transform into a knowledge-based economy with design, innovation and management of high-value products and services.

Figure 4. The Growth Path of the Korean Economy

Source: Authors' construction.

Note: GNI = gross national income.

The Qatari Government may find a viable model in the Korean example, as Qatar may follow the same steps as Korea did in setting up of a modern and accessible higher education system on sustainable lines.

3. DATA AND METHODOLOGY

Zikmund (2000) and Blaikie (2003) explain that among various forms of research, the quantitative approach utilizes gathering of numerical data to ensure objective and accurate results through experimentation, survey and observation. However, a qualitative approach, or data in words, is potentially useful to obtain more information. A common consensus has been established recently that mixed qualitative and quantitative research studies provide more robust and useful findings (Hair, Black, Babin, Anderson, & Tatham, 2006). Saunders (Saunders, Lewis, & Thornhill, 2000) and Zikmund (2000) suggest that qualitative and quantitative methods could complement one another if applied efficiently, to enrich the data gathering particularly in new interdisciplinary research areas, as is the case with this study. To truly understand the challenges and drivers that would play a significant role in Qatar's transformation into a knowledge-based economy, the primary objective of the research must encompass a critical analysis of the historic development and current situation of Qatar's work force and human resource development plans and initiatives in comparison to several benchmarked countries which have transformed themselves into viable knowledge based economies. Moreover, the research must also analyze issues around existing gender differences in education and their impacts on social, economic and cultural views and growth. A future study in this regard must be able to identify gaps in Qatar's workforce/human capital between today's and 2030's needs/goals (policies, capacity and programs), and establish relational target metrics between 2030 needs and current status.

Reforms in an educational system is an ever evolving process. Qatar's next steps towards reformation must include development of policies, strategic implementation of envisioned programs, roadmaps and placement of continuous monitoring and assessment tools to fill the gaps in order to achieve its 2030 goals of becoming a sustainable knowledge economy. The research being undertaken is essentially concerned with the future vision of Qatar's sustainable development through the adoption of a strategy for developing a knowledge-based economy, and hence, its human capital. An in-depth study on Qatar's human capital development plans and initiatives in comparison and benchmarked with other relevant countries shall be undertaken. The research will approach the current status and future plans in two ways: triangulation using collected data and conduct of various interviews and surveys. The new study will develop, recommended policies, roadmap and an implementation plan for a modified human capital development model. Validation of the proposed new model would also be necessary by gaining inputs from key personnel marked in the study and soliciting their opinion on the new model through re-interviews, focused group studies and by possibly involving as many participants as possible to eliminate issues of bias etc. Expanding on the steps stated above, the knowledge economy literature also emphasizes the importance of incorporating a benchmarking process through a tool known as the knowledge assessment methodology (KAM). This has been developed by the World Bank Institute to gauge a country's readiness for a knowledge economy compared with other regions and countries (Chen & Dahlman, 2006). Thus, a benchmarking process, a qualitative approach (in the form of interviews) and a quantitative approach (in the form of a questionnaire survey) may be applied in the data gathering methodology with a view to producing practical and useful results. This multi-method research strategy will test the validity of measurements by means of triangulated cross-method comparisons.

Triangulation requires multiple sets of data tackling the same research question from different viewpoints (Creswell, 2003). Testing of variables by different methodologies may have important ramifications for the research problem as long as these methods are employed independently of one another, but are focused as tightly as possible upon the question being researched. As explained by Brewer and Hunter (2006) that the advantage of multi-method studies is accrued especially in cases where multiple tests are designed and performed by the same investigator in a short period of time, the same level of knowledge and skill are more likely to inform and consolidate each test. A qualitative approach will help gain insights on the issue from senior government officials whose positions qualified them to provide useful information on Qatar's economic development plans in general, and knowledge economy main drivers in particular: education and training, information and communication technologies, research and development, and government institutions that support such factors. The qualitative approach will be followed by a quantitative approach, to gain valuable information from targeted reputable innovative and technological companies in Qatar, which may render feedback and information on our research issue, as the main drivers, facilitators and end users of human capital and knowledge economy development in Qatar. It is extremely important to interview some executives from high-tech companies in Qatar as they may be able to provide valuable information regarding factors which are important in shaping an effective knowledge economy policy in Qatar. Apart from high-tech companies, another area where skilled force is immensely important is the service sector in Qatar. The service sector in Qatar contributes significantly to the overall GDP (Ministry of Development Planning and Statistics - Qatar, 2015). More importantly this sector employs both semi-skilled and skilled labor. Thus, this sector has been viewed as the potential driving force of any knowledge economy quest as is the case in developed and fast growing developing countries. An electronic mail survey may also be used as a means to collect data for analysis. In quantitative studies, the data are transformed from words into numbers, are then subjected to different statistical manipulation, and are subsequently reported in both numbers and words (Cavana, Delahaye, & Sekaran, 2001).

This research can also use factor analysis to analyze the data collected via the survey questionnaire to answer the questions proposed, to find appropriate and significantly related factors that assist in formulating a knowledge economy policy that takes into consideration all stakeholders' ideas and concerns. Analogous to our research is another case involving knowledge economy data collection surveys, where some regression analysis was also used (Shapira, Youtie, Yogevaran, & Jaafar, 2006). Moreover, according to Chen (2006), factor analysis is a useful tool for data reduction and provides a clearer picture of which factors act together according to their underlying dimensions.

4. PRELIMINARY FINDINGS AND DISCUSSIONS

Over the past fifteen years, Qatar has initiated focused steps towards improving its higher education system and K-12 study regime (Stasz et al., 2007). In March 2003, the new Education for a New Era (EFNE) policy engulfed all facets of higher education and paved way for the formation of the Higher Education Institute, which furnishes scholarships to Qatari students in order to undertake higher studies in Qatar and abroad (Brewer et al., 2007). The primary concern is to improve Qatar's human capital enabling them to positively contribute to the overall socioeconomic system (Stasz et al., 2007). Initially it was envisaged that the new educational reforms would be completed within 10 years (Brewer et al., 2007), however, due to many objectives not completely met, the reformation process may take several more years. Centric to Qatar's educational reforms is the desire to gradually replace foreign workers with a new generation of Qatari nationals, groomed in aspects of critical thinking, appropriately educated and skilled to take on challenging work assignments both within the private and public sectors (Rostron, 2009; Stasz et al., 2007). The Qatarization policy aims to eradicate unemployment issues of local citizens through a two prong strategy of both educating them and then settling into jobs commensurate to their skills and education (Bahgat, 1999; Rostron, 2009; Khodr, 2011). In 2003, the inception of the Education City through Qatar Foundation initiatives (Brewer et al., 2007) was another major milestone which facilitated reputed international universities, think tanks and research centers to establish a footprint in Doha enabling locals students to have access to top class academic facilities and learning opportunities. However, the move was seen sceptically by many locals who wanted to avoid westernization of their children and deemed it as a threat to their own heritage and culture (Reilly, 2008; Rostron, 2009). The preservation of the tribal heritage and culture of Qatar remains the pinnacle of any policy reformation and given utmost importance by a conservative population (Rostron, 2009). Therefore, public education system reformation must remain sensitized to Qatar's history, religion and language which are considered vital towards preservation of its culture (Brewer et al., 2007; Rostron, 2009). Qatar is a "country in transition, trying to embrace new opportunities while at the same time seeking to re-assert its conservative Muslim, Arab, Bedouin identity" (Rostron, 2009; p. 221). Any future research towards policy improvement in educational reforms within the Qatari context must take into confidence key decision makers and service providers in Qatar, on the potential benefits of pursuing knowledge economy initiatives as a sustainable economic development option that could respond positively to Qatar's current economic challenges and future uncertainties. This study will aim to combine three different data collection approaches; a benchmarking process that gauges Qatar's knowledge economy readiness against relevant countries and regions; a qualitative approach where socio-economic development senior government decision makers shall be interviewed; and a quantitative approach where decision makers of main service sector and some innovative companies in Qatar shall also be surveyed. The study may be unique in the sense that only knowledge economy input indicators shall be used that are

relevant to Qatar's current socio-economic development level which could provide a more practical foundation for the government in assessing and shaping future knowledge economy development plans.

5. CONCLUSION

The research being undertaken, could serve the Qatari government with potent recommendations to achieve its sustainability goals through transformation into a knowledge-based economy. The research findings could be applicable to other Arab countries that share similar cultural, religious, and economic backgrounds with Qatar, especially the GCC countries of which Qatar is a member. The outcomes of the study may form the basis for a knowledge-based economy development strategy within the GCC countries, which are aiming for greater economic integration. Moreover, the current research may instigate further studies and research in an array of aspects concerning knowledge economy transformation within the Arab and Muslim context.

REFERENCES

- BAHGAT, G. (1999). *EDUCATION IN THE GULF MONARCHIES: RETROSPECT AND PROSPECT*. (Cilt 45(2)). INTERNATIONAL REVIEW OF EDUCATION.
- Berrebi, C., Martorell, F., & Tanner, J. C. (2009). Qatar's Labor Markets at a Crucial Crossroad. *The Middle East Journal*, 63(3). November 18, 2016 tarihinde public-policy.huji.ac.il/.upload/segel/.../AnOverviewoftheQatariLaborMarket.pdf adresinden alındı
- Blaikie, N. W. (2003). *Analyzing quantitative data : from description to explanation*. Thousand Oaks, CA: Sage Publications.
- Brewer, D., Augustine, C., Zellman, G., Ryan, G., Goldman, C., Satz, C., & Constant, L. (2007). *Education for a new era: Design and implementation of K-12 education reform in Qatar*. RAND Corporation. November 18, 2016 tarihinde http://www.rand.org/content/dam/rand/pubs/monographs/2007/RAND_MG548.pdf adresinden alındı
- Brewer, J., & Hunter, A. (2006). *Foundation of Multi-method Research Synthesizing*. Thousand Oaks, CA: Sage Publications.
- Cavana, R., Delahaye, B., & Sekaran, U. (2001). *Applied Business Research*. Australia: John Wiley & Sons.
- Chen, D. H., & Dahlman, C. J. (2006). *The Knowledge Economy, The KAM Methodology And World Bank Operations*. Washington D.C. November 18, 2016 tarihinde <http://documents.worldbank.org/curated/en/695211468153873436/pdf/358670WBIOThe11dge1Economy01PUBLIC1.pdf> adresinden alındı
- Creswell, J. (2003). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (2nd b.). London: Sage Publications.
- D., A., S., J., & J., R. (2001). The colonial origins of comparative development: an empirical investigation. *Am. Econ. Rev.*, 91:1369-401.
- Furman, J. L., Porter, M. E., & Stern, S. (2002). The determinants of national innovative capacity. *Research Policy*, 36(6), 899-933.
- Garelli, S. (2006). *Competitiveness of Nations: The Fundamentals*. IMD World Competitiveness Yearbook 2006. November 28, 2016 tarihinde www.imd.org/uupload/www01/documents/wcc/content/fundamentals.pdf adresinden alındı
- Hair, J., Black, W., Babin, B., Anderson, R., & Tatham, R. (2006). *Multivariate Data Analysis* (6th b.). Sydney: Pearson Prentice Hall.
- Koç, M., & Kayan, F. (2016). *Overall Review of Education system in Qatar*. Lambert Academic Publishing. November 20, 2016 tarihinde https://www.researchgate.net/publication/309479996_Overall_Review_of_Education_system_in_Qatar adresinden alındı
- Ministry of Development Planning and Statistics - Qatar. (2008). *Qatar National Vision 2030*. November 18, 2016 tarihinde http://www.mdps.gov.qa/en/knowledge/Documents/QNV2030_English_v2.pdf adresinden alındı
- Ministry of Development Planning and Statistics - Qatar. (2011). *Qatar's National Development Strategy 2011-2016*. November 18, 2016 tarihinde http://www.mdps.gov.qa/en/knowledge/Documents/Qatar_NDS_reprint_complete_lowres_16May.pdf adresinden alındı
- Ministry of Development Planning and Statistics - Qatar. (2015). *Qatar's Fourth National Human Development Report: Realising Qatar National Vision 2030 - The Right to Development*. Doha. November 18, 2016 tarihinde http://www.mdps.gov.qa/en/knowledge/Doc/HDR/Qatar_Fourth_National_HDR_Realising_QNV2030_The_Right_to_Development_2015_EN.pdf adresinden alındı
- Ministry of Development Planning and Statistics - Qatar. (2015). *Qatar's Economic Outlook (2016-2018)*. November 18, 2016 tarihinde www.mdps.gov.qa/en/knowledge/.../Qatar_Economic_Outlook_2016_2018_EN.pdf adresinden alındı
- Rand-Qatar Policy Institute. (2007). *A New System for K-12 Education in Qatar*. November 20, 2016 tarihinde http://www.rand.org/pubs/research_briefs/RB9248/index1.html. adresinden alındı
- Romanowski, M. H., & Nasser, R. (2012). Critical thinking and Qatar's education for a new era: Negotiating possibilities. *International Journal of Critical Pedagogy*, 4(1), 118-134.
- Rostron, M. (2009). *Liberal arts education in Qatar: Intercultural perspectives* (Cilt 20(9)). Intercultural Education.
- Saunders, M., Lewis, P., & Thornhill, A. (2000). *Research Methods for Business Students* (2nd b.). London.: Pearson Education.

Shapira, P., Youtie, J., Yogeessaran, K., & Jaafar, Z. (2006). 'Knowledge Economy Measurement: Methods, Results and Insights from the Malaysian Knowledge Content Study'. *Research Policy*, 35, 1522-1537,.

Stasz, C., Eide, E., Martorell, F., Constant, L., Goldman, C. A., Moini, J. S., . . . Salem, H. (2007). Post-secondary education in Qatar: Employer demand, student choice, and options for policy.

Suh, J., & Chen, D. (2007). *Korea as a Knowledge Economy: Evolutionary Process and Lessons Learned*. Washington D.C.: Korea Development Institute & the World Bank Institute.

United Nations. (2015). *The Millennium Development Goals Report 2015*. November 18, 2016 tarihinde [http://www.un.org/millenniumgoals/2015_MDG_Report/pdf/MDG%202015%20rev%20\(July%201\).pdf](http://www.un.org/millenniumgoals/2015_MDG_Report/pdf/MDG%202015%20rev%20(July%201).pdf) adresinden alındı

World Economic Forum. (2016). *The Global Competitiveness Report 2016–2017*. November 18, 2016 tarihinde http://www.weforum.org/media/338436/the_global_competitiveness_report_2016-2017.pdf adresinden alındı

Zikmund, W. (2000). *Business Research Methods* (6th b.). Orlando, Florida: The Dryden Press.



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INVESTIGATION OF REASONS FOR COMMERCIALIZATION OF PROTOTYPES REACHED AS A RESULT OF R&D AND INNOVATION ACTIVITIES AND REASONS FOR SUCCESSFUL AND UNSUCCESSFUL COMMERCIALIZATION IN SMEs: IKITELLI SAMPLE

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ABSTRACT

In economic systems where commercialization of R & D activities is an important problem, it is important for the competitiveness of national economies to determine the extent to which SMEs can commercialize their R & D activities and to determine the reasons for commercialization/non-commercialization and to make proposals for SMEs to achieve successful commercialization. Within the scope of KOSGEB and TUBITAK support, the enterprises that successfully completed an R & D project and reached the prototype were determined. 54 enterprises that carried out the project to commercialize R & D projects within the framework of Industrial Application Support Program have been determined as sample. In the study, which is applied qualitative research design, one of the purposeful sampling methods, extreme and deviant sampling method is used. Companies that have achieved turnover increase, asset increase and employment increase by completing Industrial Application Project have been determined by document examination method. The reasons for commercialization and non-commercialization were researched by structured interview method on enterprises that can and cannot commercialize in these companies. At the end of the R & D and commercialization processes, it was determined that the enterprises did not decrease at least and that the processes they applied in this scope created added value. It has been seen that the technical viewpoint is dominant in R & D activities. From the beginning of the R & D period, it has been determined that market and marketing oriented analyzes are inadequate. After reaching the prototype, it was determined that businesses focused on new R & D projects rather than professional commercialization. It has been determined that the commercialization process has failed due to the lack of adequate market analysis before the R & D project and the projecting of the existing or replacement products in the market.

Keywords: Commercialization, R & D, innovation

JEL Codes: M19, N25, D20

1. INTRODUCTION

The commercialization of R & D and innovation activities is considered to be extremely important for the competitiveness of countries in new globalized economies. R & D and innovation activities of SMEs, which constitute about 99% of enterprises in national economies, are also important in this respect. In this context, in this research, it was aimed to determine the extent to which SMEs commercialize R & D and innovation activities they have undertaken, to determine the reasons for commercialization / commercialization and to develop proposals for SMEs in order to achieve successful commercialization. KOSGEB and TUBITAK with the support of R & D and Innovation project, KOSGEB supported projects under the scope of Industrial Application Support Program within the scope of KOSGEB support from the companies that reached the prototype and carried out a project to commercialize R & D and Innovation projects. As a result of the increase of turnover, active increase and employment and the enterprises which have not provided an increase in this scope have been determined by document

examination method. Reasons for commercialization / non-commercialization have been searched by structured interview method on two groups that can and cannot realize commercialization in these designated enterprises

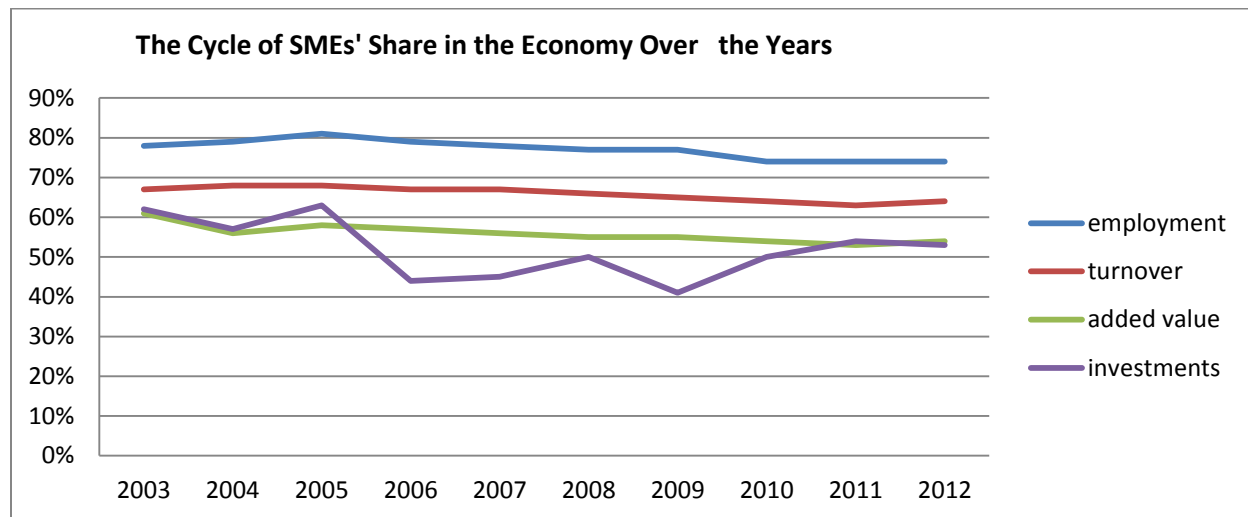
2. LITERATURE REVIEW

The place and importance of SMEs in national economies is an indisputable reality. The importance of R & D activities of SMEs in this context and their weight in the economy is also important. However, R & D work that has not resulted in successful commercialization does not give the expected result and may even create a burden on SMEs and the economy. A firm's commercialization orientation plays a central role in the competitive strategy for technology-based firms. Commercialization orientation has a strong direct positive effect on firm performance. Technology based firms not only have to develop their own knowledge assets, but also have to communicate with their customers and to invest in customer relations. (Lin et al, 2006). However, generally technology-focused, R & D and innovation-based businesses neglect market studies. The deepening of information and technical production can distract businesses from customer relationships and social capital. Commercialization and R & D expenditures can be complementary to each other. Both are important sources of a firm's intangible capital and can be seen as long-term investments in intangible assets, which can be reflected in the firm's market value (Chauvin and Hirschey, 1993).The commercialization of a firm's knowledge assets, including knowledge flows and knowledge stocks, is a complex task and there is probably no single best strategy for all firms. Technology categories, knowledge stocks, R & D intensity, and commercialization orientation have different roles to play, and there are significant interaction effects among those variables. In such circumstances, managers have to make trade-offs as well as judgments on the optimum combination of their R & D intensity, sales expense, and patenting strategies. (Lin et al, 2006)

2.1. SMEs in TURKEY ECONOMY

The share of SMEs in total goods and services purchases is 65.5% According to the results of TUIK, Annual Industrial and Service Statistics (AISS) 2012. The shares in turnover are 63.3% and the share in value added is 56.2%. In addition, the share of value added at factor cost is 53.9% and the share in gross investment related to property is 53.2%. The share of SMEs in the number of employees is 75.8% (SSAP, SME Strategy and Action Plan), According to the results of Foreign Trade Statistics (GDTİ) 59.2% of exports were realized by SMEs. Turkish Banking Sector Key Indicators According to the March 2015 Report; The share of SME loans in the banking sector total loans is 26%. (SSAP, SME Strategy and Action Plan)

Figure 1: The Cycle of SMEs' Share in the Economy Over the Years



REF: TUIK, AISS 2003-2012

The share of SMEs producing total added value is low compared to their share in employment and total turnover in our national economy. SMEs engaged in R & D work and employing about 50% of R & D personnel cannot reach sufficient increase in turnover and generation of added value. In the Turkish economy, SMEs have an important place in terms of number, employment and contributions to the national economy. Developments in the world economy have reduced the importance of geographical boundaries, and have also affected the shape and size of competition. These changes and developments in world

markets are also required to keep pace with the enterprises in Turkey. The fact that the SMEs in Turkey can adapt to these developments will be possible by having innovative ideas, by producing new products and by renewing their structures. The ability of SMEs to have competitive advantage in global markets will be possible by innovating products and processes. (Imamoglu, 2002: 118)

2.2. SMEs, AR-GE & innovation and trade

According to the results of R & D Activities Research 2013; the share of SMEs in R & D expenditures is 16.9%. The share of SMEs in the commercial sector R & D expenditures is 35.7%. 85.6% of these expenditures are current expenditures and the remaining 14.4% is investment expenditures. Of the 69,018 R & D personnel that make up the Commercial Sector R & D workforce, 53,2% (36,741) are employed in SMEs. The commercial sector is 28,690 R & D Managers in exact time equals and 49,1% of them are employed in SMEs. Innovation Survey According to 2012 results; 48.5% of entrepreneurs with 10 or more employees in the three-year period covering 2010-2012 were involved in innovation activities. Innovation activities are increasing in proportion to the size of the enterprises. In R & D work, the weight of SMEs in terms of expenditure and R & D personnel employment is clearly seen. However, it is more important that the R & D work that has been done results in successful commercialization. Today, the commercialization of R & D started to be made more important than the share of national income in R & D work in the world is beginning to be discussed. In the context of science and technology syndrome in Europe, the problem of commercialization is expressed as 'European Paradox'. The commercialization of a firm's technology assets, including knowledge flows and knowledge stocks, is a complex task and there is no single best strategy available for all firms. (Lin et al, 2006). Randall Goldsmith's commercialization model is a road map of strategies and actions for the commercialization of advanced technologies. The model breaks down into twelve activities that describe the process to maximize the chances for success. Each sequence has a technical stage, a market stage and a business stage. The model is a framework for measuring progress in the different stages, namely identification of information and technical assistance needs, project development costs and the forecasting of financing requirements. It follows a quite specific, ordered process (see matrix diagram below). Goldsmith has introduced a phased model for effective commercialization of new ideas and products, as described in Table 1.

Table 1: Model For Effective Commercialization Of New Ideas And Products

Concept phase		Development phase	Market entry phase	Market expansion phase
Market	Initial market and opportunity assessment Lead customer identification and engagement	Develop marketing plan including segmentation, channel and customer relationship strategies	Implement promotion plan Perform competitive market intelligence	Target vertical and adjacent markets and increase market penetration Enhance partnership delivery channel and CRM
Business	Identify financial, physical & HR requirements	Secure required financing Establish management team, financial and business plans.Determine break-even point	Manage financing, skills and production needs Adjust strategic and business plans to respond to market opportunities	Diversify internal and outsourced skills required to meet ROI objectives Establish international partnerships
Technical	Determine features and performance requirements Perform competitive technology intelligence – Patent search	Move development into prototyping, testing and production phase Source raw materials and establish Q&A systems	Establish manufacturing facilities and product technical support	Determine incremental product development cycle Continuously assess competitive product functionality and emerging technologies for adoption

Source: Based on Dr. Randy Goldsmith, Oklahoma Technology Commercialization Centre with modifications by Acorn Growth Companies.

The Goldsmith's model was designed to provide a mechanism for commercializing new products and processes (totally new ideas). This framework is not suited to commercialization for technology adoption purposes (incremental innovation). "The Goldsmith framework was designed for new product introduction and new company creation which is most often reflective of emerging and disruptive technologies. These emerging and disruptive technologies account for a very small percentage of total innovation where the majority of innovations involve adopting or adapting technologies." (Rosa and Rose, 2007).

3. RESEARCH METHOD

3.1. Purpose of the Research

KOSGEB and TÜBİTAK finance R&D projects with their R&D support. KOSGEB finances the investments to commercialize prototypes obtained as a result of these projects with Industrial Application Support Program. In this study, prototypes were successfully financed with the support of TUBITAK and KOSGEB within the scope of R&D projects within the scope of the

problem of commercialization of R&D activities, which are also referred to as 'European Paradox' in the literature and they applied to the Industrial Implementation Support Program, The reasons for successful commercialization and commercialization have been tried to be determined, suggestions have been developed to improve successful commercialization and to prevent failed commercialization.

3.2. Sampling, Data Collection and Method

KOSGEB and TUBITAK with the support of an R & D and Innovation project and successfully received the prototypes of the companies that reached KOSGEB Istanbul İkitelli Directorate of Industrial Implementation Project and the project was completed by completing the project information was requested from the Directorate and the scope of this 54 enterprises reached the data. 3 projects were assessed as having no time series to provide an assessment as they were completed by the end of 2016, and 49 project projects completed at the latest in mid-2016 were evaluated. The net sales, total assets, employment numbers and export amounts data of the 49 enterprises of the KOSGEB İkitelli Administration were obtained before and during the Industrial Implementation Project. Within the scope of the excessive and contingency sampling approach within the scope of the qualitative research design, 5 enterprises that have increased at least 150% in net sales data and at least 60% in employment data and have started to export with at least 15% increase in export value or in the absence of exports The reasons for successful commercialization / commercialization were investigated by semi-structured interview method on 4 enterprises where employment and turnover decrease were found to increase despite the increase in assets.

Data were collected from the qualitative research designs using semi-structured interview form consisting of intensive open-ended questions within the scope of phenomenology design. In case studies are the main data collection tool. In order to reveal the experiences and meanings related to the phenomena, it is necessary to use the interaction, flexibility and probing features of the interviewer to investigate. It is important that the researcher can create an interaction environment based on the interviewed individual's trust and empathy. In such an environment, individuals can reveal experiences and meanings that they themselves have never even been aware of or thought about too much before. (Yildirim and Simsek, 2013: 80).

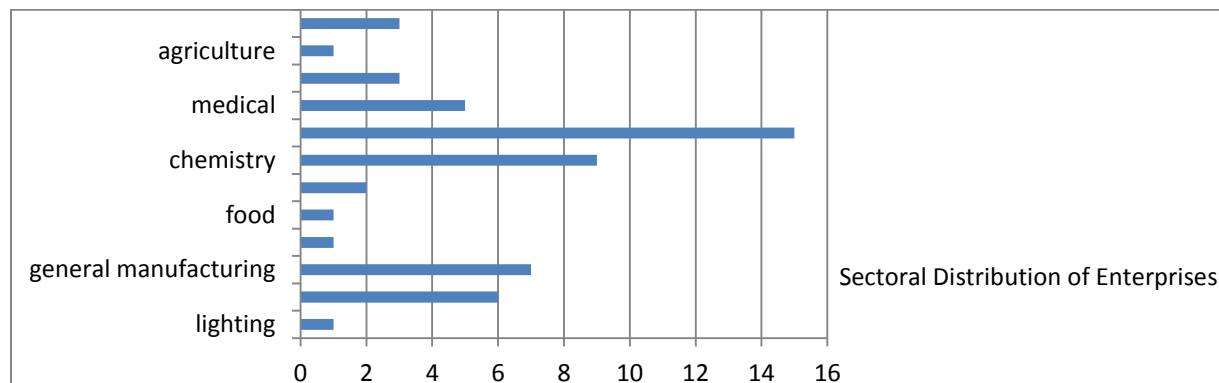
Within the scope of the research, 5 enterprises that are expected to perform successful commercialization from financial and employee data and 4 enterprises and businesses that are predicted to fail have been visited and interviews have been conducted with each of them for at least 60 minutes. It was tried to determine the perspectives and perspectives on the rationales and failures of the enterprises regarding the approaches and commercialization of the R & D and innovation processes and prototypes they experienced. In the survey using the interview form method, the questions given in the table below are used. "The interview form method is designed to get the same kind of information from different people by going to similar topics." (Patron, 1987, p.111, Lightning and Lightning, 2013: 150) During the interview, the interviewer can change the structure and sequence of the questions, They can go into the details of the topics or determine a more chat-style method. (Yildirim and Simsek, 2013: 150) No questions were skipped in the talks and occasionally the order was not taken into consideration. It focuses on reasons for selling in successful businesses and on the grounds of not selling in unsuccessful businesses.

4. FINDINGS AND DISCUSSIONS

4.1. Findings and Discussion in the Scope of the Research Universe

The sectoral distribution of the 54 enterprises reached to the data within the scope of the research is given in Table 2.

Table 2 : Sectoral Distribution of Enterprises



It has been determined that the machinery sector is dominant among the enterprises applying R & D and Industrial Application Project. The chemical sector has been ranked second, followed by general manufacturing, electronics and medical sector. It was evaluated that it is important to shape the sectoral distribution in favor of the sectors in which Turkey is an importer. Since post-project data cannot be obtained from 7 of these enterprises, it has been excluded from the scope. A business has been determined to be closed. Since 3 enterprises completed the project in 2017, it was excluded from the analysis because there was not enough time series for evaluation. The data of 42 companies were evaluated. The pre-project employment, turnover, exports and assets data and the rates of change according to the year 2015 are given in table 2. The employment, turnover and export data at the beginning of the project and the year 2015 data were analyzed. It is observed that 32 of the 42 enterprises provide employment increase and 27 of the enterprises provide employment increase of over 10%. Employment decline was detected in 9 enterprises. It is determined that 35% of the enterprises provide a turnover increase of over 10%. 30 of the enterprises increased their turnover by more than 30% and the turnover of 6 enterprises decreased. 36 of the businesses have shown asset growth and 30 of these businesses have provided an asset increase of over 30%. Decrease in assets was determined at four firms. It was determined that 18 enterprises increased their exports and that the growth of exports of 14 enterprises was over 90%. It was determined that 5 companies did not have pre-project exports and that they started to export during the project period and afterwards. A decrease was found in the exports of 8 companies. It is observed that 10 companies did not export. The highest increase in employment was found to be 327%. The highest turnover was determined as 1734%. It has been determined that 14 of the enterprises have a turnover of 10 to 50 million, 11 of them have 4 to 9 million, 12 of them have 1 to 3 million, and 4 of them have earned 1 million or less. In the sample, it was seen that the enterprises in different sizes were included in terms of business scale.

Table 3 : Pre and Post Project Data Analysis Chart

	Project completion date	PRE-PROJECT FISCAL YEAR				2015 FISCAL YEAR							
		Days worked	Turnover	Assets	Export	Days worked	Rate of Change	Turnover	Rate of Change	Assets	Rate of Change	Export	Rate of Change
1	April 4, 2013	2,214.00	148,556.00	750,362.00	No	4,232.00	0.91	2,724,752.00	17.34	2,629,964.00	2.50	106.00	Started after the project
2	March 6, 2012	29,541.00	7,251,243.58	7,453,679.71	2,340,884.98	31,370.00	0.06	11,477,117.72	0.58	15,995,418.81	1.15	1,994,489.09	-0.15
3	November 20, 2013	19,001.00	3,520,912.00	16,296,672.00	1,317,375.00	81,184.00	3.27	21,842,308.00	5.20		-1.00	1,505,000.00	0.14
4	January 28, 2016	23,565.60	8,413,623.91	6,609,499.83	2,064,462.69	26,521.20	0.13	19,116,812.78	1.27	9,253,279.98	0.40	1,903,831.62	-0.08
5	January 27, 2016	2,887.00	258,122.62	942,765.53	No	2,035.00	-0.30	215,699.39	-0.16	1,483,532.17	0.57	No	No
6	January 28, 2016	16,315.00	17,001,641.44	10,606,026.86	1,531,442.15	26,295.00	0.61	22,392,710.21	0.32	13,567,026.61	0.28	0.00	-1.00
7	June 22, 2015	9,201.00	25,740,779.31	24,719,664.07	2,534,159.00	9,377.00	0.02	45,169,910.89	0.75	41,435,886.63	0.68	29,466,698.77	10.63
8	April 19, 2016	1,326.00	749,117.09	2,175,956.33	No	1,582.00	0.19	832,285.24	0.11	4,195,238.65	0.93	No	No
9	July 22, 2016	14,289.00	4,552,842.56	4,923,054.82	272,363.57	12,136.00	-0.15	5,712,016.39	0.25	5,776,994.97	0.17	518,435.03	0.90
10	January 28, 2016	4,800.00	2,143,049.00	2,145,643.19	333,704.00	7,800.00	0.63	5,787,722.97	1.70	6,733,220.53	2.14	2,715,630.64	7.14
11	October 1, 2012	16,809.00	9,792,629.99	8,707,054.83	No	18,309.00	0.09	14,044,121.53	0.43	24,575,394.90	1.82	3,382,463.64	Started after the project
12	September 30, 2013	2,637.00	401,000.00	587,000.00	2,389.76	2,246.00	-0.15	368,004.57	-0.08	1,238,402.42	1.11	0.00	-1.00
13	November 20, 2013	22,326.00	9,657,896.39	7,690,253.80	2,443,770.00	38,633.00	0.73	54,971,602.37	4.69	21,856,262.86	1.84	4,628,273.97	0.89
14	May 20, 2014	9,283.00	4,799,721.35	4,483,058.90	No	10,388.00	0.12	5,722,577.08	0.19	6,416,809.93	0.43	No	No
15	January 20, 2016	4,299.00	14,302,859.14	18,551,918.82	62,376.39	10,209.00	1.37	17,802,910.99	0.24	24,037,817.97	0.30	No	No
16	May 20, 2014	1,350.00	1,666,259.09	2,033,544.42	No	1,740.00	0.29	1,993,317.87	0.20	3,899,818.54	0.92	0.00	No
17	January 7, 2014	2,750.00	1,238,130.19	946,353.51	184,853.18	3,123.00	0.14	1,967,784.00	0.59	1,272,168.37	0.34	412,815.25	1.23
18	January 28, 2015	16,236.00	18,315,351.16	12,434,782.66	No	22,542.00	0.39	43,127,921.31	1.35	32,785,950.07	1.64	No	No
19	June 26, 2014	1,804.00	224,961.00	1,311,070.00	20,840.00	2,236.00	0.24	408,729.58	0.82	2,150,582.35	0.64	143,607.56	5.89
20	September 8, 2015	966.00	74,235.00	470,345.00	No	1,092.00	0.13	408,729.58	4.51	461,142.00	-0.02	143,607.00	Started after the project
21	January 27, 2016	4,650.00	1,916,556.39	1,916,556.39	258,500.00	4,002.00	-0.14	3,454,134.87	0.80	1,996,635.32	0.04	1,114,544.19	3.31
22	February 15, 2013	19,043.00	4,615,201.97	4,763,640.49	No	38,930.00	1.04	13,995,676.64	2.03	10,860,788.09	1.28	1,772,717.94	Started after the project
23	April 18, 2016	8,583.00	3,705,903.40	826,414.79	755,044.00	9,394.00	0.09	2,502,461.00	-0.32	1,728,128.88	1.09	154,080.00	-0.80
24	September 19, 2014	7,348.00	10,093,395.12	5,993,397.53	1,675,025.21	8,357.00	0.14	15,958,498.69	0.58	11,654,875.15	0.94	3,617,455.78	1.16
25	July 22, 2016	2,675.00	2,999,153.65	3,155,580.25	No	3,446.00	0.29	4,119,697.26	0.37	6,763,360.97	1.14	25,520.14	Started after the project
26	June 30, 2014	57,360.00	8,151,095.19	15,934,420.44	92,420.92	34,766.00	-0.39	6,316,471.29	-0.23	19,403,729.17	0.22	1,408,146.86	14.24
27	February 14, 2012	10,977.00	1,997,482.86	2,040,517.61	119,848.00	11,969.00	0.09	3,814,967.53	0.91	3,955,154.76	0.94	261,968.00	1.19
28	January 28, 2016	16,140.00	6,290,059.95	2,480,495.16	2,115,387.98	16,027.00	-0.01	8,408,388.41	0.34	4,744,637.06	0.91	4,167,818.23	No
29	January 28, 2016	6,333.00	1,465,986.77	1,681,700.40	No	10,450.00	0.65	3,222,066.92	1.20	2,919,895.64	0.74	No	No
30	May 20, 2014	13,767.00	5,645,001.97	4,405,598.08	1,030,577.05	18,035.00	0.31	10,012,226.20	0.77	5,959,979.00	0.35	668,807.00	-0.35
31	January 28, 2016	37,639.00	22,495,230.73	29,383,320.53	3,235,879.99	57,463.00	0.53	30,538,099.93	0.36	40,206,523.60	0.37	4,632,776.90	0.43
32	December 1, 2014	16,277.00	11,997,332.45	8,454,426.91	841,504.00	29,054.00	0.78	20,408,924.52	0.70	22,858,526.99	1.70	1,632,713.00	0.94
33	January 28, 2016	28,506.00	10,734,911.13	8,626,444.61	2,840,791.18	9,618.00	-0.66	5,885,439.44	-0.45	8,034,024.05	-0.07	3,398,671.19	0.20
34	June 20, 2014	7,362.00	3,508,429.00	3,234,279.54	182,217.63	9,120.00	0.24	7,520,565.31	1.14	6,391,098.56	0.98	523,119.35	1.87
35	November 1, 2016	14,604.00	4,610,128.81	2,465,891.28	1,247,564.46	14,604.00	0.00	4,610,128.81	0.00	2,465,891.28	0.00	1,247,564.46	0.00
36	April 10, 2015	5,570.00	1,306,305.00	1,498,293.00	53,690.60	7,343.00	0.32	2,505,267.81	0.92	2,394,578.75	0.60	10657.60	-0.80
37	September 8, 2015	2,996.00	1,159,645.30	1,012,128.26	2,914.00	4,015.00	0.34	3,776,008.10	2.26	2,065,266.80	1.04	51,157.05	16.56
38	January 25, 2012	3,791.00	514,183.00	1,253,062.00	No	2,902.00	-0.23	1,075,867.00	1.09	1,578,205.00	0.26	645,520.00	No
39	July 8, 2013	2,737.00	1,444,582.73	1,373,243.78	No	4,250.00	0.55	2,777,793.48	0.92	6,888,252.92	4.02	No	No
40	January 7, 2014	8,416.00	3,616,638.24	6,063,322.56	2,115,071.92	7,377.00	-0.12	7,851,390.00	1.17	5,813,056.47	-0.04	4,566,551.46	1.16
41	January 27, 2016	5,180.00	1,850,201.15	1,359,185.50	410,211.23	6,995.00	0.35	4,531,049.45	1.45	2,734,086.37	1.01	171,377.37	-0.58
42	May 27, 2016	2,725.00	2,037,663.90	1,118,036.36	No	3,113.00	0.14	1,855,850.28	-0.09	1,440,184.85	0.29	No	No

4.2. Findings and Discussion in the Context of Sample

Of the 42 enterprises, 5 enterprises were identified as having an increase of at least 130% in turnover, at least 38% in employment data and at least 90% in export data within the scope of extreme and deviant sampling method. Again, under the same approach, four enterprises were found to have a decrease in employment and turnover despite their increased assets, and the reasons for successful commercialization and non-commercialization were investigated by structured interview method on this sample. It has been determined that the visited businesses are applying the commercialization project under the prototypes indicated in the table below. Profit rates noted in the interview process and fiscal year changed rate are tabled.

Table 4: Prototypes, profit ratios and firm fiscal year change rates

Prototypes	Prototype profit ratios	Employment Increase Rate	Turnover Increase Rate	Assets Increase Rate	Export Increase Rate
Fruit yoghurt filling machine (food filling machine)	%40	%91	%1734	%250	No Export Before Project Started after the project
Demountable hanger (general production)	%100	-%29	-%16	%57	No Exports in Both Term
High performance noisy low axial fan (general production)	It varies between 7-15%.	-%15	%25	%17	%90
Multi-line stick machine (food filling machine)	50% for Europe, 30% for the domestic market	%62	%170	%213	%713
Twin sound system (wireless prototype of 2nd speaker in wireless speakers) (electronic)	unsold	-%14	-%08	%110	Current Period No Exports
Multi-user interactive presentation system (educational sector smart writing board) (electronic)	The first products were sold at 300%. With the development of LED technology, it has decreased by 50%.	%73	%469	%184	%89
Solar panel junction box (electronic)	%5-10	%38	%135	%163	No Exports in Both Term
Crane ropes - (technical textile)	Export 100%, domestic market 30%	%104	%203	%127	No Export Before Project Started after the project
Combed cotton machine (machine)	%34	%9	-%32	%109	-%79

Machine and electronics industry seems to be predominant. Prototype products seem to have been sold with higher profits in exports.

4.2.1. Interview form open-ended questions and discussion

"Can you sell the prototype?" and "do you think you sold the prototype enough?" questions were asked together.

Prototype of solar panel junction box company official; *"We think we've sold enough. The public support we received under the project has returned to the public as tax. It is now slowing down, but it can be said that it is also beneficial for reducing the prices of imported goods and for causing imported goods to enter the national economy at a lower price and for causing less foreign exchange. In other words, there is also contribution beyond selling the product."*

Multi-user interactive presentation system company official; *"The project itself and the company have amortized comfortably. She's still selling it, but it's getting smaller. We have certainly reached enough sales. We stopped importing, we lowered the price of imported goods. Then it was the right job. With the cheapening of the LED technology, profits have now fallen and this technology will be up soon, but we have gained good money at that time. "*

Combed cotton machine company official; *"We sell 35-40 per year. 1500 machines are imported every year. The R & D project came out so I could get support or I would not. We did not have a R & D team, we could not do it professionally. So we cannot say that we did not compete in quality with Europe."*

Crane ropes prototype company official; *"We sell too many countries such as the UK, Australia and Croatia. This year the sales figures weakened when the maritime sector stopped. Every year TL 1,000,000 is sold. Every year we are participating in the fairs for the maritime industry in Amsterdam."*

Multi-line stick machine prototype company official; *"We are now producing the fifth machine on the order. It sells very well. We have no sales problem. "*

Fruit yoghurt filling machine prototype company official, "Today we did not come out to sell the machine to the market. The customers always found us on recommendation. We have no sales problems."

High performance noisy low axial ventilator prototype company official; "It sells seriously, and we continue to invest in production. We export to Holland. A total of 50 units a month and 30-35 units are sold to the UK."

Twin sound system and demountable hanger firm officials stated that they could not sell prototypes in sufficient quantity.

All but two of the 9 enterprises interviewed stated that they sold their prototypes. 6 enterprises expressed satisfactory product sales and stated that their investments in R & D and Innovation applications gave meaningful results. They expressed added value in terms of cutting imports or lowering the prices of imported products even though sales were diminishing. A company emphasizes that it cannot achieve satisfactory commercialization because it cannot reach sufficient quality in the prototype.

It has been seen that in the assets of all of the interviewed enterprises, there is an increase in the context of production investment realized by being financed under KOSGEB Industrial Application Support Program. The investment of 3 firms did not affect the turnover. The investment of 6 firms ensured turnover increase, export increase and export starting. It is seen that the increase in the assets of the two companies, which is the subject of decrease in turnover, contributes to the general operation of the company even if the project of the company is not successful. The twin sound system company official stated that they have been standing by doing business to the market thanks to the electronic card type production process they have taken within KOSGEB support program.

In this context, it can be stated that a successful result has been obtained in terms of the effect of support applications. 66% of enterprises achieved satisfactory turnover within the scope of prototype production. Company projects did not have dramatic effects on the growth of enterprises but gave meaningful results in terms of macroeconomic contribution.

It can be said that the output of the projects of fruit yogurt filling machine, multi-line stick machine and multi-user interactive presentation system have a dramatic positive effect in terms of changes in the financial indicators of the enterprises, the data obtained within the interview and the researcher's impressions.

Within the scope of the question "What are the reasons for not selling the prototype?", The twin sound system prototype, the most unsuccessful project in the sample, company official;

- a) "We do not have the ability to sell directly."
- b) "The company that bought the product from us could not sell the product."
- c) "The cost of the second speaker was as high as the first speaker because of the initial speaker accessories put into the cost."
- d) "Customer opted for wired speaker."
- e) "China has severely reduced prices on cable speakers. China sells for 60 US dollars and I can only produce the speaker's case for 40 US dollars.."
- f) "There are 90% imports in the industry. Customer is also brand enthusiast."
- g) "The marketers cheated on us (Offered products from competitors to customers.)"
- h) "We have seen that the reverse engineering approach is more correct than dealing with R & D."

expressions compiled from interview notes. It is seen that the firm has made this project on the order but the customer has not been able to sell the product even though it is a big wholesaler in the sector. It has been understood that there is no marketing team in its own right, but a team has been formed afterwards, but this team has been compromised to sell the products of other players in the market instead of focusing on the products of the business. In the context of answers c, d and e, it can be stated that adequate market research has not been done before the project.

The prototype of the solar panel junction box company official's;

- a) "Some brands prefer indigenous, some do not."
- b) "In case the panels are indigenous, the Republic of Turkey guarantees higher price. We lost our price advantage when this incentive was removed from practice. The customers started to buy from China."
- c) "In China, the state repays 8% of the product price to the firm. Even if the company sells the product at a cost, it can survive with support."

expressions compiled from interview notes. It has been seen that the effect of brand perception is emphasized and the effect of public regulations on the commercialization of the prototype is underlined.

Multi-user interactive presentation system prototype company officials;

- a) "LED technology is cheaper. That's why there has been a decrease in our sales.
- b) "The second TÜBİTAK R & D project was not commercialized. The project was based on customer requests, but the enterprise left the training sector. Our other customers were not ready for that product either."

expressions compiled from interview notes. It can be said that prototype sales have fallen because prototype replacement LED products have become cheaper and there has not been enough work on the analysis of replacement product before project in this context. It can be stated that project planning cannot be left to the client's forecast and that the company needs to conduct market analysis by itself.

Fruit yogurt filling machine prototype company official's;

- a) "We could not create a sales and marketing team."
- b) "Overseas customer: are you producing here? How will you stand behind the product ten years? they say.
- c) "We are having trouble selling big machines."
- d) "We sell for a large firm at a cost price. It's advertising from those companies. Ulker has done all the tests on the smart machine, so my R & D process is also contributing. 60 days they have made tests under the promise of bacteria reproductive.

expressions compiled from interview notes. It has been determined that the prototype does not have a problem with sales because it is innovatively strong. It is underlined that they are inadequate at the point of institutionalization and have difficulties financing.

Combed cotton machine prototype company official's;

- a) "We cannot compete with China in scale."
- b) "We started to support the R & D project."
- c) "We did not have a R & D team. We could not do it professionally. So we cannot compete with Europe"
- d) "We have 4 companies in the domestic market. We are destroying each other by lowering prices."
- e) "We compete with China. If we compete with Europe, we cannot trust ourselves, will our investment go to waste?"

expressions compiled from interview notes. It is understood that the prototype is subject to scale competition because of the lack of innovative character. It can be said that the cost leadership in the market is intensified and misapplied in the framework of the price reduction approach.

Multi-line stick machine prototype company official; "We have wrong start-ups. We dive into the issues we are inadequate" It has been stated that the companies have entered the commercial products they have seen worthwhile, without regard to their background and knowhow capacities.

Demountable hanger prototype company official; "We need to attend foreign fairs. We can not export directly. We always work with intermediaries. We continue to be a freight forwarder." emphasizes the importance of marketing orientation and marketing investment.

High performance noisy low axial ventilator company official; "I do not go home when I'm bored, I do R & D. Customer demands are also decisive." It has been observed that the company is a solution partner for many different sectors and produces innovative solutions. It has been determined that there is no focused work on the marketing of prototypes to other players in the sector or to different sectors. It has been seen that the motivation of prototyping in R & D entrepreneurs is dominated by the application of a new project in order to renew this motivation at the end of the project rather than focusing on marketing.

What are the reasons for selling the prototype?

Fruit yoghurt filling machine prototype company official;

- a) "we have not made any ads till today."
- b) "The Customers always found us on recommendation"
- c) "We formed a cooperative with 15 R & D companies."

expressing that they do not need marketing investment based on the innovative power of the product and the marketing of the ear to the ear based on the characteristics of the product. In terms of marketing, union with companies operating in complementary sectors has been seen as an important initiative. It is seen that this is the most successful establishment of the sample.

Solar panel junction box prototype company official;

- a) "We focus on different, know-how high products."
- b) "We are a member of Sahalstanbul project"
- c) "We are working on the train pantograph now"
- d) "We set targets for the ratio of turnover to the R & D team"

expressions were compiled from interview points. Under the expression A, it is underlined that the innovative power in products results in commercialization. B emphasized the importance of participating in cluster applications in different sectors in the determination of innovative power. Sahalstanbul application is a cluster work for the aviation sector and it brings the power of commercialization to the cluster players by choosing the right project theme and gaining the power to reach the sector. Within the scope of D statement, it is seen that they gain marketing perspective by targeting the R & D team in increasing commercialization power.

Multi-user interactive presentation system prototype firm official; "We were the only firm in the sector. There were Canadian and British companies. But their prices were high. We have lowered the price of imported products." in the context of expressions, emphasizes the importance of being unrivaled, at least in the national sense. Innovations that have been made by the enterprise in its own way are also considered as innovations within the scope of the European Union Oslo guideline. This approach seems to be inadequate in terms of commercialization, although it is thought that it is important for the enterprise to acquire an innovation culture.

Crane ropes prototype firm official;

- a) "Today's value added products are becoming standard products tomorrow. That's why we constantly innovate."
- b) "The customer can also request. In general, we are actively working on small items with customer requests. But we follow big projects by ourselves and start the project."

In the context of expression, It has been seen that continuous innovation is emphasized because of the shortening of product life span of innovative products due to globalization.

Multi-line stick machine prototype firm official;

- a) "We are the only company in Turkey. We have a price advantage over foreign firms."
- b) "Being quality, being a brand."
- c) "We have six basic working topics. We focus on them. We do not go into different topics."
- d) "The customer is usually reach with reference. We do not go."

expressions were compiled from interview points. It is seen that the importance of being the only one in the sector is emphasized It has been noted that the importance of focusing on the field of specialization and the importance of protecting this discipline in the face of different demands. When focused on the field of expertise and innovative products are produced, the customer has come to the reference and said that they do not need to marketing.

5. CONCLUSION

Companies that invested in the Industrial Application project have a positive tendency in terms of employment increase, turnover increase, asset increase and export development and at the end of the R & D and commercialization processes, it has been determined that at least the enterprises do not shrink to a great extent and the processes they apply in this context create added value. Even the study conducted on the sample through the interview method supported these results. Within this scope, it has been understood that R & D, Innovation and Commercialization oriented support applications are beneficial and effective.

It has been seen that the technical viewpoint is dominant in R & D activities. From the beginning of the R & D period, it has been determined that market and marketing oriented analyzes are inadequate. After reaching the prototype, it was determined that businesses focused on new R & D projects rather than professional commercialization. It has been determined that the commercialization process has failed due to the lack of adequate market analysis before the R & D project and the projecting of the existing or replacement products in the market. Successful commercialized projects have been determined to be supported by such topics as high product innovation power, know-how capacity-based focus, participation in sectoral cluster studies, and creation of commercialization associations. It has also been observed that the marketing orientations of successful businesses are not sufficient at the point of commercialization. It has been determined that the success of businesses is mostly based on the innovative power of the product. It has been evaluated that providing investment culture related to marketing and

customer perception management to R & D and Innovation businesses will contribute positively to the commercialization process of national R & D and Innovation projects.

REFERENCES

- Chauvin KW, Hirschey M. Advertising, "R & D expenditures and the market value of the firm." *Finance Manage* 1993;22(4):128–40.
- Imamoglu, S. Z.; " Innovation Effort in Small and Medium Sized Enterprise (SME) and A Research on Product Innovation In SMEs", Unpublished doctoral dissertation, Gebze Technical University, Social Sciences Institute, Gebze, 2002.
- Lin B., Lee Y. , Hung S, 2006. "R & D intensity and commercialization orientation effects on financial performance" *Journal of Business Research* 59, 679–685
- Republic of Turkey Science, Industry And Technology Ministry, Small And Medium Industry Development Organization, SME Strategy and Action Plan (SSAP), 2015-2018, pp.30-33
- Republic of Turkey, Turkish Statistical Institution, TÜİK, Annual Industry and Service Statistics (AISS), 2012
- Rosa J., Rose A., July 2007, "Report on Interviews on the Commercialization of Innovation." Canada, pp.10-11
- Yildirim, A., Simsek, H. 2013 "Qualitative research methods in the social sciences". Ankara: Seckin Publishing. the firm. *Finance Manage* 1993;22(4):128–40.



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RELATION BETWEEN CONTEMPORARY FURNITURE AND TECHNOLOGY

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ABSTRACT

Furniture, the indicator of the identity, belief and prestige, being always in interaction with person's life, is in addition to its function, a meaning carrier and communication object. Furniture, which were previously manufactured due to practical, aesthetic and status based needs, but started to be used deliberately in order to transmit messages by the beginning of the last century; has reached a broad meaning content and diversity by the influence of the technological developments at present, too. Contemporary artists and designers deem this form as a tool which transmits thoughts, philosophy, ideologies, statements, ideas, feelings and can at the same time be used as an application area where experimental manufactures, composite materials, scientific researches, contemporary design and production methods can be tried out.

Keywords: Furniture, production methods

JEL Codes: N25, M40, 010

1. FURNITURE DESIGN THROUGH HISTORY

Furniture design and production has significantly diverged its direction by the social developments broke out at the beginning of the 20th century; and the handicraft based productions were replaced by designs, shaped by rationalist-functional principles and serially produced, in parallel with the materials and new production technologies introduced by the industrialization process. The modernism period are the years, where designers and architects had started to reflect their thoughts, philosophies, feelings, ideologies via the furniture form. And in the 1980s, when the principles of modernism reversed, ornamentalism revived; and independent designers started to produce one-off and limited quantity furniture. The influence of the post-modernist philosophy, felt in every field of life, has supported symbolism and the use of metaphors, and outlined the communication feature in design. Designers, working in this field, were able to express themselves more freely by their designs, where wide forms and materials were used since they are not subject to serial production limitations.

Figure 1: The 'Kitchen Chair', Made By Tom Dixon In 1987 By Using Frying Pans, Pots And Ladles Has Been Sold To High Prices In The Upcoming Years.



As of the 1990's have mass design trends in the design world started to be replaced by individual approaches. Today is the furniture form being increasingly more often used by the designers and artists as an expression of a thought – as a communication tool. These works between art and design, which sometimes indicate a philosophy, aesthetic opinion or identity, and sometimes as an experiment on materials, can be viewed in galleries, art exhibitions, museums, auctions, biennales and private collections. It is possible to see at these designs; utilizing the expression methods of the past and

present, traces of postmodernism, the political art of the 20th century, modernist movements, surrealism, popular art, expressionism and ethnic elements. Each designer follows his or her own ideas and inspiration sources within the contemporary furniture perception, which has its foundations in the communication prioritizing and experimental approach; the fund of knowledge, experience, political opinion and personality attributes gain importance at this point. The designer, who forms his or her furniture with his or her distinctive interpretations, indicators and symbols, is thus able to reveal his or her own identity, to achieve different design definitions, to attract the attention in the global market and/or to give social messages. The messages aimed to be transmitted are concretized on the designs within a structure decorated with symbols; the philosophic and artistic creation processes combine with the style of the designer and define new meaning codes. The words of Philippe Starck in an interview that “he wouldn’t make designs for design but makes designs in order to talk to people” is sampling this situation. References are made to definite objects, beings, notions or facts with the product’s form; deliberate meanings are loaded on forms by means of metaphors; a story is told with the design. Whilst the role of metaphors at art furniture is to transmit a message or a philosophy; their role at sales purposed furniture is to convert the object into an understandable, interesting and known status by the transmitted information.

Figure 2: The Design of Iskos-Berlin, Named 'Bunny Chair', Where A Bunny Figure And A Sitting Element Form Was Combined, In 2012.



Figure 3: Ron Arad’s Design Named ‘Looming Lloyd’ Is Formed With The Metaphor Of “A Human Leaning Forward And Seeming To Start Walking”.



2. CONTEMPORARY FURNITURE

If the aesthetic program of the furniture evokes the artistic one, then the object can combine with the notional symbols and become an installation. In this case philosophic design objects are accepted as a part of art (Uzunarslan, 2010). A. Payne has named such works between design and art as “Design Art”; he aimed to attract the attention on that how indistinct the borders between design and art became, how they interpenetrated and joined in a common language when he first introduced this definition in 1999 (Lovell 2009, p. 111). And some researchers have named private/limited produced contemporary furniture as “New Design”, separated them from serial production.



Figure 4: John Angelo Benson’s design “Mies Lobby Trap”, which is like the critics on modernism, 2003.

Contemporary furniture designer prefer special manufactures to serial production; thus, they are able to express their ideas more free with an independent form and material option. Special and limited produced furniture with individual efforts, as a result of cooperation with companies and galleries are designs, which there is no obligation to be suitable for industrial production, the designer can establish his or her own program and there is no consideration with regards to sales and practical function. Even if these don't address to wide user masses, they contribute to the development of the form language on the furniture. And serial production furniture have been produced industrially for wide masses by several companies. The function and user factors are involved in these designs manufactured with the sales priority; in this case designer acts pursuant to a program determined by the company and requested from him/her. In both situations designers may head to various symbols as an identity determinant or to attract the attention; at this point, she or he can benefit from different disciplines, interpret traditions, historical symbols, different existing cultural elements and create new design definitions for utilization habits. And the reason of preference of such furniture by the user can be correlated to status, authenticity and individualism desire, appreciation of the designer's style/philosophy, the desire to gain new experiences and aesthetic preferences (Özçam 2013). The economic status of the user is a factor with regards to the preference of contemporary furniture, the carriers of messages related to identity and life style, too.

Figure 5: Wu Yu-Ying, who benefited from the visual and sensual features of polyurethane foam material, wanted to offer a different experience with his design named "Breathing Chair" to the user.



3. CONTEMPORARY FURNITURE AND TECHNOLOGY

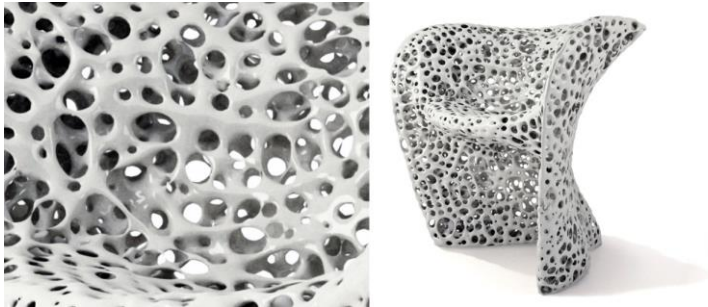
Another important factor for the shaping of furniture and the growth of the contemporary furniture market is developments in the fields of technology and information and communication. The rapid progressing technology in parallel with the scientific developments brings also a new content and shaping approach with it and turns this form into a subject of experimental productions. While the CAD/CAM technologies mediate with increasing computing and production capabilities and between the idea and the final product during the design process and also it increases and enriches the physical-notional skills/capacity of the designer and provides a more independent working environment. The usage of computers during the design and production stages influences the furniture also in structural sense by facilitating the design of sensitive forms and complex geometries which were impossible in the past.

Figure 6: Patrick Jouin Converted The Numeric/Linear Shape Language Into Three Dimensional Models In His Designs Named “Solid T1” And “Solid Chair”, Which He Produced Only Thirty Pieces Of By Using Epoxy Resins With The Stereolithography Technique.



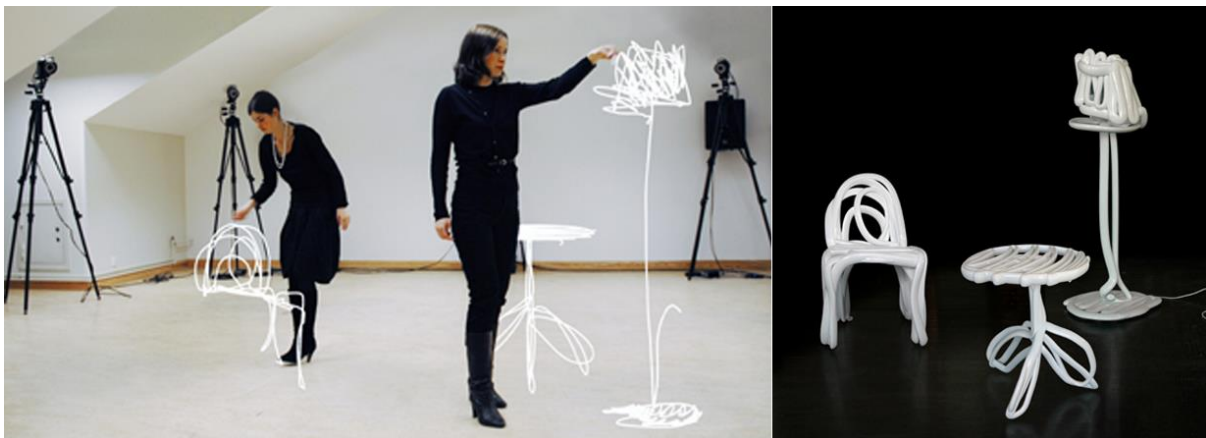
New computer software, developed considering the parametric/algorithmic design and the growth principles of the organisms in the nature, has allowed the usage of topographic forms, skeleton systems, natural formations, dynamic forms and structure systematic, fractal geometries at furniture designs and enabled to the possibility to create an irregular and incidental style language.

Figure 7: Mathias Bengtsson’s design “Cellular Chair” is created by using a program, imitating the human cell formation and a three dimensional modeling technique.



The opportunities offered by present technologies, rapid developing animation and modeling technologies in virtual reality make changes on the structure, character and manufacture of the furniture; concepts such as personal experience and movement, which is a part of design, contribute to experimentality, expression and improvisation strength to designs. All of these gives the message that custom tailored designs and alternative design processes will get ahead standard productions in the future.

Figure 8: In The “Front Design Sketch Furniture” Series, Furniture Is Created By The Conversion Of The Hand Movement In The Air Made With A Special Pen, Which Are Recorded With A Movement Capturer Into Three Dimensional Computer Models And Production With The Rapid Prototype Technique.



Another influence of numeric technologies on furniture style is forms which entered into our lives with the drawing programs used on the computers. Today many designers are modeling their furniture with two dimensional and three dimensional programs; and this causes that they get influenced by the styles offered by the virtual environment during the

symbol searching stages. Different line-surface indications (wireframe, pixel, grid system) and commands (lathe, extrude, boolean) are some of the inspiration sources for the designer in the computer style language. As long as the limits are removed in the production, also stylistic definitions increase and liberalize and experimental approach develops.

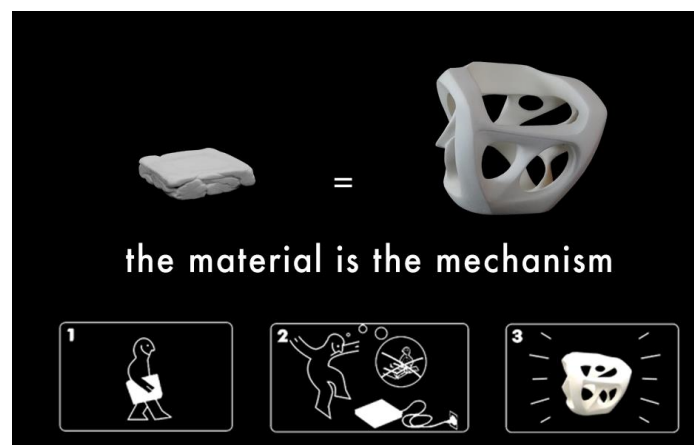
Figure 9: Sebastian Brajkovic Refers To Both Furniture Styles In The Past And To The “Lathe” Form, Which Is A Computer Program Command In “Lathe” Series.



Individual shares increase by gradually increasing enrichment of the communication tools in visual and auditory aspects and the validity periods of the developed strategies in order to come to the forefront in the platform called virtual environment where a great majority of the society is involved into gets gradually shorter and the trend to the new one is obliged. Companies and designers, who aim to reach the masses, are using the Internet as an promotion and advertisement tool. This environment, which is in a continuous change and development, directs the designers to create competition prioritized designs with high communication value. The universalization of the communication language developing between the designer and the user increases the interaction between the individuals/societies. The globalization as a result of the increasing interaction brings the original among the products, of which everywhere a similar can be found, to the foreground. Another result of the technological developments is composite materials, which offer new liberties. Features such as developing material options, flexibility, strength, easy shaping offer broad opportunities with regards to establishing a notional and stylistic frame to the designers. Correspondingly, designs can be easier associated with communication imagines like symbols-metaphors.

At the same time, thanks to nanotechnology materials, capable to perceive the environment and adopt to it, the bonds and interactions between objects and human gain new meanings.

Figure 10: “Noumenon Armchair”, a design by Carl de Smet, which heats up with electrical energy, expands and reaches a form that refers to the shape of a bone.



Even if industrial and technological developments contribute to the functionality at present, the communication purposed design phenomenon continues by getting stronger; individuals prefer furniture, which defines their life styles, they establish a mental bond and find them aesthetic. Downey has interpreted the increase of the interest towards these works between

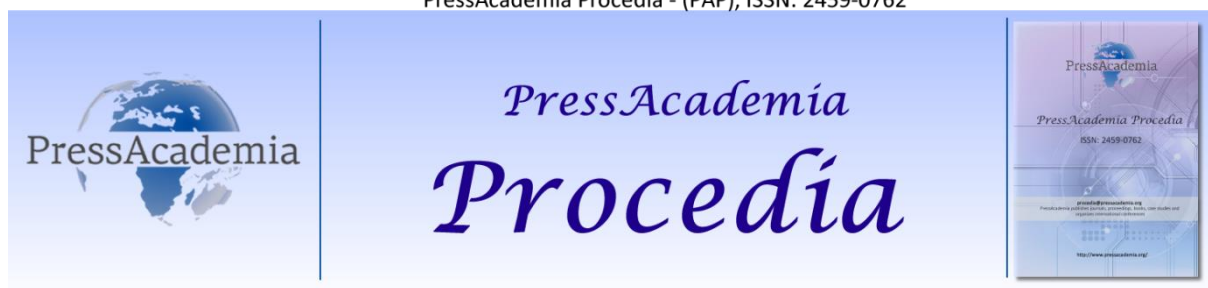
art and design as: "Furniture is a new area, where people can experience arts. The reason of the interest for such works is that people find furniture more understandable than abstract art (Downey 1992, p. 14).

4. CONCLUSION

It is seen that depending on the differentiation and communication need required at present the contemporary trends in furniture increase, being out of context of the practical/functional usage of furniture, they convert into an object, indicating desire, thought and identity, loaded with cultural symbols. Furniture find their place in the market by coming to the forefront by its brand or the signature of its designer; users or collectors tend to products, which they deem to be aesthetic/valuable, and status prioritized usage, symbolic and aesthetic function start to get increasingly more important. Correspondingly, sometimes furniture are programmed with symbols reflecting the designer's identity, and sometimes ads communication objects which are able to offer the user infinite alternatives with regards to practice and aesthetics by symbols meeting the individual preferences. Contemporary designers interpret the style language of the furniture and communicate their statements and they seek for new ways to express themselves with experimental designs and by developing production techniques. Technological developments make it possible to produce furniture, which is not able to produce in the past and change their form and structures. Symbols are moving away from the trimming dimension; the furniture converts into a symbol entirely with its style, material, dimension and pattern. It is thought that in the near future furniture, with relation to technology will meet the change requests further. Furniture will be a tool for the human-environment interaction from structural construction to geometrical gains and from technical gains to innovations, provided by the nano-technological opportunities to the design.

REFERENCES

- Uzunarslan, H.Ş., 2010. 'Aesthetic Content in Experimental Design', The Eighteenth International Congress of Aesthetics: Diversities in Aesthetics", Beijing, China
- Lovell, S., 2009. Limited Edition, Prototypes, One-Offs and Design Art Furniture, Birkhauser Verlag AG, Basel.
- Özçam, I., 2013, Biçim Dili İle İletişim Ekseninde Mobilyanın Sembolleşmesi Ve Günümüz Mobilyasının Sembolleşmesinde Rol Oynayan Sosyolojik Ve Teknolojik Etkenler (Symbolization of Furniture on The Axis of Form Language and Communication & Sociological and Technological Effects on Symbolization of Today's Furniture) Unpublished Doctorate Thesis, Interior Design Department, Mimar Sinan Fine Arts University.
- Downey, C., 1992, Neo Furniture, Thames & Hudson Ltd., UK



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EXAMINATION OF THE EXPERIENCE PHENOMENON OVER COMMERCIAL AREA EXAMPLES

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ABSTRACT

Nowadays, competition among firms is increasingly intensified and brands are looking for new approaches to get attention in the market. Most brands, in order to come forward in this race, organize their spaces in a recollective way in specific themes, and some adopt the concept of personalisation in design. While shop windows are becoming new focus points for communication, the virtual reality environments and augmented reality applications that are shaped by modern technologies lead to the emergence of new types of experience. Experience phenomenon which is deemed to be one of the ways to create value in today's economy is to be examined within this article through examples from commercial spaces.

Keywords: Experience, economy, retail, commercial, space.

JEL Codes: N20, N21, M10

1. INTRODUCTION

Nowadays, it is seen that firms are increasingly abandoning traditional marketing methods, and they are utilising experience marketing methods in order to provide their customers with more effective communication instead of merely selling them good and services. Firms that act with this point of view may include thematic designs in their commercial spaces, they may form spatial settings with eye-catching elements, and bring new interpretations to the phenomenon of experience by utilising technological opportunities. Scientific and technological developments increase the competition among firms, and the consumer society we are in brings about differentiation, catchiness and transformability. The most striking thing in this process of change is that, with the increasing amount of competition, establishments are urged to produce goods and services that will surpass the demands and needs of their customers, and create experiences that will direct emotional searches along with this (Güzel and Papatya 2012). It is observed that the concept of 'theatricality' is a concept that is increasingly becoming important in today's economy, where concepts like 'ingenuity', 'brand identity' and 'difference' are popular.

2. THE RELATIONSHIP BETWEEN THE CONCEPT OF EXPERIENCE AND MARKETING

The concept of experience, which is defined by the Turkish Language Society as "the entirety of information a person gathers through a specific time or in their whole life, knowledge," is the fourth type of economic offerings in addition to commodities, good and services according to Pine and Gilmore. Accordingly, goods and services are not sufficient anymore and people are looking for the original and the catchy (Pine and Gilmore 1999). According to some studies, it was seen that the experience of buying created more satisfaction and happiness in people than buying something. Moreover, technological opportunities that allow new experiences are rapidly developing today, and the increasingly intensified competition promotes efforts towards product differentiation. Increased levels of prosperity determine the preferences and priorities of individuals, and thus, many brands today add experience onto their products and services and try to make their offerings different. It is increasingly hard to compete in the global economy of our time (Carù & Cova, 2003, 2007a). Firms that want to come forward in this level of product and brand diversity try to create recollective customer experiences by using different stimulants and contents in the commercial environment (Yuan and Wu, 2008). The dynamics in question are constructed with the effects of several factors such as visual stimulants, colours and sounds, and these dynamics may

reveal people's emotions and feelings (Thusy and Morris, 2004). One example to the issue is that classical music played in shops leads customers to perceive the goods sold and the service provided to have more quality and prestige (Soars, 2003, p.631). Considering that many purchasing decisions are taken at the store and the point of shopping, it is possible to say that in-shop factors are more effective than advertisements and other marketing activities (Baker et al., 1994, p.328); and experiences constitute the basis of economic activities among other economic offerings of this era.

According to Holt, today's consumers prefer brands that inspire them, they stimulate and enrich their imagination, and that they are able to experience (Holt, 2002). Thematic spaces may be interpreted in this sense, for example, Disneyland, which is an example of a thematic park was first opened in California in 1955. Walt Disney, who started from the idea of 'a cartoon that will embrace the viewers', aimed to create an experience in which parents are able to have fun time with their children. Stores such as Build-A-Bear, Jordan's Furniture and Niketown try to attract customers by various events and in-store elements. Such experiences focused on entertainment are also known today as 'entertailing' or 'shoppertainment'.

Figure 1: Build a Bear Workshop Retail Space, Akasya Shopping Center, Istanbul



The interest on the experimental types of consumption started with the emphasis of Holbrook and Hirschman on the symbolic, hedonic and aesthetic properties of consumption in the beginning of 1980s (Holbrook 1982). These authors discussed radical changes in consumption behaviours and emphasized the effects of factors of fantasy, emotion and entertainment on consumption habits. Other authors also published articles in the following years about the relationship between the experience of consumption and emotions (Peterson, 1986; Havlena & Holbrook, 1986). Concepts such as the 'communication value of the brand', 'marketing studies that target emotions' and 'experience of shopping that provides a lifestyle' which became prominent as the ways of consumption and consumer needs started to change in 1990s, have started to become the approaches utilised by firms due to the effects of advanced technology (Dell'era, 2010). Therefore, many authors have published articles in the last 15 years on experimental marketing and experience economics (Schmitt and Simonson, 1997; Pine and Gilmore, 1998, 1999; Schmitt, 1999a, b, c; Addis and Holbrook, 2001; Berthon et al., 2003; Fulberg, 2003; Joy and Sherry, 2003; Arvidsson, 2005). The concept of experience economy was coined by Pine and Gilmore in 1999 in the study titled 'the Experience Economy'. In the study, the authors stated that institutions pay importance on binding their customers by creating experiences and emphasized the concept of theatricality. According to this, 'goods and services are no longer sufficient; it is necessary to display experiences to create value'. They described interesting theatrical experiences with the items 'keeping the attention, changing the context, creating a feeling of appreciation, changing the state a person is in, achieving presence, and providing a feeling of refinement/relaxation' (Pine & Gilmore 1999). Schmitt, in the article he wrote with the title 'Experimental Marketing' in 1999, stated that traditional marketing methods are now in the past, and a new economic model based on sensing, feeling, thinking, playing and establishing relationships emerged, and called it experimental marketing (Schmitt 1999c). Examples that may be interpreted in terms of experience economics include thematic spaces, Las Vegas, Disneyland, HIP Hotels (Highly Individual Places), websites, virtual reality applications (Dell'era 2010). As also emphasized by Floor, shopping today is not only related to selling goods, but customers also have fun time and relax while buying products (Floor 2007). Morgan (2008), while analysing current tendencies, stated that people shop with purposes of entertainment today, while shopping surpassed being an activity of meeting needs and became a pastime activity. Increased competition among firms lead to the in-store atmosphere to come to a state to serve brand identity and experience provided to the customer. Thus, commercial space designs are increasingly becoming places that include theatrical/catchy elements.

3. TYPES OF EXPERIENCE

Nowadays, in addition to goods and services, firms also try to provide experienced enriched with senses in their spaces. Experience is formed on an emotional, physical, intellectual and even spiritual level. If goods are tangible and services are

intangible, experience is catchy. Pine and Gilmore (2011) investigated the factor of experience in a commercial space under four main titles. 'Education, entertainment, escape and aesthetic pleasure', which are named as the four areas of experience, are actually mostly intertwined and interrelated elements. The experiences people see as 'entertainment' are usually experiences they passively take in as in reading a book, watching a show or listening to music. In the experience of 'education', the viewer intakes the events presented, and the thing that is provided is information/educational content. Stores publishing their history as books may be provided as an example of an educational activity that requires active mental and/or physical participation. 'Escape' comprises more of the dimension of entanglement, and the participant is active in the process. Thematic parks, computer games, virtual reality and augmented reality applications may be an example of this. In aesthetical experiences, individuals enter an activity or an environment, but they usually have no effect on this environment. Visiting a gallery or sitting before a view, placement of a mountain inside a store, covering the space in a certain style or an installation established in the space may be given as examples of this. While the purpose is learning in educational experience, going and doing in escape experience, sensing in entertainment experience, the purpose of participants in aesthetical experience is just being there. For example, Niketown in Chicago was designed as a place that includes exhibitions of the histories of old show models, Sports Illustrated issues where athletes wearing Nike are featured on the cover, half a basketball court and activities such as mobile cinemas in which video clips of famous athletes are shown, which provides the experience of education along with entertainment and aesthetical experience. This place was constructed as a theatre where consumers would participate as viewers who contribute into the production process (Pine and Gilmore, 2011).

4. EXPERIENCE-ORIENTED FORMATION OF COMMERCIAL SPACES

Shaping of commercial spaces as experience-oriented may take place in educational, entertainment-based, escape-based and aesthetical dimensions as mentioned above, and spaces may be organized in scope of themes based on these experiences. Themes are intangible concepts that lead the visitors to reach a comprehensive story line by changing the sense of reality of them and with the help of design elements supporting each other. Yurttas defined 'theme' as the load of perception, story, message and emotion that is felt in strongly or weakly in a selected subject and wanted to be transmitted to the viewer. The influence and impression felt by a user regarding a space may be defined as the theme of that space (Yurttas, 2010). Themes may be very diverse, and examples include certain historical periods, artistic movements, fields of sports, lifestyles, geographical features, cultures, concepts, tales, colours, materials, and technology usage. In addition to themes, experiences supported by activities in spaces also play an important role in marketing strategies of brands nowadays. One example of these activities is the Build-A-Bear Workshop store which has a branch in the Akasya Mall. There are various stations in this store, where children can design their own teddy bears. Children, who shape their bears with the materials they choose in these stations, complete their designs by stuffing the toys. Such an experience not only establishes a relationship between the firm and its customer, it also forms a connection between the guest and the product. The method of adaptation of the product to the customer allows participants to customise the products based on their needs. Today, several famous companies have adopted this method to gain advantages over their competitors in the market. Lego is another form that designs sale areas as a playing room for children and allows in-store interactions. Children who are allowed to play with Lego blocks on centre modules can form their characters using these piece, and therefore customise their toys. Large-scale Lego sculptures in the space not only show what can be done with the products of the brand as educational object, but they also contribute to the aesthetics of the space as symbolic products.

Figure 2: Images From Lego Stores



Affectualisation of products is one of the most direct ways of making the products heuristic. This is possible by adding elements that will lead the customer to start a sensory interaction with the product. While usage of examples such as toys, Lego blocks, candies lead to a direct sensory experience, some firms achieve appreciation by using symbolic products in their spaces. Producing objects in exaggerated dimensions is a frequently used method in this matter. Production of the world's largest Duct Tape by the firm Duct Tape and exhibition of it in a store lead the customer of the firm to look at this

symbolic object and be informed about it, and the image of the brand in the mind of the consumer to be established. A large chair built by the firm 'Sandalyeci' that appears in public in recent years is another example. Sometimes, it is seen that symbolic object that represent the brand identity are used in stores in aesthetical and functional dimensions. The Beetle car placed in the middle of the store by the brand PRO 010, which appeals to young people as a trainer shoes brand, emphasises a certain lifestyle.

Figure 3: PRO 010 Retail Store, Amsterdam



Experience-oriented thematic approaches are also frequently seen in common usage area designs of shopping malls. Forum Shops that were designed as ancient roman markets may be given as examples of spaces that provide aesthetical experience where a certain time period or a concept is depicted. In this shopping mall opened in 1992 in Las Vegas, the architecture and all peripheral elements are supportive of the theme in question. Another example of thematic areas in shopping malls is the İstinye Market located in the İstanbul İstinyepark shopping mall. The walls that resemble building facades in the space and counters selling fruits and vegetables represent the concept of district bazaars. With the barrisol material used in the ceiling of the area, it was aimed to create an atmosphere like walking in open space.

Figure 4: İstinyepark Bazaar



Retailers that sell outdoor sports materials such as Bass Pro Shops Outdoor World, Recreational Equipment Inc., Cabela's include elements that are for sports activities or hunting in their store designs and try to create a theme of 'adventure' in their space. Bass Pro Shops designed their store as a forest, and REI built a mountain of 15-metre height for people to test their climbing materials. In the Cabela's store located in Minnesota, there is a 10-metre-high mountain with an artificial waterfall and wild animals that were taxidermized after shooting. Climbing walls that provide an experience of entertainment for both participants and watchers have recently been see frequently in shopping malls, university campuses and public areas.

Figure 5: Photos from Cabela's and Bass Pro Shops stores

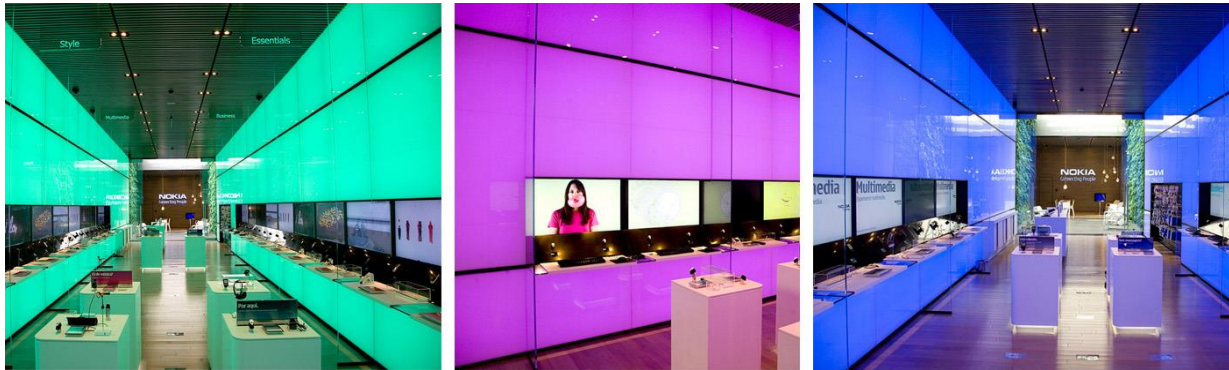
Another dimension of the concept of experience in commercial spaces is the dynamics created by store window designs. After production of large glass panels in the beginning of 1840s, especially multi-story stores became able to improve their window design and make some organizations (Bayraktar, 2011). The Selfridges store opened in London in 1909 became a pioneer by leaving the lights on at night for their windows that they designed theatrically. This firm is one of the examples of firms that use their windows most effectively. Activities organized by Selfridge are considered to be one of the first steps taken in terms of experience in the past. The firm, which loaded the plane that was landed onto a field by Louis Bleriot who crossed the English Channel for the first time at night, brought the plane to the store next day at 10:00, and this resulted in 50,000 people lining up in front of the store (Morgan, 2008, p.13). Digital screens that started appearing with the pioneering of Gucci and Prada in 1990s carried the concept of window design and experience to another level. Usage of new communication theories and technologies makes the window no longer a passive show element, but it makes new presentation approaches that see the window as an active tool for emotional connection a new interface for communication (Erda, 2010, p.30). Some brands include installation works in their store in order to create a genuine image, and work with various artists and designers for this. These structures designed towards creation of an aesthetical experience in the space may contribute to the space functionally, or they may only have visual purposes. The temporary installation made for the brand Aesop by the Cheungvogel Architecture Firm in Hong Kong, used modules to display care products. A total of eight hundred resin boxes that represented flying lanterns were placed on steel rods in different heights. The installation was later transported to the first floor of the Hong Kong I.T Hysan shopping mall. The exhibition design was carried out by the creative director of Aesop, Hiroko Shiratori, in the firm's pop-up store opened in Tokyo Midtown Galleria. Stacked chairs were used in the installation, and the resulting surfaces were used to place products. Considering the works of firms such as Aesop that include similar installations in their spaces, it is seen that usage of installations in commercial spaces may be an approach of marketing for firms.

Figure 6: Hong Kong Aesop Retail Store and Tokyo Aesop Pop-up Store

In addition to the technological advancements of today, the factor of experience in commercial spaces also vary, and brands are increasingly interested in virtual reality / augmented reality applications. While interactive spaces contribute to customers playing an active role in the store, they allow achieving the relationship with products to different extents. Nokia's store in London is a digital installation that is experienced by customer participation. It is also an indicator that institutions have started to pay importance to experimental interactive designs in the process of building brands. Translucent panels and LCD screens in the space allow customers to change the in-store appearance by using the function

of messaging. This way, an organic relationship takes place between the customer and the product, and the concept of experience is customised due to the effects of this interaction in the space.

Figure 7: Nokia Store, London



All these examples show that, in the market economy of our time, brands see their commercial spaces as stages that allow different types of experiences in order to gain advantages over their competitors. Firms no longer provide goods and services only, but they try to also provide experiences enriched by emotions that are evoked in customers, and they utilise different methods for this. The concept of experience in commercial spaces is supported by experiential approaches such as thematic designs, usage of symbolic products in the space, marketing strategies that allow customisation in the product scale, activities organized in the store, dynamics created in the space by installation elements, and interactions among individuals at and with the space based on usage of technology.

5. CONCLUSION

More firms are trying to customise their presentations by entangling their current goods and surfaces with experience every day, and they include experiential elements in the space of sales. Considering that customers look for psychological satisfaction in addition so simple consumption in the process of shopping, the reason for this approach may be understood. The examples show that the concept of experience in the commercial space is supported by design decisions. In the increasingly intensified competition environment, the needs of brands like 'being original, uniqueness, change, symbolic value' are satisfied by marketing strategies for users who want personalised presentations, catchy symbolic products and installation works in the space, dynamics created with the virtual world, and interactive spaces. Technology that allows partially different experiences, advancement in this area, and increased levels of prosperity are factors that play a role in the increase in attempts of this nature. The new criterion of today is 'practicability', and firms that are aware of this are increasingly turning towards including experimental approaches in design processes with the purpose of being different.

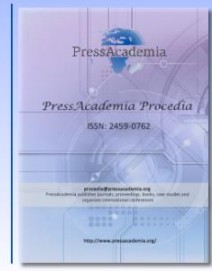
REFERENCES

- Addis, M. and Holbrook, M. B. 2001, "On the Conceptual Link Between Mass Customization and Experiential Consumption: An Explosion of Subjectivity", *Journal of Consumer Behaviour*, 1(1), pp. 50–66.
- Anridsson, A., 2005, "Brands: a critical perspective, *Journal of Consumer Culture*", 5(2), pp. 235–258.
- Bayraktar, A., 2011, "Görsel Mağazacılıkta Vitrinlerin Önemi", Beta Publications, 2011.
- Baker, J., Grewal, D., Parasuraman, A. ,1994, 'The Influence of Store Environment on Quality Interfaces and Store Image', *Journal of Academy of Marketing Science*, 22(4), pp. 328-339.
- Berthon, P., Holbrook, M. B. and Hulbert, J. M., 2003, "Understanding and Managing The Brand Space, *Sloan Management Review*, 44(2), pp. 49–54.
- Carù, A., & Cova, B., 2003, "Revisiting Consumption Experience: A More Humble But Complete View of the Concept. *Marketing Theory*", 3(2), pp. 259-278.
- Carù, A., & Cova, B., 2007a, "Consuming Experience. London", UK: Routledge.
- Dell 'era, C., 2010, "Art for Business: Creating Competitive Advantage through Cultural Projects", *Industry and Innovation Journal*, pp. 71-89.
- Erda, S., 2010, "Tüketim İletişiminin Bir Arayüzü Olarak Vitrin", *Vitrin Magazine*, 08/09 2010, pp.30-31.
- Floor, K., 2007, "Branding a Store: How to Build Successful Retail Brands in a Changing Market Place", Kogan page, 192-204.

- Fulberg, P., 2003, "Using Sonic Branding in the Retail Environment—An Easy and Effective Way to Create Consumer Brand Loyalty While Enhancing the In-Store Experience", *Journal of Consumer Behaviour*, 3(2), pp. 193–198.
- Güzel, f., Ö., Papatya, N., 2012, "Duygusal Arayışların Pazarlamayla Dansı: Deneyim Pazarlaması Kavramsal Bir Analiz", *İşletme Araştırmaları Dergisi*, 4/4, pp.109-125.
- Havlena, W. J. and Holbrook, M. B., 1986, "The Varieties of Consumption Experience Comparing Two Typologies of Emotion In Consumer Behavior", *Journal of Consumer Research*, 13(3), pp. 394–404.
- Holbrook, M. B.; Hirschman, E. C., 1982, "The Experiential Aspects of Consumption: Consumer Fantasies, Feelings and Fun", *Journal of Consumer Research*, 9, pp. 132–140.
- Holt, D. B., 2002, "Why Do Brands Cause Trouble? A Dialectical Theory of Consumer Culture and Branding", *Journal of Consumer Research*, 29, pp. 70–90.
- Joy, A.; Sherry, J. F., 2003, "Speaking of Art As Embodied Imagination: A Multisensory Approach To Understanding Aesthetic Experience", *Journal of Consumer Research*, 30, pp. 259–282.
- Morgan, T., 2008, "Visual Merchandising, Window and Display for Retail", Laurence King, London.
- Peterson, R. A., Wayne, D. H., Wilson, W. R., 1986, "The Role of Affect in Consumer Behaviour: Emerging Theories and Applications", Lexington, MA: D.C. Heath.
- Pine, B. J.; Gilmore, J. H., 1998, "Welcome To The Experience Economy", *Harvard Business Review*, July–August, pp. 97–105.
- Pine, B. J.; Gilmore, J. H., 1999, "The Experience Economy—Work is Theatre & Every Business a Stage", Boston, MA: Harvard Business School Press.
- Pine, B.,J., Gilmore J., H., 2011, "Deneyim Ekonomisi", Optimist Yayınları, İstanbul.
- Schmitt, B.; Simonson, A., 1997, "Marketing Aesthetics—The Strategic Management of Brands, Identity, and Image", New York: The Free Press.
- Schmitt, B., 1999a, "Experiential Marketing", *Journal of Marketing Management*, 15, pp. 53–67.
- Schmitt, B., 1999b, "Experiential Marketing: A New Framework for Design and Communications", *Design Management Journal*, 10(2), pp. 10–16.
- Schmitt, B., 1999c, "Experiential Marketing—How to Get Customers to Sense, Feel, Think, Act and Relate", New York: The Free Press.
- Soars, Brenda, 2003. "What Every Retailer Should Know About the Way Into the Shopper's Head", *International Journal of Retail & Distribution Management*, 31(12), pp.628-637.
- Thusy, A., Morris, L., 2004, "From Crm To Customer Experience: A New Realm For Innovation", *Business Digest*, Paris.
- Yuan, Y., Chihkang, E., Wu, K., 2008, "Relationships Among Experiential Marketing, Experiential Value, And Customer Satisfaction", *Journal Of Hospitality & Tourism Research*, vol. 20, 1-24.
- Yurttaş, N. B., 2010, "İç Mekan Tasarımında 'Tema' Kavramı ve 'Tematik Mekan' Olgusunun Örnekler Üzerinden Analizi, Mimar Sinan Fine Arts University, Graduate Thesis, Graduate Shool of Natural and Applied Sciences.



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TECHNOLOGY MANAGEMENT IN GLOBAL COMPETITION AND COMPETITIVE ADVANTAGE

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ABSTRACT

Technology is a major factor for success in the global competitive environment. In today's world, by technological development, competition become more intense and new opportunities arise. Obtaining an advantageous position in the global competitive environment depends on satisfying consumer demands with best quality at an affordable cost. However, achieving and maintaining competitive advantage is not only possible with low cost and high efficiency but also with right technology management. Meeting the changing needs and demands, ensuring competitive advantage and realizing economic growth depends on following technological developments and adapting new technologies to production activities and processes. In this context, it is necessary to understand the relationship between technology and competition, form necessary strategies, realize research and development activities for new technologies, make necessary investments and carry out the process of technology management. Technology management becomes essential for economic growth and sustainability of companies. This study aims to evaluate the impact on competitive advantage of technology management by putting out the importance of technology management.

Keywords: Technology managemet, competition, growth.

JEL Codes: O32; F43

1. INTRODUCTION

In global competition technology is an important element for companies. Developing and managing technology lead to achieve and maintain competitiveness and improve economic performance and growth. Meeting today's changing market needs is only possible by forming compatible strategies on the axis of technology and effective technology management. Today the most effective variable that create difference is technology. It is not only enough to have the technology alone, but also it is important to manage it as a process. In order to use technology as an element of competition and development, companies look for ways to have the knowledge and to use the decision-making mechanisms more effective. Especially the intense competition and high quality expectations of globalization have led organizational leaders to focus on the development of product and process technologies. So that firms and institutions are being reshaped in order not to lag behind the change in technology. To stand against global competition, it is crucial to be ready to changing market needs and to plan technology development activities depending on these changes (Çakmak et al., 2012). Technology comes forward when it comes to produce the products and services with less source, at lower costs, in higher qualities and more beneficial. While struggling in today's competitive environment, technology will carry the companies further by giving the chance to create more economic value than their competitors. Therefore managing the technology is an important issue for companies in global competition. While the level of technology form the competition power of companies, at the same time it shows the competition power of countires. In this context, the acquisition, establishment and operation of technology and the R&D activities are gaining importance in the companies and these activities lead to technology management. Having technological improvements and technological innovations are the most powerful weapons ever. R & D activities and technology development investments are long-term profitable and qualified investments. For the provision of technology; developing product and process improvements by internal R & D activities, transferring technology, using existing technology options must be emphasized. Both companies and countries need to form and apply the best strategy management in order to compete in international competition (İleri and Horasan, 2010). Therefore, how to manage technology has become an important issue in the past few decades, and the technology management community has

developed a wide range of methodologies and applications for both academic research and practical applications. In addition, technology management has attracted much effort to explore its nature, concepts, frameworks, architectures, theories, systems, models, tools, functions, and real world implementations in order to demonstrate technology management methodologies and their applications (Liao, 2005).

2. TECHNOLOGY

The Word "technology" is formed by the combination of the words "technicos" (to operate technically, systematically and planned) and "logia" (words, discourses, direct word). In terms of word meaning, it means systematic and planned way of doing business or art. In daily life in general, technology is identified by a physical element or a tool; an electronic device, a transistor, or a gear is perceived as technology alone. But technology should be understood as the totality of useful information to produce useful products and to design new products. This information can be either a physical output (product) or a non-physical output (software, process, service). In any case, technology is a valuable and dynamic asset. Technology changes and evolves depending on changing requirements and increasing knowledge. Technology should be considered as an economic value. It allows products and services to be produced in higher quantities, better quality, more beneficial, with less resource and at lower costs. Society want to use technology as an element of competition and development. Thus, technology spreads, learns and continually evolves with new information (Çakmak et al., 2012). Technology has an impact on the economy worldwide. The first and most obvious example of this impact is Industrial Revolution. By the technological changes that took place in America over time, the effects of technology on production became even more clear. In this way, the efficiency of technology including social structures has come out and technology has become the central theme of the production process. In historical process there has been three types of relation between technology and society; social needs, resources of society and social environment (Afşar et al., 2016).

In general, technology development ability is expected to provide better growth performance and increase international competitiveness. Activities that have technologically faster product and process innovations, create a rapidly growing demand structure. The most dynamic products in world trade contain complex and rapidly changing technologies. At the entrance of new competitors into markets, technology intense activities face less attacks when compared with low technological activities in terms of scale, quality and technology requirements. Technology intense activities contribute to the speed of the development of some skills and lead to arise in the quality of these skills. Such activities have high opportunities and learning potentials necessary for the continuous application of science to technology. Skills in technology intense activities are more adaptable to technology and market trends and thus can respond more flexibly to changing competition conditions, offer wider externalities to the national technological system and other activities (Bayraktutan and Bıdırlı, 2016). Not to lose the technological competitive advantage that is gained by investing heavily in technology development efforts, countries have been forced to spread the products of these technologies around the world. When it comes to the dynamics of the technological development process, the development of new technologies can only be achieved through the sale of existing ones and the provision of a suitable economic and socio-cultural environment (Karadal and Türk, 2008).

3. TECHNOLOGY-COMPETITION RELATION

Technology is a major factor in long-term success or failure. New technologies create new markets or substitutions in existing markets, ignoring the existing technologies and their products, services and production processes (Betz, 1994). Technology differentiates the created value and competition becomes more intense because of the changing competition conditions by technological developments and their implementations. Adaptable new technologies leads increasing competition power, competition power leads increasing profit, increased profit leads creativity. When considered together with the concept of competition, creativity also includes the ability to develop technologies that are accepted by the market and to be in market in time. The main determinant of competitiveness is R&D and innovation-driven high and sustainable productivity growth. Technological innovations can lead to changes in competition, changes in product and process and changes in the markets. A global competitive strategy, qualified labour force, innovative, fast and efficient activities are the main components of competition power (Zerenler et al., 2007). Michael Porter's value chain plays an important role in examining and understanding the relationship between technology and competition. Accordingly, an enterprise consists of many activities such as designing, producing, marketing, distributing and supporting. All activities can be demonstrated by using a value chain. The value chain and its functions are the reflections of history, strategy of an enterprise and implementation of its strategy. The differences in value chains among the competitors are key points for competitive advantage. The value chain is a useful tool in explaining the relationship between technology and competition, because the enterprise, defined as a set of activities, is also a set of technologies. Technological change will also have an effect on competition because of the influence of technology on all value activities of an enterprise. Every value activity benefit from some technologies to integrate material and human resources and to produce output (Akin, 2001).

In order for technology to be able to influence competitive advantage, it needs to play an important role in determining the relative cost or position of differentiation. Technology is involved in all value activities and connect them, and it can affect competitive advantage by influencing or changing other factors related to cost and differentiation, as well as its strong effects on both cost and diversification. Technological progress can make it easier to reach scale economies, or it can make it insignificant by providing flexibility (Akin, 2001). Because of the increasing competition in global markets, quality become the main issue in producing goods and services. It is necessary to use adequate and appropriate technology to achieve high quality level in goods and services and to make quality differentiation. In this context, technology is the most important factor determining quality. Intensification of competition leads to technological development. Depending on this situation, some developing technologies cause new market opportunities, and organizations continue to produce new goods and services to meet the increasing consumer demands. Also more advanced technologies come out with the usage of new technologies by other organizations. Technology management which predicts change, is the locomotive of transformation (Tekin et al., 2003). If the technology is managed properly, it is a competitive advantage for the company. If a firm has the ability to create more economic value than its competitors, it can be said to have competitive advantage. Technology is a very important resource to grow this economic value (Çakmak et al., 2012).

4. TECHNOLOGY MANAGEMENT AND COMPETITIVE ADVANTAGE

There has been increased interest in the 1980s among management scholars, consultants, and practitioners in the role of technology in such matters as corporate strategy, operations management, global competition. However, it must be put in a proper historical perspective. Technology became an explicit element in management practice and strategy at the end of the 19th century with the growth of large chemical and electrical companies, particularly in Germany and the U.S. Indeed, the industrial R&D laboratories central to this growth can be seen as part of the functional and professional specialization that defines much of modern management practice. Even before World War I, companies in these and other industries had extensive networks of external technological contacts, competed globally, and formed strategic alliances, often as part of world cartels (Pavitt, 1990). Technology management is a field that explores and expresses technology as a company resource that determines the strategic and operational capabilities of companies while designing and producing products and services for the highest level of customer satisfaction, productivity, profitability and competitiveness (Ünsal, 2009, 169). It is the planning, development and implementation of the technology needed to form the strategic and tactical goals of an organization. It can also be defined as the establishment of the link between technical expertise and management and can also be defined as all activities for technology creation, procurement and development, such as technology transfer, design, production, marketing (Sarhan, 1998). Çetindamar et al. (2006) define technology management activities as technology utilization, knowledge management, technology procurement, technology management, technology integration, technology protection (patent / license), technology transfer, technology planning and forecasting, technology strategy, technology evaluation, technology commercialization and marketing (Ünsay, 2009).

The success of technology management depends on several factors (Akolaş, 2016):

- Decisions on technological innovation should be accepted by the management and their participation in decisions should be ensured,
- Equal time and energy must be spent at every stage of technology management,
- A vision must be set up for the technology infrastructure to compete long term,
- Infrastructure should be connected with quality and continuous improvement of quality should be ensured,
- Business management should not regard technology as a cost element and should accept technology-related expenditures as an investment,
- Benefits of technology should be measured using appropriate standards, not accepted standards,
- The social, educational, political and economic forces that influence the managerial decision-making process should tried to be changed by technology management.
- Technology management should be built in a structure that will follow the new organizational approach and the objectives of this approach,
- In order to adopt all technological developments and new information within the organization, appropriate organizations should be established both inside and outside the organization and production and operation strategies must be fully harmonized,
- Technology should be used as a positive force in the change of the business and labor must be prepared for changes,
- Expert staff should be employed in the use of technology, existing staff should be trained or skilled labor should be used.

In order for the technology management process to be conducted in a healthy manner, some strategic decisions are needed. Firstly the strategic technological planning-involving the integration of the technology plan with the company strategy- including strengths and weaknesses, internal and external factors that affect the company's technological power, procurement and supply channels, macro-technological planning, product, production decision of product, service and process with existing sources, usage of resources for new products has to be made. Next, the technological forecasting in which subjects as investment forecast, technology tracing, suitable product selection for market needs, ideas for competitive advantage are evaluated should be done. In the same way, R&D activities should be carried out, R&D structuring must take place including the identification of the needs, planning, organizing, projecting and the establishment of equipped R&D team. In addition, patent, trademark registration and commercialization should be carried out. Finally, the marketing of technology which includes determination of market strategy, implementation of promotional activities and organization of technical service, has to be one of the strategic decisions (Sarihan, 1998). With proper technology management, it is possible to obtain feedback on the related issues, understand the importance of the change, determine the problems quickly and solve them, maintain team work, carry out simultaneous engineering applications, eliminate unnecessary operations, plan the transition to automation gradually, give decisions by considering the risks in new projects, establish a section that will adapt to the new technology and give the necessary technical support, create needed time for the realize the projects, grasp the importance of the individuals in project success and sustain advanced technology trainings of the employees (Tekin et al., 2003).

To use the technology as a source of competitive advantage, the companies must link and align their technology strategy with their operational activities such as marketing, human resources, production and investments. In the context of technology management, basically 5 actions have been defined so that the technology strategy can be created and aligned with the company's operational activities (Çakmak et al., 2012):

- **SME's Monitoring and Identification Action of Existing Technologies:** It is the action of determining critical information for the company by the identification of emerging or existing technologies and collecting, analyzing and evaluating of information on these technologies. There are many methods and tools that SMEs can use to monitor technology. Even existing processes, customer-supplier relationships, and marketing efforts can be monitored and identified. Routine activities such as marketing, human resources, supplier relationships, are activities that can be intertwined with the identification action of technologies.
- **Technology Selection Action of SMEs for Competitive Advantage:** It is the process of identifying and selecting critical technologies, taking into account the SME's strategic goals and priorities among the identified technologies. In this process, company's business strategies and technology strategies are combined and considered together. The selection criteria, possibilities and constraints that stand out within the business strategy of SME, play an important role in the evaluation of the related technologies.
- **Procurement Action of Selected Technology:** It is the action that encompasses the procurements as well as the decisions of the SME about how to have the needed technologies and to manage the acquisition process. Technology procurement includes the analysis and acquisition of necessary tools for the decisions such as developing technology by cooperation or by SME's own possibilities. A number of SMEs' operational activities, such as finance creation, human resource planning, business partnership development, are also involved in technology procurement.
- **Usage or Utilization Action of the Acquired Technology:** It is the action that includes the commercialization of the technology acquired by the company to achieve the expected benefit by using the technology as an input of the product or service. Within this context, SME's marketing, human resource planning and production activities are closely related to the method and planning of utilizing from technology.
- **Conservation Action:** Retention of hidden values in commercialized or non-commercialized technology in various ways. Protection may be in the framework of intellectual property rights, or it may be through human resources planning. The important point is how these actions, which are generally accepted in the technology management literature, will be implemented and how they will be aligned with the company's activities. The most important issue to be emphasized is that technology management activities are not sequential business or step sequences but complementary actions that have input-output relation to each other. When technology management activities are recognized and implemented individually by the organization, it can be seen that some of the actions have come forward in a certain period of time, some have been implemented less and others have never been implemented in a certain time period. This is a natural result. For instance, the act of protecting technology may not be an activity that is important in an organization that focuses on the process of technology selection for a while. In the later stages of technology selection, protection action will come to the agenda and be

implemented. For this reason, it should be considered how to protect the selected technology during technology selection. In this respect, ensuring coordination between activities will be achieved by first understanding the technology management activities one by one and then considering them holistically.

Developed technological strategy has great importance in ensuring competitive advantage. There are different strategies that can be pursued in this regard. In aggressive strategy, the goal is to develop a new product or process before the opponents and seize the market. For this purpose, it is necessary to follow technological developments closely, provide information flow, increase the risk taking ability of managers and employees, and form a flexible and learning organization structure. In the opportunity monitoring strategy, competitors follow and benefit from each other's weaknesses. In the defense strategy, companies try to get a share from the market by correcting the mistakes of competitor's products or by adding new functions to the product. The copycat strategy is a strategy in which the innovative company is imitated and the costs are minimized. In a dependent strategy, a company works like a satellite or a sub-organization of a strong company and changes in product specifications and services are made, if it is asked by the customer. In the traditional strategy, enterprises do not make R & D but make design changes. (Sarihan, 1998).

5. CONCLUSION

Technology is the key resource for long-term success of companies and countries. Making difference in competition depends on technological abilities. The planning, development and implementation of technological capabilities reconstruct the organizations. By the usage of new technologies, new markets are created and competition becomes more intense. The success of the companies in global competition will determine the growth and international competitiveness of the countries. In the global competitive environment, technology is required to provide quality improvement and to make a difference in the production of goods and services. In this respect, the determination and procurement of necessary technology and its usage in production processes are expected, so that the competitiveness and profitability both increase. However, it is necessary to manage the processes properly, which includes the determination of needs and harmonized technologies, the creation or transfer of necessary technology and its preservation, evaluation and commercialization. Some strategic decisions should be taken and the technology strategies should be aligned with the operational activities of the companies. Increasing the competitiveness of companies and countries in the intense and dynamic competitive environment depends on choosing the right technologies, making relevant investments and adapting the technology to organizational strategies. Companies have to follow technological developments closely and adopt them to their own systems. In addition, training of the employees and their adaptation to new technologies are required. In this context, resources need to be directed to appropriate technologies and the technology management process must be managed successfully. Technology management is crucial for companies in global competitive environment. By the creation or transfer of new technologies, and their usage in stages such as designing, production, distribution, marketing, competitive advantage and sustainable growth in productivity and quality can be achieved.

REFERENCES

- Afşar, B., Ağcakaya, S., Öğrekçi, S. 2016, "Yeni Ekonomide Teknolojinin İşletme Yönetimi ve Girişimcilik Üzerindeki Dönüştürücü Etkileri", *Elektronik Sosyal Bilimler Dergisi*, vol. 15, no.18, pp. 752-762.
- Akın, H.B. 2001, *Yeni Ekonomi Strateji, Rekabet, Teknoloji Yönetimi*, Konya, Çizgi Kitapevi.
- Akolaş, D.A. 2016, "Teknoloji Yönetimi ve Teknoloji Yönetim Süreci", *Akdeniz Üniversitesi Yayını*, vol. 1, no. 2, pp. 203-218.
- Bayraktutan, Y., Bıdırlı, H. 2016, "Teknoloji ve Rekabetçilik: Temel Kavramlar ve Endeksler Bağlamında Bir Değerlendirme", *Akademik Araştırmalar ve Çalışmalar Dergisi*, vol. 8, no. 14, pp. 1-24.
- Bets, F. 1994, *Strategic Technology Management*, McGraw-Hill International Editions.
- Çakmak, T., Kılıç, A., Tunçay, A. 2012, *Teknoloji Yönetimi Kılavuzu*, İstanbul Sanayi Odası Yayını.
- Çetindamar, D., Can, Ö., Pala, O. 2006, "Technology Management Activities and Tools: The Practice in Turkey", *PICMET 2006 Proceedings*, pp. 92-98.
- İleri, H., Horasan, A. 2010, "Küresel Rekabet Ortamında İşletmelerin Teknoloji ve Ar-ge Yönetimlerinin Rekabete Etkileri Üzerine Bir Uygulama", *Selçuk Üniversitesi Sosyal Bilimler Meslek Yüksek Okulu Dergisi*, vol. 13, no. 1-2, pp. 171-189.
- Karadal, F., Türk. M. 2008, "İşletmelerde Teknoloji Yönetiminin Geleceği", *Niğde Üniversitesi İİBF Dergisi*, vol. 1, no. 1, pp. 59-71.

Liao, S. 2005, "Technology Management Metodologies and Applications A Litreature Review from 1995 to 2003", *Technovation*, no. 25, pp. 381-393.

Pavitt, K. 1990, " What We Know About the Strategic Management of Technology", *California Management Review*, 32/3, 17-26.

Sarıhan, İ.H. 1998, " Rekabette Başarının Yolu Teknoloji Yönetimi", Gebze: Desnet Yayınları.

Tekin, M., Güleş, H.K., Öğüt, A. 2003, 'Değişim Çağında Teknoloji Yönetimi, Ankara, Nobel Yayın Dağıtım.

Zerenler, M., Türker, N., Şahin, S. 2007, " Küresel Teknoloji, Araştırma-Geliştirme(Ar-ge) ve Yenilik İlişkisi, Selçuk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, no. 17, pp. 653-667.



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FOREIGN BORROWING, REASONS AND RESULTS TURKEY SAMPLE

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ABSTRACT

The first steps of the external indebtedness of the Republic of Turkey have been taken in the late years of the Ottoman with approximately 3 to 5 million liras as a start and advanced to the discouraging state of quarter trillion dollars in 1.5 centuries. External debt is evaluated as one of the mutual problems of many developing countries in the global world at the present day. 20% of the present day world population lives in the developed countries and the rest of the 80% lives in the developing countries. There is a very big difference in the distribution of income that falls per capita between these two classes and the developing countries struggle in the cycle of external indebtedness and dependence. The developing countries need sufficient savings to be able to make development investments. The countries in such circumstance refer to external borrowing with the reason of the internal borrowing made from domestic borrowing parties such as the banks, wealthy people and the financial institutions causing economical imbalances. In the scope of the article; the concept of the external debt is evaluated, the statistics and data are discussed and it is attempted to make solutions and suggestions orienting the subject.

Keywords: Foreign debt, external debts, exchange rates, public borrowing, Turkey.

JEL Codes: F34, F55, G15

1. EXTERNAL BORROWING

1.1. Definition

Generally, borrowing is accepting money or similar valuable things to return them after a specific time. Government borrowing is also obtaining credit from resources other than their own sources by a government or governmental institutions. However government external borrowing is the transfer flows supplied from foreign resources which arise as a result of international relations that make an increasing or decreasing effect on the national income at the time when they are borrowed or being paid back (Adiyaman, 2006, 22). Treasury of Turkey, however, defines the external debt as; 'Gross external debts of a country within a period including the total of short, medium and long term obligations obtained based on an agreement from people who are not settled in that country.' (Bal, 2001, 14).

External borrowing may be confined under two headings in terms of countries who borrow:

1. Countries who make external borrowing by their own currency (developed countries such as USA, England, France, Germany and Japan)
2. Countries who make external borrowing by foreign currency (e.g. Turkey, Argentina, Brazil, Hungary, and Russia)

Borrowing made in a country's own currency is not accepted as external debt. For example, external debt is classified generally under four headings such as 'publicly guaranteed debt', 'unguaranteed private credits', 'Central Bank deposits' and 'debts to the IMF (IMF credits)' (Eker, Meriç, 1999, 8).

1.2. Reasons of External Borrowing

Developing countries need external financing or external borrowing because of the following reasons:

- inadequate internal saving,
- industrialization and development efforts that requires financing,
- dependence on outside due to industry production because of intermediate goods import,

- shortages in foreign trade, balance of payments and the amount of national foreign exchange,
- military expenses in huge amounts,
- public sector deficit,
- expensive domestic financing compared to foreign financing,
- economy being open to short term capital flows,
- necessity of rendering the external debts which become due (Lessard, 1986, 3; Ulusoy, 2001).

1.3. Types of External Debt

The types of external debt may be categorized according to their due dates, debtors and creditors in accordance with the classification of the World Bank. The due date is the duration between the agreement date and the date of last back payment. If the said due date is up to one year then it is short termed; if between one and five years then it is medium termed; if more than five years it is described as long termed debt (Ulusoy, 2001, 33-34). The credits may be classified as unguaranteed debts, public debts and publicly guaranteed debts according to their debtors. Anyhow, in the debt classification according to the debtors, the differentiation of the debts from official sources and debts from private sources appear in the forefront. Excluding these differentiations, the external debts may be classified as the project and the program credits, tied and untied credits, debt postponement and refinancing credits according to their modes of utilization (Sari, 2004, 5-6).

1.4. External Debt Stock and External Debt Burden

The debt stock of a country is the total amount of its internal and external debts. The debt burden is the ratio of that country's total debt stock to the GDP in a particular period. The concepts of the debt stock and debt burden may be formulated as follows:

Total Debt Stock = Internal Debt Stock + External Debt Stock

Total Debt Burden = Total Debt Stock / GDP

The structure of the debt stock is divided into three parts such as debtors, creditors and foreign currency composition.

2. HISTORY OF EXTERNAL DEBTS IN TURKEY

2.1. Main World Crises since the Republic and The External Debts

Other than particular reasons of the external debts of Turkey, there lie notable crises behind the external debt figures presently because of various reasons for years. Therefore, it is necessary to mention these crises. Consequently, it is apprehended in a better way why the debts have accrued so much throughout these years. Especially after the World War II, the time dimension of the crises which Turkey has experienced showed a surprising ordinance: Turkey has experienced intensive or mild crises right at the end of the each period in every ten years (between the 7th and 9th year of the ten years). The crises which started on the 8th year in every twenty years (1958, 1978, 1998) have been in extraordinary intensity and length and very costly for Turkey in context of independency in the policies to be followed. This evaluation is effective especially for the period which has started with 1978. Some of the eminent crises in the last century Turkey directly faced and their remarks are mentioned below.

The Korean War, which lasted three years, from 1950-1953, affected the all the world and, thus, Turkey. There was a decline of claim experienced after the war, the agricultural products descended which ascended during the war and an economic stagnation began in the whole world, Downfall of the agricultural prices affected Turkey in a negative direction whose economy was agriculture oriented (<http://www.textara.com>, 2010).

A similar scenario was experienced in the Gulf War in 1990 and the war happened in Iraq naturally affected the economy of its border neighbor, Turkey. Before the war, Iraq was the second big partner of Turkey following Germany with a ratio of 8% within the exports. This situation changed after the war and moved down to the lowest levels and the petroleum prices were also affected rigorously. The price of the raw petroleum which average for three months was 16 US Dollars per barrel before the crisis reached the level of 40 US Dollars. Furthermore, with the increasing terror events because of the war, many problems arose such as migration, termination of businesses and unemployment especially in Southeast Anatolian Region. Serious downfalls occurred in the investments made in the region. The growth rate which was 9.4% in 1990 fell to 0.3% after the Gulf War, and the budgetary deficit showed an increase of 180%. Other than all of these worldwide crises, Turkey took its share in the year of 2001 from the crisis of February 21st which was evaluated as the biggest economic crises in the history of the Republic. The external debts which were about 119 billion US Dollars in the year of 2000, descended to 114 billion but ascended to the level of 130 billion US Dollars one year later.

2.2. External Borrowing before the Republic of Turkey

The external indebtedness of Turkey has started with the borrowings which the Ottoman obtained at its late times and reached its current level. When the Ottoman is referred, it is understood that it has become indebted to the external sources to finance the war expenses excluding the internal borrowings initially. The history of the external debt before the Republic in Turkey eventuated in this manner: Ottoman started to lose territory with the Karlovci Agreement after the Vienna Siege resulting in failure in 1683. Ottoman followed the recovery policy for the lost territory, and as a result of the War of Iran which started, and Russia trying to enter the seas freely, the Ottoman proceeded in a war constantly. Meanwhile the governmental income declined since all of the agricultural areas and mines remained within the war zone. The taxes were raised when the governmental income declined. The people dealing with agriculture stopped their activities and started migrating to big cities such as Istanbul, Edirne, and Bursa to escape from the taxation. As a result of the difficulties, the gold and silver were collected from the public in the early 19th century and the coins were made and introduced to the market as 20% overvalued. The paper Liras (bank notes) were invented in 1839 when these cautions were not enough. It created an inflationist effect. With the growth of the financial crisis even more in 1840, the share certificates were introduced to collect the bonds at the hands of the savings owners in compensation of a particular interest (<http://www.yenifrm.com>, 2010).

Under the heading of external debt from Ottoman to the Republic, the Ottoman made its first borrowing in 1854 for the financing of the Crimean War. 3.3 million pounds were owed with an agreement made with London bankers in August 4th 1854; however 2.5 million pounds transferred to the government after the commissions were detached (Açba, 1995, 39-41). Since borrowing was thought to be discreditable until the year of 1854, no debts could not be provided from the countries who did not want to be considered as supporters of the Ottoman. 200.000 pounds were borrowed from France at the beginning of the Crimean War in 1854. 127 million Ottoman Liras were borrowed with 15 agreements in the period of 1854-1875. It became total of 239 million Ottoman Liras. The Ottoman who faced difficulties in paying back the debts borrowed until 1876 put an end to the payment of the debts and its interests in the month of April in 1876. The amount of the external debts was reduced in December 20th 1881 with the Muharrem Decree and the payment requirements were rearranged. As a result of the Ottoman Empire not being able to pay for its external debts, the collection and the execution of control function of the tax resources which were to guarantee the debt payments were left to the Public Debtor according to the 15th Article of the Muharrem Decree. After this, the external debts grew with the collapse period and it was calculated that the Ottoman became indebted of total of 359 million Ottoman Liras in compensation of usage of 222 million and 409 million Ottoman Liras in compensation of usage of 243 million between the years of 1854-1914 according to another determination (Şahin, 2000, 25).

2.3. External Borrowing after the Republic (up to 1980)

The Republican government took over 84.6 million Turkish Liras (TL) of the external debts equalling to 156.4 million Ottoman Liras (or 142.2 million English Pounds) which was the debt balance of the Ottoman in 1914 as an inheritance and never went for external borrowing after this date until the year of 1930 with the lesson it took from the bitter experiences of the Public Debtor. The first external debt in the Republic period is the hardware credit in the amount of 10 million US Dollars which was taken from an American organization for the purpose of the formation of the Central Bank in 1930. Later on, 8 million US Dollars of external debt were taken from the Soviet Union in 1934 and total of 16 million pounds from England in the years of 1936-1938 (Akdiş, 2003, 11).

The external borrowings continued in the later years and Turkey borrowed total of 1.416 billion US Dollars in the 1950-1960 period as project, program, IMF, OECD and military credits. Anyhow, 1.107 billion US Dollars of this amount were ensured by the USA (Şahin, 2000, 116). The 1963-1977 period are the years when the external indebtedness of Turkey increased again. The external resource need which the planned economic practices required starting from 1960s, the industrialization model based on import substitution, the costs of petroleum crisis in 1973 and the economic difficulties encountered after the Cyprus Peace Operation in 1974 increased the need for external borrowing (Çelik, 2007). Turkey went for external borrowing for the financing of the investments, financing of the remaining debts from the Ottoman Empire and transportation in the first years of the Republic. The actual intensive period in terms of external borrowing started after 1950. Especially, Turkey orientating to west after the World War II, becoming a member of the OECD and NATO, and the Marshall Aids which were started upon the report by OECD concerning that Europe needed help for the reconstruction during these years. In this context, 225 million US Dollars fell to Turkey's share. The increase in deficit in the balance of payments after 1950s brought down the external borrowing to an unfavorable situation. Turkey had to postpone its due debts and go for a new credit guarantee of 350 million US Dollars in 1957. The external debts of Turkey showed a serious increase in the ratio of 410 percent between 1930 and 1960. Borrowings were made to overcome the domestic savings deficiency with the start of the planned period. The big majority of the credits taken in this period were supplied from consortium credits (Adıyaman, 2006, 26). The 1977-1980 period are the years when Turkey could not find any external debts and with its famous expression, it was "even in need of seventy cents". Turkey became unable to pay for the

convertible account (DÇM) debts and their interests which were due in 1977. They went out to beg for external debt country by country and short and/or long termed, high and/or low interest and whatever was found were taken. Accordingly, Turkey borrowed 15.2 billion US Dollars of external debt between the years of 1963-1979 and could only pay 5.9 billion US Dollars of them (Akdiş, 2003, 11).

3. INDEBTEDNESS IN THE WORLD AND TURKEY

The Turkey's economy was in need of external debt since the Ottoman era. This process which slowed down in the first years of the Republic gained speed with the development efforts and economic crises encountered. Debt capital with the external obligations which came as a result of the borrowing necessity and the economic difficulties anyhow which arose from the interest payments, made our debt burden heavier. Even though borrowings and indebtedness is not desired a lot, the countries also can not keep themselves away from this situation. Just about all the countries including the developed countries call upon internal and external borrowing toward either economic needs or the objectives of the finance policies. When only the year of 2001 is taken into account, it is seen that the total debt of the developing countries corresponds to about the 38% of their total GDP (6,388.8 billion \$) (Worldbank, 2002).

Table 4: Indebtedness Ratios in Some Countries (Debt/GDP)

Countries	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Japan	63.5	69.0	73.9	80.4	86.5	92.0	103	115.8	123.6	132.3
Belgium	132.5	138.2	135.9	134.0	130.2	124.8	119.2	114.9	109.2	107.6
Germany	42.9	46.9	49.3	57.0	59.8	61.0	60.9	61.2	60.2	59.5
Greece	87.8	110.1	107.9	108.7	111.3	108.2	105.8	105.1	106.2	107.0
France	39.6	45.3	48.4	54.6	57.1	59.3	59.5	58.5	57.3	57.3
Italy	107.7	118.1	123.8	123.2	122.1	120.2	116.3	114.5	110.5	109.8
Bulgaria	-	-	-	-	-	105.1	79.6	79.3	73.6	66.3
TURKEY	-	-	-	-	-	53.0	50.0	66.0	56.0	103.0
USA	-	-	-	-	-	-	-	-	59.5	59.7
Netherland	-	-	-	-	-	-	-	-	55.8	52.8
Austria	-	-	-	-	-	-	-	-	63.6	63.2
Portugal	-	-	-	-	-	-	-	-	53.3	55.5
Finland	-	-	-	-	-	-	-	-	44.0	43.4
Sweden	-	-	-	-	-	-	-	-	55.3	56.6
United Kingdom	-	-	-	-	-	-	-	-	42.1	39.1
Czech Republic	-	-	-	-	-	-	-	-	17.0	23.7
Romania	-	-	-	-	-	-	-	-	24.0	23.3

Source: Eurostat, Europe in figures - Eurostat yearbook 2009, http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-CD-09-001/EN/KS-CD-09-001-EN.PDF, 20.05.2010

When the indebtedness figures of some of the developed and developing countries are examined as of 2001, it is seen that Japan is the most indebted developed country with 132.3% of its GDP, and Italy follows with a ratio of 109.8% and Belgium and Greece also own an indebtedness ratios of 107.8% and 107% respectively. Countries such as Germany, France and even USA show an indebtedness ratio around 60% at a boundary level (Table 4). As will be seen from the Table 4, many developed countries have high level of indebtedness ratios as well. For example, as stated above, USA is one of them. This expresses that each American citizen is under a debt burden. According to the data available in a web site showing the total debt of USA, the debt burden of each USA citizen is USD 41,963 as of 18 May 2010 (http://www.brillig.com/debt_clock/USA, 2010). It does not matter if you make so much imports and exports, or whatever your profit is from the services provided and taxations received, if your debt is growing exponentially, this money will have to be paid ultimately leaving sustainability to a side.

3.1. Indebtedness Terms and Ratios

The external indebtedness ratios became more important gradually after the last economic crises. Many ratios are used to calculate the external indebtedness ratio of a country. The commonly used external indebtedness ratios can be classified in four groups:

- the ratio of external debt stock to GDP,
- the ratio of external debt stock to exports,
- the ratio of total external debt service to exports, and
- the ratio of external debt interest service to exports.

Table 5: External Debt Ratios of Turkey (1989-2009)

Year	(million\$)					(%)			
	GDP (current price)	Ext.Debt Stock	Exports (FOB)	Ext.Debt Service	Ext.Debt Interest Service	Ext. Debt Stock/ GDP	Ext. Debt Stock/ Exports	Ext. Debt Service/ Exports	Ext.Debt Interest Service/ Exports
1989	142,635	43.9	11.6	7.2	2.9	30.8	377.7	61.8	25.0
1990	200,555	52.4	12.9	7.3	3.2	26.1	404.2	56.3	25.2
1991	200,502	53.6	13.6	7.6	3.4	26.7	394.5	55.6	25.3
1992	210,584	58.6	14.7	8.7	3.4	27.8	398.2	59.3	23.4
1993	238,377	70.5	15.3	8.2	3.6	29.6	459.5	53.6	23.3
1994	176,955	68.7	18.1	9.9	3.9	38.8	379.5	55.2	21.7
1995	225,941	75.9	21.6	11.9	4.3	33.6	351.0	55.0	19.9
1996	243,412	79.3	23.2	11.4	4.2	32.6	341.4	49.2	18.1
1997	253,706	84.3	26.2	12.4	4.6	33.2	321.2	47.3	17.5
1998	270,947	96.3	26.9	16.5	4.8	35.6	357.2	61.2	17.9
1999	247,544	103.1	26.6	18.3	5.4	41.7	387.9	68.9	20.5
2000	265,384	118.6	27.7	21.9	6.3	44.7	427.0	79.0	22.7
2001	196,736	113.6	31.3	24.6	7.1	57.7	362.5	78.6	22.8
2002	230,494	129.5	36.1	28.8	6.4	56.2	359.2	80.0	17.8
2003	304,901	144.1	47.2	27.8	7.0	47.3	304.9	58.9	14.8
2004	390,387	161.0	63.2	30.5	7.1	41.2	254.8	48.3	11.3
2005	481,497	169.7	73.5	36.8	8.0	35.3	231.0	50.1	10.9
2006	526,429	207.6	85.5	40.1	9.4	39.4	242.7	46.8	10.9
2007	648,754	249.4	107.2	48.7	10.8	38.4	232.5	45.4	10.1
2008	742,094	277.7	132.0	53.4	11.8	37.4	210.3	40.4	8.9
2009	617,611	271.1	102.1	57.7	10.3	43.9	265.5	56.5	10.1

Source: Treasury of Turkey, Public Finance Statistics,
<http://www.hazine.gov.tr/iri/portal/anonymus/DisBorclstatistikleri>, 13.05.2010.

As it is shown in Table 5, the ratio of the external debt stock to GDP in Turkey eventuated as 26.1% at the end of 1990 which increased to 33.6% in 1995 and reached 44.7% in 2000. Then it increased to 57.7% in 2001 with the economic crisis in 2001 as a reflection of South East Asia Crisis launched in 1997. The external debt stock/GDP in Turkey showed decline inclination with the growth in GDP in the following years. Turkey, being in the position of deeply indebted for many years, advanced to the position of medium degree indebted country as the end of the year of 2005 with the growth in the years of 2004 and 2005. External Debt/GDP showed fluctuations from 2005 on. The ratio was 38.4% in 2007 and increased to 43.9% as of end of 2009. When we look at Table 5, the ratio of the external debt stock to the exports which was 404.2% in 1990, decreased to 351% in 1995 and increased to 427% in 2000 again. The ratio later showed decline inclination because of the increase in our exports and our country advanced to the position of medium degree indebted country from the position of a deeply indebted country with the occurrence of this amount in the ratio of 231% as the end of 2005. This ratio was 232.5% in 2007 and reached 265.5% in 2009. As mentioned earlier, the commonly used indebtedness ratios are four particles:

- External Debt/GDP,
- External Debt/Exports,
- External Debt Service/Exports, and
- External Debt Interest Service/Exports.

According to these ratios, the normal values are 30-60%, 165-275%, 18-30% and 12-20% respectively (Adiyaman, 2006, 31-33).

Table 6: Commonly Accepted External Debt Ratios and Turkey (%)

Ratios	Normal	Excessive	Debt Ratios in TR (2009)
External Debt/GDP	30-60	60+	43.9
External Debt/Exports	165-275	275+	265.5
External Debt Service/Exports	18-30	30+	56.5
Interest Service/Exports	12-20	20+	10.1

Source: Treasury of Turkey, Public Finance Statistics,
<http://www.hazine.gov.tr/iri/portal/anonymus/DisBorclstatistikleri>, 13.05.2010.

In accordance with the datas of 2009, regarding commonly accepted external debt ratios in Turkey, the following evaluations can be made:

- External Debt/GDP in Turkey is 43.9% which remains in the normal limits. Therefore, Turkey takes place in medium level indebted countries in terms of this ratio.
- External Debt/Exports in Turkey is 265.5% which is approaching the upper point of normal level. It shows that export of Turkey allows to cover a certain amount of external debt stock.
- External Debt Service/Exports in Turkey is 56.5%. This ratio is highly excessive of the normal rates. It shows that Turkey faces a huge amount of debt installments which means that the due dates may affect the economy negatively in case of unexpected crises.
- Interest Service/Export in Turkey is 10.1% as of 2009. This is even below the lowest level of normal accepted ratios which shows that the interest service can be covered even through the export gains.

Table 7: Term Structure of the External Debt Stock of Turkey

Years	Total External Debt Stock (Million \$)	Amount		%	
		Short Term	Medium-Long Term	Short Term	Medium-Long Term
1989	43,911	5,745	38,166	13.1	86.9
1990	52,381	9,500	42,881	18.1	81.9
1991	53,623	9,117	44,506	17.0	83.0
1992	58,595	12,660	45,935	21.6	78.4
1993	70,512	18,473	52,039	26.2	73.8
1994	68,705	11,187	57,518	16.3	83.7
1995	75,948	15,500	60,448	20.4	79.6
1996	79,299	17,072	62,227	21.5	78.5
1997	84,356	17,691	66,665	21.0	79.0
1998	96,351	20,774	75,577	21.6	78.4
1999	103,123	22,921	80,202	22.2	77.8
2000	118,602	28,301	90,301	23.9	76.1
2001	113,592	16,403	97,189	14.4	85.6
2002	129,538	16,424	113,099	12.7	87.3
2003	144,109	23,013	121,079	16.0	84.0
2004	161,011	32,205	128,775	20.0	80.0
2005	169,740	38,283	131,449	22.6	77.4
2006	207,610	42,616	164,977	20.5	79.5
2007	249,390	43,134	206,252	17.3	82.7
2008	277,115	50,447	227,222	18.2	81.8
2009	271,140	52,030	219,110	19.2	80.8

Source: Treasury of Turkey, Public Finance Statistics,
<http://www.hazine.gov.tr/iri/portal/anonymus/DisBorclstatistikleri>, 13.05.2010.

As will be seen from the Table 7, the majority of total external debt stock of Turkey between 1989-2009 is medium-long term basis. The average rates in this period is 19% for short term debts and 81% for medium-long term debts. The term composition of external debts marks a positive situation for Turkey. Because, if external debts of a country is mostly medium-long term basis, it means that the country will not meet a problem in their repayments unless they face an unexpected crisis. The installments and interest amounts, however, should also be considered for a healthier evaluation. In the datas of tables 5 and 6, it can be seen that Turkey is in a position to render its external debts/interest service regularly under the circumstances.

5. CONCLUSION

The borrowings are made to meet the basic needs, to counter a luxury necessity and/or to make investments. Borrowings from foreign sources are made in case the domestic sources are not enough. Actually, Turkey has approximately 271 million US Dollars of external debt as of end of 2009. It seems a better strategy to continue to be indebted in terms of sustainability other than paying back this debt promptly. Consequently, by carrying on the relationship between the IMF and the World Bank in a good way, Turkey should attract more foreign investors. Moreover, it must apply external debt management policies and strategies orienting repaying the debts in a proper manner. If there may be new and effective ideas formed about the external indebtedness circle, and if the indebtedness situation is turned to the favor of Turkey, we, as citizens, will learn many things and have positive outcomes from the said indebtedness. In other words, if we can create a positive value from being indebted instead of being pessimistic and criticizing the situation, it may be understood that the situation is not that bad. Maybe, our debt of around 1/4 trillion US Dollars may not be representing such a bad situation. Accordingly, it may at least be provided to prevent the increase of the external indebtedness by applying essential policies and developing new improvement formulas where the theory and practice meet. For this, a strong government, strong citizens and, thus, a strong country are necessary.

REFERENCES

- Açba, Sait. (1995): **Osmanlı Devletinin Dış Borçlanması**, Kocatepe Üniversitesi Yayınları, No:1, Afyon.
- Adıyaman, Ahmet Turan (2006): "Dış Borçlarımız ve Ekonomik Etkileri", **Sayıştay Dergisi**, Sayı: 62, Temmuz-Eylül 2006, pp.21-45.
- Akdiş, Muhammet. (2000): **Global Finansal Sistem, Finansal Krizler ve Türkiye**, Beta Yayınları, İstanbul.
- Akdiş, Muhammet. (2003): "Türkiye'nin Borç Gelişimi; Sorunlar-Öneriler", **Active Dergisi**, Sayı: 30.
- Bangura, S. Damoni, K. ve Powell, R. (2000): "External Debt Management in Low-Income Countries", **IMF Working paper**, WP/00/196, Washington DC, 07.10.2008.
- Cangöz, M. C. (1994): Türkiye'de Dış Borç Sorunu-Borçlanma Stratejileri ve Borç Yönetimi, **Yayımlanmamış Yüksek Lisans Tezi**, Bilkent Üniversitesi, Ankara.
- Çelik, Faik. (2007): "Gelişmekte Olan Ülkelerde Uygulanan IMF Programları ve Refah Devleti Anlayışı", **Uluslararası İnsan Bilimleri Dergisi**, Cilt: 4, Sayı: 2.
- Debt Clock (2010) http://www.brillig.com/debt_clock, 18.10.2010.
- Derdiyok, Türkmen. (1988): Türkiye'de Dış Borç Yönetimi, **Yayımlanmamış Doktora Tezi**, Gazi Üniversitesi, Sosyal Bilimler Enstitüsü, Ankara.
- Derdiyok, Türkmen. (2001): "1980 Sonrası Borçlanma Politikaları", **Maliye Dergisi**, Sayı:138.
- Eker, A.; Meriç, M. (1999): **Devlet Borçları (Kamu Kredisi)**, Doğu Matbaacılık, İzmir.
- Evgin, Tülay. (2000): "Dünden Bugüne Dış Borçlarımız", Hazine Müsteşarlığı, Ankara.
- Eurostat, Europe in figures - Eurostat yearbook 2009 (2010): http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-CD-09-001/EN/KS-CD-09-001-EN.PDF, 20.05.2010
- Geribeyoğlu, F. E. (2001): Türkiye'de Dış Borçların Gelişimi ve Dış Borç Yönetimi, **Yayımlanmamış Yüksek Lisans Tezi**, Anadolu Üniversitesi, Sosyal Bilimler Enstitüsü, Eskişehir.
- <http://www.textara.com/savas-sonrasi-siyasi-politik-ekonomi-kriz-kararlari-gelismeleri>, 15.05.2010.
- <http://www.yenifrm.com/dis-borclarin-tanimi-kavram-olarak-dis-borclar-t120938.html>, 17.05.2010.
- IMF (2001): **The Challenge of Maintaining Long-Term External Debt Sustainability**, Washington DC, 02.11.2008.
- İnce, Macit. (1996): **Devlet Borçlanması (Kamu Kredisi)**, Seçkin Yayınevi, Ankara.
- Lessard R. D. (1986): "International Financing for Developing Countries", **World Bank Staff Working Paper**, No:793, Series on International Capital and Economic Development, Washington DC.

- Sarı, Müslim. (2004): Dış Borç Yönetimi ve Türkiye Uygulamaları, **TCMB Uzmanlık Tezi**, Ankara.
- Seyidoğlu, Halil. (2001): Uluslar arası İktisat, 14. baskı, Güzem Yayınları, İstanbul.
- Şahin, Hüseyin. (2000): **Türkiye Ekonomisi**, Bursa, Ezgi Kitabevi Yayınları.
- Şanlı, Ufuk, (2002): **Borç Kapanı: IMF**, Selis Yayınları, İstanbul.
- Şenel T. İlker. (1994): "Türkiye'de Dış Borçların Artış Sebepleri, Sektörel Dağılımı ve Makroekonomik Etkileri", **HDTM Uzmanlık Tezi**, Ankara.
- Tandircioğlu, Haluk. (2000): "Türkiye'de Dış Borç Sorunu, Dış Borçların Sürdürülebilirliği ve Dış Borçların Sınırlandırılması", **Dokuz Eylül Üniversitesi, Sosyal Bilimler Enstitüsü Dergisi**, Cilt 2, Sayı 2, İzmir.
- Tanrıkulu, K., (1983): "Türkiye'de Ekonomik Büyüme ve Dış Borç İlişkisinin Değerlendirilmesi", **DPT Uzmanlık Tezi**, Ankara.
- Treasury of Turkey, Public Finance Statistics, <http://www.hazine.gov.tr/irj/portal/anonymous/DisBorclstatistikleri>, 13.05.2010.
- Ulusoy, Ahmet. (2001): **Devlet Borçlanması**, Derya Kitabevi, Trabzon.
- Ünsal Hilmi. (2004): "Kamu Finansman Aracı Olarak Dış Borçlanma ve 1994 sonrası Türkiye Uygulaması", **İktisat İşletme ve Finans Dergisi**, Sayı: 19, Ankara.
- World Bank (2002): Prospects, <http://www.worldbank.com/prospects/gdf2002>, 02.12.2008.
- Yeldan, Erinç. (2008): **Dış Borç Stoku**, <http://www.bilkent.edu.tr/27Nis05.pdf+d>, 19.09.2008.
- Zerenler, Muammer. (2004): "Devletin Dış Borçlanmasının Türkiye Ekonomisi Üzerine Etkileri", **İş-Güç Endüstri İlişkileri ve İnsan Kaynakları Dergisi**, Cilt:6, Sayı: 1.



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MODERN MACROECONOMIC SCHOOLS THEIR METHODOLOGY, ASSUMPTIONS, CONCLUSIONS, POLICY RECOMMENDATIONS AND RELEVANCE

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ABSTRACT

We attempt to make a comparative evaluation of modern macroeconomic schools: Monetarism and New Classical School based on the Classical System that envisage automatic full employment or natural rate of unemployment (NRU) equilibrium (AFNE or ANRUE) vs. New Keynesian and Post-Keynesian Economics based on the Keynesian System which gives unemployment equilibrium (UNE) or non-automatic NRU equilibrium (NANRUE) due to insufficiency of aggregate demand. In order to determine which school is relevant, first the basic assumptions of these systems are compared: i) rational vs. adjusted vs. heterogeneous expectations, ii) existence of perfect competition in all markets leading to flexibility of prices and wages vs. imperfect competition giving rise to rigidities, and iii) presence or lack of coordination between markets. In the final phase of our evaluations the performance of the developed economies are surveyed to establish whether we meet with AFNE or ANRUE or else UNE or NANRUE; and whether policy prescriptions devised by respective schools solve or alleviate the problem at hand when implemented. Our investigations point out that New Keynesian and Post-Keynesian schools are more relevant compared to Monetarism and New Classical School. The choice between New Keynesian and Post-Keynesian Economics, however, is more difficult to make although New Keynesian Economics seems more widespread than Post-Keynesian Economics. Objectively, Post-Keynesian assumptions seem more realistic; normatively, however, New Keynesian stands seems more fit to the present day move towards globalization.

Keywords: Modern Macroeconomic Schools, (Neo-)Classical System, Keynesian System, New Keynesian Economics, Post-Keynesian School, Monetarism, New Classical School

JEL Codes: D83, N75, O38, I23

1. INTRODUCTION

An attempt will be made in this survey to compare and evaluate modern macroeconomic schools with respect to their methodology, major assumptions, the conclusions they reach concerning automatic full employment vs. unemployment, their consequent policy recommendations and, finally, with respect to their validity and relevance. We will cover Monetarism, New Classical School, New Keynesian and Post-Keynesian Economics, the former two as having stemmed from the Classical System and the latter two from the Keynesian System. This acknowledges Blinder's view [1988] that the dividing line between macroeconomic schools is whether they lead to automatic full-employment equilibrium (AFNE) following the Classical System, or to less-than-full employment or simply unemployment equilibrium (UNE) due to lack of aggregate demand following the Keynesian System. Since modern schools work with "natural rate of unemployment" (NRU) first introduced by M. Friedman [1977], we have replaced full-employment point with "NRU" and therefore talk about "automatic natural rate of unemployment equilibrium" (ANRUE) for Monetarism and New Classical School and, for the sake of convenience, non-automatic NRU equilibrium (NANRUE) for New Keynesian and Post-Keynesian Economics. The Laffer Curve and Supply Side Economics will not enter our survey because originally it was introduced within the context of Classical (Neo-Classical) Economics and does not qualify as a macroeconomic system on its own. Moreover, it soon became clear that supply side of the economy could be investigated within the context of Keynesian System as well, for instance, as had been done following the stagflation of 1970s [e.g. Gordon: 1977]. Evaluation of the above macroeconomic schools will be made on three planes. The first is "consistency" and "comprehensiveness". This criterion is methodological and draws on criticisms advanced by New Classics to the Keynesian System that it lacks microeconomic foundations and that its result, UNE is inconsistent with AFNE of traditional microeconomic theory. Traditional microeconomic theory works under the assumptions of perfectly competitive markets and full coordination between markets (Walrasian "auctioneer") and reaches AFNE. This criticism led New Keynesians and also Post-Keynesians to lay the microeconomic foundations

for Keynesian analysis and UNE (NANRUE). They worked, however, with imperfect markets that lead to price and wage rigidities, thereby to Keynesian insufficient aggregate demand. They also showed that under the absence of the Walrasian auctioneer similar Keynesian results would obtain. We tend to agree along with Post-Keynesians, however, that if it comes to choosing between consistency and comprehensiveness vs. relevance, the latter is the more crucial and useful criterion. Secondly, we will investigate the “realism and validity” of the major assumptions and relationships accepted in the respective macroeconomic schools. For instance, whether statistical investigations confirm the New Classical “Rational Expectations Hypothesis” (REH) or the Monetarist “Adjusted Expectations Hypothesis” (AEH) or else the Keynesian and Post-Keynesian “Heterogeneous Expectations Hypothesis” (HEH) is valid; whether, in actual practice, conditions of perfect competition (PC) or imperfect competition (IC) prevail in markets, and whether there is coordination or lack of coordination between markets (presence or absence of the Walrasian auctioneer). This would clear the way for the third and most important plane of our evaluations and investigations, namely the “validity and relevance” of macroeconomic schools depending on their conclusions and policy recommendations. This means, does the economy reach full employment (FN) or NRU automatically or else does it stop short due to Keynesian lack of demand. Since different schools reach different conclusions, ANRUE or NANRUE, they recommend different economic policies. These policies, in turn, are implemented. Hence the results of these different policy implementations also give us clues as to the validity and relevance of the different macroeconomic schools.

Again following Blinder [1988], we accept here that “the major test is whether a macroeconomic system or school analyses the working of the actual economy correctly, defines the reasons why, if any, an economic problem exists, and whether policies it prescribes to eradicate or alleviate the problem do bear positive results.” Thus, for instance, if according to the Keynesian System and hence to the New Keynesian and Post-Keynesian Economics a less-than-full employment situation is explained by lack of aggregate demand, whether we meet with UNE in case of non-intervention of government, and whether Keynesian monetary and/or fiscal policies, if actually implemented had alleviated the unemployment problem encountered. Or else, if according to Monetarism and New Classical School, the economy reaches FN or NRU automatically and we must gauge our monetary and fiscal policies only to prevent inflation, then whether an existing unemployment situation disappears of its own accord within a reasonably short period of time. I would like to stress at this point that the “validity and relevance” of macroeconomic systems and schools is evaluated here exclusively for the developed countries (DCs). No attempt will be made with respect to their validity and relevance for the less developed countries (LDCs) and newly industrializing countries (NICs). Such an investigation could lead to another and different survey on its own. First follows, however, some comments on why we have different macroeconomic schools with widely different conclusions and policy recommendations, taken up in the section below.

2. DIFFERENCES IN OBJECTIVE AND NORMATIVE ANALYSIS

The very existence of radically different macroeconomic schools suggest that there are radical differences at the level of “objective” analysis, let alone “normative” differences. New Classical School and Monetarism, based on the Classical System have accepted such assumptions that lead them to ANRUE, hence fundamentally a hands-off policy for the government. New Classical prescribe a complete hands-off policy. Monetarists, on the other hand, advise only a pre-determined growth in money supply in tune with NNP growth. New Keynesians based on the Keynesian System and also influenced by the earlier “Neo-Keynesians” (e.g. Samuelson, Tobin, Solow, Modigliani, etc.) accept assumptions that lead them to conclude NANRUE or UNE due to Keynesian lack of aggregate demand for the Short-Run (SR) [Blinder: 1988, Mankiw: 1990, Gordon: 1990]. New Keynesians accept the New Classical REH but work with IC markets. They also note the absence of the Walrasian auctioneer. Again in line with Neo-Keynesians, the majority of New Keynesians, excluding those who adhere to the Efficiency Wage and Hysteresis models, conclude that in the Long-Run (LR) the economy will automatically tend towards NRU. Since it will take too long for unemployment to disappear on its own, however, it would necessitate a continuous implementation of Keynesian policies to alleviate it without giving rise to inflation. Post-Keynesians followed Keynes more strictly and were also influenced by the earlier “Orthodox Keynesians” (such as Joan Robinson, Harrod, Kaldor, Shackle, etc.). They accept Keynesian assumptions of uncertainty, HEH in addition to IC and absence of Walrasian auctioneer that lead them to the conclusion of UNE or NANRUE both for the SR and the LR; hence to Keynesian policy prescriptions [Arestis: 1994, Davidson: 1991, 1994]. In the case of the Keynesian System, criticisms leveled against it led to its modification and hence, development. Thus, for instance, Phillips (1958) had challenged Keynes’ original belief that by raising aggregate demand we could reach the FN point without giving rise to price increases that are inflationary. But Lipsey (1960) incorporated this criticism into the Keynesian System and thus the Phillips Curve (PC) became a standard tool of the Keynesian System, signifying the choice or trade-off between unemployment and price rises. Similarly, M. Friedman (1977) proposed that in addition to several SRPCs there was a long run and perpendicular PC. The Keynesians incorporated the LRPC into their analysis, not as a perpendicular but still a negatively sloped curve, albeit steeper than the SRPCs. Still further, M. Friedman argued that in view of elasticities involved, monetary policy was effective (in Friedman’s case, for one period) and fiscal policy ineffective [Froyen: 1999]. Keynesians broadened their analysis to cover this point; arguing that in times of depression, as Keynes had pointed out, fiscal policy is effective, but at higher income levels, say in recession, monetary policy is the effective tool; and, of course, its effect was not short-lived.

The Efficiency Wage and Hysteresis models devised by some New Keynesians is another example in which we discern an attempt to reach the same conclusion of Keynesians and Post-Keynesians, namely NANRUE for both the SR and the LR. Both Keynes and Post-Keynesians, however, work with HEH and depend mainly on uncertainty and volatility of investments to reach this conclusion. In

the above models the New Keynesian REH is retained. But, additional assumptions concerning the relation between labor productivity and wages for the case of former models, insider-outsider relations or the relation of labor unions towards its employed members vs. the unemployed in the case of the latter models lead them to the same conclusion of both SR and LR NANRUE [Akerlof: 1984; Yellen: 1984; Katz: 1986, Weiss 1999; Lindbeck and Snower: 1987]. Obviously, however, although the conclusions and policy recommendations of these models are the same as Keynesians, their assumptions and objective analysis is definitely different. Still another major difference is witnessed in the explanation of business cycles particularly as between both New and Post-Keynesians as opposed to Monetarists and New Classicals. The Keynesian schools attribute business cycles to Keynesian lack of effective demand and volatility of investments. They therefore prescribe Keynesian demand management policies to curb it. Monetarists explain business cycles with mismanaged monetary policies, an argument which may be traced back to Alfred Marshall (1923). This has led Monetarists to advise a non-discretionary monetary policy. New Classicals, on the other hand, explain business cycles as optional responses of the economy to technological change [Barro: 1981; Barro and King: 1984, Lucas: 1987]. Hence, a hands-off policy should continue; nothing should be done to redress them. Looking at it from another angle, the above indicates that despite the vast academic give-and-take and econometric analysis, wide differences in the objective analysis offered by different schools still exist and need an explanation. The different results reached at the stage of objective analysis basically stem from the fact that economics is a "social" science. Unlike natural sciences, controlled experiments in social and economic phenomena are impossible. But for a given country at a given time, so many factors affect actual outcome that despite powerful statistical and econometric tools, different people or schools may be led to different results and interpretations. Secondly, in observing and interpreting economic phenomena, a researcher may come under the influence of his/her pre-conceived philosophical and political preferences.

To quote one relatively recent example, investigating the data of 1970s, New Classicals, Lucas and Sargent [1978] concluded that the PC had collapsed; hence the Keynesian System was wildly incorrect. But New Keynesians, Gordon [1977, 1985], Ando and Kennickel [1985] and others showed that the PC had not collapsed. It was merely shifting upward because of stagflation and cost and price increases during the period studied. In addition to the "objective" there are also "normative" differences between different individuals, groups or schools leading to different policy prescriptions based on the same objective analysis. This covers a host of value judgments such as: can governments devise and implement correct policies; how much weight do we attach to improvements in income distribution; what would be our choice between price rises vs. reducing unemployment; etc. For instance, a few New Keynesians, despite their objective analysis and conclusion of NANRUE, refrain from recommending that governments implement (Keynesian) policies because they fear that governments often make mistakes in implementing them, hence give rise to greater problems than those they set out to alleviate. As another example, Post-Keynesians, in their objective analysis, argue about "conflict of interests between social groups" rather than "harmony" as conceived by the Classicals. In their policy recommendations Post-Keynesians also normatively give greater weight to improving income distribution compared to even, the majority of New Keynesians, not to mention the Classicals. The choice between price increase and unemployment rate on the SRPC and LRPC is another well-known case where our value judgments come into play. Falling back to "coarse-tuning" from the more ambitious "fine-tuning" is a question concerned with objective analysis, and not normative. Based on their objective and normative analyses, hence their policy recommendations, New Classicals and Monetarists, along with Classicals, take their place at the right side of the political spectrum. Keynesians spread from center to center left, some to the left. New Keynesians spread from center right to center left. Post-Keynesians, on the other hand, spread from center left to the left.

3. METHODOLOGY: CONSISTENCY AND COMPREHENSIVENESS

The methodological question of consistency and comprehensiveness had been brought to our attention particularly with the criticisms of New Classicals directed at the Keynesian System that it lacked microeconomic foundations and its result, UNE was inconsistent with that of traditional microeconomic analysis, AFNE. Certainly, a perfect macroeconomic system or paradigm will have to be consistent and comprehensive and New Classicals were right in their methodological criticism of Keynesian System [Coddington: 1976]. But, one must accept that Keynes published his General Theory in 1936, immediately after the 1929-34 Great Depression and the world was in dire need of finding a remedy to the depression, unemployment and business cycles. This was, among many others, one major area in which the Classical System and the Classical remedy of lowering the wage rate had failed miserably. Keynes' alternative macroeconomic system and its policy recommendation, raising public expenditures gave positive results. In fact, many economists before Keynes had advocated raising public expenditures to alleviate the depression and the unemployment problem. But Keynes had backed it with a viable macroeconomic system [Blaug: 1985]. It is unfair to criticize Keynes for not having dived into microeconomic foundations of all the macro concepts and relationships he introduced because, given the grave and pressing problems that needed immediate cure, he simply had no further time to spend. In fact, many of his concepts and relationships between macro variables were not tested econometrically. What is remarkable is that econometric researches carried out later confirmed the accuracy of such concepts and relationships as the consumption function, liquidity preference, marginal efficiency of investment, and low interest elasticity of the investment function [Ackley: 1963].

We definitely witnessed a Keynesian Revolution [Klein: 1961]. We had a macro system completely different from the Classical, that gave UNE and not AFNE, and Keynesian recipes worked positively up until the stagflation of the 1970s. During the 1970s, however, Keynesian System came under attack both by Monetarists and New Classicals. The New Classicals, while arguing ANRUE will prevail

and not Keynesian UNE, also charged that Keynes' macro analysis lacked micro foundations and its conclusion, UNE, was, in fact, inconsistent with the AFNE conclusion of (traditional) microeconomic analysis. New Classical criticism is definitely a valid methodological point and New Keynesians, in trying to revalidate the Keynesian System and UNE (NANRUE), discarded the traditional microeconomic analysis that worked with PC in all markets, full-flexibility of Prices (Ps) and Wages (Ws) and perfect coordination between markets. Instead, they accepted IC, which gave rise to P and W rigidities, hence to Keynesian lack of aggregate demand leading to NANRUE. Thus, Keynesian macro analysis was supplied with microeconomic foundations and the system became consistent and comprehensive. Similarly, Post-Keynesians also worked with IC markets and absence of Walrasian auctioneer. But they rejected REH, accepted Keynesian HEH and uncertainty and thus came to the Keynesian conclusion of UNE (NANRUE) both for the SR and the LR. Though consistency and comprehensiveness is an important methodological point, the real test for choosing between alternative schools is in determining which is valid and relevant [Davidson: 1991]. This question is taken up in the following section.

4. REALISM OF THE BASIC ASSUMPTIONS BEHIND THE MACROECONOMIC SCHOOLS

The decisive criterion in choosing a macroeconomic system, school or paradigm is whether it diagnoses the working of the economy and a given economic problem that has arisen correctly, giving the correct reasons why the economies work the way they do, or why a particular problem has arisen; and hence, whether its policy recommendations when implemented will eliminate or alleviate the problem at hand. We call this criterion "validity and relevance", or else, a test whether the macroeconomic school at hand is "realistic". In short, validity and relevance opens the way for the usefulness of the macroeconomic school for the society. We will evaluate the validity and relevance of the four modern macroeconomic schools on two planes. In the first plane, we will investigate the various research carried out on the realism and validity of the basic assumptions accepted by the respective schools. It is hard to imagine a macroeconomic school to arrive at correct conclusions with regard to the working of the economy if the basic assumptions it works with are unrealistic and not confirmed by actual facts. On the second and final plane we will investigate whether the actual course the economies take and the problems encountered conform with the conclusions of respective schools, and if and when the policy recommendations of a particular macroeconomic school are actually implemented they have alleviated the problem at hand and altered the course of the economy for the better. We will take up here three basic assumptions, the first concerning "expectations", the second concerning "market structure", hence "P and W rigidities" and the third "coordination between markets" or existence of a Walrasian auctioneer.

5. VALIDITY OF ASSUMPTIONS CONCERNING EXPECTATIONS

On expectations in the two basic macroeconomic systems, the Classical and the Keynesian, the Classics had assumed that workers as well as entrepreneurs estimated future Ps correctly. Keynesians, however, accepted that only entrepreneurs' price expectations were accurate; the workers generally under-estimated future price rises and demanded a lower nominal wage increase, giving rise to a fall in the real wage. This is a crucial assumption because in the Classical System when workers raise their Ws at the same ratio as Ps, the real wage will remain the same; an increase in Money Supply (Ms) or aggregate demand will have only raised Ps. Since according to Classics the economy is already at the FN point, this merely means inflation. For the Keynesian System, an increase in Ms or aggregate demand would give rise to both an increase in output and employment as well as some increase in Ps since the economy is assumed to be at UNE. Followingly, the New Classics, taking heed from Muth [1960, 1961] have developed the Classical assumption into "Rational Expectations Hypothesis: REH" [Lucas and Rapping: 1969, Lucas: 1970, and others]. This means all economic agents are rational, optimizing and maximizing; they all have access to full information for the decisions they will take and they will predict future Ps correctly, hence make correct, i.e. optimizing and maximizing decisions. REH also entails that for future to be predicted accurately we should "not have uncertainty" and that "history should repeat itself", i.e. the same set of conditions met in the past should produce the same set of results in the future [Davidson: 1991, 1994]. Surely, some agents may make mistakes in their expectations but it is important that these mistakes will not be systematic; hence they will cancel each other. Moreover, if the economic agents know beforehand that the government will implement a given monetary or fiscal policy when future Ps, employment, etc. take certain magnitudes, the agents when making their final decision will also take into account the effects of these government policies as well, since they will also know exactly how much these policies will affect the magnitudes of the parameters. This will nullify the effectiveness of any predictable government policy. Thus, in effect, in the New Classical School REH institutes "Neutrality of Money", "Dichotomy" and "Say's Law" immediately or in the same period.

Friedman [1970] and Monetarists came up with a novel assumption: "Adaptive Expectations Hypothesis: AEH" which assumes that the workers, when Ms is increased and future prices rise will err in the first period and keep their Ws the same; but in the next period they will realize the exact magnitude of the price rise and the fall in their real wage, hence will raise their Ws correspondingly. Thus, the effects of monetary policy (Ms increase) in reducing unemployment below NRU point will live only for one period; the economy will return to NRU and Ms increase will have only raised Ps and Ws; with the value of real parameters the same as one period ago [text book explanations: Branson: 1989, Froyen: 1990, Blaug: 1985]. Thus AEH institutes "Neutrality of Money", "Dichotomy" and "Say's Law" one period later. In effect, both New Classics and Monetarists reach Classical conclusions, one working with REH, the other with AEH. New Keynesians have also accepted "REH", which is obviously contrary to the Keynesian assumptions in this regard, namely, systematic under-estimation of future Ps on the part of workers, as well as uncertainty and non-ergodicity. There were two reasons why New Keynesians accepted REH. One was they needed to enter into arguments and

discussions with New Classicals in the 1970s when New Classicals and Monetarists had gained ground in the academic circles during the 1970s [Blinder: 1985; Klamer: 1984]. Secondly, Fischer [1977] and Taylor [1980] had already proved that P and W rigidities were more important in giving rise to UNE or NANRUE than REH because in the models they devised, REH plus P and W rigidities still gave rise to Keynesian lack of aggregate demand and unemployment which, in turn, could be remedied by implementing Keynesian demand management. Post-Keynesians, on the other hand, were more faithful to the original Keynesian assumptions and scornful not only towards New Classicals but also towards New Keynesians for having accepted non-Keynesian assumptions [Arestis: 1994, Davidson: 1991, 1994; and others]. Therefore, Post-Keynesians presented their assumptions in this regard as “Heterogeneous Expectations Hypothesis: HEH” which is exactly the same as Keynes’ assumptions. According to Post-Keynesians, entrepreneurs are in a better position than workers to obtain full information and estimate future Ps correctly. The workers are less knowledgeable and generally end up under-estimating future Ps. It is difficult to carry reliable research to determine directly which of the above assumptions is valid and correct. But the scanty research made in this field [e.g. Rotemberg: 1984, Lowell: 1986] point out to the possibility that HEH may be more realistic compared to (AEH and) REH though the latter is theoretically a very tidy construct.

6. VALIDITY OF ASSUMPTIONS CONCERNING MARKET STRUCTURE

New Classicals and Monetarists have accepted the traditional microeconomic analysis based on perfect competition (PC) in all markets, including the labor market. This again follows the Classical System and its assumptions. Since a PC market with “homogeneous products” and “many sellers and many buyers” is seldom encountered in many economies today, this assumption must be interpreted as follows: “competition” should be a very powerful factor in all markets such that it should lead to “full flexibility of Ps and Ws”. It is this full flexibility of Ps and Ws that is crucial for AFNE or ANRUE. Both New Keynesians and Post-Keynesians, in contrast, have discarded traditional microeconomic analysis based on PC and instead have accepted that imperfect competition (IC) prevails in all markets of the economy. This means that the markets are either in “monopolistic competition” or are “oligopolistic” with competition prevailing and with absence of trusts and cartels. It is easier to observe that IC is the more realistic assumption compared to PC. Firstly, we have generally differentiated products in all the manufacturing and services sectors. In addition, “concentration ratios” can be calculated to determine whether the market is in monopolistic competition or oligopolistic, or else oligopolistic with one or few price leaders. The telling point here is that IC will give rise to P and W rigidities, however temporary, and these, in turn, will give rise to Keynesian lack of aggregate demand leading to UNE or NANRUE.

Several models have been constructed by New Keynesians and Post-Keynesians in which IC markets will give rise to P and W rigidities and, in turn, to Keynesian insufficient aggregate demand. To name only a few, we may cite “Menu Costs Model” [Mankiw: 1985, Akerlof and Yellen: 1985], “The Staggering of Wages and Prices” [Fischer: 1977, Taylor: 1980], “Imperfect Information and Staggered Wages” Ball and Cecchetti: 1980], “Credit Rationing Under Imperfect Information” [Stiglitz and Weiss: 1981], “Price Level Inertia” [Blanchard: 1983], “Monopolistic Competition” [Blanchard and Kiyotaki: 1987], etc. The list is illustrative and not comprehensive and systematic. More information on New Keynesian models can be obtained from Mankiw and Romer Vol. 1 and Vol. 2 [1991], Blinder [1985] and Gordon [1990]. Most of these models are mutually inclusive; one may be operative at a given sector and a given time in a given country, the other at another sector at the same or a different time. Though, taken by itself, one single model may not cause P and W rigidities of enough magnitude to create a serious slack, all taken together with their combined effects spread over time would go a long way to explain and account for unemployment caused by Keynesian insufficient aggregate demand. Interpreted this way, New Keynesian and Post-Keynesian assumption of imperfectly competitive markets giving rise to P and W rigidities seems more realistic compared to the New Classical and Monetarist assumption of full flexibility of Ps and Ws.

7. VALIDITY OF ASSUMPTIONS CONCERNING COORDINATION BETWEEN MARKETS AND WALRASIAN AUCTIONEER

The third assumption concerns coordination between markets. In the traditional microeconomic theory and following Walras’ general equilibrium analysis not only the markets should all be perfectly competitive with full flexibility of Ps and Ws but all the markets should adjust immediately not to leave any over or under supply or demand in any market. This is likened to the presence of an auctioneer, called the “Walrasian auctioneer” who organizes and arranges so that the Ps and Ws that will clear all the markets will be bid and arrived at immediately and simultaneously. New Classicals, working with traditional microeconomic analysis and Walrasian general equilibrium, have accordingly also accepted the presence of the Walrasian auctioneer. Leijonhufvud [1973] was the first to argue that we did not have full coordination of all the markets, such that even if all markets were PC, there would still be lags in the adjustment of Ps and Ws to clear all the markets. Hence some would remain uncleared; there would be spillovers, giving rise to Keynesian insufficient aggregate demand and UNE. Though Leijonhufvud erred by placing too much weight on lack of coordination between markets in interpreting Keynes [Blaug: 1985], this certainly is still one important reason why we may not have AFNE at least immediately but face UNE in the SR. Both New Keynesians and Post-Keynesians who have accepted IC in most markets, hence P and W rigidities stemming from IC conditions, have also rejected the assumption of Walrasian auctioneer. Therefore, according to them, we may meet with Keynesian UNE (NANRUE) due to lack of coordination between markets as well as due to P and W rigidities because of IC markets. Empirical observations suggest that the assumption of lack of coordination between markets, that is, absence of Walrasian auctioneer is a more realistic assumption than that of immediate and simultaneous coordination.

8. CONCLUSION: VALIDITY AND RELEVANCE OF MODERN MACROECONOMIC SCHOOLS

Although modern macroeconomic schools start with the years 1970s, in order to assess their validity and relevance we need to take as long span of time as possible, hence we should go as far back as the Industrial Revolution, the emergence of economics and the Classical System (in the 3rd quarter of 18. Century). The acid test is whether DCs display AFNE or ANRUE as argued by the Monetarists and New Classicals based on the Classical System; or else UNE or NANRUE as argued by the New Keynesians and Post-Keynesians based on the Keynesian System. And consequently whether the hands-off policy recommendation of the former works, with the economy having reached AFNE (ANRUE) and price stability is attained; or else we have UNE or NANRUE and Keynesian demand management works, unemployment problem is alleviated, going up to the point at which price rises are inflationary. We are neglecting at this stage of our evaluations whether UNE (NANRUE) is witnessed only in the SR as is argued by New Keynesians in general, or both in the SR and in the LR as is argued by the Keynesians as well as Post- Keynesians and those New Keynesians who accept the Hysteresis and Efficiency Wage models. Viewed in this light, historical observations suggest that Keynesian UNE or New Keynesian and Post-Keynesian NANRUE are definitely more valid and relevant. This is because since the Industrial Revolution up to the 1929-34 Great Depression and the 2.W.W 1939-44, the world continuously witnessed unemployment and business cycles; hands-off policy advocated by the Classicals was of no avail. Similarly, of no avail was the Classical policy suggestion that wages should be lowered and the influence of labor unions or government intervention on wages should be removed. In contrast, when Keynesian monetary and fiscal policies were implemented all throughout the period starting with the 2.W.W, its aftermath and till the 1970s, the world witnessed rapid and steady economic growth, curbing of business cycles, alleviation of the unemployment problem, and relative price stability. Surely there were other factors that contributed very significantly to rapid and steady growth, such as free international trade policies, international aid and credit followed after the 2.W.W.; but the implementation of Keynesian policies was also definitely instrumental. The problems that were faced during this period emanated from balance of payments deficits, the peculiarities of the international monetary system implemented during the period, and the reluctance of governments towards devaluation. Therefore, these problems had nothing to do with the validity and relevance of the Keynesian System. On the contrary, they could be explained within the context of the Keynesian System.

Thus, since 1936 and up until 1970s we witnessed a “Keynesian Revolution” as Klein had noted. Keynesian System was “mainstream” both in the academic circles and also in the field of implementation, bearing positive results. Keynesian System as mainstream needs, however, to be dissected more deeply. “Orthodox Keynesians” in the UK adhered more strictly to the Keynesian assumptions and conclusions. “Neo Keynesians” in the USA tended to accept the long run tendency of the economy towards automatic FN. Hence, in their arguments with Neo-Classicals (Pigou, Patinkin) they were ready to arrive at the Neo-Classical Synthesis (NCS). We have overlooked here this important theoretical difference because according to the interpretation of NCS by Neo-Keynesians, the economy would frequently fall to Keynesian unemployment in the SR and this necessitated de facto continual implementation of Keynesian policies. Again, since the 1950s M. Friedman was trying to reinstitute the Classical Quantity Theory [Friedman: 1956; Friedman and Meiselman: 1959; Friedman and Schwartz: 1965]. But he had remained a dissenting and minority opinion during this period up until the 1970s. What is important from our perspective here is that the diagnosis, conclusions and policy implementation of the Classical System since the Industrial Revolution up till the Great Depression failed. In contrast, implementation of the Keynesian policies bore positive results from the time of Great Depression up to the 1970s. The years 1970s, on the other hand, witnessed a severe stagflation. Although Keynesian policies continued to be implemented at low-key, it was obvious that Keynesian policies alone could in no way negate the stagflation at hand. This is because the root of the problem had nothing to do with the behavior of the aggregate demand; it stemmed from the monopolistic practice of raising the prices and reducing the production of petroleum by OPEC. Although it may be hard to prove econometrically, we could say that a Classical “hands-off” policy at the time could have worsened the situation. But, we are disinclined to make a definitive judgment of the years 1970s concerning the relevance of macroeconomic schools because of ambiguities involved concerning the evaluation of alternative policy recommendations. Nonetheless, during the years 1970s, the Keynesian System fell precipitously from favor in the academic circles. Amongst the younger, the New Classical Economics was widely spread, called the “Counter Revolution” [Blinder: 1985; Klamer: 1984]. Monetarism also became fashionable and Monetarists called it the “Monetarist Counter Revolution” [Froyen: 1990]. Thus, during 1980s economic policies implemented were in line with Monetarism and New Classical School. Government intervention was reduced, including demand management, and Monetarist tight money was implemented in the face of recession. The purpose of the latter policy was to attain price stability while, it was believed, the economy would come to NRU automatically within a short period of time. This, however, did not come to happen; the recession and unemployment was prolonged both in Europe and the USA. Therefore, the years 1980s can be cited as another evidence which has indicated that Monetarism and New Classical economics was not relevant and implementation of policies in line with the above schools did not give positive results [Blinder: 1985].

During the years 1980s, in view of the perceived failures of Monetarist and New Classical policies, Keynesian economics became once more mainstream in the academic circles (Counter-Counter Revolution). In the early years of the decade in the USA, endeavors to meet the methodological criticisms of the New Classicals and also to open up discussion channels with them, Keynesianism took the form labelled New Keynesian Economics, with assumptions and conclusions dwelt before. Basically in the UK, but with participation of some notable American economists, by mid 1980s Post-Keynesian Economics took shape, with assumptions and conclusions much more in line with Keynes. During the 1990s up to the present, there was a return to basically

Keynesian discretionary monetary policies, with lesser recourse to the implementation of fiscal policies on account of several drawbacks involved. During the same period up to the most recent years, the world and, in particular, the USA witnessed this time relative economic growth, alleviation of the unemployment problem accompanied with relative price stability. Thus, the years 1990s can be taken as still another indication that Keynesian economics and not the Classical System and modern schools based on the Classical System were valid and relevant. One qualification, however, needs to be made at this point. Since 1990s the world entered a milieu or a process of globalization and international competition. This necessitated "conservative policies"; maintaining price stability became important, hence government budget deficits were reduced or eliminated. Similarly, international competition forced European countries as well as Japan to curb excessive social benefits, to cut labor costs and to introduce greater flexibility to labor markets and unemployment. These measures or efforts should in no way be considered as un-Keynesian; they emanated from the need to face international competition and not from any negative aspect of the Keynesian System. Indeed, they too could be explained within the context of the Keynesian System. We may, however, acclaim that the present globalization trend is basically an outgrowth of Ricardo's "comparative advantage" and his case for free trade. The most recent recessionary tendency in the USA, following a long period of steady growth is tried to be brought under control, again in major part by Keynesian discretionary monetary policy. Institutional arrangements and rules set by the Maaschriet Treaty and the Euro, on the other hand, make it much harder for the euro members of the European Union to implement Keynesian monetary as well as Keynesian fiscal policies. Thus, there is fear that recession in the Euro area would be more prolonged. This also implies that in prolonged recessions, Keynesian monetary policy may not be adequate and should be supplemented with fiscal policies. The above bird's eye view survey of the results obtained from the policy implementations of various macroeconomic schools during a very long span of time since the Industrial Revolution up to the present definitely proves that the Keynesian System, that is, New Keynesian and Post-Keynesian Economics is valid and relevant compared to Monetarism and the New Classical Schools based on the Classical System. It is harder to decide, however, between the New Keynesian and Post-Keynesian Economics if we simply focus our attention on observations of UNE or NANRUE only for the SR or both for the SR and the LR. The first is the general belief of New Keynesians excepting those who adhere to Hysteresis and Efficiency Wage models. They assert that in the LR the economy would tend toward ANRUE. Post-Keynesians and Super-Keynesian models, on the other hand, believe that the economy would give NANRUE both in the SR and in the LR. But many New Keynesians (e.g. Blinder) assert that this is more of a theoretical point because in actual practice we would continually face NANRUE in the SRs and continually implement Keynesian demand management policies. This would not allow us to witness whether the economy tends towards ANRUE in the LR. All we can say definitively is that even if the economy tends towards ANRUE in the LR, as recent experience in 1980s show, it simply takes too much time to bear unemployment for such a long period of time. But this is the time-honored proposition put forth during the arguments on NCS between Neo-Classicals and Neo-Keynesians. There is one interesting point, however, that seems to work in favor of the New Keynesian Economics and against the Post-Keynesian Economics during the more recent times. The milieu of globalization requires that "conservative" policies should be implemented, price stability maintained and excessive social benefits curbed. One needs to make the distinction in this regard, however, between "objective" and "normative" aspects of Post-Keynesian economics. Though direct observation whether the economies tend toward ANRUE in the LR is hard to come by, as a substitute we may evaluate the validity of assumptions behind the Post-Keynesian vs. New Keynesian Economics. In doing so, we may come to the conclusion that assumptions behind Post-Keynesian Economics are more realistic compared to those behind New Keynesian Economics. For instance, we may agree in our objective analysis, that HEH is more realistic than REH, that future is uncertain and cannot be predicted with accuracy, that both national and international institutions, hence politics play an important role in defining economic decisions, and that conflict of interest and not harmony dominates the area of income distribution. But, what is also at stake here is the normative value judgments of most of the Post-Keynesians who assign a greater importance to income distribution and to the goal of improving of income distribution. The present conditions of the world economy do not seem fit for such a value judgment in defining economic and social policies. In fact, in the present milieu of globalization many European countries and Japan found themselves with excessive social benefits and labor costs carried up until today from their historical past. This necessitates policies of curbing these excessive social benefits and injecting greater flexibility to the labor market and employment, and not the other way round, in order to attain higher growth and increased employment. This fact should lead us, at least normatively, in favor of the New Keynesian Economics compared to the Post-Keynesian Economics. Or else, on the objective plane we may still choose to be Post-Keynesian but normatively make due allowance in the weight that we assign to improving income distribution via welfare measures for the special case we face presently in Europe and Japan. We may conclude here by observing that both in the USA and much of the European countries New Keynesian Economics seems to have taken greater hold compared to Post-Keynesian Economics, while Post-Keynesian Economics seems to be on the demise [Dunn: 2000].

REFERENCES

ACKLEY, Hugh Gardner: *Macroeconomic Theory*. Macmillan Co., 1963.

- AKERLOF, George: "Gift Exchange and Efficiency Wage Theory: Four Views," AER, No. 74, May 1984.
- _____, and YELLEN, Janet L.: "A Near-Rational Model of the Business Cycles with Wage and Price Inertia," QJE, No. 100 supplement, 1985.
- ANDO, Albert F., KENNICKELL, Arthur: "Failure of Keynesian Economics and 'Direct' Effects of Money Supply: A Fact or a Fiction," University of Pennsylvania, mimeo, 1985.
- ARESTIS, Phillip: *The Post-Keynesian Approach to Economics: An Alternative Analysis of Economic Theory and Policy*. Edward Elgar Publishing Ltd., 1994.
- BALL, Laurence B., and COCCHETTI, Stephen, G.: "Imperfect Information and Staggered Price Setting," AER, Dec. 1988.
- BARRO, Robert J.: *Money Expectations and Business Cycles: Essays in Macroeconomics*. Academic Press, 1981.
- _____, and KING, Robert G.: "Time-Separable Preferences and Inter-Temporal Substitution Models of Business Cycles," QJE, Nov. 1984.
- BLANCHARD, Oliver J.: "Price Asynchronization and Price Level Inertia," *Inflation, Debt, and Indexation*. Ed. by Rudiger Dornbush, Mario Henrique Simonsen, The MIT Press, 1983.
- _____, and KIYOTAKI, Nobuhiro: "Monopolistic Competition and the Effects of Aggregate Demand," AER, Vol. 77, No. 4, Sept. 1987.
- BLAUG, Marc: *Economic Theory in Retrospect*. Cambridge University Press, 1985.
- BLINDER, Alan S.: "The Fall and Rise of Keynesian Economics," *Economic Record*, Vol. 64, No. 187, Dec. 1988.
- BRANSON, William H.: *Macroeconomic Theory and Policy*. Harper and Row, 1989.
- CODDINGTON, Alan: "Keynesian Economics: The Search for First Principles," JEL, Dec. 1976.
- DAVIDSON, Paul: *Controversies in Post-Keynesian Economics*. Edward Elgar Publishing Ltd., 1991.
- _____: *Post-Keynesian Macroeconomic Theory: A Foundation for Successful Economic Policies for the 21st. Century*. Edward Elgar Publishing Ltd., 1994.
- DUNN, Stephen P.: "Wither Post Keynesianism," JPKE, Vol. 22, No. 3, Spring 2000.
- FISCHER, Stanley: "Long-term Contracts, Rational Expectations and the Optimal Money Supply Rule," JPE, Vol. 85, No. 1, Feb. 1977.
- FRIEDMAN, Milton: "Inflation and Unemployment: New Dimension in Politics," JEL, June 1977.
- _____: "Quantity Theory: A Restatement," *Studies in the Quantity Theory of Money*. Ed. by Milton Friedman, University of Chicago Press, 1956.
- _____, and MEISELMAN, David: "The Relative Stability of Monetary Velocity and the Investment Multiplier in the United States, 1897-1958," *Commission on Money and Credit*, 1959.
- _____, and SCHWARTZ Anna: *The Great Contraction*. Princeton University Press, 1965.
- FROYEN, Richard T.: *Macroeconomics*. Macmillan Co., 1990.
- GORDON, Robert J.: "Can Inflation of the 1970s Be Explained," *Brookings Papers on Economic Activity*, Vol. 8, No. 1, 1977.
- _____: "Understanding Inflation in the 1980s," *Brookings Papers on Economic Activity*, 1985.
- _____: "What is New Keynesian Economics," JEL, Vol. XXVIII, Sept. 1990.
- HOLT, Richard: "Looking Ahead: The Future of Post-Keynesian Economics," www.cfs.colorado.edu.
- KATZ, Lawrence: "Efficiency Wage Theories: A Partial Evaluation," *NBER Macroeconomics Annual*, 1986.
- KLAMER, Arjo: *The New Classical Macroeconomics, Conversations with the New Classical Economists and their Opponents*. Harvester Press, 1984.
- KLEIN, Lawrence Robert: *The Keynesian Revolution*. McMillan, 1961.
- LEIJONHUFVUD, Axel: *On Keynesian Economics and the Economics of Keynes: A Study in Monetary Policy*. Oxford University Press Inc., 1973.
- LINDBECK, Assar, SNOWER, Dennis: "Wage Setting, Unemployment and Insider-Outsider Relations," AER, No. 76, May 1986.
- LIPSEY, Richard G.: "The Relationship between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861-1957: A Further Analysis," *Economica*, No. 27, Feb. 1960.
- LOWELL, Michael E.: "Tests of Rational Expectations Hypothesis," AER, March 1986.
- LUCAS, Robert E.: "Econometric Policy Evaluation: A Critique," Ed. by Brunner, Meltzer, *The Phillips Curve and the Labor Markets*, Carnegie-Rochester Conference Series on Public Policy, No. 1, Amsterdam, North-Holland, 1976.
- _____: *Models of Business Cycles*. Blackwell, 1987.
- _____: "Price Expectations and the Phillips Curve," AER, June 1970.
- _____, RAPPING, Leonard A.: "Real Wages, Employment and Inflation," JPE, Sept. 1969.

_____, and SARGENT, Thomas: "After Keynesian Macroeconomics," After the Phillips Curve: Persistence of High Inflation and High Unemployment, Federal Reserve Bank of Boston Conference Series, No. 19, 1978.

MANKIW, N. Gregory: "A Quick Refresher Course in Macroeconomics," JEL, Vol. XXVIII, Dec. 1990.

_____: "Small Menu Costs and Large Business Cycles: A Macroeconomic Model of Monopoly," QJE, Vol. 100, No. 2, May 1985.

_____, and ROMER, David: New Keynesian Economics, Volume 1. The MIT Press, 1995.

_____, and _____: New Keynesian Economics, Volume 2. The MIT Press, 1995.

MUTH, John F.: "Optional Properties of Exponentially Weighted Forecasts," Journal of the American Statistical Association, No. 55, 1960.

_____: "Rational Expectations and the Theory of Price Movements," Econometrica, July 1961.

PHILLIPS, Albon William H.: "The Relation between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861-1957," *Economica*, No. 25, Nov. 1958.

ROTEMBERG, Julio J.: "Interpreting Some Statistical Failures of Some Rational Expectations Macroeconomic Models," AER, No. 74, 1984.

STIGLITZ, Joseph E., and WEISS, Andrew: "Credit Rationing in Markets with Imperfect Information," AER, June 1981.

TAYLOR, John B.: "Aggregate Dynamics and Staggered Contracts," JPE, Vol. 88, No. 1, Feb. 1980.

WEISS, Andrew: Efficiency Wages: Model of Unemployment, Layoffs and Wage Dispersion. Princeton University Press, 1990.

YELLEN, Janet E.: "Efficiency Wage Models of Unemployment," AER, No. 74, May 1984.



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THE DRIVEN ELEMENTS OF THE MONETARY POLICY IN THE CONTEXT OF ISLAMIC ECONOMICS

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ABSTRACT

This paper claims that to propose an alternative way through the establishment of monetary policy. The definition of rationale human behavior in conventional system and the definition of rational human behavior in Islamic economic system are different in many ways so that the driver dynamics of the conventional economic system and Islamic economic system are differentiating. The demand of money which is the crucial point for conducting monetary policy in two systems is driven with different necessities. Due to stability of demand of money and robust financial system in the context of Islamic banking system, monetary policy can be more effective through providing price stability. Monetary policy in the context of Islamic finance do not commit just price stability but also commit more equate socio-economic justice and equitable distribution of income and wealth and optimum rate of growth.

Keywords: Islamic, monetary policy, money, demand.

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1. INTRODUCTION

Generally, central banks have aimed price stability during the last few decades although they have other key aims which are growth, financial stability, unemployment and may be others. Low and steady inflation has privileges among the other aims. On the other hand central banks cannot be effective directly on the controlling inflation. In conventional system generally central banks are using three or in some cases more indirect instruments in order to effect and control price stability. These indirect instruments are interest rate, money growth and exchange rate as an intermediate target. As an indirect instrument interest rates, have uncertain effects on economy. Due to the uncertain effect of interest rates central banks have to conduct according to incomplete information (Hoggart, 1996, 5). In recent years, central banks have welcomed zero even negative interest rates in order to stimulate the economy. Even some find it successful the vast majority find lowering interest rate and monetary easing in order to stimulate the economy ineffective. "When the short-term policy rate is at or near zero, the conventional means of effecting monetary ease (lowering the target for the policy rate) is no longer feasible" (Bernanke and Reinhart, 2004, 85). We can infer that interest rates as an intermediate target to guide monetary policy decision is not perfect and unalterable policy tool for monetary policy. Monetary policy often is detected as interest rate managing phenomena. It is not meant that interest rate have no important role in the monetary policy but the biased view that the monetary policy without the interest rate cannot even be passed through the mind is not true (Ariff, 1978, 287). Thanks to fails of conventional system with crisis and other problems people started to questioning interest based monetary policy and financial environment more. It is obvious that global economy has not recovered fully after the 2008 crises. Due to continuing devastating effect of crisis people are investigating alternative financial system. Islamic finance and practices can be the alternative way through the development of stable financial environment and more robust macroeconomic environment (İncekara& Tatoğlu& Ustaoglu, 2014: 75). The Islamic banking system may find out more stable and robust because of the absence of interest rates. Interest rates fluctuations induce financial environment unstable.

The absence of interest rate which is the main characteristics of Islamic banks removes the fluctuations of interest rate. Financial system becomes more stable with the abolition of interest rate in the economy that is because of the change in money demand and may be other reasons (Ergeç& Arslan, 2011: 4). The money demand stability is crucial point for the

effectiveness of monetary policy. As a basic definition monetary policy is highly likely that the balancing money demand and supply in the economy. It can be inferred that monetary authority have to take into consideration money demand regardless the targets and tools.

2. LITERATURE REVIEW

There are a quite small number of studies about the stability of money demand in the context of Islamic economy although the rapid growth of Islamic finance the last few decades. Particularly there are almost 3 or more empirical studies about money demand. It is because of the lack of long-term data and the superiority of conventional banking in the country where Islamic banking exists. Darrat (1988) investigated the superiority of profit- loss sharing interest-free banking system compared with the conventional system in Tunisia. Darrat (2000) make an empirical analysis on money demand stability in short-run in Iran. This time Darrat (2002) examine the money demand stability for both Islamic banking in Pakistan and Iran. After the money demand tests Darrat (2003), examine monetary aggregates as a policy invariant for conducting monetary policy. (Yousefi& Abizadeh &McCormick, 1997) studied stability of income velocity of money and superiority of Islamic system comparing with the usefulness of monetary aggregates.

2.1 The Human Rationality Behind the Islamic Economy

Islamic economic system takes its own values as a base for finance and other practices. The consumption and investment behavior of homoislamicus is different compared with homoeconomicus. So that the huge differences in the definition of the human rationality, Islamic economists offer to use Islamic rationality concept. In the Islamic rational human concept, human does not try to maximize his profit and just think his interest. Human have to take an account society's interests. As a one of the difference point between homoeconomicus and homoislamicus, in the light of Islamic rational human view consumption has to be need-based. In addition, in many cases the decision making process for homoislamicus and homoeconomicus. According to Islamic rational human decision making process, human has to think his life after the death as much as his life. The way of this decision making process is tended to human think society's interest as much as himself (Hassan, 2013, 129). The rational human homoeconomicus is far away from Islamic thoughts in a way that keeping his interest a head and making everything for his profit maximization (Tabakoğlu, 2013, 84). Also, Islamic rules put obligations to think social welfare in many ways. Zakah the one of the most popular issue almost known everyone about thinking in need people pushes people social welfare on the other hand levy of zakah provides money demand stability because of minimization of holding of idle cash. Due to zakah, people tend to make productive investment against to erosion in their savings. Therefore, the need based consumption and productive investment money demand tend to be more stable compared with conventional system (Chapra, 1996, 16).

3. MONEY DEMAND IN THE CONTEXT OF ISLAMIC ECONOMY

According to Keynesian approach about money demand people tend to hold money for three purposes: transaction, precautionary situations and speculation. Money is demanded for transaction as a medium of exchange in order purchase and sale goods and services by governments, households and firms. All actors of the economy hold some cash money for precautionary situation in order to be prepared for unforeseen needs. Money is needed for speculation to catch the chance to get more money. The liquidity preference implies that income level effects for three purpose of money demand, transaction, precautionary situations and speculation. The liquidity preference for speculation purpose is affected by interest rates. In the Islamic view about money demand, money is demanded for transaction and precautionary purposes since the abolition of interest there is no way for speculation purposed money demand. Therefore the money demand become in this way:

$Md = kY + L(r)$ (Keynesian approach)

$Md = kY$ (Money demand in Islamic approach)

The equation in this way looks like classical and Cambridge approach's theories. Indeed, according to Islamic approach, there is a room for speculation purposed money demand but it is not the function of the interest rate. There could be place for speculation purposed money for financial assets complaint Islamic rules. Chapra (1996) argued that this purposed money demand is counted in transaction purposed money demand. The money demand in Islamic system becomes more stable with the absence of speculative purposed function of interest rate. It has to be made clear that speculation purposed money demand for equity based profit and loss sharing assets not like interest bearded assets. The profit sharing ratio is not like interest rate in comparing interest rate is extremely volatile and changing approximately every day. According to Chapra (1983) money demand is not just a function of income but also function of income distribution. When the income distribution becomes more equate, money demand increases. Islamic monetary policy is also responsible from equitable income distribution. As a monetary policy whole with its all objectives, monetary authority has to take account the increase in money demand due to more equate income distribution.

Money demand in Islamic economy can be also interpreted in the consideration of Friedman modern quantity theory. According to Friedman money demand equation looks like (Awad & Soliman, 2016: 72):

$$M_d/P = f(Y_p, R_b - R_m, R_e - R_m, \pi^e - R_m)$$

Friedman argued that real money demand is the function of permanent income, and relatively opportunity costs of holding money instead of holding bond, equity and goods. Friedman proved that demand for money is insensitive to the interest rates. Therefore, real money demand is the strongly affected the change in permanent income.

In the consideration of Friedman modern quantity theory (Awad & Soliman, 2016: 72) came up with the equation:

$$M_d/P = f(\gamma, P_c, P_c^e, RP_s, RP_e)$$

Obvious that the left side the equation is real money demand, and the right side the equation is relatively: real income, price of money, expected price of money, relative price of sukuk and relative price of equity.

(Awad & Soliman, 2016, 72) claim that the purchasing power of a monetary unit spent on goods and services P_c and real money demand have an inverse relation. When the P_c increase, real money demand decreases because of the holding money cost becomes higher. The expected purchasing power of money P_c^e and real money demand act in the same way. When the expected price of money P_c^e increases, the real money demand increases also due to future deflation expectation. Relative price of money spent on sukuk RP_s has an inverse relation with the real money demand but has a positive relation with expected return on sukuk. When the expected return on sukuk increases, relative price of sukuk increases however the real money demand decreases. Therefore the relation between real money demand and expected return on sukuk is negative.

4. THE EMPIRICAL STUDIES ON THE STABILITY OF MONEY DEMAND IN THE CONTEXT OF ISLAMIC ECONOMY

Darrat as an economist quite great contribution to the empirical analyses about monetary stability in Islamic economy field examine the money demand in Pakistan, Iran and Tunisia where the economy policies were adopted according to Islamic rules. In Tunisia, after the moving to the profit and loss sharing interest-free banking system macroeconomic performance and policy making process become better (Kia ve Darrat, 2003: 1). After the finding out the money demand stable in the short run, Darrat examine the long run money demand stability in Iran due to Iran is the one country has an long-run data unique Islamic banking system. The results of the long-run money demand stability in conformity with short run money demand. As the testing money demand for two monetary aggregates: M1 and profit sharing deposits. After these stability tests (Kia ve Darrat, 2003), examine the money demand equation as a policy invariant. According to econometric analyses of (Kia ve Darrat, 2003) monetary aggregates namely M1 and profit sharing deposits can be used as a policy invariant for monetary policy.

$$\ln M_t = \beta_0 + \beta_1 + \ln Y_t + \beta_2 \ln R_t + \mu_t$$

Darrat examine the stability of money demand based on the above logarithmic demand function. (Yousefi & Abizadeh & McCormick, 1997, 869) test the income velocity of money and relative effectiveness of monetary aggregates as a policy invariant compared with in the period pre-Islamic banking and post-Islamic banking. According to tests, the income velocity of money lower after the abolition of interest rate in economy in Iran compared with the previous time of abolition of interest rates. $M.V = P.Y$ the Fisher equation. If the velocity of money is stable or predictable, the monetary policy effectiveness increases. The increase in money supply leads output increases vice-versa. (Yousefi & Abizadeh & McCormick, 1997) claim that if the monetary base can be controlled almost completely by the monetary authority, effectiveness of monetary aggregates as a policy invariant compared with in the period pre-Islamic banking and post-Islamic banking is higher.

5. CONCLUSION

People are questioning more about the economic politics a few decades because of the increased income inequalities, crises, unemployment and so on. Particularly after 2008 crisis, people focus more about the Islamic finance that is because of the commitment of Islamic finance more stable and robust financial environment. As an economic policy monetary policy has been living its golden decades last a few decades. Monetary policy in the context of Islamic finance could be the way for more robust economy and social welfare. Although the limited progress in the monetary policy area, there are useful studies and empirical analyses. Firstly the economic environments in the absence of interest rates do not become such a chaotic situation. It is just a biased view. The interest rate is a phenomena found out by human. Oppositely, according to empirical analyses the absence of interest rates makes economic environment more silent, predictable and stable. What kind of the theory is based on about conducting monetary policy money demand aggregates vital for the effectiveness of policy.

REFERENCES

- Ariff, M. (1982). Monetary Policy in an Interest-Free Islamic Economy – Nature and Scope, in Ariff, M. (ed.), *op. cit.*, 287–302.
- Awad, I. and Soliman, A. (2016). The stability of the demand for Money function in Islamic and non-Islamic monetary policy regimes, *economis issues vol.21, Part 1*, 2016.
- Chapra, M. U (1996). Monetary Management in an Islamic Economy_, *Islamic Economic Studies*, 4(1), December, 1–35.
- Bernanke, Ben & Reinhart, Vincent: 2004 “Conducting Monetary Policy at Very Low Short-Term Interest Rates” *Aea Papers And Proceedings.*, pp. 85-90.
- Chapra, M. U. (1985) “ **Towards a Just Monetary System**”, The Islamic Foundation, UK.
- Darrat, A. and Kia, A. (2003). Modeling Money Demand under the Profit-sharing Banking Scheme: Evidence on policy Invariance and Long-run Stability
- Eğri, T. & Karasu, O. & Kızılkaya, N. (2013). **İslam İktisadını Yeniden Düşünmek**. İGİAD
- Hoggart, G. (1996). Introduction to monetary policy. Bank of England. UK
- İncekara, A. and Ustaoglu, M. (2014) **Islamic Finance Alternatives For Emerging Economies**. U.S.Apalgrave
- Tabakoğlu, A. (2013) **İslam İktisadına Giriş**. İstanbul.
- Yousefi, M, Abizadeh, S. and McCormick, K (1997) Monetary Stability and Interst free Banking: the Case of Iran, *Applied Economics*, 29, 869-876.



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BARTER SYSTEM AS AN INNOVATIVE AND ALTERNATIVE FINANCIAL AND TRADE MODEL DURING THE PERIODS OF ECONOMIC CRISIS AND RECESSION AND ITS IMPORTANCE FOR BUSINESSES

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ABSTRACT

Today, increasing trade and financial integration between countries with globalization leads to intense competition and global economic crises in national and international markets. Due to these developments, the companies have some difficulties carrying on their business with traditional marketing and financing techniques and use alternative methods. One of them is barter system, which is based on the principle of buying and selling goods and services without using money. Barter is innovated form of exchange system, which has been used as a trading method since the early ages; today, it is also used as a counter-trade type. Barter offers companies various benefits such as moving overstock, utilizing idle capacity, increasing sales, finding new markets, supplying interest-free credit, conserving cash, debt configuration, foreign trade facilitation. The aim of this study is to examine the benefits of bartering in terms of commercial and financial dimensions. As a result of the study, it has been determined that barter is an innovative alternative to traditional mentality based on interest, and It is a type of trade and finance that will contribute to the country's economy by relaxing companies even in times of crisis. Nevertheless, it has been determined that barter instrument is not well recognized in Turkey, barter industry is not institutionalized, national and international barter transactions has not become widespread enough. Legal regulations are needed for effective, safe and widespread application of barter.

Keywords: Barter finance, competition strategy, economic crisis, innovation management, international trade

JEL Codes: M00; M10

1. INTRODUCTION

Today, it is often unsuccessful to be able to cope with the expansion of national and international trade volume and financial crises with standard financing and marketing techniques. The methods such as leasing, factoring and forfaiting are still money based and are ineffective at lowering the cost of money. For this reason, the best way to reduce the cost of money is not using money, which is the most important cost element of trade, to use non-money based techniques that can transform business resources economically. One of the methods that companies apply to increase the competitiveness both in the national and international markets and to overcome the cash troubles they have during crisis periods is barter method which is based on the principle of buying and selling goods and services without the use of money. Barter is an economy that has been practiced for centuries as the exchange of goods and services with other goods and services without using money (Terry and Gary, 1996: 167). Today, barter transactions are made in two types, bilateral (classical) and multilateral (modern) barter (Toroslu, 2010: 5); barter industry operates in three different ways, retail barter, corporate barter and international barter (Şimşek, 2004: 29); barter applications are performed in two types, full barter (%100 barter) and partial barter (Söztutan, 2004: 30). Barter offers exceptional solution alternatives for increasing sales, moving overstock, utilizing idle capacity, appropriate financing, marketing and advertising, protection from crises, cash saving (Uyan, 2013a: 2). The purpose of this study is to introduce barter technique, to explain operation process of barter in our country, to examine the benefits of barter for companies with commercial and financial aspects. In this context, firstly barter concept and its development are discussed. Then the barter types are explained with examples and the advantages

and the difficulties of each type are explained. In the conclusion and suggestions section, the subject was evaluated according to the information provided and findings obtained, and suggestions for the future of barter system have been made.

2. DEFINITION OF BARTER

Conceptually, barter is a trading and financing tool that is based on centuries ago in the economy, though it is still new today. Simple definition of barter system is the exchange of goods or services without money (Edwards, 1996: 7). The Barter word is derived from the English language and is described as "Exchange (goods or services) for other goods or services without using money" in the Oxford Dictionary (Oxford Dictionaries, 2017). In Turkish, there is no barter word, but in many definitions of barter, the word "exchange" is used. In Turkish Language Dictionary prepared by Turkish Language Association (TDK), the exchange word is defined as "payment of the cost of deal made between two countries via reciprocal goods" (Güncel Türkçe Sözlük, 2017). In TDK's Dictionary of Economic Terms, the exchange word has been shown as the meaning of the English word "barter" (İktisat Terimleri Sözlüğü, 2017). Barter is a technique developed by inspiration from the exchange system which is the oldest and simplest form of trading methods (Karluk, 2003: 437). Barter as an international trade method means the exchange of goods between two countries without using money (Madura, 1992: 383). As a corporate trade type, barter is the name of a system in which companies exchange goods and services directly with other companies, especially in order to relieve liquid position and overstock (Yakovlev, 2000: 280). In foreign sources, barter is defined as the exchange of what you have for what you need (Tugend, 2009: 8). As a matter of fact, barter system in Turkey is also introduced with the concept of "give your excess and take your need" (Barter Yeni Ekonomi, 2002: 10). In emerging economies, the activities of barter traders do not only make it easier to spread existing resources more efficiently, but also provide for the growth of resources (Bauer, 2000: 4). Barter is therefore a special financial instrument that transforms the economic resources of countries and companies into economic gain. Today's modern barter system provides the exchange of goods and services in an organized market. In the literature, this organized barter type is referred to as "multilateral barter" and "financial exchange". But barter is a financing tool more contemporary and comprehensive than simple exchange (Özkan, 2002). Today, barter system is also referred to as "stock exchange of the goods and services" (Alptürk, 2009) and "free trade" (Şimşek, 2004: 28). Indeed, today's modern barter system is created by the organizer company, there is a common market where companies that are members of the system can shop with each other and the goods or services purchased in this market are paid by goods or services produced or traded, not by money (Yeşiloğlu and Yiğit, 1996: 16). Therefore barter is a financing instrument that a firm can buy goods and services needed and a trading technique by which a firm can sell goods and services produced .

3. DEVELOPMENT OF BARTER

On the basis of barter, there is the exchange of something you have for something you need. In the early ages when trade was made in the simplest form, mankind was using their excess for their needs, so that goods and services were exchanged between sides. First the coin, then banknote, started to be used in the economy, then exchange and similar contracts have fallen into desuetude. The exchange system, which lost its significance along with the invention of money, become a current issue of companies and countries again in order to get rid of the world economic crisis of 1929 (Uyan, 2013a: 1). Due to the collapse of trade, from 1930 to 1933, most European countries have made many barter agreements. In particular, Germany has supplied food and raw materials from European and Latin American countries through barter. In those years, due to the war and the economic crisis, international barter, one of the counter-trade techniques, was applied. But then barter applications began to spread to the business level as well (Sürmen and Kaya, 2001: 131). On the other hand, private sector companies have always used the corporate barter method by themselves, they have bought their needs from the company and they have sold their products to same company, so they made bilateral barter. Over time, barter technique was renewed, innovated and systematized with the effect of technological developments, organized barter applications operated by barter companies has started, thus barter started to be applied as multilateral changes between goods and services.

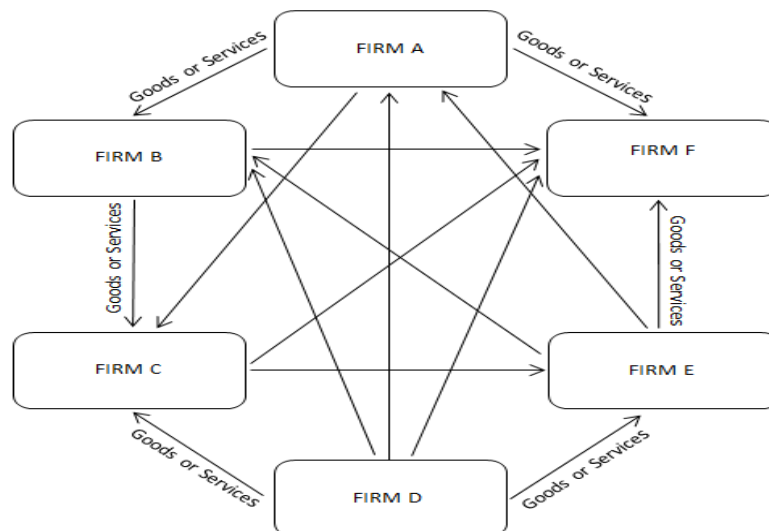
According to US Department of Commerce, barter constitutes about 30% of total world trade in various forms. The Business Trend Analysts research has found that 40% of world trade is done with barter system. Again according to US statistics, barter trade has increased around 16% per annual (Saygılıoğlu, 2009: 197). The oldest known barter organization was established in Switzerland in 1934 (Arslan and Aykutlu, 1999: 2-3). Organized barter system is most commonly applied in USA. Today more than 900 barter companies are operating in various countries and more than 700 thousand companies actively trade barter (Toroslu, 2010: 68). In Turkey, barter organizations have been operating since the 1990s (Bayrav, 2009: 8), and barter system began to be recognized in 1994 economic crisis when overstock of companies were utilized by barter.

4. BARTER TYPES, ADVANTAGES AND DIFFICULTIES

4.1. Retail Barter (Organized Barter)

Retail barter is a type of barter that a company that is a member of a barter organization pays for goods or services bought from this barter market by selling goods or services that they produce or trade on this market. This practice is also known as barter exchange, retail barter or organize barter. Retail barter can be applied by the companies from every scale and sector, especially retailers, service producing companies and self-employed people (Uyan, 2013a: 29). There is no specific regulation for barter system in our country, in law and in national accounting standards, but the existing regulations do not preclude the establishment of barter companies and barter transactions through these companies (Arzova, 2000: 24; Acar and Tekşen, 2007: 5). Organized barter system has applied since 1930s in the world and since 1990s in Turkey. Today, a wide variety of goods and services are exchanged in barter market in our country, such as real estate, written and visual advertising, construction materials, airline tickets, car rental, hotel accommodation, hospital services, ready made clothing, furniture and educational services. Barter company, like a brokerage house, organizes the realization of the exchange between the member companies with barter system. This allows member firms to finance their needs by selling their own goods or services. Companies must sign barter agreement with barter company for membership (Erkan, 2000: 2-4). Main records (supplies and demands) showing which goods and services can be sold or bought in the system are operated by barter company and presented to the member companies. All of the members are served by barter brokers. Barter transactions are followed by barter authorities of member companies. Transactions are made on 100% barter (full barter) or partial barter basis. Barter organization records multilateral barter transactions made by member firms with barter checks as debt or receivables to the current accounts of the companies. (Şimşek, 2004: 29). Member companies can get their needs from barter system within the purchase credit limits (Erkan, 2000: 2). The purchase limit occurs when the company sells or provides guarantee in barter system (Uyan, 2013a: 71). Barter member can get the product need without paying money from another barter member in the system, and it has to sell its goods or services to the other barter members within the determined time in return (Erkan, 2000: 2). The member company that can not make the payment with the goods or services within the determined period has to pay its debt to the barter company in cash. In barter transactions, barter company is in charge of the brokerage house and all responsibility (in terms of price, quality, delivery, after-sales service) belongs to buyer and seller. The membership of the company can be terminated at the end of the barter membership contract or at the request of the member, or if the barter company considers it necessary (Uyan, 2013a: 71). The member company pays barter company operating barter system for all these services, the annual membership fee and the purchase and sales commission determined by the contract (Türk Barter Üyelik Sözleşmesi, 2011: 5). Retail barter operations are performed multilaterally. Multilateral barter eliminates situations where bilateral barter transactions are not possible or unsatisfied, and offers many alternatives to supply and demand (Zügül, 1998: 104-125). In multilateral barter transaction, many member companies come together through the organization of a barter company, and they make shopping with each other. This multi-sided and multi-commodity trading chain, made in the form of cross exchanges in barter market, continues unlimited.

Figure 1: Multilateral Barter Transaction



The main benefits of organized barter are as follows;

-Barter increases liquidity. If the companies buy the goods and services they need from the barter system, they will not face any payment difficulties and an increase in cash flow will be seen. The cash surplus in this case will enable the company to make new investments and grow (Polat, 2002: 63).

-Barter provides interest-free goods and service credit. Barter members pay the cost of goods and services they buy from the system with their own goods and services for a certain period of time (usually 12 months). However, if they can not sell their goods and services within this period, the debt is paid in cash at the end the period (Bayrav, 2009: 15). Thus, the companies that are members of barter system use goods and service credit with maturity up to 12 months at 0% interest rate.

-Barter allows overstock to be moved. Failure of the business marketing network to work effectively can result in excess stock. Especially the excess stock that can lose the update brings significant cost to companies. In this case, the companies can use barter system to move their overstock without affecting the existing sales and distribution network and receive the goods and services they need (Doğan, 2001: 44).

-Barter activates the idle capacity. Member companies can use their idle capacities in barter market by utilizing some of the capacity they can not fully use and thereby they can reduce both the unit cost of fixed costs and provide a part of the financing needed for production (Tekşen, 2006: 46-47).

-Barter provides a collection guarantee. Barter company guarantees the price of the goods sold with the guarantees it receives from the member companies. Thus, when the companies sell with the approval of barter company, the guarantor of the receivables of them becomes barter company, even if the buyers of the seller companies are bankrupt, receivables are collected by purchasing goods and services of other companies in the system (Polat, 2002: 63-64).

-Barter provides competitive advantage. Since the barter system is made by considering supply-demand balance, it is not allowed that many companies that produce the same product are presented in system. Thus the member company does not encounter many competitors operating in its own sector (Uyan, 2013a: 87).

-Barter offers free and effective advertising and promotion. Detailed information about the products of the member firms in barter system are recorded systematically in barter information bank, this information is available on the internet for use by all companies in the system (Gökmen, 2005).

-Barter increases sales. Since each supply in the barter system brings together the demand, the member companies can increase the production, the customer, the sales and the turnover (Polat, 2002: 60).

-Barter provides profit increase. Barter system increases sales through the use of idle capacity. Profit rates of member companies are increasing since sales increase without additional expense (Polat, 2002: 60) and the interest burden has ceased since cash is not used in the system (Doğan, 2001: 44).

-Barter enables effective marketing. Barter system categorizes the demands of the member companies, analyzes the market for the demands, brokers mediate the transactions of the members (Oduncuoğlu, 2007: 38-39). The system works like a private club, shopping is done only among the companies that are members of the system. Thus, member companies can make purchases and sales by meeting the companies they do not know (Tekşen, 2006: 48). The fact that the member companies do not try to find the suppliers of the products they want to buy and the customers to sell their products means that they can save on staff and time.

-Barter allows financial structuring. Barter system can be used to restructure companies' accumulated debt and risky receivables. For this, market debts are paid by utilizing the overstock and idle capacity of the company, and market receivables are collected as goods and services (Uyan, 2013b: 7).

-Barter system provides foreign trade convenience. As barter company deals with barter companies in other countries, system member companies get to know barter system members in other countries and get foreign trade with them (Polat, 2002: 64).

-Barter provides various macro advantages. The purchase and sale transactions among the member companies in barter system are made on an invoiced basis, this will contribute to prevent of informal economy (Toroşlu, 2010: 56-57).

The main difficulties of organized barter are as follows;

-The cash flow balance may be impaired. As long as the company that has sold goods and services in barter system can not find the goods and services demanded in the system, its receivable remains as an idle fund in barter system (Oduncuoğlu, 2007: 43-44).

-Debtor company can not make a sale in the system. If the company that is borrowed by buying goods in barter system, can not sell goods and services in the system for a certain period (usually 12 months), it will have to pay the system in cash (Polat, 2002: 66).

-Collection from the debtor company may not be possible. Receivables in barter system belongs to all the member companies. Barter company collects the receivables on behalf of the companies in the system. Barter company first tries to collect the receivable by converting guarantee that has received by debtor member into money. If the receivable can not be partially or fully collected, legal ways are tried. If it can not be collected again, barter company will show that receivable as expense (Demiral, 2000: 26).

- Commission and membership fee are incurred. Transaction commission and membership fee are paid to barter company for buying and selling transactions (Tekşen, 2006: 51). Although the member companies receive services such as brokerage services, free promotion, marketing, etc., the commissions and fees make a cost increasing effect for a company that can not use the system efficiently.

-There is a need to provide strong guarantees. Barter company guarantees payment to its member companies for receivables to be formed as a result of exchange of goods and services in the system. For this reason, barter company only permits companies that provide strong guarantees to use credit and purchase goods and services from the system. Companies that can not provide proper guarantee are asked to sell goods first. (Oduncuoğlu, 2007: 44).

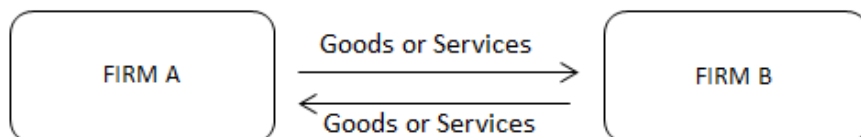
-There is no special legislation of barter system in Turkey. However, since the components contained in the system are defined in separate trade laws, barter system can be operated (Oduncuoğlu, 2007: 44). These legal gaps can lead to the arbitrary establishment of barter companies and the difficulty of creditor companies.

-No special accounting standards have been established for barter system in Turkey. The system data is accounted for according to the uniform chart of accounts (Acar and Tekşen, 2007: 5). However, there is no explanation about how to implement the chart in barter transactions, so there are differences in the practice of registering barter transactions.

4.2. Corporate Barter

Especially in order to move their overstock, companies such as producers, main distributors and wholesalers exchanges their goods and services with the companies they are in business with, this is called corporate barter (Arslan and Aykutlu, 1999:9). The transactions can be made in partially cash, remaining barter or 100% barter. (Şimşek, 2004: 30). Generally this type of barter is used by construction, automotive and advertising sectors. For example, contractors buy construction materials for floors. In automotive sector, sometimes the old car is exchanged. Media companies exchange their advertising services with the products of the companies they are advertising. Media organizations such as newspapers buy the products such as books, detergents and toys for advertisement, then they give them to the readers as promotions.

This type of barter means; when two companies are interested in each other's products, the company managers will see barter as a special type of transaction involving the goods exchange of business world. (Yakovlev, 2000: 280). As a matter of fact, corporate barter transactions are performed bilaterally. Bilateral barter is the simplest form of barter and is based on reciprocal exchange of the goods of two companies (Kırılıoğlu, Akaytay and Bağdat, 2005). In bilateral barter, there are only two parties that trade between each other, both parties are both buyer and seller.

Figure 2: Bilateral Barter Transaction

The main benefits of corporate barter are as follows (Şimşek, 2004: 30);

-Slow moving inventories are converted into current receivables.

- Barter helps to evaluate the idle capacity.
- Barter allows to increase the market share with little or no cash investment.
- Barter enables the establishment of new marketing networks.

The main difficulties of corporate barter are as follows;

-Since the corporate barter is implemented as bilateral barter process, supply and demand can not be balanced. Because it may not be possible to fully match the value of the goods sold with the goods of the buyer, or the seller may not need the goods offered to him in response to what he wants to sell (Bayrav, 2009: 10).

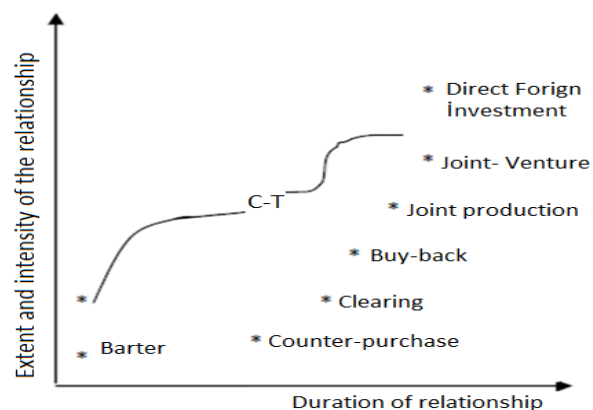
-In order to implement corporate barter operations in a systematic way, it would be appropriate to set up a special barter department in company and to give instructions to the sales and purchasing personnel to do barter deals. Otherwise, employees prefer to sell and purchase by standard methods.

4.3. International Barter (Counter-trade)

International barter is generally implemented in the form of counter-trade agreements (Uyan, 2013a: 31). Counter-trade is an international trade involving governments of two countries or companies in different countries (Toroslu, 2010: 20) and that is not all done in cash. Counter-trade is a general definition and is called in different ways depending on the goods sold, the type of payment made with the goods, the time of payment, the number of parties involved in the transaction, whether or not cash is used in the transactions (Durmuş, 2005: 13). Counter-trade refers to the exchange of goods, services, or technology whose prices are fixed in a certain currency, between countries for also the transfer of goods, services, technology or receivables, not for cash (Tekşen, 2006: 39). Counter-trade is preferred, especially when foreign currency distress is experienced and the value of the national currency is lowered or seen as an unsafe exchange instrument (Ersun and Arslan, 2010: 174).

Counter-trade has been recognized as an important mechanism in international trade and even developed countries have seen it as an alternative to little or no sales (Oyman, 2005: 40). Modern counter-trade practices in the world economy began with the 1929 world economic crisis (Uyan, 2013a: 31). Countertrade has had an important place in world trade, especially after 1945. It was developed under the leadership of the former eastern bloc countries. (Arzova, 2000: 7). Since the early 1970s, bilateral trade has been carried out between the countries developing and have liquid problems. Often mines, agricultural products and some industrial goods has been subject of counter-trade agreements (Arslan and Aykutlu, 1999: 10). The main types of counter-trade used in international trade, in other words, the forms of payment in foreign trade; buy-back, buy-sell, compensation, counter-purchase, offset deals, switch trading, clearing agreements and classical barter (Ersun and Arslan, 2010: 175). In practice, it is seen that the types of counter-trade traditionally consist of barter and clearing, and often carried out by state. Counter-trade techniques differ in terms of two main criteria. These are the duration of the relationship between the parties and the density and scope of the relationship. According to this; if the relationship between the reciprocal trading partners is strong, intensive, comprehensive and long-lasting, this will bring the parties closer to new possibilities for cooperation, closer to the rooted relations and and harmonizes the work and the arrangements between the parties. Otherwise, short-term techniques like barter take over (Ersun and Arslan, 2010: 177-178).

Figure 3: Counter-Trade Types (Ersun and Arslan, 2010: 177)



Barter, one of the types of counter-trade, is a trade conducted between two exporters and importers in two different countries by exchanging goods. The basic principle of the system is that the exporter has to import as much as the cost of the goods exported and the importer has to export the goods as much as the cost of the goods imported. In this type of trade, because of international exchange, the foreign trade transactions are realized without the use of convertible foreign exchange and foreign trade deficit does not arise. The goods exchanged by barter are generally unrelated with each other. The process time is relatively short and is about two years at the most. International barter deals are particularly made for strategic goods such as cereals, pulses, mineral ores (Ersun and Arslan, 2010: 175). Indeed, in the past, Iran has sold petroleum weapon; Pepsico, an American company in the 80's, sold pepsi to Russia and bought Russian vodka Stolichnaya to market in US; Philips Morris bought urea for making artificial fertilizer by selling his own cigarette to Russia, then exported it to China and bought glassware to sale in US (Polat, 2002: 11).

The main benefits of international barter are as follows;

- Barter protects cash money in the country (Şimşek, 2004: 31).
- Barter increases the product variety for export (Şimşek, 2004: 31).
- Barter enables access to new markets (Şimşek, 2004: 31).
- Barter increases production capacities (Şimşek, 2004: 31).
- Barter provides continuity of prices of export goods (Şimşek, 2004: 31).
- When a country buys goods with barter it will also sell the goods, so barter will support to close foreign trade deficit (Ersun and Arslan, 2010: 175).
- In barter system, imports are realized without paying cash over USD and EURO, therefore there will be no decrease in Central Bank foreign exchange reserves due to barter trade (Toroslu, 2010: 56-57).

The main difficulties of international barter are as follows;

- Companies do not have enough information about procedures of barter technique.
- Logistics costs cause companies to hesitate to apply international barter.

5. CONCLUSION

Companies are turning to alternative economic methods in order to survive in today's economic conditions where financing is expensive, demand is decreased, market has become stagnant, competition has increased, global crises are experienced. One of these methods is barter model which can convert the resources economically and is not based on money. Barter, which has been used in different forms from the past to the present, has succeeded to be trade and finance method of every age. Today, innovative elements have been added to barter method which is the oldest method of trade and the method is being reused in this way. Today's barter industry is applied in three different types; retail (organized) barter, corporate barter and international barter. Barter is now a system that serves hundreds of sectors and hundreds of thousands of companies. Moreover, not only commercial enterprises, but also public institutions, professional organizations, municipalities and even governments are involved in the barter market to finance their needs with idle capacities. Companies in our country use barter system mostly for idle capacity, stock excess, liquidity problems, accumulated debts, risky receivables, financing and marketing problems.

While the use of barter is increasing worldwide, there are some difficulties in using and adopting the benefits of this technique in Turkey. In order to overcome these difficulties, some regulations especially for organized barter type are needed. First of all, legal arrangements should be made in Turkish legal system regarding the definition and operation of barter system, so that it will be possible to trust the system and to spread the system over a large mass. It is also important to regulate accounting standards for barter system in order to provide uniformity in accounting of barter transactions. It would also be useful for companies to come together and form a barter union for the institutionalization of barter industry, to provide education and training for the system, to set standards for the operation of the system, to adopt common codes of ethics, to create joint accounts. The system guarantee fund is used for the purpose of obtaining the product needed from outside the system or making cash payment to the member company in case the creditor member company can not purchase the product from the system and it is duty of the official authorities to operate this fund properly. It is necessary to apply the necessary sanctions to the member companies who do not supply of real price goods or services in barter market. On the other hand, with the special definition of barter transactions in the foreign trade legislation, international

barter transactions will be increased, thus Turkey's foreign trade deficit will be reduced and the firms in our country will be recognized in foreign markets.

Barter technique presents important opportunities for the companies from every sector and every scale, even every country both in economic stagnation and welfare periods, and it is spreading as an alternative model today. Bartering will be one of the commercial and financial techniques accepted in economic life by making regulations that will ensure the healthy operation of the system in our country.

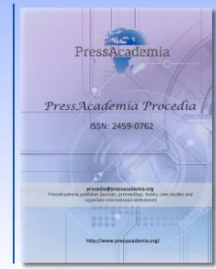
REFERENCES

- Acar, D., Tekşen, Ö. 2007, "Barter Sisteminin Muhasebe Uygulamaları Açısından İncelenmesi", *Süleyman Demirel Üniversitesi İ.İ.B.F. Dergisi*, vol. 12, no. 3, pp. 1-18.
- Alptürk, E. 2009, "Barter - Çoklu Takas Organizasyonu", <http://www.xing.com/net/bartergame/fikirler-oneriler-geribildirim-297896/firmaların-barter-sistemini-kullanma-nedenleri-ve-sekilleri-23062925/>
- Arslan, C. M., Aykutlu, F. 1999, "Barter Uygulaması", Sirküler Rapor Serisi, *TÜRMOB Yayınları-97*, serial no. 27, Ankara.
- Arzova, S. B. 2000, *Barter İşlemleri-İşleyişi, Hukuki Yönü ve Muhasebeleştirilmesi*, Türkmen Kitabevi, İstanbul.
- Bauer, P. 2000, *From Subsistence to Exchange and Other Essays*, Princeton University Press, Princeton, N.J.
- Barter Yeni Ekonomi*. 2002, "Yeni Ekonomi, Barter: FazlanıVer, Eksiğini Al", no. 49, pp. 10-11.
- Bayrav, M. H. 2009, "Alternatif Ticaret ve Finansman Tekniği Olarak Barter Sistemi", *Yayınlanmamış Yüksek Lisans Tezi*, Marmara Üniversitesi, S.B.E., İstanbul.
- Demiral, H. 2000, "Barter Şirketlerinde Tahsil Edilemeyen Alacakların Gider Yazılması", *Vergi Dünyası Dergisi*, no. 228, pp. 67-69
- Doğan, Z. 2001, "Yeni Bir Finansman Tekniği Olarak Barter ve Muhasebeleştirilmesi", *Muhasebe ve Denetime Bakış*, no. 3, pp. 41-55
- Durmuş, C. N. 2005, "Barter İşlemlerinin Muhasebeleştirilmesi ve Bir Öneri", *Yayınlanmamış Doktora Tezi*, Marmara Üniversitesi, S.B.E., İstanbul.
- Edwards, A. 1996, "Better Business Bartering", *Essence*, vol. 27, no. 8.
- Erkan, M. 2000, "Yeni Bir Finansman Aracı Olarak Barter'in Diğer Finansman Teknikleri ile Karşılaştırılması", *Active Bankacılık ve Finans Dergisi*, no. 12, pp. 80-85.
- Ersun, N., Arslan, K. 2010, "İslam Ülkeleri Arasındaki Ticaretin Geliştirilmesinde Çok Taraflı Kliring Birliği Projesinin Rolü ve Önemi", *Muhasebe ve Finansman Dergisi*, no. 48, pp. 172-190
- Gökmen, S. 2005, "Barter Sistemi, Sisteminin İşleyişiyle Bu Sistemde Kullanılan Barter Çeklerinin 6183 Sayılı Kanun Karsısındaki Durumu", *Vergi Sorunları Dergisi*, no. 201, pp. 66-71.
- Güncel Türkçe Sözlük*. (04.04.2017), Türk Dil Kurumu, <http://www.tdk.gov.tr>
- İktisat Terimleri Sözlüğü*. (04.04.2017), Türk Dil Kurumu, http://tdk.gov.tr/index.php?option=com_bilimsanat&view=bilimsanat&kategori1=bakdetay2&sozid=IKT
- Kirlioğlu, H., Akaytay, A., Bağdat, A. 2005, "Bir Alternatif Finansman Modeli: Barter İşlemleri ve Muhasebeleştirilmesi", *Journal of Qafqaz University*, no. 15, pp. 15-31.
- Karluk, R. 2003, *Uluslararası Ekonomi-Teori ve Politika*, 7.Baskı, Beta Yayınları, İstanbul.
- Madura, J. 1992, *International Financial Management*, West Publishing, 3.Edition, St. Paul MN.
- Oduncuoğlu, F. 2007, "Konaklama İşletmelerinde Barter Sistemi Uygulamasının Pazarlama Fonksiyonuna Etkisinin Analizi: Barter Sistemine Üye Olan Konaklama İşletmelerine Yönelik Bir Uygulama", *Yayınlanmamış Yüksek Lisans Tezi*, Anadolu Üniversitesi, S.B.E., Eskişehir.
- Oxford Dictionaries*. (04.04.2017), Oxford University Press, <https://en.oxforddictionaries.com/definition/barter>
- Oyman, M. 2005, "Pazarlama Bakış Açısıyla Karşılıklı Ticaret ve Uygulama Süreci", *Pazarlama Dünyası*, no. 2005-1.
- Özkan, A. 2002, "Barter İşlemleri ve Muhasebe Uygulamaları", *Erciyes Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, no. 18, pp. 63-86.
- Polat, D. 2002, "Bir Finansman Tekniği Olarak Barter Sistemi, İşleyişi ve Türkiye'deki Barter Uygulamaları", *Yayınlanmamış Yüksek Lisans Tezi*, Anadolu Üniversitesi, S.B.E., Eskişehir.

- Saygılıoğlu, N. 2009, "Barter Sisteminin Tanımı, Önemi, İşleyişi ve Etkileri", *Yaklaşım*, no. 199, pp. 196-199.
- Söztutan, S. 2004, "Türkiye'de Barter İşletmeleri ve Muhasebesi", *Yayınlanmamış Yüksek Lisans Tezi*, Marmara Üniversitesi, S.B.E., İstanbul.
- Sürmen, Y., Kaya, U. 2001, "Barter ve Muhasebe İşlemleri", *Vergi Dünyası*, no. 239, pp. 130-139.
- Şimşek, M. S. 2004, "Parasız Ticaret: Barter", *Kapital Medya Yayınları*, İstanbul.
- Tekşen, Ö. 2006, "Barter İşlemlerinin Muhasebeleştirilmesi ve Vergilendirilmesinin Yeni Finansal Tekniklerle Karşılaştırılarak İncelenmesi: Bir Araştırma, Doktora Tezi", *İktisadi Araştırmalar Vakfı (Ünal Aysal Tez Değerlendirme Yarışma Dizisi; 5.)*, İstanbul.
- Terry, N. L., Gary, E. K. 1996, *Barter & The Future Of Money: The Currency Crisis*, Master Media Limited, Newyork.
- Toroslu, M. V. 2010, *Barter İşlemleri ve Muhasebesi*, Adalet Yayınevi, Ankara.
- Tugend, A. 2009, *Trading What You Have for What You Need*, New York Times.
- Türk Barter Üyelik Sözleşmesi*. 01.05.2011.
- Uyan, Ö. 2013a, "Alternatif Bir Ticaret Modeli ve Finansman Tekniği Olarak Barter Sistemi ve Türkiye'deki Barter Uygulamaları", *Yayınlanmamış Yüksek Lisans Tezi*, İstanbul Aydın Üniversitesi, S.B.E., İstanbul.
- Uyan, Ö. 2013b, "Finansal Sıkıntıdaki İşletmelerde Yeniden Yapılandırma Süreçleri", *Barter Finans Dergisi*, no. 22, pp. 7-8.
- Yakovlev, A. 2000, "Barter in the Russian Economy: Classifications and Implications (Evidence From Case Study Analyses)", *Post-Communist Economies*, vol. 12, no. 3, pp. 279-291.
- Yeşiloğlu, T., Yiğit, S. 1996, "Barter ile Ticaret Çok Avantajlı Oldu", *Ekonomist*, no. 47, s. 17.
- Zügül, M. 1998, "Reform Ülkelerinin Dış Ticaretinde Barter ve Diğer Ödeme Şekilleri-Kırgızistan Uygulamaları", *Yayınlanmamış Doktora Tezi*, Marmara Üniversitesi, S.B.E.



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REVIEW OF THE PRACTICE OF PORTER'S GENERAL COMPETITIVE STRATEGIES IN CAR RENTAL ENTERPRISES

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ABSTRACT

The purpose of this study is to examine the practices of Porter's general competitive strategies (cost leadership, differentiation, focusing and stuck in the middle) on car rental enterprises in Turkey and to contribute to future studies. The data has been obtained from 200 car rental enterprises operating in İstanbul and Antalya in the research. As a result of the research, it has been revealed that the enterprises apply differentiation, cost leadership and focusing respectively among the competitive strategies and there are also enterprises that are trapped between them without choosing any of these strategies. In addition, a difference has been found between the managers' gender, marital status, mission, level of education, educational field, number of branches of the business, number of vehicles and perception of competition strategies. It can be suggested that car rental enterprises will be successful if they implement competitive strategies.

Keywords: Tourism, car rental, competitive strategies.

JEL Codes: G10, G32

1. INTRODUCTION

The car rental sector provides billions of dollars of income to the economy of many countries. For example, in the US with 2.3 million rental cars capacity in 2016, the car renter sector's contribution to the economy was about \$28.4 billion (www.autorentalnews.com). In the world, the car rental industry is most prevalent in the US, Europe and other developed countries. The sector is also growing in developing countries such as India, China and Brazil (Tyya, 2007: 112). In Turkey, car rental companies operating in airports and big city centers in the past years provides services in many tourism regions as a result of rapid developments in the tourism sector (MEB, 2007: 55). In Turkey, 6-7% of the operational rentals are made by the public, although there is no clear data regarding the sector's operational and daily rental market. The market share of the top 10 largest firms in Turkey is 69% and the remaining 31% is shared by hundreds of various-sized firms (Karaboğa, 2012: 2). In the car rental sector, İstanbul takes the first place with 70% share, followed by Ankara at the second İzmir at the third. However, in summer, the trend reverses and there is a shift towards tourism centers such as Antalya, Muğla and Aydın (www.turizm gazetesi.com).

The car rental sector in Turkey, along with tourism and business activities, has shown significant improvement due to the increase in the middle-class population with high disposable income, and the acceleration of the infrastructure investments by the government. Turkey's favorable economic environment has made the country an attractive destination for car rental operators. Turkish car rental sector grew by 8.21% in 2007-2011 period and reached \$3.3 billion in 2011. The sector is expected to grow rapidly, reaching 5.4 billion dollars in 2016 and growing by 10.11% over this period (Market Publishers Report Database, 2012: 55). The car rental industry has a very competitive structure. The sector is shaped by intense price and service competition. Competition is primarily based on other factors such as price, reliability, vehicle status, national distribution, availability of reservation systems, renting and returning convenience and customer service. Competition in the car rental sector is strongly influenced by advertisement, marketing and brand reputation (Datamonitor, 2011:7), other transportation systems such as planes and taxis (Marijanovic, 2010: 113), fuel and plane ticket prices, vehicle size and type (Mancini, 2012: 175).

In the tourism literature, there is almost no focus on rent-a-car establishments (Marijanovic, 2010), while there is a considerable interest in topics such as hotels, food and beverage or gastronomy, tour operators, railways, roads and

destination management. Again, there is little emphasis on competition strategies in tourism literature (Enright & Newton, 2004; Llo, 2012; Garcia et al., 2016). In this study, the competition strategies of car rental companies (cost leadership, differentiation, focusing and stuck in the middle) will be emphasized and information about competition in car rental companies will be provided. The paper is organized as follows. Section 2 describes conceptual framework. Section 3 describes research methodology, Section 4 reports and discusses the empirical findings. And the final section gives conclusions and assetments.

2. CONCEPTUAL FRAMEWORK

In general, the car rental sector is divided into three market segments: travel, financial leasing and replacement car market. In this case, it can be regarded as TOURISM + BUSINESS + LOCAL market (Geraghty and Johnson, 1997: 109). A number of international car rental giants in the sector including Europcar, Hertz, Avis Budget, Sixt, Alamo, Zipcar, Dollar and Enterprise, as well as many local enterprises are operating in the region (Yang et al., 2009: 1202). The car rental sector takes place in two forms: long-term car rentals (more than 12 months) and short-term car rentals (hourly/daily /monthly). Long-term car rental activities are mainly divided into operational renting and financial renting. Short-term car rental activities take place in two forms: daily car rental and one-year minimum rental (Gençler, 2012). In operational renting, the rental company undertakes all variable and fixed costs such as maintenance, repair, insurance, tax and service follow-up (Kesenci, 2010: 83). In the financial leasing method, while the ownership of the vehicles is in the leasing company, costs such as maintenance, repair and depreciation expenses of the vehicles are undertaken by the leasing customer (Gezer ve Çiçek, 2011: 175). The renting customer is responsible for all costs incurred during the use of the vehicle (fuel, accident, breakdown, bridge and highway crossings, traffic fines, etc.). Competition is the entirety of activities to gain superiority and to surpass the competitors (Funk et al., 2009: 45). Competition, according to the law on the protection of competition no. 4054, is a race that allows free economic decisions to be made among the enterprises in the goods and services markets. The competitive strategy is analyzing the sector or industry in which an operator is involved from a competitive point of view; then the things done or intended to be done to achieve competitive advantage against the competitors in the industry and thus achieve the business goals (Porter, 2000).

2.1. Cost Leadership Strategy

Cost leadership requires the establishment of operational facilities with efficient scale, obtaining strong cost reductions from experience, strict cost and overhead control, avoiding small client accounts, and the reduction of costs in areas such as R&D, service, sales force and advertisement (Porter, 2000: 44). By creating a cost advantage in this way, it is possible to increase the number of customers and hence the market share via shifting towards a wider market (Bahar and Kozak, 2012: 98). The business sense of the companies in the car rental sector can be divided into groups according to these competition strategies. For example, companies operating outside the airport follow the cost leadership principle. To maintain this strategy, businesses need to reduce costs, overhead, R & D, the service sales force and advertising costs and require strict cost control. In fact, although all companies pay the same price for their vehicles, businesses operating outside the airport can rent cars at low prices (Pachon, 2000: 65).

2.2. Differentiation Strategy

The differentiation strategy is the ability to offer a unique product or service. By differentiating the product or service offered by the business, the business will be in a more advantageous position compared to the products, technologies, images and services offered by its competitors in all sectors (Aktan and Vural, 2004: 47). The businesses that anticipate the changes in the customer profile and requests in due time and determine the appropriate differentiation will further increase their market share by preserving their competitive position (Bahar and Kozak, 2012: 98). In the differentiation, brand loyalty of the customer is created and the price sensitivity decreases. In the maturing car rental sector, the eligibility necessary for high-priced service differentiation is not clear (Pachon, 2000: 65).

2.3. Focusing Strategy

The focusing strategy is to focus on a specific buyer group, a segment of the product range or geographical market. The business that achieves the focus can potentially earn above the sector average (Porter, 2000: 48). In focusing, it is important to identify the areas where the service providers in the sector place less emphasis or where the customer requests are not adequately responded to (Bahar & Kozak, 2012: 98). In the car rental industry, Enterprise has specialized in insurance. Applications such as nostalgic, limousine, hourly car rental are the focus of the car rental business (Pachon, 2000: 66).

2.4. Stuck in the Middle

Porter describes the businesses that are not included any group among cost leadership, differentiation and focusing as "stuck in the middle" between the three generic competitive strategies. If the company fails to develop one of the three strategic behaviors mentioned above, it will have a fuzzy organizational culture and conflicting organizational arrangements (Cronshaw et al., 1994: 20). These businesses almost guarantee low profitability. Either they lose high volume customers who demand low prices or they have to give up their profits to get the business from low cost enterprises (Porter, 200: 52).

3. RESEARCH METHODOLOGY

3.1. Method of the Research

The data of the research were obtained from the managers of the car rental companies in İstanbul and Antalya via questionnaire technique. The questionnaire includes questions that measure demographic questions and competitive strategies (cost leadership, service differentiation, focus and stuck in the middle). The 15 questions that measure the level of implementation of the companies' competitive strategies were taken from Türkay (2007) and Taşkın et al., (2011). All questions were measured using the 5-point Likert scale. The research was conducted in person and online with car rental managers in İstanbul and Antalya between January and October of 2016. Convenience sampling method, one of the non-random sampling methods, was preferred in the research (Altunışık et al., 2005: 132). Each vehicle rental business responding to the survey was included in the sample. A total of 200 people was reached and since no missing data was found, all questionnaires were included in the analysis.

3.2. The Purpose and Importance of the Research

The purpose of this research is to review the implementation of general competition strategies in Turkey's car rental businesses and to contribute to further studies. The research is important in terms of providing a general overview of sector with regard to competition by assessing car rental businesses in terms of competition strategies, and helping future businesses to select competitive strategies.

3.3. Analyses of the Research Data and Hypotheses

In the research; frequency, reliability, t-test and ANOVA analyzes were performed with SPSS (22.0) packet program. For normal distribution, it is sufficient to look at only one or both of the skewness and kurtosis values (Kline, 2011). It is expected that the skewness and kurtosis values are ± 2.58 for the 5% confidence interval and the statistic value range is ± 1.96 for the 1% confidence interval (Yucenur et al., 2011). As the skewness and kurtosis values of the research are between 0.216 and 1.782, it is exhibited that the data is in conformity with normal distribution. Since the data is distributed normally, parametric analysis techniques have been used. The research hypotheses have been established as follows.

- H₁: There is a difference between the genders of the managers and their competition strategy applications.
- H₂: There is a difference between the marital status of the managers and their competition strategy applications.
- H₃: There is a difference between the competition strategy applications of the managers and the number of branches.
- H₄: There is a difference between the competition strategy applications of the managers and the number of vehicles.
- H₅: There is a difference between the education level of the managers and their competition strategy applications.
- H₆: There is a difference between the expertise of the managers and their competition strategy applications.
- H₇: There is a difference between the duties of the managers and their competition strategy applications.

4. FINDINGS OF THE RESEARCH

Table 1 shows the demographic and business characteristics obtained from the findings and Table 2 shows the generic competition strategies of the businesses.

Table 1: Demographic and Business Characteristics

Gender	Frequency	Percent	Marital Status	Frequency	Percent
Male	181	90,5	Married	115	57,5
Female	19	9,5	Single	85	42,5
Total	200	100,0	Total	200	100,0
Position	Frequency	Percent	Target Market	Frequency	Percent
Senior Manager	113	56,5	Daily Rental	50	25,0
Midd. Level Manager	54	27,0	Operating lease	9	4,5
First Line Manager	33	16,5	Both of them	141	70,5
Total	200	100,0	Total	200	100,0
Educational Status	Frequency	Percent	Educational Field	Frequency	Percent
Primary (8 years)	18	9,0	Tourism	21	10,5
High School	66	33,0	Business	41	20,5
Associate Degree	77	38,5	Economy	15	7,5
Bachelor's Degree	29	14,5	Automotive	17	8,5
Master's Degree	10	5,0	Other	106	53,0
Total	200	100,0	Total	200	100,0
Number of Cars	Frequency	Percent	Number of Branches	Frequency	Percent
Between 3-17	43	21,5	Between 0-1	99	49,5
Between 18-31	53	26,5	Between 2-90	110	50,5
Between 32-72	52	26,0			
Between 73-25.000	25	26,0			
Total	200	100,0	Total	200	100,0

Table 1 exhibits that the majority of the managers participating in the research are male (90.5%) and senior managers (56.5%). 57.5% of the managers are married and 42.5% are single. Businesses prefer both daily and operational renting (70.5%) among market segments. 38.5% of the managers have associate degree, 33.0% are high school graduates and 14.5% are undergraduates. It can be said that the car rental sector in Turkey is managed by well-trained managers. In businesses, tourism graduates account for only 10.5%. Besides, the ratio of business graduates is 20.5%, automotive 8.5%, economy 7.5% and percentage of the individuals marking the option 'other' is 53%. Other graduated fields are sociology, philosophy, history, geography, foreign trade, graphic design, computer, public administration, finance, public relations, construction-machinery and electronics engineering. Despite being a tourism activity, it is observed that the areas where the managers take education are different. It is noted that 21.5% (43) of the vehicle rental companies operating in İstanbul and Antalya have between 3 and 17 vehicles, 26.5% (53) have between 18 and 31 vehicles, 26.0% (52) have between 32 and 73 and 72% and 26% (52) have between 73 and 125 respectively. It is also observed that 49.5% (99) of these enterprises have 0-1 branches and 50.5% (101) of them have 2-90 branches in terms of the number of branches.

Table 2: Generation Competition Strategies and Performance Averages of Businesses

Statements	Mean	Std. D.
Differentiation	4.12	
The ability of the business to create different services	4,17	,869
The level of defining the target market clearly	4,12	,907
The level of providing service defined based on the target market	4,19	,825
The level of providing personalized service	4,30	,909
Cost Leadership	4.02	
The level of capacity usage (Occupancy ratio)	4,31	,739
Your efficiency level in the activities	3,99	,833
Your level to offer competitive prices	3,72	1,112
Emphasizing on the efforts to decrease the costs	4,06	,922

Focusing	3.96	
The efficiency of distribution channels (agency, the Internet, merchant etc.)	3,73	1,283
The capability to offer various product choices	4,02	1,121
The capability to address different types of clients	4,18	,891
The level of operating on different markets	3,90	1,134
Stuck in the Middle (Strategic Indecision)	3.86	
Creating close connections between the departments of the business	4,03	1,107
Monitoring the competitors' behavior	3,85	1,118
Spending money for promotion and advertisement over the sector average	3,71	1,278
Cronbach Alfa = ,91		
(Note: 5-point likert scale 1: Very Low, 2: Low, 3: Slightly Low, 4: High, 5: Very High)		

Table 2 indicates the arithmetic mean and standard deviation values of the competitive strategies applied by the participating businesses. When this table is examined, it can be observed that the most intensive competition strategies are "differentiation", "cost leadership", "focus" and "stuck in the middle", respectively. The managers have defined the ability to produce different services (Avg. 4,17), the level of defining the target market clearly (Avg. 4,12), the level of service presentation defined according to the target market (Ort 4,19) and the level of offering personalized services (Avg. 4.30) as high. That is, businesses operating in İstanbul and Antalya implement the diversification strategy at a significant level. For the cost leadership strategy, managers have stated that level of capacity utilization (occupancy rate) (Avg. 4,31), the activity levels in the operations (Avg. 3.99), the level of offering competitive prices (Avg. 3,72) and the level of emphasizing the cost reduction efforts (Avg. 4.06). In this case, it can be said that car rental companies give importance to cost leadership strategy. Managers are highly involved in the focusing strategy, which means providing services to a specific buyer group or to a geographically small area. Within this scope, it can be observed that the levels of efficiency of the businesses' distribution channels (agency, internet, dealers etc.), (Avg. 3,73), the capability to offer various product options (Avg. 4,02), addressing different customer types (Avg. 4,18) and ability to operate in different markets (Avg 3.90) are high. Services are provided to special buyer group or smaller geographical areas. The businesses that are not included any group among cost leadership, differentiation and focusing are defined as "stuck in the middle" between the three generic competitive strategies. The level of creating close connections (Avg. 4,03) between departments, monitoring the behavior of the competitors (Avg. 3,83) and spending money on promotion and advertisement over the sector average (Avg. 3,72) is very high for the businesses falling in this group. This shows that the business operating in İstanbul and Antalya are the ones that have not been able to apply any of the three general competition strategies and are trapped between them.

4.1. Hypothesis Tests Results

The results of the analysis of the differences between managers' gender, marital status, mission, level of education, educational field, number of branches of the business, number of vehicles and perception of competition strategies are shown below.

Table 3: The Relationship Between the Competition Strategies and Gender (t-Test).

Competition Strategies	Gender	n	Mean	S.D.	f	p
Differentiation	Male	181	13,62	2,40	,118	,731
	Female	19	13,00	2,23		
Cost Leadership	Male	181	13,11	1,96	6,796	,010
	Female	19	12,32	2,95		
Focus	Male	181	12,93	2,83	3,415	,066
	Female	19	12,65	3,87		
Stuck in the middle	Male	181	9,16	2,13	,126	,723
	Female	19	8,73	2,60		

Table 3 exhibits whether there is a relationship between competition strategies and gender. There was no significant difference in the $p > 0.05$ significance level between the competition strategies (differentiation, focus and stuck in the middle) that were included in the analysis and gender variable. There is a difference in the significance level of $p < 0.05$ between the cost leadership and gender variable in competition strategies. In other words, male and female managers perceive only the strategy of cost leadership in between among the competition strategies in a different way while they

perceive the others as the same. In this case, the H_1 hypothesis is accepted for the cost leadership variable, while it is rejected for other variables.

Table 4: The Relationship Between the Competition Strategies and Marital Status (t-Test)

Competition Strategies	Gender	n	Mean	S.D.	f	p
Differentiation	Married	115	13,63	2,27	,219	,641
	Single	85	13,47	2,56		
Cost Leadership	Married	115	13,11	2,00	,953	,330
	Single	85	12,93	2,19		
Focus	Married	115	13,05	2,87	,064	,801
	Single	85	12,71	3,02		
Stuck in the middle	Married	115	9,17	2,00	4,481	,036
	Single	19	8,73	2,60		

There was no significant difference at $p>0.05$ significance level between the competition strategies (differentiation, focus and stuck in the middle) that were included in the analysis in Table 4 and marital status variation. There is a difference at $p<0.05$ significance level between stuck in the middle and marital status variation in competition strategies. In other words, single and married managers perceive only the strategy of stuck in the middle among the competition strategies in a different way while they perceive the others as the same. In this case, the H_2 hypothesis is accepted for the cost leadership variable, while it is rejected for other variables.

Table 5: The Relationship Between the Competition Strategies and Number of Branches (t-Test)

Competition Strategies	Number of Branches	n	Mean	S.D.	f	p
Differentiation	0-1	76	13,7	2,12	1,653	,200
	2-90	124	13,5	2,55		
Cost Leadership	0-1	76	13,3	2,15	,636	,426
	2-90	124	12,9	2,03		
Focus	0-1	76	13,6	2,70	3,588	,060
	2-90	124	12,7	3,04		
Stuck in the middle	0-1	76	9,5	1,92	4,486	,032
	2-90	124	8,9	2,30		

The number of branches operated by the businesses in the research is categorized as 0-1, 49.5% (99) and 2-90, 50.5% (101). There was no significant difference at $p> 0.05$ significance level between competition strategies (differentiation, cost leadership and focusing) and number of branches. There was no significant difference at $p<0.05$ significance level between stuck in the middle and the number of branches. That is, the number of branches of the business indicates difference only for the strategy of stuck in the middle among the competition strategies.

Table 6: The Relationship Between Competition Strategies with Number of Vehicles, Level of Education, Education Area and Duties (ANOVA Test)

Variables	Competition Strategies	f	p	Variables	f	p
Number of Vehicles	Differentiation	3,686	,013	Education Area	1,588	,179
	Cost Leadership	2,806	,041		1,351	,253
	Focus	7,772	,003		,812	,519
	Stuck in the middle	,814	,488		3,205	,014
Level of Education	Differentiation	,194	,941	Duties	,811	,446
	Cost Leadership	,621	,648		,537	,585
	Focus	1,076	,369		1,430	,242
	Stuck in the middle	,270	,897		3,218	,042

In ANOVA analysis in table 6, the number of vehicles of the businesses was divided into 4 categories to be distributed as 20% and above. No difference at $p < 0.05$ significance level has been found between stuck in the middle and the number of vehicles among the competition strategies. There is a difference at $p < 0.05$ significance level between the competition strategies (differentiation, cost leadership and focusing) and the number of vehicles variable. There was no significant difference at $p > 0.05$ significance level between competition strategies (differentiation, cost leadership, focus and stuck in the middle) and level of education variable. In other words, the practices of enterprises' competition strategies are independent of the level of education. In this case, the H_5 hypothesis was completely rejected.

There was no significant difference at $p > 0.05$ significance level between the competition strategies (differentiation, focus and stuck in the middle) and education area variable. There is a difference at $p < 0.05$ significance level between stuck in the middle and education area variable in competition strategies. In other words, the managers that graduated from tourism, economy, business administration, automotive and other areas perceive only the strategy of stuck in the middle among the competition strategies in a different way while they perceive the others as the same. In this case, the H_6 hypothesis is accepted for the stuck in the middle variable, while it is rejected for other variables. There was no significant difference at $p > 0.05$ significance level between the competition strategies (differentiation, focus and stuck in the middle) and the duties of the senior, middle and first line managers working in car rental businesses. There is a difference at $p < 0.05$ significance level between stuck in the middle and the duty of the manager variable in competition strategies. In other words, the managers perceive only the strategy of stuck in the middle among the competition strategies in a different way while they perceive the others as the same. In this case, the H_7 hypothesis is accepted for the stuck in the middle variable, while it is rejected for other variables.

5. CONCLUSION

Today, globalizing market conditions and unlimited progress of production factors increase the importance of competition. Competition as a dynamic phenomenon rises as a precondition for continuing sales, profit or life, which is the aim of each business even though it depends on the environment and business type. Changes in globalization and developments in information technology all over the world affect the car rental industry as well as every sector. The majority of the participants of the research are male (90.5%) and upper level managers (90.5%). 57.5% of the managers are married and 42.5% are single. Businesses mostly prefer both daily and operational renting (70.5%) among market segments. It can be noted that Turkish car rental sector tends to provide services for the entire market. 38,5% of the managers have associate degree, 33,0% are high school graduates and 14,5% are undergraduates. In addition, the education level of the car rental business managers is high. In businesses, tourism graduates account for only 10.5%. While the ratio of business graduates is 20,5%, automotive 8,5%, economy 7,5% and percentage of the individuals marking the option 'other' is 53%. Other graduated fields are sociology, philosophy, history, geography, foreign trade, graphic design, computer, public administration, finance, public relations, construction-machinery and electronics engineering. Despite being a tourism activity, it is observed that the areas where the managers take education are different. It is noted that 21.5% (43) of the vehicle rental companies operating in Istanbul and Antalya have between 3 and 17 vehicles, 26.5% (53) have between 18 and 31 vehicles, 26.0% (52) have between 32 and 73 and 72% and 26% (52) have between 73 and 125 respectively. It is also observed that 49.5% (99) of these enterprises have 0-1 branches and 50.5% (101) of them have 2-90 branches in terms of the number of branches. It can be inferred from these results that the car rental business in Turkey are of small and medium scale. The competition strategies preferred by the car rental businesses in Istanbul and Ankara are respectively "differentiation", "cost leadership" and "focusing" and there are businesses that choose none of these strategies, "stuck in the middle". Difference analyses between managers' gender, marital status, mission, level of education, educational field, number of branches of the business, number of vehicles and their perception of competition strategies have been carried out and differences have been determined based on the competition strategies.

In Turkey, a total of 160.000 vehicles are used in the car rental sector, 30.000 of which are used daily (short-term) and 130.000 of which are corporate long-term corporate rentals. Car rental companies make 4.000.000 daily rentals to 1.250.000 people per year (Turkey Hoteliers Federation, 2012: 19). Many multinational companies (Avis, Budget, Enterprise, Europcar, Sixty, Thrifty, Hertz, Leaseplan, Fleetcorp ect.) and local companies (Intersity rent a car, Derindere Filo Kiralama, Zeplin rent a car, GarentaDAY, Beyaz Filo Kiralama, Işıl Tur, Central rent a car, Lider Filo, Almira car rental service, Hedef Filo, Mengerler kiralama, Garanti Filo etc.) compete in Turkey.

The car rental sector in Turkey has indicated great improvement especially in recent years. Today, the fact that large and medium-sized businesses as well as small and medium-sized businesses shift towards renting instead of buying vehicles has increased the demand for renting operational vehicles. In addition, the increase in the number of airports, renting services being provided at sea and railway connection points and the increase in the number of tourists every year have increased the demand for daily rentals.

REFERENCES

- Altunışık, R., Coşkun, R., Bayraktaroğlu, S. & Yıldırım, E. (2005). Sosyal Bilimlerde Araştırma Yöntemleri SPSS Uygulamalı, 4. Baskı, Sakarya Yayıncılık, Sakarya.
- AUTO RENTAL NEWS (2016). Fact Book 2016, www.autorentalnews.com, Erişim Tarihi: 03.01.2017.
- Bahar, Ozan & Kozak, Metin (2012). Turizm Ve Rekabet, Detay Yay., Ankara.
- Cronshaw, M., Davis, E. & Kay, J. (1994). On being Stuck in the Middle or Good Food Cost Less at Sainsbur, British Journal of Management, Vol:5, s.19-32.
- DATAMONITOR (2011). Avis Budget Group Company Profile, www.datamonitor.com, Erişim: 01.01.2013.
- Enright, M. J., & Newton, J. (2004). Tourism destination competitiveness: A quantitative approach. Tourism Management, 25, 777-788.
- Funk, V., Funk, K. W. & Wind, J. Y. (2009). Düz Dünyada Rekabet, (Çeviri: Şensoy, Ü.), Optimist Yayıncılık, İstanbul.
- García, M., Cortes, E., Marco-Lajara, B. & Zaragoza-Sáez, P. (2014). Strategy, training and performance fit, International Journal of Hospitality Management, 42, 100–116.
- Gençler, G. (2012). Beyaz Filo Oto Kiralama A.Ş. 01.01.2012-30.09.2012 Faaliyet Raporu, www.beyazfilo.com, Erişim Tarihi: 12.12.2012.
- Gezer, Ö. & Çiçek, B. (2011). Binek Oto Kiralamalarında Vergi Uygulamaları, Mali Çözüm Dergisi, Sayı:11, Cilt:4, s:161-176.
- Karaboğa, K. (2012). Araç Kiralama Sektörünün 1.6 Milyarlık Yatırımı, www.dunya.com/print.php?type, Erişim Tarihi: 12.02.2013.
- Kesenci, Ç. A. (2010). Araç Kiralama Sektörünün Gelişimi Ve Ülke Ekonomilerine Etkileri, Tüm Oto Kiralama Kuruluşları Derneği (TOKKDER) Yayınları, İstanbul.
- Kline, B. R. (2011). Principles and Practice of Structural Equation Modeling”, 2th Edition, London, The Guilford Press.
- Lo, Y. H. (2012). Back to Hotel Strategic Management 101: An examination of hotels’ implementation of Porter’s generic strategy in China, The Journal of International Management Studies, 7 (1), 56-69.
- Mancini, M. (2012). Access: Introduction to Tourism and Travel, Wiley Publishing, USA.
- Marijanovic, K. (2010). Differentiation of Car Rental Services in The Croatian Market, Preliminary Communication, Vol:XXII, s.113-128.
- MARKET PUBLISHERS REPORT DATABASE (2012), The Car Rental Industry in Turkey: Market Entry Strategies and Emerging Opportunities, Analyses and Forecasts to 2016, http://www.autorentalnews.com, (Erişim Tarihi: 12.12.2012).
- (MEB) Turkish Ministry of Education (2006). Konaklama ve Seyahat Hizmetleri Rezervasyon Sistemleri, Mesleki Eğitim ve Öğretim Sisteminin Güçlendirilmesi Projesi, Ankara.
- Newton, S., Gilinsky, A. & Jordan, D. (2015). Differentiation strategies and winery financial performance: An empirical investigation, Wine Economics and Policy, 4, 88–97.
- Pachon, E. J. (2000). Strategic and Tactical Fleet Planning for the Car Rental Industry, Doctoral Theses, USA: University Of Miami.
- Porter, M. (2000). Rekabet Stratejileri Sektör Ve Rakip Analizi Teknikleri, Çev. Ulubilgen, Gülen, Sistem Yayıncılık, İstanbul.
- Taşkın, E., Kayabaşı, E. & Kiracı, H. (2011). Rekabetçi yöntemlerin işletme performansı üzerinde etkisi: İnegöl’de Faaliyet Gösteren Ve İhracat Yapan İşletmeler Üzerine Bir Alan Araştırması, Pazarlama ve Pazarlama Araştırmaları Dergisi, Sayı: 08, 105-122.
- Türkay, O. (2007). Pazara Dayalı Örgütsel Öğrenme: Konaklama İşletmelerinde Pazara Dayalı Örgütsel Öğrenmeyi Etkileyen Değişkenler Ve Pazarlama Performansına Etkileri, Doktora Tezi, Dokuz Eylül Üniversitesi, S.B.E, İzmir.
- TURKEY HOTELIERS FEDERATION (2012). Turizm Raporu, TÜROFED Dergisi, Sayı:5.
- Tyya, N. T. (2007). Hospitality & Tourism Industry Employers, Vault Inc., USA.
- Yang, Y., Jin, W. & Hao, X. (2009). Dynamic Pool Segmentation Model and Algorithm in the Car Rental Industry, Journal Of Computers, Vol:4, No:12, s.1201-1210.
- Yücenur, N., Demirel, Ç. N., Ceylan, C. & Demirel, T. (2011). Hizmet Değerinin Müşterilerin Davranışsal Niyetleri Üzerindeki Etkisinin Yapısal Eşitlik Modeli İle Ölçülmesi, Doğu Üniversitesi Dergisi, 12 (1), 156-168.

İnternet References

<http://www.turizm gazetesi.com/news.aspx?id=71446>, Erişim Tarihi:20.10.2013.



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A RESEARCH ON PROJECT MATURITY PERCEPTION OF TECHNO-ENTREPRENEURSHIP FIRMS

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ABSTRACT

The objective of study is measuring the project maturity levels of techno-entrepreneurship (start-ups) which was established toward technology development, and analyzing the relationship between project maturity levels and demographic features of firms. We used a scale developed by Holmes and Walsh in 2005 to measure project maturity levels. The scale is addressing the maturity levels based on knowledge areas consisting of scope, time, cost, quality, risk, human resource, communication and procurement management. The survey was conducted on the techno-entrepreneurship firms located in Turkey. We did correlation analysis on the data in SPSS. The results clearly indicate no relationships between the sectoral differences of firms and project management knowledge areas. Despite we found partly relationship between age and size differences of firms and some of project management knowledge areas, the results dont confirm absolute relationship.

Keywords: Techno-entrepreneurship, project maturity model, start-ups, project maturity levels

JEL Codes: O32, M13, L26, O22

1. INTRODUCTION

Rapidly developing technology not only has showed paradigmatic transformations in human life but also deeply changed the practices of business life. As a result, a variety of tools and practices have found their place in the business world and in the academic world, enabling the production, storage, sharing and feedback of knowledge. The increase in knowledge as a social power and the quality of knowhow in commercial success have made it sine qua non that entrepreneurship has become an economic gain for micro and macro level economic development and the innovation was accepted as a method for this. Techno-entrepreneurship, which embraces entrepreneurship-based business ideals and technology-based innovation efforts, presents an important structure and investment mechanism in the sector. The academic studies on the subject examine techno-entrepreneurship in various dimensions and aim to produce predictions about how it could work better.

2. LITERATURE REVIEW

While studies on project management in the context of technology firms initially concentrated on R&D activities (Zedtwitz, 2002; Chiesa, 2000; Sicotte and Langley, 2000; Coombset al, 1998; Keller, 1994; Pinto and Slevin, 1989; Katz and Allen, 1985; Liberatore and Titus, 1983), especially after 2000, they have evolved into the innovation process (Kapsali, 2011; Arttoet al.,2011; Filippov and Mooi, 2010; Bygstad and Lanestedt, 2009; Manley, 2008; Miia et al, 2006; Barlow, 2000; Gann and Salter,2000; Gann and Salter, 1998). Liberatore and Titus emphasized that project managers should be informed about the methods and techniques that are used in the management of R&D projects and that will adapt to the organizational structure. (Liberatore and Titus, 1983; 972). Katz and Allen have also shown how different applications seen in the use of force in matrix organization structures affect project performance (Katz and Allen, 1985, p. 85). Pinto and Slevin also identified fourteen critical success factors for the R&D projects, ten of which are controllable and four of which are uncontrollable (Pinto and Slevin, 1989; 31). In his study where Keller has questioned the interdependency theory of the

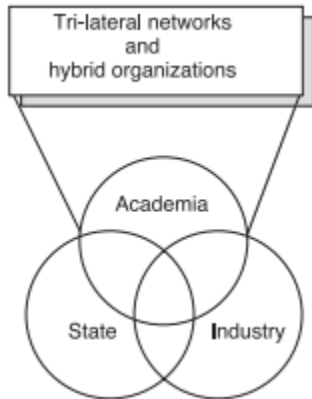
compatibility between technology and information processing used in R&D projects he has shown that information processing is crucial to the quality and success of project management. In his study where Keller has questioned the interdependency theory of the compatibility between technology and information processing used in R&D projects he has shown that information processing is crucial to the quality and success of project management (Keller, 1994, 175). Coombs and colleagues have introduced different administrative templates in the framework of benchmarking - idea for the three different types of projects they have introduced. (Coombs et al, 1998; 186). Sicotte and Langley emphasize the uncertainty in the project process in their study of the relationship between R&D performance and compliance mechanisms (Sicotte and Langley, 2000; 23). Chiesa handled the management and organizational dimension of global R&D projects in a categorical perspective. Chiesa pointed out that the R&D projects differ in project development, research activities require organizational and administrative structures in which interdepartmental coordination, interaction and communication takes place, and the use of electronic means is widespread. (Chiesa, 2000; 353). Von Zedtwitz has developed a five-stage maturity scale in the work of companies to make a post-project evaluation interview in terms of organizational learning, and has shown that firms do not pay enough attention to what they do at the end of the project (Zedtwitz, 2002). After 2000, the general tendency in the literature is directed at understanding the management concept in innovation projects and examining the processes. Gann and Salter's article suggests that a methodological difference is needed for the examination of project-based service firms in terms of innovation (Gann and Salter, 1998: 451). Gann and Salter have attempted to provide a generic model (Gann and Salter, 2000, 969) that, in a similar perspective, has shown a process in other project-based operating companies in 2000. Barlow has demonstrated the importance of collaborations in building innovative and learning structures to achieve the complex process structure and the underperformance of project-based construction companies (Barlow, 2000). Miia et al. have examined the spread of project management and system among firms and have shown that both external pressures and internal complexity are effective in this dissemination (Miia et al, 2006). Manley also argues that contracting firms in the construction sector must have some conditions to innovate, such as advanced procurement systems and performance-based regulations (Manley, 2008). Bygstad and Lanestedt concluded that the success of information and communication technology-based innovations in service firms is dependent on the integration of project inputs and outputs, rather than on the execution of the project, in their studies of how they depend on cost, time and quality-focused understanding of traditional project management (Bygstad And Lanestedt, 2009). Filippov and Mooi discussed conceptual approach to R&D projects and position on other project types (Filippov and Mooi, 2010). Arto et al. have shown that various technical and strategic elements are used in an integrated way as a result of studying what management control systems are used at the beginning of innovation. (Arto et al., 2011; 419). Kapsali has also shown that in project-oriented innovation management, the flexibility of system understanding facilitates the planning and control of innovation, uncertainty and complexity. (Kapsali, 2011, 405).

2.1. Technopolis and Techno-Entrepreneurship

2.1.1. Technopolis Concept

The infrastructures of the structures called Technology Park, Technopolis, Science Park, Research Park, Technology Development Zone, Technology Development Center, Technology Corridor and Innovation Center (İTÜ Arı Teknokent, 2017) have been created by the state to provide industry-university cooperation and are the implementation field of universities which are the focus of initiative and qualified information, which is a driving force in achieving economic development goals (Örnek and Dabyal 2015, 1147). Technopolis as a product of an understanding based on industrial-state university cooperation for country development and innovation; (Yalcintas, 2014, p. 86), which is an ecosystem linking universities, IR&D corporations and start-up technology firms, and offers incentive legislation, suppliers, human resource infrastructure and financing clustering model. Etzkowitz describes this model as a triple helix and demonstrates the importance of interaction between the industry, the state and the university in order to create the conditions for innovation in the information society. In this helix industry; Place of production, state; Interaction and the stability of exchanges and the sources of contractual relations; As the source of new knowledge and technologies, is the productive nature of knowledge-based economies (Etzkowitz, 2003; 295).

Figure 1: Triple Helix (State-Industry-University Collaboration)

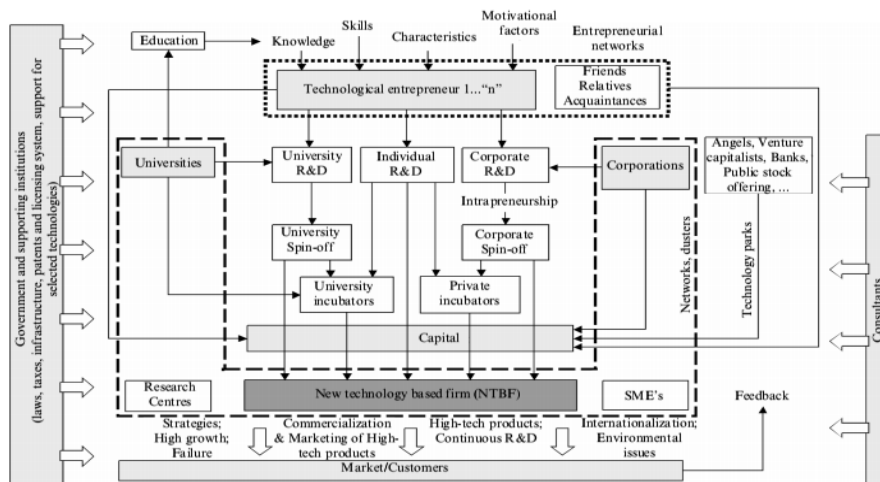


Source: Henry Etzkowitz, , 2003, "Innovation in Innovation: The Triple Helix of University-Industry-Government Relations", Social Science Information, Vol. 42, p. 302.

2.1.2. Techno-Entrepreneurship Concept

Beckman and colleagues express that techno-entrepreneurship deviates from entrepreneurship in the general sense by focusing on the use of innovations in science and engineering to evaluate opportunities (Beckman et al, 2012). Prodan, the concept of techno-entrepreneurship; Is defined as the innovative application of scientific and technical information by the person or persons who initiate, conduct and undertake the financial risks that arise in the scope of the vision and objectives that they specify (Prodan, 2007). Bailetti defines project investments as the convergence of heterogeneous entities and expert individuals in relation to developments in scientific and technological knowledge in order to generate value for a firm (Bailetti, 2012). Dorf and Byers describe development management with high risk taking serious risks as the business leadership style that includes technology-intensive commercial opportunities and high-potential capitalization of human capital (Roja and Nastase, 2014; 108; Dorf and Byers). Örnek and Danyal define within a few years the initiative aimed at developing a technology with high added value and a business plan within the framework of a threefold return of investment and the potential to produce qualified employment. (Örnek and Danyal, 2015, 1150). As a consequence of this situation, techno-entrepreneurs are separated from other entrepreneurs because of the knowledge, abilities and features they possess.

Figure 2: Model of Technological Entrepreneurship



Source: Igor Prodan, 2007, "A model of technological entrepreneurship" in Handbook of Research on Techno-Entrepreneurship (François Thérin Edition), Great Britain by MPG Books Ltd, Bodmin, Cornwall, p. 28.

2.2. Technopolises and Techno-Entrepreneurship in Turkey

2.2.1. Technopolises in Turkey

The establishment of techno-cities in Turkey dates back to 2001. With the Law No. 4691 on Technology Development Regions published on 26.6.2001, the establishment and development of techno-cities were taken under legal framework. The first article explaining the purpose of the law, which also shows the meaning of techno-cities, is as follows (Official Gazette, Law on Technology Development Regions, 2001). The purpose of this law is to produce technological knowledge in order to bring the country's industry to an international competitive and export oriented structure by providing cooperation with universities, research institutions and establishments and production sectors, to improve innovation in product and production methods, to increase product quality or standard, to increase productivity, To create new business opportunities for researchers and qualified persons, to create new technology opportunities for small and medium-sized enterprises, to provide investment opportunities in technology-intensive areas by considering the decisions of the Supreme Board of Science and Technology, To assist in the transfer and to provide the technological subdivision that will accelerate the entry of the foreign capital to the country which will provide high / advanced technology. The purpose of this law is to produce technological knowledge in order to bring the country's industry to an international competitive and export oriented structure by providing cooperation with universities, research institutions and establishments and production sectors, to improve innovation in product and production methods, to increase product quality or standard, to increase productivity, To create new business opportunities for researchers and qualified persons, to create new technology opportunities for small and medium-sized enterprises, to provide investment opportunities in technology-intensive areas by considering the decisions of the Supreme Board of Science and Technology, To assist in the transfer and to provide the technological subdivision that will accelerate the entry of the foreign capital to the country which will provide high / advanced technology.

There are 46 techno-cities established in Turkey by 2017 (TGBD, 2017). The number of firms in these regions is 3629.

Table 1: Technopolises in Turkey and Number of Firms

Technopolis	Count of Company	Location
Ankara Üniversitesi Teknokent	101	Ankara
Antalya Teknokent	68	Antalya
Ata Teknokent	57	Erzurum
ATAP	88	Eskişehir
Bilkent Cyberpark	218	Ankara
Boğaziçi Teknopark	23	İstanbul
Cumhuriyet Teknokent	29	Sivas
Çanakkale Teknopark	20	Çanakkale
Çukurova Üniversitesi Teknokent	69	Adana
DEPARK - Dokuz Eylül Teknopark	136	İzmir
Dicle Teknokent	9	Diyarbakır
Düzce Teknopark	16	Düzce
Ege Üniversitesi Teknopark (ideEGE)	59	İzmir
Erciyes Teknopark	176	Kayseri
Erzurum Ata Teknokent	57	Erzurum
Fırat Teknokent	9	Elazığ
Gazi Teknopark	106	Ankara
Gaziantep Teknopark	57	Gaziantep
GOSB Teknopark	108	Kocaeli
Göller Bölgesi Teknokent	32	Isparta
Hacettepe Teknokent	251	Ankara
İstanbul Teknokent	83	İstanbul
İTÜ Arı Teknokent	174	İstanbul
İzmir Bilimpark	-	İzmir
Kahramanmaraş Teknokent	-	Kahramanmaraş
Kocaeli Teknopark	90	Kocaeli

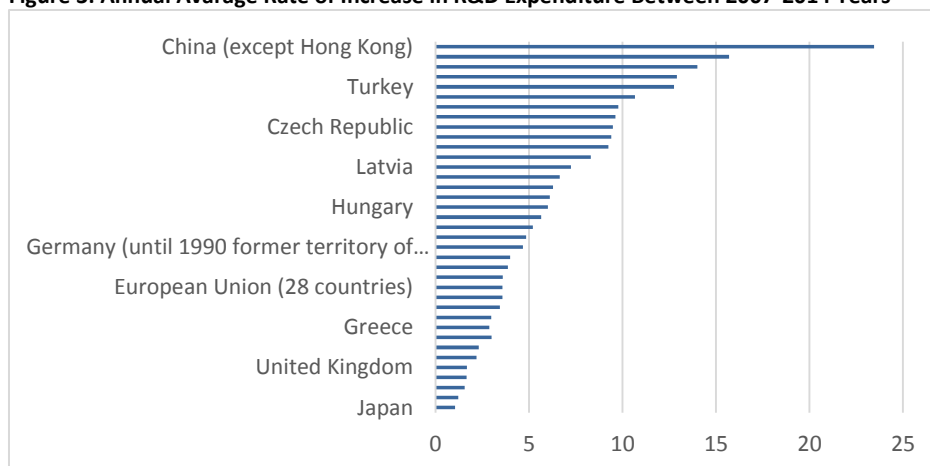
Konya Teknokent	96	Konya
Malatya Teknokent	12	Malatya
Mersin Teknopark	68	Mersin
Muallimköy - Bilişim Vadisi	-	Kocaeli
Niğde Teknopark	-	Niğde
ODTÜ Teknokent	335	Ankara
OSTİM Teknopark	-	Ankara
Pamukkale Teknokent	95	Denizli
Sakarya Teknokent	65	Sakarya
Samsun Teknopark	39	Samsun
Teknopark Ankara	-	Ankara
Teknopark İstanbul	117	İstanbul
Teknopark İzmir	74	İzmir
Tokat Teknopark	24	Tokat
Trabzon Teknokent	51	Trabzon
Trakya Teknopark	36	Edirne
TÜBİTAK Marmara Teknokent	64	Kocaeli
ULUTEK	112	Bursa
Yıldız Teknopark	377	İstanbul
YYÜ Teknokent	28	Van
TOTAL	3629	

Source: The count of firms collected from the web pages of technopolises listed in TGBD

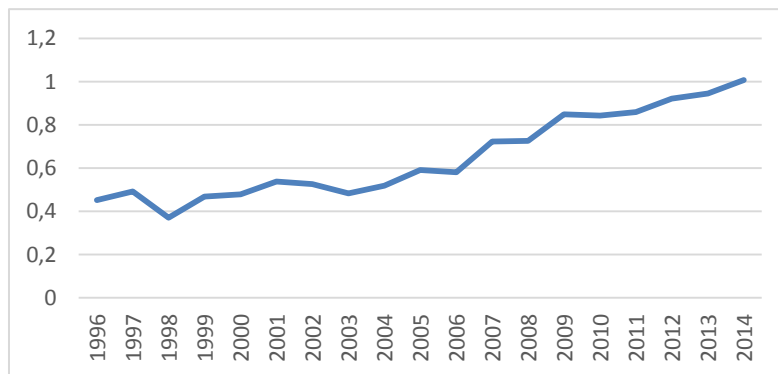
2.2.2. Development of Techno-Entrepreneurship in Turkey

In recent years, a number of legislative acts have been made to encourage entrepreneurship. The most important of these was the "Law on the Support of Research and Development Activities" numbered 5746, which was published in the Official Gazette in March 2008, and the Implementation and Auditing Regulation on the Support of Research and Development Activities which went into effect after that. The concrete results of these regulations are seen in the changes that have occurred over time. As can be seen in Figure 4, the share of R&D spending in the GNP has increased steadily and has reached levels of 1% in 2014 (World Bank, 2017). In Turkey, about 2½ billion EUR in R&D expenditure was made in 2007, while in 2014 this figure reached 6 billion Euros and an annual average increase of 12,75% (Eurostat, 2017). In this respect, Turkey has surpassed many developed countries, including the European Union countries, and has been the country with the highest rate of increase in R&D spending in the years following China, Slovakia, Bulgaria and Poland. The human power employed in the R&D activities also showed a significant increase, reaching approximately 3 times the number in 2000, as seen in Figure 5.

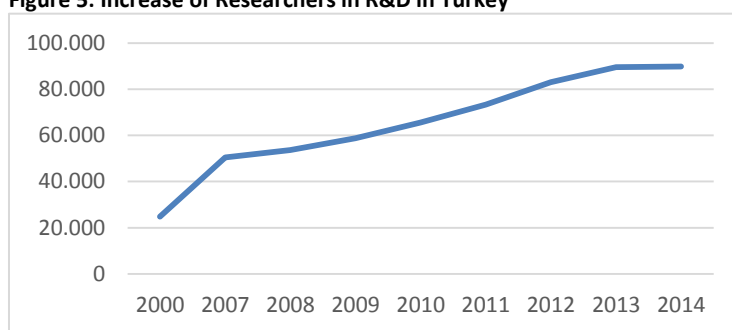
Figure 3: Annual Average Rate of Increase in R&D Expenditure Between 2007-2014 Years



Source: The diagram adapted from the data on Eurostat, Total intramural R&D expenditure (GERD) by sectors of performance

Figure 4: Turkey R&D expenditure (% of GDP)

Source: World Bank, Research and development expenditure (% of GDP)

Figure 5: Increase of Researchers in R&D in Turkey

Source: The diagram adapted from the data on World Bank "Researchers in R&D (Per Million People)" in World Development Indicators and on Turkish Statistical Institute "Address-Based Population Registration System" in Statistics.

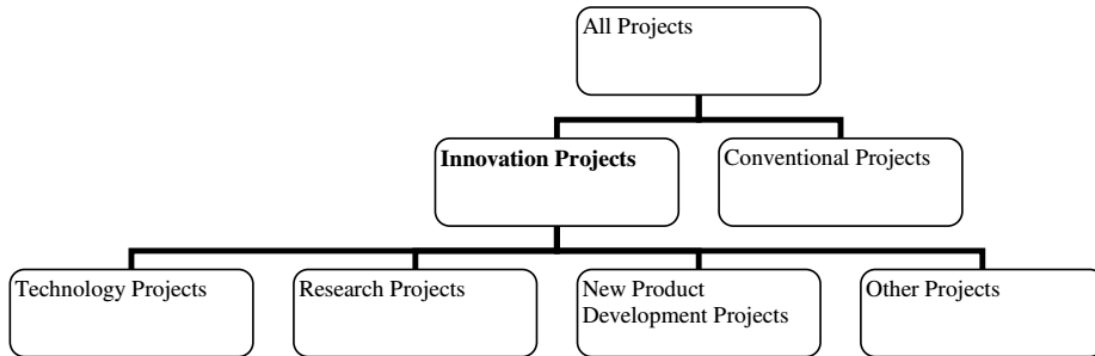
In order to reinforce this point, the Ministry of Science, Industry and Technology announced that in January 2015, "to increase the knowledge of knowledge of R & D and innovation activities, culture, people and society and to design new processes, systems and applications, Techno-entrepreneurial support to support scientific and technological development in the field by focusing on scientific and technological ambiguity by carrying out studies and supporting activities including innovation processes including environmentally compatible product design and software activities with original, experimental, Published the Guidelines for Application Procedures and Guidelines. (Ministry of Science, Industry and Technology, 2015). With this support, innovative ideas are supported both financially and in terms of infrastructure possibilities.

2.3. Project Management and Maturity Concept

2.3.1. Project Management

The concept of the project is defined as a transitional organization and process established to achieve specific objectives under time, budget and various resource constraints (Shenhar and Dvir, 2007). Project management is a process that covers the scope of the project, the planning of resources and costs, the organization of resources in time, risk, human resources and communication, and the supply of resources (Nokes and Kelly, 2007). Project management is the key activity of the innovation process for many industries (Shenhar and Dvir, 1996). It is an important organizational instrument for techno-entrepreneurs, who have a mission and vision to develop technology. Filippov and Mooi (2010) clearly demonstrate the innovation dimension of the classification project types made in Figure 6 below. The authors distinguish between projects as traditional and innovation projects distinguish innovation projects as technology-required projects, research projects including social studies, new product development projects and other projects (Filippov and Mooi, 2010).

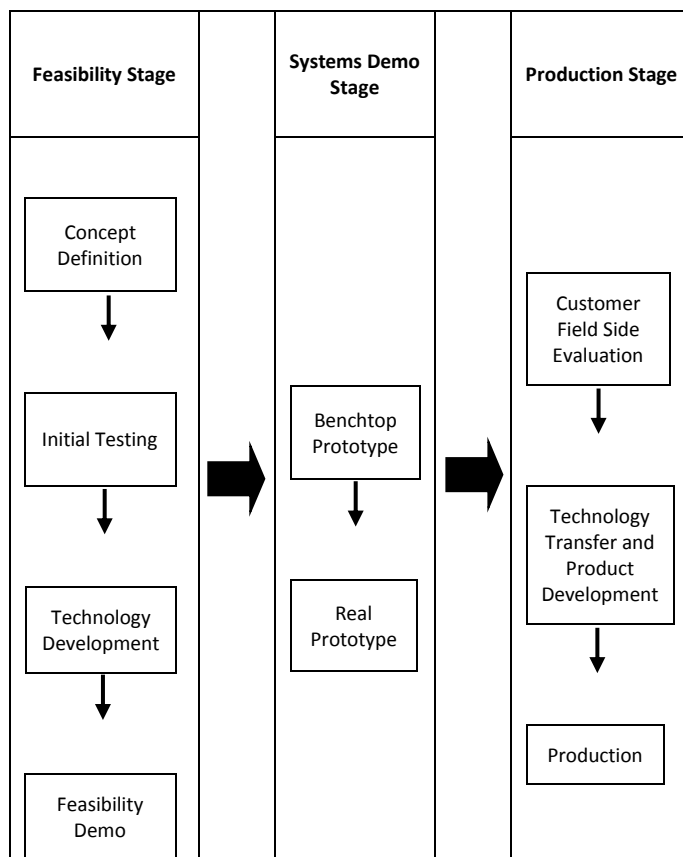
Figure 6: The Project Types



Source: Sergey Filippov and Herman Mooi, 2010, "Innovation Project Management: A Research Agenda", RISUS. Journal on Innovation and Sustainability, ISSN 2179-3565.

The process design presented by Verma and his colleagues on how project management in techno-entrepreneurship firms is realized is quite descriptive. This design, which is basically composed of three stages, feasibility, demo design and production, has a generic quality.

Figure 7: R&D Project Process



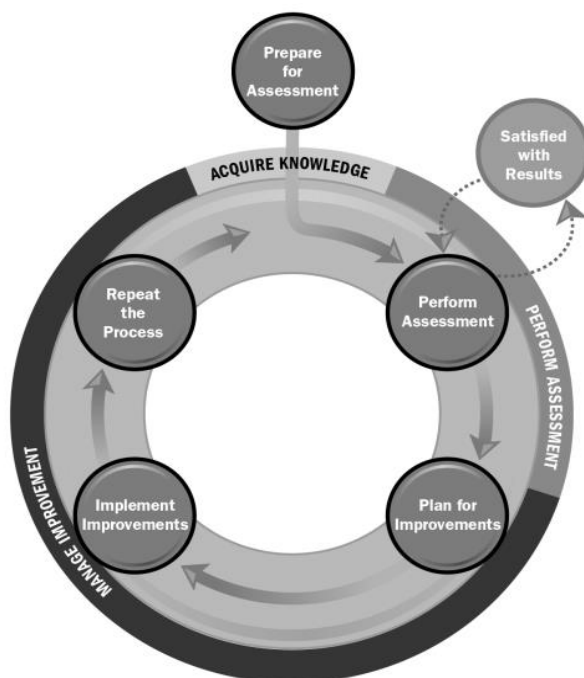
Source: Devesh Verma, Anant Mishra and Kingshuk K. Sinha, "The development and application of a process model for R&D Project", Journal of Operations Management, 2011, Vol. 29, pp. 462–476.

2.3.2. Project Management Maturity and Levels

- Project management maturity refers to a level of implementation, and the project management maturity model that emerges in this context provides a set of standards for organizations to understand project management practices (PMI, 2003). These standards, which are determined by the Project Management Institute, have been updated over time, and in 2013, a third edition and a more detailed evaluation proposal were presented. The steps of this model, consisting of 5 levels, are as follows (PMI, 2013a; 23);
- The first step is the starting step and in this phase firms make a project analysis in line with their mission, vision, core values, goals, objectives and needs.
- In the second stage, firms review their own performance levels by comparing their competencies with the competencies required by the project.
- In the third stage, improvement and development plans are made by eliminating the shortcomings of this comparison.
- In the fourth stage, the companies take the necessary steps to implement the planned plan.
- In the fifth stage, the applied improvements and improvements are controlled.

These maturity levels are shown in Figure 8 below.

Figure 8: Organizational Project Management Maturity Model Cycle (OPM3 Cycle)



Source: PMI Project Management Institute, 2013, Organizational project management maturity model (OPM3), 3. Edition, Project Management Institute, Inc, USA.

Again, PMI identified areas of knowledge that express the activities, concepts and terms that make up the project management field. (PMI, 2013b; 60). These areas are described by Crawford as follows (Crawford, 2015). Scope Management: Scope planning involves a variety of activities, including identification, validation, change control, needs analysis and job separation, and indicates that the elements necessary to complete the project are fully identified. Time Management: It consists of planning and follow-up activities such as identification and ranking of activities, calculation of required resources and staff, and integration of these activities by connecting programs to the programs and aims to complete the project within the determined time. Cost Management: It consists of cost definition, calculation, planning and control and budgeting activities and aims to follow the financing of the project by determining the financial resources required to complete the project. Quality Management: It consists of quality planning, assurance and control and administrative supervision activities. It is aimed to satisfy customer needs, to respond to needs and to ensure compliance with the objectives.

Human Resources Management: consists of HRD planning and the creation, development and management of the project team and aims to identify and develop the HR skill set required for the project. Communication Management: It consists of communication planning and control, problem tracking and management and aims to follow and control project data until collection and use. Risk Management: It consists of risk identification, quantitative and qualitative risk analysis, risk response planning, risk control and risk database creation and aims to control and resolve all risk factors until the project is completed. Procurement Management: Procurement consists of activities such as planning, control and procurement and aims to make procurement contracts necessary for completion of the project. Stakeholder Management: Identification of the stakeholder and the identification of obligations to stakeholders and aims at the management of all persons and segments involved in the project.

3. DATA AND METHODOLOGY

The aim of this research is to measure the scope, time, cost, quality, risk, human resources, communication and supply management practices that are considered as indicators of maturity in project management in the context of techno-entrepreneurship firms and to examine the relationship between these applications and the age, activity area and size of techno-entrepreneurship firms. . The hypotheses formed in this context are as follows;

H1: There is a meaningful relationship between the ages of techno-entrepreneurship firms and project management practices.

H2: There is a significant relationship between the size of techno-entrepreneurship firms and project management practices.

H3: There is a meaningful relationship between the fields of activity of techno-entrepreneurship firms and project management practices.

In this way, the extent to which techno-enterprising firms, which are a type of business with low survival rates, high sectoral concentration and low number of employees, perform activities rated as a demonstration of project management; In the context of their sector, age and size. A 40-question questionnaire was used by Holmes and Walsh (2005) to measure the project case. The original questionnaire consists of open-ended questions and is converted to scale form in triple likert. Stakeholder management from the knowledge areas is not included in the Holmes and Walsh survey because it was defined by PIM in 2013, and our work has not been included. The results of the questionnaires were evaluated by SPSS statistical program in computer environment. Correlation analysis was used when research hypotheses were tested. A sample consisting of firms registered to Techno-Entrepreneurship Association was selected and 100 returns were made.

4. FINDINGS AND DISCUSSION

As a result of the research, the sector, age and size distribution of firms are presented in the following tables. Although the majority of the firms are in the R&D field, the firms in the sample are diversified in the sector.

Table 2: Sectoral Distribution

Foundation Year	Company Number	(%)
R&D	83	83,0
Iron&Steel	3	3,0
Air-Conditioning	1	1,0
Energy	9	9,0
Tourism	1	1,0
Agriculture	2	2,0
Textile	1	1,0
TOTAL	100	100,0

The number of employees in the firm is used to determine firm size. Almost all of the enterprises are small and medium sized (SME) enterprises, as can be seen in Table 3 below.

Table 3 : Company Size

Employee Number	Company Number	(%)
0-10	77	77,0
11-50	14	14,0
51-250	8	8,0
> 251	1	1,0
TOTAL	100	100,0

As can be seen in Table 4 below, the majority of firms involved in analysis have been established over the past five years. This suggests that Turkey has given importance to techno-enterprise-based investments in the near future.

Table 4: Company Age

Foundation Year	Company Number	(%)
Before 2000	13	13,0
2000-2005	2	2,0
2005-2010	7	7,0
2010-2015	78	78,0
TOTAL	100	100,0

As a result of the descriptive analysis, 3 companies operating in the climate, tourism and textile sectors and 250+ employees represented by an example were excluded from the evaluation. The results of the correlation analysis with the sample of 96 firms are given in Table 5 below. The results show that there is no relationship between the sector in which the firm is located and the activities rated as indicative of maturity in project management. Regarding the size of the company, the number of employees shows that the applications related to project management are spreading a bit. It is seen that firm size has a positive effect especially on scope and time management. The age of the firm also has a positive effect in a similar manner and has a particularly significant relationship with time and quality management.

Table 5: Corelation Analysis

	1	2	3	4	5	6	7	8	9	10	11
Sector	1										
Size	,065	1									
Age	-,024	,789**	1								
Scope Man.	,041	,281**	,151	1							
Time Man.	,132	,321**	,315**	,615**	1						
Cost Man.	,087	,117	,128	,323**	,546**	1					
Quality Man.	,179	,232	,316**	,465**	,704**	,547**	1				
HRM	,086	,176	,239*	,543**	,607**	,580**	,727**	1			
Risk Man.	,032	-,124	-,186	,433**	,515**	,529**	,530**	,568**	1		
Com. Man.	,146	,126	,090	,585**	,620**	,564**	,680**	,684**	,744**	1	
Proc. Man.	,003	,038	,018	,458**	,459	,614**	,575	,576	,688**	,692**	1

Although the correlation analysis shows a relationship, it does not provide sufficient support for the acceptance of hypotheses. In particular, H3 is completely rejected, and the hypotheses H1 and H2 support only two areas of activity.

5. CONCLUSION

This study on the scope, time, cost, quality, risk, human resources, communication and procurement management practices and the relationship between the activity area, size and age of techno-entrepreneurship firms, which is evaluated as a maturity indicator in project management, does not support such a relationship. In particular, there is no relationship between the sector and project management practices. Only in a narrow frame, there is a significant relationship between firm size and scope and time management practices and firm age and time and quality management practices. This study shows that project management practices may be related to technical and managerial dimensions beyond the company's

demographics. The work to be done in the context of organizational structure and decision-making processes in companies can shed light on the adoption of project management practices..

REFERENCES

- Artto, Karlos, Iiro Kulvik, Jarno Poskela and Virpi Turkulainen, 2011, "The integrative role of the project management office in the front end of innovation", *International Journal of Project Management*, Vol. 29, pp. 408–421.
- Bailetti, Tony, 2012, "Technology Entrepreneurship: View, Definition, and Distinctive Aspects", *Technology Innovation Management Review*, pp. 5-12.
- Barlow, James, 2000, "Innovation and learning in complex offshore construction projects", *Research Policy*, Vol. 29, pp. 973–989.
- Beckman, Hristine, Kathy Eisenhardt, Suresh Kotha, Alan Meyer, and Nandini Rajagopalan, 2012, "Technology Entrepreneurship", *Strategic Entrepreneurship Journal*, Vol. 6, pp. 89-93.
- Bilim, Sanayi ve Teknoloji Bakanlığı, 2015, Teknogirişim Sermayesi Desteği Uygulama Usul ve Esasları, <https://biltek.sanayi.gov.tr/TSD%20Dkmanlar/Uygulama%20Usul%20ve%20Esaslar%C4%B1.pdf> Accessed at 09:58, 31.03.2017.
- Bygstad, Bendik and Gjermund Lanestedt, 2009, "ICT based service innovation – A challenge for project management", *International Journal of Project Management*, Vol. 27, pp. 234–242.
- Chiesa, Vittorio, 2000, "Global R&D project management and organization: a taxonomy", *Journal of Product Innovation Management*, Vol. 17, No. 5, pp. 341-359.
- Coombs, Rod; Andrew McMeekin and Roger Pybus, 1998, "Toward the development of benchmarking tools for R&D project management", *R&D Management*, Vol. 28, No. 3, pp. 175 – 186.
- Etzkowitz, Henry, 2003, "Innovation in Innovation: The Triple Helix of University-Industry-Government Relations", *Social Science Information*, Vol. 42, pp. 293-337.
- Eurostat, "Total intramural R&D expenditure (GERD) by sectors of performance", <http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do> Accessed at 18:22, 28.03.2017
- Filippov, Sergey and Herman Mooi, 2010, "Innovation Project Management: A Research Agenda", *RISUS. Journal on Innovation and Sustainability*, ISSN 2179-3565.
- Gann, D.M., Salter, A., 2000, "Innovation in project-based, service-enhanced firms: the construction of complex products and systems", *Research Policy*, Vol. 29, pp. 55–972.
- Gann, D.M., Salter, A., 1998, "Learning and innovation management in project-based, service-enhanced firms", *International Journal of Innovation Management*, Vo. 2, pp. 431–454.
- Holmes, Steve J. and Robert T. Walsh, 2005, "Conducting Effective Project Management Maturity Assessment Interviews", *Integrated Management Systems (IMSI TECH 2005)*.
- İTÜ Arı teknokent, "Teknopark Nedir?", <http://www.ariteknokent.com.tr/tr/nerede/teknopark-nedir> Accessed at 15:32, 30.03.2017.
- Kapsali, Maria, 2011, "Systems thinking in innovation project management: A match that Works", *International Journal of Project Management*, Vol. 29, pp. 396–407.
- Katz, Ralph and Thomas J. Allen, 1985, "Project Performance and the Locus of Influence in the R&D Matrix", *The Academy of Management Journal*, Vol. 28, No. 1, pp. 67-87.
- Keller, Robert T., 1994, "Technology-Information Processing Fit and the Performance of R&D Project Groups: A Test of Contingency Theory", *The Academy of Management Journal*, Vol. 37, No, pp. 167-179.
- Liberatore, Matthew J. and George J. Titus, 1983, "The Practice of Management Science in R&D Project Management", *Management Science*, Vol. 29, No. 8, pp. 962-974.
- Manley, K., 2008, "Implementation of innovation by manufacturers subcontracting to construction projects", *Journal of Engineering, Construction and Architectural Management*, Vol. 15, No. 3, pp. 230-245.
- Martinsuo, Miia, Nicole Hensman, Karlos A. Artto, Jaakko Kujala and Ali Jaafari., 2006, "Project-based management as an organizational innovation: drivers, changes and benefits of adopting project-based management", *Project Management Journal*, Vol. 37, No. 3, pp. 87–97.

Nokes, Sebastian and Sean Kelly, 2007, "The Definitive Guide to Project Management", 2nd Edition, London, England, (Prentice Hall/ Financial Times).

Örnek, Ali Sahin, Yasin Danyal, 2015, "Increased Importance of Entrepreneurship from Entrepreneurship to Techno-Entrepreneurship (Startup): Provided Supports and Conveniences to Techno-Entrepreneurs in Turkey", World Conference on Technology, Innovation and Entrepreneurship, Procedia - Social and Behavioral Sciences, Vol. 195, pp. 1146 – 1155.

Pinto, Jeffrey K. and Dennis Slevin, 1989, "Critical Success Factors in R&D Projects", Research-Technology Management, Vol. 32, No. 1, pp. 31-35.

Prodan, Igor, 2007, "A model of technological entrepreneurship" in Handbook of Research on Techno-Entrepreneurship (François Thérin Edition), Great Britain by MPG Books Ltd, Bodmin, Cornwall, pp. 26-38.

PMI Project Management Institute, 2013a, Organizational project management maturity model (OPM3), 3. Edition, Project Management Institute, Inc, USA.

PMI Project Management Institute, 2013b, A Guide to the Project Management Body of Knowledge, 5. Edition, Project Management Institute, Inc, USA.

PMI Project Management Institute, 2003, Organizational project management maturity model (OPM3), Project Management Institute, Inc, USA.

Resmi Gazete, (2001), Teknoloji Geliştirme Bölgeleri Kanunu, <http://www.resmigazete.gov.tr/eskiler/2001/07/20010706.htm> Accessed at 19:33, 30.03.2017.

Roja, Alexandru and Marian Nastase, 2014, "Technology Entrepreneurship And Entrepreneurial Strategies", Proceedings of the 8th International Management Conference, Bucharest, Romania.

Shenhar, Aaron J and Dov Dvir, 2007, "Project Management Research-The Challenge And Opportunity", Project Management Journal, 38, 2.

Shenhar, Aaron J and Dov Dvir, 1996, "Toward a Typological Theory of Project Management", Research Policy, Vol. 25.

Sicotte, Helene and Ann Langley, 2000, "Integration mechanisms and R&D Project performance", J. Eng. Technol. Manage., Vol. 17, pp. 1–37.

TGBD, Teknoloji Geliştirme Bölgeleri Derneği, 2017, <http://www.tgbd.org.tr/WebContent/WebContent/4701>

Turkey Statistic Institute, Adrese Dayalı Nüfus Kayıt Sistemi, http://www.tuik.gov.tr/PreTablo.do?alt_id=1059 Accessed at 12:08, 28.03.2017.

World Bank, World Development Indicators, <http://databank.worldbank.org/data/reports.aspx?source=2&type=metadata&series=GB.XPD.RSDV.GD.ZS#> Accessed at 12:08, 28.03.2017

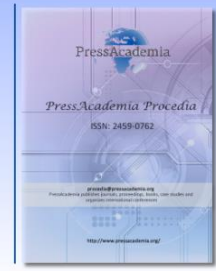
World Bank, World Research and development expenditure (% of GDP), <http://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS?locations=TR> Accessed at 18:53, 28.03.2017.

Yalçıntaş, Murat, 2014, "Üniversite - Sanayi - Devlet İşbirliğinin Ülke Ekonomilerine Etkileri: Teknopark İstanbul Örneği", Finansal Araştırmalar ve Çalışmalar Dergisi, Vol. 5, Iss.: 10, pp. 83-106.

Zedtwitz, Maximilian von, 2002, "Organizational learning through post-project reviews in R&D", R&D Management, Vol. 32, No. 3, pp. 255-268.



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SECTORAL DEVELOPMENT OF ICT FOR CARE

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ABSTRACT

Because of disability and or aging or illness people need long term care services in specific part of their life. Health and social care burden is increasing day by day in the world and our country. These services are home care, daily care, residential care, nursing home and paliative care services. These services are provided elderly people by formal and informal caregivers. Both burden of care and cost of care is increasing because of growing population of World. For this reason, using ICT technologies in care services is an important issue that cost of care services can minimize by using this technologies in care. To illustrate, following individual diabete rate by far, home security systems for Alzheimer, easy use technological products for elderly people. Because these products are popular for people who every aged and from different socio-cultural levels that they need them. In Turkey, there are techno-parks and entrepreneurs that work in ICT for care. Nowadays, little part of consumers use ICT for care in home care services&mobile health care. In Turkey, families are caregivers in long term care services system mostly. Caring of disabled and elderly people is costly and hard. For increasing access of care services, families should be supported by ICT. Thus, existence structure will be sustainable care and health and social care expenditures will decrease. There is need of feasible study in ICT for care in our country. To sum up, using of ICT for care provide spreading of all care services models and relevant sectoral development.

Keywords: Disabled people, elderly people, sick, long-term care, information communication technology, sector

JEL Codes: D83, N75, O38, I23

1. INTRODUCTION

In Turkey, General Directorate of Services for Persons with Disabilities and the Elderly that is the Government Coordinating Body have the task of preparing legislation on elderly services. Instead of public administration-based service provision; arrangements based on the protection of the elderly, uniform service provision for elderly people, intensive structure of elder society excluded from society; delivering service with local government, private sector and voluntary organization's collaboration and coordination, social responsibility development regulations for investment in individual capacity, delivering elderly services in line with needs, social environment and individual preferences are appropriate. Because of disability and/or aging or illness people need long term care services in specific part of their life. Health and social care burden is increasing day by day in the world and our country. These services are home care, daily care, residential care, nursing home and paliative care services. These services are provided elderly people by formal and informal caregivers. In Turkey, families are caregivers in long term care services system mostly. Ministry of Family and Social Policies deliver instituonal care services to both elderly and disabled people, informal care services as social aids. 541 thousand people benefit from social aids because of their disability (<http://eyh.aile.gov.tr/yayin-ve-kaynaklar/yasli-hizmetleri>). The population of Turkey is 6.9% disabled and 8.2% is over 65 years old (Engelli ve Yaşlı Bireylere İlişkin İstatistik Bilgiler,2017). It is assumed that supporting families with ICT, especially for those elderly people who need care to increase their access to services, will relieve the existing structure and reduce the costs of health and social care.

2. TECHNOLOGY FOR ELDERS

It is known that the utilisation of information and communication technology (ICT) in the World and in Europe is increasing day by day. There is a need to use ICT in our country and to make feasibility studies with potential knowledge. At the same

time, the development of ICT-based products and supporting technological instruments is important for our country. There is a need for sectoral development to produce supporting technological products and products for smart homes. In this way, it is thought that both people who has different economic level will be able to access these products and long-term care (LTC) will be cost-effective. Because utilisation of technology in care services will optimise number of care staff's employment and simplify delivering of care services. For instance, with the purpose of improving and developing health at old age, regular health checks should be made at home on demand and there will be no transportation to hospitals costs. The model of home care service supported by technology for elderly people should have standards. Emergency call centers which has network with elderly people's home will be set up in order to provide emergency services to elderly people living at their own home. The system will be designed to operate through electronic assistance equipment that elder people who can live alone and no need formal care services live in their own home and social environment. Thus, instead of costly nursing homes for both government and individuals due to supportive technologies elder people can live in their home safely. In conclusion, promoting the use of ICT and ensuring sectoral development should be supported at all stages of care services. In this context, MoFSP is foreseen to make "Project of Utilisation of ICT in Care Services". The project is predicted to finish in 3 years.

2.1. Utilization of Technology in Elderly Care Services

During the first year of the project mentioned above, fairs and congresses will be visited annually to see technological developments that exist or have been made in relation to Care ICT on national and international platforms. As a result of these visits, it is aimed to organize fairs and congresses by the Ministry of Family and Social Policy for the selection of the technological products which are most suitable for my country and needy people. To exchange information with those who will participate in the fairs and congresses organised by project; individual negotiations of entrepreneurs who are willing to meet the needs of the needy will ensure that the existing problems can be reached more quickly and clearly, and the technology will provide them the solution will be more effective. Within the scope of these activities, this platform will be named as "ICT Platform for Care Services", where the NGOs convey their needs about elderly services to entrepreneurs. Entrepreneurs who has not fund can meet with angel investors because of this platform. In order to ensure the sustainability of the project; MoFSP, local authorities, associations or NGOs will develop criterias for ICT for care. If entrepreneur meets the criterias established by the Project, instead of grants, non-monetary incentive programs such as facility of gaining patents, invitation to relevant conferences, workshops and training, will provide them by competitions. It is ensured that the institutions or organizations included in the project are also members of the "ICT Platform for Care Services". To illustrate, R&D studies that developed by young people who apply through university students or universities will compete for the idea of ICT in care and participate in the prototypes they have prepared. The rewards of this competition include non-monetary incentives. Through competition young entrepreneurs can be recognised by sector and investors. Angel investors, the businessmen who invest in the money for young entrepreneurs' ideas, can connect with entrepreneurs with this competition. Thus, at the end of mentioned project's activities will create awareness about market of care technologies in Turkey. Public sector should support and organise this kind of projects. Fairs, congresses, conferences and platforms will hold next first two years. During this period, NGOs interested in "ICT for Care Services" will focus on daily living activities will facilitate with technological care and they will come together with private sector and angel investors at local level. To see this in concrete terms, applications will be admitted in the designated pilot regions. In the first stage; big cities such as Ankara, Eskişehir and Mersin, and in the second stage other cities Adıyaman, Uşak, Kırıkkale and Sinop apply ICT in care. In this system; the data of the services performed will be collected in a database which will be formed within the Ministry of Family and Social Policy. This will ensure that the project will have a database with robust data in the years to come. Based on the existing database, it will be possible to find out where the use of technology that will be initiated with the project of "ICT use in care" is widely spread and the percentage of the elderly classified according to daily living activities and the percentage of the population according to the country rate will be recorded in a healthy manner and access easily. For example, there are "Elderly Living Homes" for elderly people in specific cities in Turkey, they can be made as smart home. After providing the ICT-based supportive technological equipment to these homes a short information about how to use technologies will be learned by caregivers and monitors will be settled in an institutions, namely nursing homes, rehabilitation centres. MoFSP Control room will evaluate care services regularly according to monitor records. In case of emergency, the technologic product will send signal to the control room and a staff from the nearest health center or health institution will be sent. In case of necessity, intervention will be done immediately. MoFSP, MoH, NGOs and local governments will ensure the sustainability of their work by making a protocol between them. As a result of this work, it is expected that the care services transformation program will be accelerated so that the project outputs will be disseminated to ensure access to qualified and cost-effective care services.

3. DATA AND METHODOLOGY

3.1. Data

The "World report on ageing and health 2015" emphasises that while some older people will require care and support, older populations in general are very diverse and make multiple contributions to families, communities and society more broadly (<http://www.who.int/mediacentre/news/releases/2015/older-persons-day/en/>) For this reason, using Information and Communication Technologies (ICT) in care services is an important issue that cost of care services can minimize by using this technologies in care. According to the Republic of Turkey Ministry of Family and Social Policies (MoFSP) Decree Law No. 633 dated 2011; there is a statement about strengthening of are services "establishing the necessary mechanisms, standardizing existing ones, monitoring and supervising the implementation of the social support for the elderly and the needy people with disabilities to live their lives without leaving their homes and their social environment". Moreover, "The Situation of Elderly People in Turkey and National Plan of Action on Ageing" of State Planning Organization mentions about encouraging development of convenient information technology, taking into consideration the changes that occur in physical qualities and seeing capacities of elderly people (State Planning Organization,2007). At the same time, the Turkish Active Aging Strategy Document-2017 is designed to support innovative approaches to facilitate the life of the elderly and to support research and development (R&D) efforts to develop elderly friendly technologies.

Figure 1: Population of Turkey, 2013-2075 (TÜİK, 2013)

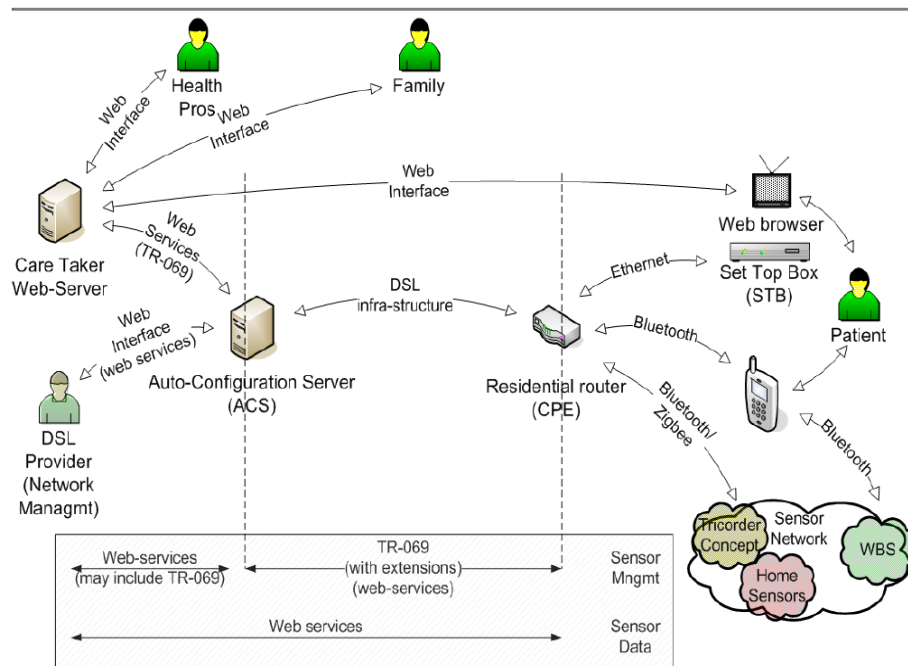


As seen figure 1, The population will increase slowly to the year 2050, and it will reach to its highest value with 93 475 575 people in this year. After 2050, the population will start to decline, and it is expected to be 89 172 088 in 2075. If the current trends of demographic indicators persist, the population of Turkey will continue ageing. Elderly population, which is the population at 65 years of age and over, is 5.7 million in 2012 with a proportion of 7.5% and this population will reach to 8.6 million people with a proportion of 10.2% in 2023 (TÜİK,2013).

3.2. Methodology

After retirement, elderly people are pasive, they may have difficulty in moving or may have chronic diseases. Only nursing homes are not enough to respond to the growing elderly population. For this reason, it is necessary for cities and homes to be smart and care services should be supported with technology.

Figure 2: eCAALYX's System Diagram



As seen figure 2, CAALYX (01/2007-12/2008 - <http://caalyx.eu/>) is a two-year eHealth project funded by the European Commission under FP6 (Sixth Framework Programme). It integrates the efforts of eight research, telecom/industrial and end-user partners from six European countries, with the common goal of monitoring the health status of elderly users 24 hours a day, seven days a week, for the purpose of predicting/detecting any unfolding adverse health conditions and preventing complications (Boulos, Lou, Anastasios, Nugent, Alexandersson, Zimmermann, Cortes and Casas, 2009, p. 1951). A range of applications and services that could open up the healthcare market to a new generation of providers, such as home monitoring of the health status of the elderly and GPS-enabled phones to help Alzheimer's patients when they have wandered around or become disorientated, have been prototyped, and some of these solutions are currently being marketed to patients and their carers. Enabling wireless technologies, such as Bluetooth, have been shown to be enormously useful in data transmission over short distances from fixed or mobile devices. Frail pensioners needing round the clock care could well become among the routine users of Bluetooth wireless technology in the near future. Some vital signs monitoring systems have already been developed that send sensor data via Bluetooth to a personal computer, which can be consulted (even remotely) by a doctor or care workers, enabling them to keep an eye on the health of the patient and spot any problems before they become life-threatening (Boulos, Lou, Anastasios, Nugent, Alexandersson, Zimmermann, Cortes and Casas, 2009, p. 1969). As mentioned above such eHealth projects in Europe can be guide for Turkey. European countries has older population than Asian countries that Turkey can benefit from their experiences.

4. FINDINGS AND DISCUSSIONS

The Elderly Support Program (YADES) project is being implemented in order to improve the services at the local level in order to protect and support the elderly people who live in Turkey and who need services and to support those living in need of bio-psycho-social care (<http://eyh.aile.gov.tr/uygulamalar/yasli-hizmetleri/yasli-destek-programi-yades-2016>). Utilizing this experience of the institution; It is aimed to expand the use of ICT in home care (eg: smart home) in order to care for the level of care based on the daily activities of the individuals in need of care and to provide health care services in good quality and cost-effective. For this purpose, it is aimed to provide care service by using coordination center (nursing home, rehabilitation centres, family health center etc.) using the software to coordinate the care service. These softwares provide coordination between MoH, MoFSP, local governments and Non-Governmental Organizations (NGOs). At the same time telemonitoring, telecare, etc. supporting technological products should be established to support home care services. As an advice, within this scope, home care services should be organized in the coordination centers of MoFSP, which will be

formed by MoH, local government and NGO protocols. These studies; Individuals in need of daily living activity should be provided by organizations providing home care services in accordance with procedures and standards.

In this context; congresses, fairs where national and international parties come together and share should be organised. The "ICT Platform for Care", where relevant parties are involved, should be established and sustainability should be ensured. These platform members; should be formed national and international actors such as entrepreneurs / angel investors, R&Ds, techno-cities, NGOs, etc. For example, technological products such as home security systems, and easy-to-use communication systems are increasingly used at every age and socio-cultural level. There are university techno parks and private sector entrepreneurs working in this field in Turkey. A small fraction of consumers are using ICT technologies in care, delivering health care to a small extent and delivering home care services. Joining innovative Approaches for the integration and Development of transnational Knowledge clusters policies related to independent living of Elderly (JADE) project supported by the EU has been carried out for 3 years since 2011. More than 30 institutions from 5 countries, including Turkey, Italy, England, France and Finland, worked together at the JADE Project where The Scientific And Technological Research Council Of Turkey (TUBİTAK), İstanbul Metropolitan Municipality, Provincial Health Directorate participated in the leadership of Sabancı University in Turkey and 10 institutions from different sectors participated (<http://www.ibb.gov.tr/sites/avrupa-birligi/abfonlari/Sayfalar/ABProjeler.aspx>). With the JADE project, it is aimed to reveal the policies and methods that help the elderly to live healthy without needing them in the increasingly average society. Institutions from different countries involved in the project have prepared joint work plans to develop new and accessible technologies by bringing together R & D centers. The target of new technologies to be developed; It aims to enable the elderly people to live their lives without having to depend on anyone and live a healthy and active social life.

5. CONCLUSION

To conclude, technological improvements for care will develop according to awareness of sector. With projects and studies about technologies for care services all actors in care services will meet with single platform "ICT Platform for Care Services". Applications, such as telomonitoring, telecare etc. from the coordination centers of home care services at the local level are expected to be supported by technological products and home care services. At the same time, the training of the people working in the public sector is strengthened and the contribution to the care services will be increased. Integration and monitoring of MoFSP, MoH, local governments and care services provided by NGOs (especially elderly care needs) will be provided. The quality of care services will be enhanced by strengthening local level care providers. On the other hand, the level of awareness of the care service quality in the community will also increase. At the national level, MoFSP, MoH, the "Integrated Family Information Database" system of local governments will be established. At the international level, good practice examples will be learned and shared. The national sector for care services will be strengthened by establishing grounds for international cooperation. At all levels, field studies for the utilisation of ICT in care services will be monitored, researched, implemented. The results will be evaluated according to protocols will be prepared.

REFERENCES

- Boulos ,M. Lou, R. Anastasios, A. Nugent,C. Alexandersson,J. Zimmermann, G. Cortes U.,and Casas, R., 2009, Connectivity for Healthcare and Well-Being Management: Examples from Six European Projects. International Journal of Environmental Research and Public Health,6, 1948-1971.
- Engelli ve Yaşlı Hizmetleri Genel Müdürlüğü, 2014. Bakım Hizmetleri Kalite Standartları. Access: <http://kutuphane.aile.gov.tr/YayinDetay/Kitap/0727d289-b143-453e-987b-54d50a5c5b50>. Access Date: 24.04.2017.
- Engelli ve Yaşlı Hizmetleri Genel Müdürlüğü,2017. Engelli ve Yaşlı Bireylere İlişkin İstatistik Bilgiler 2016 Yıl Sonu Raporu. Access: http://eyh.aile.gov.tr/data/551169ab369dc57100ffb13/Bulten_Ocak2017.pdf. Access Date: 24.04.2017.
- Republic of Turkey Ministry of Family and Social Policies,2011. Decree Law No. 633. Access: <http://www.mevzuat.gov.tr/Metin1.Aspx?MevzuatKod=4.5.633&Mevzuatlliski=0&sourceXmlSearch=633&Tur=4&Tertip=5&No=633> (Access Date: 24.04.2017)
- State Planning Organization, 2007. The Situation of Elderly People in Turkey and National Plan of Action on Ageing. Access: http://www.monitoringris.org/documents/tools_nat/trk.pdf (Access Date: 22.04.2017)
- TÜİK, 2013. Population Projections, 2013-2075. News Bulletin of Turkish Statistical Institute, Number: 15844, 14 February 2013. Turkish Statistical Institute, Ankara
- YADES,2016. Access: <http://eyh.aile.gov.tr/uygulamalar/yasli-hizmetleri/yasli-destek-programi-yades-2016>. Access Date: 21.04.2017.

World Report on Ageing and Health, 2015. Access: <http://www.who.int/mediacentre/news/releases/2015/older-persons-day/en/>. (Access Date: 24.04.2017)

(2011-2013) Kapsamında Bakım Hizmetleri Stratejisi ve Eylem Planı <http://eyh.aile.gov.tr/yayin-ve-kaynaklar/yasli-hizmetleri> (Access Date: 23.04.2017)

<http://www.ibb.gov.tr/sites/avrupa-birligi/abfonlari/Sayfalar/ABProjeler.aspx> (Access Date: 23.04.2017).



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INTEGRATION AND VOCATIONAL COURSE SUGGESTIONS FOR MIGRANTS

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ABSTRACT

When the terrorist activities across the world are considered, Turkey is also affected by the migration wave created by it. According to the official numbers, Turkey now hosts 3 million migrants whereas the unofficial numbers claim that this reaches to 5 million people. The new lives people establish in Turkey bring several integration problems such as loneliness, social isolation, alienation, regret or feeling invaluable. Therefore, it is essential that these people improve their language skills and develop skills in order to leave in harmony and peace with the local residents and to overcome the difficulties rising from cultural differences. To serve this aim, integration programmes and vocational courses can help people overcome the integration problem as well as help them gain a skill that could create job opportunities for them. Within the scope of this research, different courses that could be offered to migrants and their potential impacts on these people will be looked into.

Keywords: Integration and vocational courses, migration, education/training

JEL Codes: G10; G32

1. INTRODUCTION

The movement of migration can be defined as the act of abandoning a permanent habitat of a population for personal reasons in order to live either permanently or temporarily in another place. (Doğanay, 1994). There are several reasons why people abandon the countries or cities they were born in. Some of the reasons for migration can be listed as; population problems, economic problems, deterioration in environmental conditions, inadequacy of educational conditions, political problems and wars. Among them, economic and political problems are the most significant reasons. Inequality in income distribution, economic reasons such as unemployment and poverty have shown that a large number of people are abandoning the countries/cities they live in. Political problems also play a role in forcing people to migrate. Natural phenomena such as environmental degradation, climate change, erosion, floods, earthquakes and volcanic eruptions are the most important reasons for people to migrate. (Kaştan, 2015). Migration can cause a variety of damages to the mental health of children and adolescents such as adjustment or adaptation problems. Köknel (1989) defines the adjustment as "the ability of the individual to have and maintain a balanced relationship between his / her self and the environment". (Köknel, 1989). Adaptation problems are also reflected in the education of children and adolescents, and these children experience various difficulties in the schools. Tufan defines the characteristics of a well-adjusted person as "being able to perceive the truth; to be in a comfortable relationship with the facts, to acknowledge oneself without worry, to be natural in behaviours, to have motivation for a positive start, to be flexible in behaviours, to have self-confidence, to have expectations about life and future". (Tufan, 1987). Therefore, it is necessary for the individual to adjust the environment s/he lives in. Overcoming the feeling of loneliness, social isolation, regret and feeling insignificant can contribute to the country with the achievement s/he will be doing.

Educational and economic development are inseparable. Training of citizens who can adapt quickly to the needs of the information age is one of the basic priorities of the civilized world. Training migrants as well as the citizens and sustaining their integration via education so that they can contribute to the society may be considered an important asset within the scope of life-long learning. The concept of Lifelong Learning takes place in the studies of many national and international institutions and organizations (such as UNESCO, ILO, OECD, EU). (Beycioğlu and Konan, 2008). European union defines the life-long learning as activities that aim to improve the individual's knowledge, skills, competences for personal, social or

professional development throughout his / her life (European Commission, 2002). The idea that education encompasses the whole of life has existed for a long time (Lindeman, 1926; Yeaxlee, 1929). In recent years there has been an increase in interest in lifelong learning to organize it in a much better and professional way. The aim of the Lifelong Learning model is to ensure that both non-formal education and the formal education are carried out successfully. (Köse, 2016). Likewise, Ministry of National Education (MoNE) states in the article 4-1.e of objectives and duties of Regulation on Non-formal Education Institutions document that MoNE "should hold training activities for migrants to help adapt to their new environment." This shows that MoNE attaches importance to training that could address integration of migrants. (Republic of Turkey Ministry of National Education, 2010). As for the citizens, the aim of the courses is to improve the cooperation between the university - industry and local governments and to find a solution to the problem of unemployment in our country. When looked from the perspective of migrants, the aim of the courses is to eradicate the integration problems, to contribute to the welfare of the country by raising qualified personnel and to teach history and cultural structure and the official language of the country.

2. TRAINING WITHIN THE SCOPE OF INTEGRATION AND VOCATIONAL COURSE

The number and accessibility of language courses offered for migrants at public education centres and in some non-governmental organizations are limited. In addition to the language courses, hobby courses can help migrant spend nice time and some special courses that can be offered at universities can address the aspirations of young people who wish to pursue a higher education degree. These trainings are defined as "Integration and Vocational Courses" and they should be available to all migrants who are unemployed or who do not have a job regardless of their educational level. Courses should be organized in such a way that it can to respond to market demands in accordance with the changing needs of the world, as well as the scope of innovation and change.

3. THE SOCIAL ASPECTS OF THE COURSES

From the perspective of clinical psychology, migration includes many social factors and it is also a psychologically challenging process. From this point of view, psychology of migrants can be affected by pre-migration and post-migration factors. Pre-migration factors usually include the personality of the migrant, the way of migration, the country from which migrant come from or in which immigrant was exposed to torture. The post-migration factors are; grief related to migration, cultural shock, the differences between the expectations and reality in the host country, feeling of belonging in the host country, etc. (Republic of Turkey Ministry of Interior Directorate General of Migration Management, 2013). Within this context, courses will play a crucial role for migrants to overcome the language and culture problems and will be an important step in terms of addressing psychological and social aspects. Once the language and culture problems are addressed, adaptation will be much easier and the courses will help them overcome the unemployment problems as they will be equipped with necessary skills and knowledge for a job.

4. INTEGRATION AND VOCATIONAL EDUCATION COURSES

Vocational courses listed below can help migrants for integration and awareness:

1. Living in Turkey
 - Political and Legal arrangement
 - Political Participation and Parties
 - Religious Communities
2. Living in Turkey
 - Searching for a flat and moving
 - Renting and Rent Law
 - Buying a flat
3. Shopping and Consumer Protection
 - Shopping and Consumer Protection
 - Shopping hours
 - Payment of Purchases
 - Online shopping
4. Banks and Insurance
 - Money and Bank
 - Legal and Social Insurance
 - Financial and Personal Insurances
5. Health and Measure
 - Assistance for Diseases and Accidents

- Preventive examinations and vaccinations
 - Drug and Addiction Counselling
 - Participation of disabled people in Daily life.
6. Learning Turkish
 - Turkish for Profession
 - Turkish for refugees
 - Turkish for children and young people
 7. Provision of Integration Processes in the Place of migrants
 - Culture of welcoming
 - Entertainment and sports options
 - Strengthening Competencies
 - Opportunities for women
 8. Informing and Counselling
 - Counselling for Adults
 - Youth counselling
 - Citizenship services
 - Media communication
 9. Education
 - Early childhood education
 - School system
 - Vocational Training
 - Higher Education
 - Adult education
 10. Job and Occupation
 - Access to the labour market
 - The Equivalency of degrees obtained from abroad
 - Job hunting
 - Special options for professional integration
 - School/Vocational Education Transition
 - Establishing a business and working freelance
 - In-service training
 - Business law
 - Income and tax
 11. Children and Family
 - Childcare
 - Pregnancy and Maternity Leave
 - Parental Allowance and Parental leave
 12. Association and Organisations
 - Associations and Unions
 - Immigration Organisations
 13. Cultural Options

Migrants who have attended integration training need to work to improve their economic well-being once they have provided adaptation to the county and culture. The following vocational courses have been proposed in order to ensure that unemployed young people are trained as qualified workers and that they are able to make choices according to their job potentials in the areas and skills they are interested in

How to use a keyboard (F or Q)

General Information Technologies

Internet Programming

Computer Maintenance and Hardware

Computer Management

Graphic Design with Photoshop

Indesign - Graphic Design with Illustrator

Cleaning Services in Health Institutions

Worker Health and Work Safety in Health Institutions

Work Accidents and First Aid Training

Home Phone Repair
Network Systems
Programming CNC
Advanced CNC Applications
Technical Drawing-1-2
Hydraulic and Pneumatic-1-2
Industrial Control with Plc-1-2

Natural Gas and Heater Installation
Worker health and safety
Private Security Certificate Program
Safety Systems Installation, Maintenance, Repair Certificate Program
Fire and Explosion Certificate Program
Security Systems Automation Staff Certificate Program

Cameraman
Basic Photography
Social Media Management
Content Management in Social Media
Interpersonal communication
Research Techniques in the Media

5. CONCLUSION

The aim of the proposed courses is to address the need for qualified labour force by providing integration and vocational training for migrants, thus seeking a solution to the problem of unemployment of the country and increasing the welfare of the country. The aim is to ease adaptation of migrants, to raise unemployed youth as qualified members of society and encourage them to work in the labour market of the region they are living in accordance with their skills and interests. Finally, the aim is to help people at all levels to adapt to innovation and change in today's world, and to ensure that they are lifelong learners within context of equal opportunities.

REFERENCES

- Beycioğlu, K. ve Konan, N. 2008, "Lifelong Learning and Education Policies of The European Union", *Electronic Journal of Social Sciences*, V.7, I.24 pp.369-382.
- Doğanay H. 1994, "Turkey's human geography", Gazi Büro Publishing House, Ankara, pp.165.
- European Commission, 2002, "European report on quality indicators of lifelong learning Fifteen quality indicators", European Commission report, Directorate-General for Education and Culture, Brussels.
- Kaştan Y. 2015, "Problems on Migration Process of Children Lived in Turkey", *International Journal of Social and Educational Sciences*, Volume 2, Issue 4.
- Köknel Ö. 1989, "Individual and Social Violence", Altın Kitaplar Publishing House, Istanbul, pp.9.
- Köse E. 2016, "Continuous Learning Model in the Cooperation of University and Industry", 2nd Educational Congree.
- Lindeman E. 1926, "The Meaning of Adult Education", Newyork: New republic inc.
- Republic of Turkey Ministry of Interior Directorate General of Migration Management, 2013, "Migration management adaptation workshop", http://www.goc.gov.tr/files/_dokuman36.pdf, pp.30 (Access Date: 04.2017).
- Republic of Turkey Ministry of National Education (MonE), 2010, Regulation on Non-formal Education Institutions, http://mevzuat.meb.gov.tr/html/yayg%C4%B1negi_1/27587_1.html (Access Date: 04.2017).
- Tufan B. 1987, "Psycho-social situations of second generation immigrant working children returning to Turkey", Prime Ministry State Planning Organization (D.P.T.), Social Planning Department, Planning Department Publications, Ankara, pp.4.
- Yeaxlee, B. A. 1929, "Lifelong Education", London: Cassell.



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THE ROLE OF THE OIL TRANSFERS IN THE FISCAL POLICY THE CASE OF AZERBAIJAN

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ABSTRACT

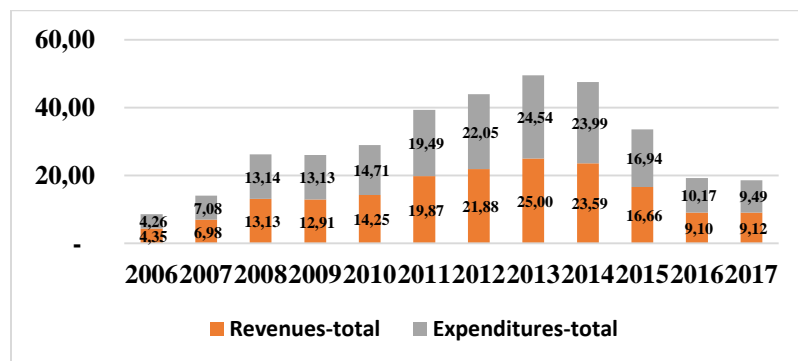
The Azerbaijan economy has been more sensitive to the fluctuations in the world market. Unlike from the other developing countries, the main source of this relationship has been oil-gas products. That is why, the falling oil prices in the world oil market has affected the macroeconomic situation in Azerbaijan. In this context, the main goal of the paper is to investigate the fiscal policy in Azerbaijan for the last decade. The author applies the correlation and data analysis of the state budget of Azerbaijan with investigating the relationship between the transfers from the State Oil Fund (SOFAZ) and some groups of the expenditures.

Keywords: Fiscal policy, expenditure, revenue, oil transfer, state budget
JEL Codes: E62, H50, H51, H52, H53, H60, H61

1. THE STATE BUDGET AND OIL TRANSFERS

The fiscal policy has the key power to foster the economic development in the world. That is why, the allocation of the financial resources in state budgets and to diversify them to the governments’ needs as expenditures are the main part of this policy. However, the source and percent of the revenue varies in the world countries. The Azerbaijan economy has been affected from the oil gas revenue. Ultimately, the transfers from the SOFAZ has been the key donor for the state budget of Azerbaijan in the last decade. Logically, increasing resource revenue enhanced the level of the public spending. Unfortunately, the economy was “infected” with the oil revenue in the booming years of the oil-gas sector. The main reason of the “infection”, is the inefficient spending of the government revenues. Furthermore, the correlation coefficient r between oil transfers and the groups of the public expenditures have been more than 0.7 (except for the expenditure on agriculture).

Graph 1: Revenues and Expenditures of the State Budget, in billions USD



Source: The state Statistical Committee of the Republic of Azerbaijan, The Ministry of Finance of the Republic of Azerbaijan

The revenue and expenditure of the state budget oscillated in the last decade. So, in five years from 2007 to 2012 the size of the budget increased more than three times. However, in the next five years the state budget has lessened by more than 50% (Graph 1). The main reasons to take into consideration on this trend are the role of oil transfers, the falling oil prices, and the depreciation of the national currency. Not only size of the state budget, but also the distribution of the public spending has been unstable. The percent of the public expenditure on education and social protection, security has been around 10% of the total government spending. On the contrary, the shares of the government expenditure on health care and agriculture have changed between 2% and 5% of the total expenditure. With attention to the expenditure on construction, we can see the crucial trend in the last decade. Particularly during the booming years of the oil-gas sector, the government spent more than one third of the gross expenditure (Table 1).

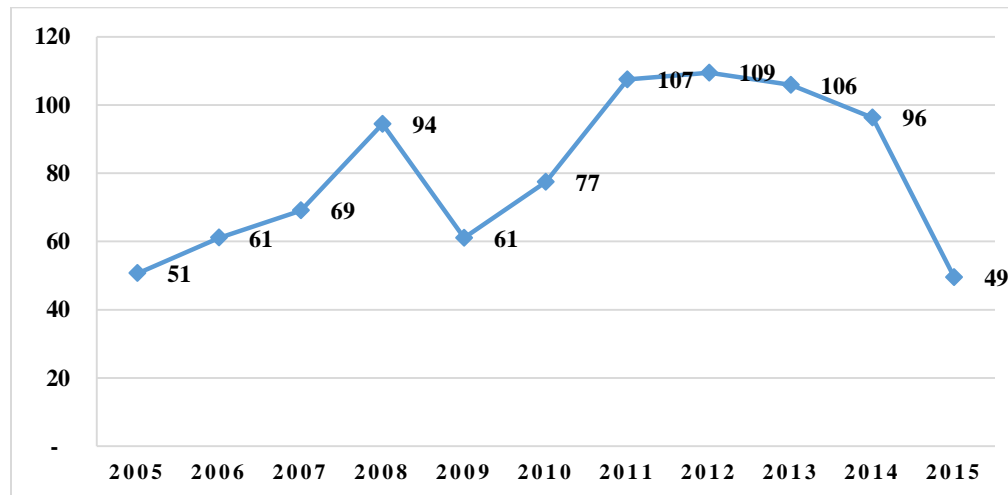
Table 1: The Classification of the Expenditures of the State Budget, % of the total expenditure

Definition	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Education	13%	12%	9%	11%	10%	8%	8%	8%	8%	9%	11%	11%
Health care	4%	4%	3%	4%	4%	3%	3%	3%	4%	4%	5%	5%
Social protection and security	9%	10%	8%	10%	10%	10%	10%	9%	11%	10%	12%	13%
Construction	23%	32%	26%	45%	30%	22%	33%	36%	33%	39%	22%	11%
Agriculture	3%	4%	2%	4%	3%	3%	3%	2%	3%	3%	4%	5%

Source: The state Statistical Committee of the Republic of Azerbaijan, The Ministry of Finance of the Republic of Azerbaijan

First thing to remember is the crude oil prices in the world market. The last decade has become the historical period for the oil exporting countries. That is why, the level of the prices has been doubled and then fallen by more than 100% (Graph 2). Without a doubt this situation had impact on the resource dependent economies, including Azerbaijan.

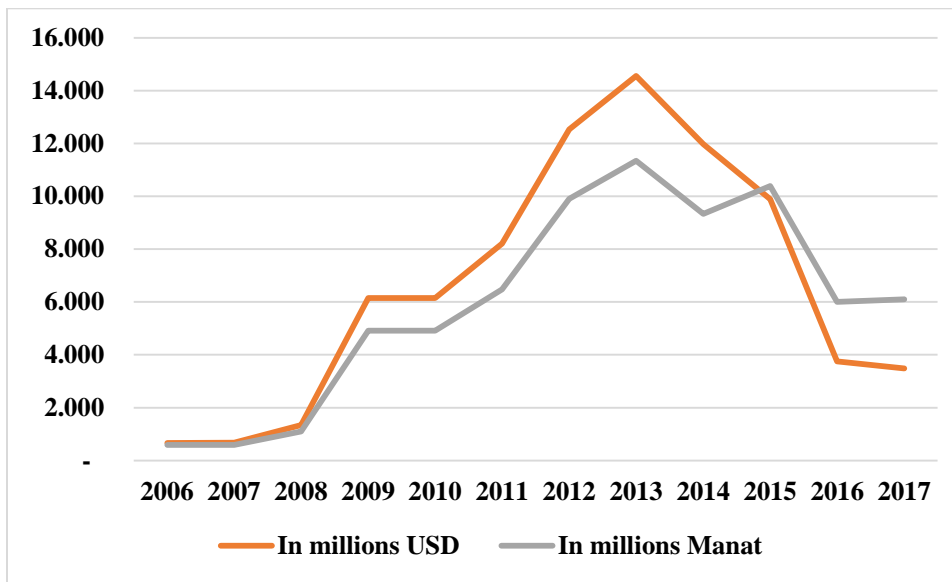
Graph 2: The World average crude oil price, per barrel, USD



Source: OPEC, http://www.opec.org/opec_web/en/data_graphs/40.htm

Moreover, it is enough to take into consideration the trend of the oil transfer from SOFAZ to the state budget. There is logical relations between the world oil prices and the amount of the transfers. In the years of the higher prices, the government has "infected" the state budget with the resource revenue, and enhanced the level of the dependence from the oil sector (Graph 3). Fortunately, there is reasonable amount of assets (USD 35 822.1 million, as of October 1, 2016) has left in the reserve fund (SOFAZ, 2016).

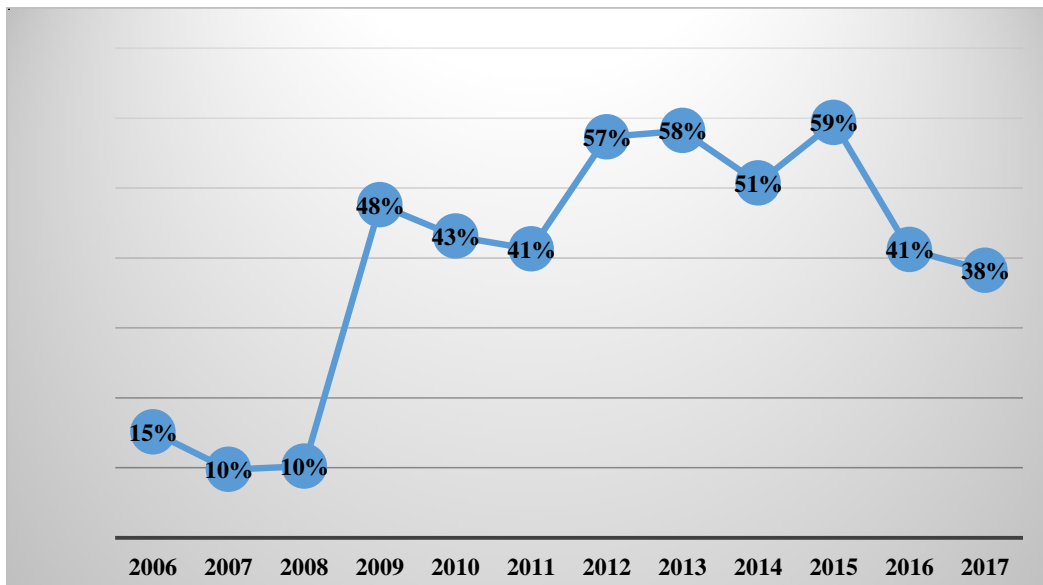
Graph 3: The Transfers from SOFAZ



Source: The Ministry of Finance of the Republic of Azerbaijan

By all means, the main questions have been how much oil rent to spend as a transfer and save in the fund. From 2008 to 2009 the amount of the transfers rocketed to 6 billion USD (48% of the total revenue). Unfortunately, the dependence of the state budget from the oil increased in the next years with the double amount. Furthermore, more than 50% of the total revenue was organized by oil transfers between 2012 and 2015. (Graph 3 and 4).

Graph 4: The Transfers from SOFAZ, Percent of the Total Revenue



Source: The Ministry of Finance of the Republic of Azerbaijan

However this figure has declined in 2016, 2017 to the same level in the beginning of the decade (less than 4 billion of USD). Logically, the share of the oil transfers has decreased in the total revenue. The government tries to explain these changes as an attempt to diversify and minimize the dependence from the oil rents. Without a doubt, the main reason is the falling oil prices in the world oil market. The structure of the study is organized as below. The methodology explains the author’s approach to the research. Then, the study continues with indicating the main features of the group of the public expenditure in Azerbaijan.

Apart from that, the author try to investigate the recent researches in the fiscal policy of Azerbaijan. The next sections are devoted to the results of the analysis and to discuss them. Finally, the paper concludes with the summary of the analysis and comments on the fiscal policy in Azerbaijan.

2. METHODOLOGY

The study characterizes the public expenditure in Azerbaijan with applying the correlation analysis between the selected expenditures and the transfers from SOFAZ to the state budget in order to investigate the potential relationship and the efficiency. At the end of the analysis, we can understand that, in which level these variables have been correlated with each other. Apart from that, we will able to investigate which group public expenditures have been related to the oil transfers with implementing comparisons.

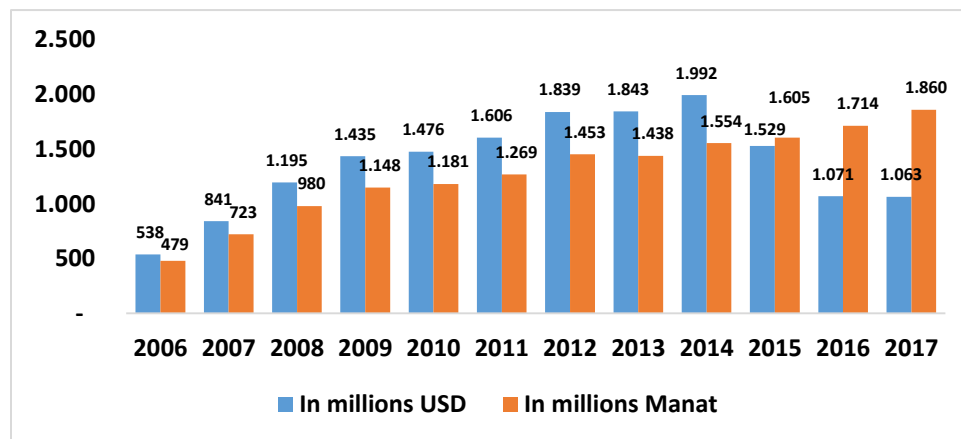
3. DATA

The main source of the data is exported from the State Statistical Committee of the Republic of Azerbaijan, the Ministry of Finance of the Republic of Azerbaijan. The author has taken the data for the period of 2006-2017 for the correlation analysis in order to investigate the relationship between the variables. The variables are the followings:

- Oil transfers from SOFAZ to the state budget
- Expenditure on Education
- Expenditure on Health Care
- Expenditure on Social Protection and Security
- Expenditure on Administration: the Legislation and Executive government authorities
- Expenditure on Construction
- Expenditure on Agriculture

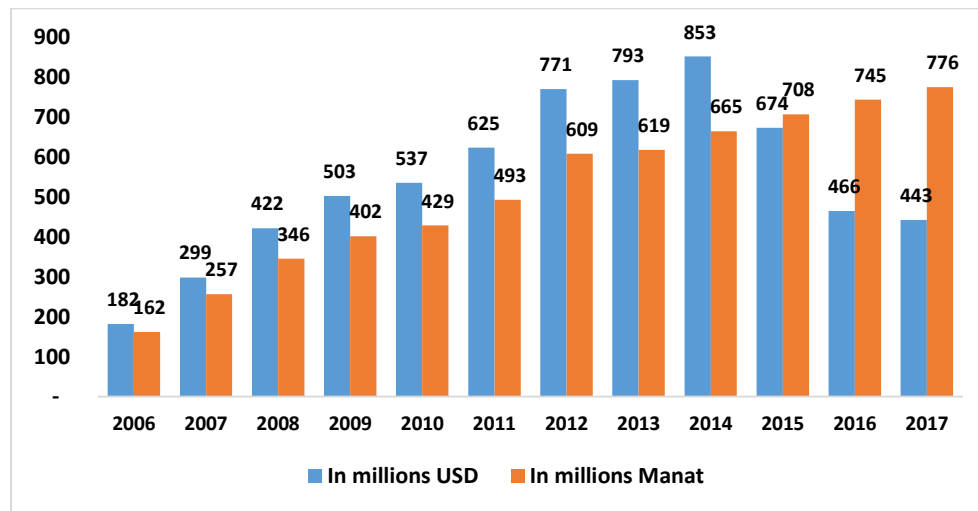
On the other hand, in each table, the source of the data have been mentioned with only names. The relevant data can be accessed from the web links in the websites. The main limitation for the data is the misallocation in one source. So, in the official portal of the State Statistical Committee of the Republic of Azerbaijan, the information about state budget is available only with general numbers. That is why, the author should take investigate to find the missing information from the other official authorities. In this context, the author has collected some parts of the data from the State Statistical Committee of the Republic of Azerbaijan and some of them from the Ministry of Finance of the Republic of Azerbaijan. Interestingly, the government has accepted the new budget for 2017 with the less numbers in comparisons with the previous years. The main reasons for this situation have been the declining oil rents and the devaluation of the national currency.

Graph 5: The Government Expenditure on Education



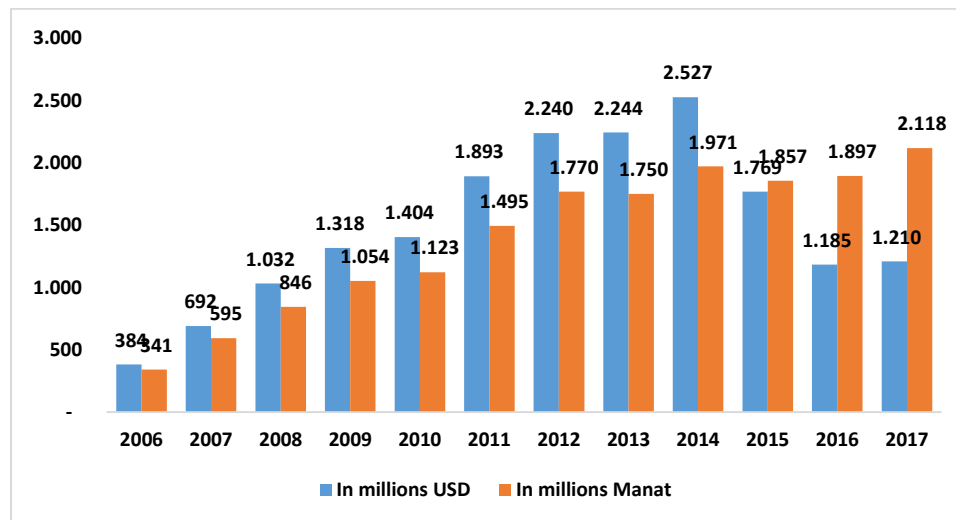
Source: The state Statistical Committee of the Republic of Azerbaijan, The Ministry of Finance of the Republic of Azerbaijan

The government expenditure on education shows upward trend by 2014 in the national and foreign currencies. As matter of fact, the amount of the educational spending grew 4 times between 2006 and 2014, reaching 2 billion USD. In contrast, due to the devaluation of the national currency the amount of the educational spending has been projected half of the previous years' numbers (Graph 5).

Graph 6: The Government Expenditure on Health Care

Source: The state Statistical Committee of the Republic of Azerbaijan, The Ministry of Finance of the Republic of Azerbaijan

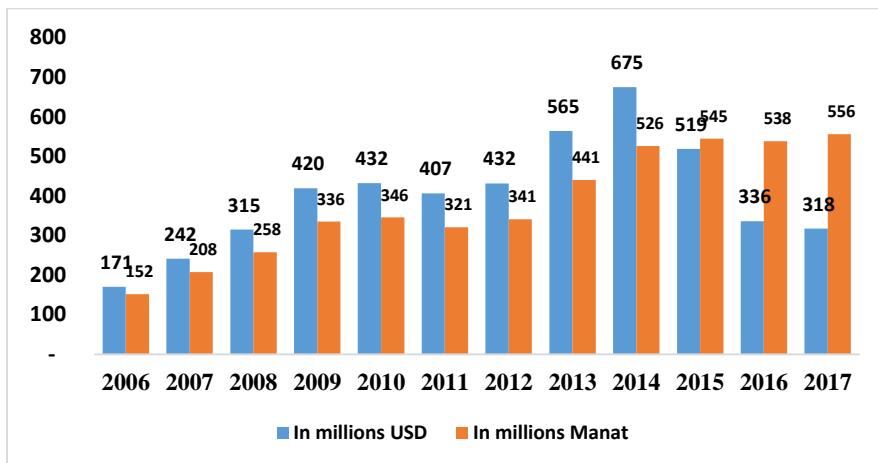
The government expenditure on health care shows also upward trend by 2014 in the national and foreign currencies. As the result of the increasing size of the revenue, the amount of the health care spending grew more than 2 times between 2007 and 2014. On the contrary, due to the devaluation of the national currency the amount of the spending has been projected half of the previous years' numbers (Graph 6).

Graph 7: The Government Expenditure on Social Protection and Security

Source: The state Statistical Committee of the Republic of Azerbaijan, The Ministry of Finance of the Republic of Azerbaijan

Another government expenditure, social protection and security spending shows also upward trend by 2014 in the both currencies. As the result of the increasing size of the revenue, the amount of the social spending grew more than 4 times between 2007 and 2014. Moreover, due to the devaluation of the national currency the amount of the spending has been projected half of the 2014 numbers (Graph 7).

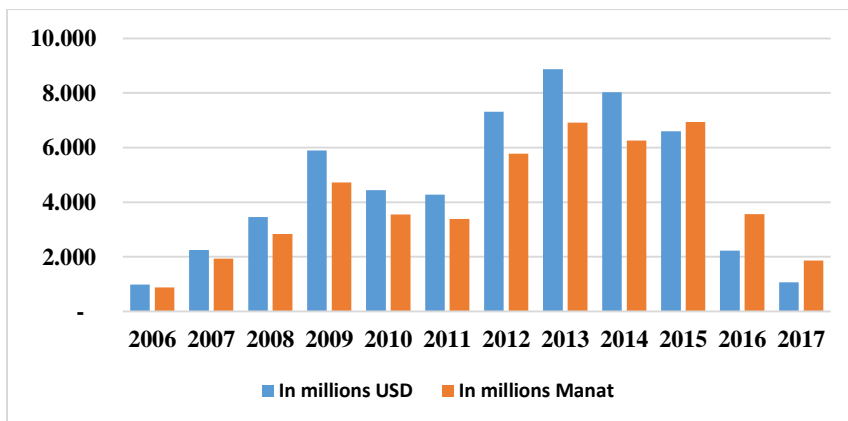
Graph 8: The Government Administrative Expenditure of the Legislation and Executive Government Authorities



Source: The state Statistical Committee of the Republic of Azerbaijan, The Ministry of Finance of the Republic of Azerbaijan

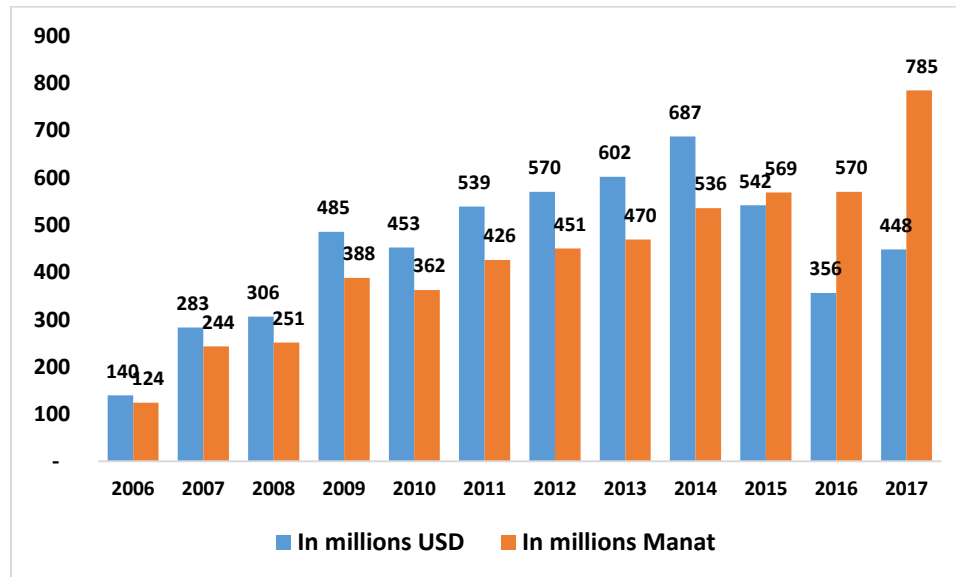
The government administrative expenditure of the Legislation, and Executive government authorities fluctuated and peaked in 2013-2014 with the more than half billion of USD. Interestingly, the main reason of this development was not only the qualitative increase of the living standards of the civil servants, but also establishing new inefficient government bodies. Moreover, due to the devaluation of the national currency the amount of the spending has been projected half of the 2014 numbers (Graph 8).

Graph 9: The Government Expenditure on Construction



Source: The state Statistical Committee of the Republic of Azerbaijan, The Ministry of Finance of the Republic of Azerbaijan

At the same time, the government has spent the crucial part of the revenue to the construction sector. So, the percent of the expenditure on construction changed between 22% and 45% (almost half, 2009, Table 1) from 2006 to 2016. On other hand this number peaked by 9 billion USD in 2013. Finally, after the falling oil prices, the government understood that, there is need to cut this expenditure. That is why, the expenditure on construction in the projected state budget for 2017 will be 9 times less than 2009, equal to 11% of the total revenue (Graph 9).

Graph 10. The Government Expenditure on Agriculture

Source: The state Statistical Committee of the Republic of Azerbaijan, The Ministry of Finance of the Republic of Azerbaijan

The government expenditure on agriculture shows upward trend by 2014 in the national and foreign currencies. As the result, the amount of the agricultural spending grew more than 2 times between 2007 and 2014. In case of the devaluation of the national currency, the amount of the agricultural spending has been projected for 2017 more than current year (Graph 10). The main goal of the government to foster the non-oil sector to invest in the agricultural sector.

3. FISCAL POLICY IN AZERBAIJAN

The efficient management of the public expenditure and revenue is the key feature of the fiscal policy. First aspect in the fiscal policy in Azerbaijan has been the contribution of the oil rents to the state budget. The Oil Fund of the Republic Azerbaijan (SOFAZ) is the key player in the economic policy of Azerbaijan. First thing to remember, the Azerbaijan economy has experienced varied booms and downturn due to the resource dependent economy in the last decade. The key feature of the public expenditure management to take into consideration the lack of the sustainability of the public revenue, the abnormal increase of the spending in the years of the booming oil-gas sectors. That is why, this dependence from the one source: oil-gas export can create more challenges for the Azerbaijan economy (Aslanli, 2015). On the other hand, the Azerbaijan government could manage to prevent the negative effects of the world economic crisis in 2008-2009. Unfortunately, the main reason for this achievement was not the sustainable economic development. The oil rents played crucial role to stabilize the situation (Guliyev, 2013). Consequently, a 1% rise in the oil prices has increased a 1.66% growth in the capital spending of the state budget. Thus, this relationship between oil-gas sector and the fiscal policy shows the importance of the dependence from the one factor (Gurbanov, Nugent, and Mikayilov, 2015). As a result of the falling oil prices since 2014, the government has started to consider to cut the public spending in some directions. However, this process can motivate to concentrate on the development of the non-oil sector. In the contrast, the government should compensate the decreasing share of the oil rents in the revenue of the state budget. So, any increase in the tax collection can be solution to remedy the situation. On the other side, it may has the negative impact on the non-oil sector (Aliyev and Nadirov, 2016). The size of the state budget for the next year proves that, the government's expectation about the oil prices is not optimist and they admit that, the situation will be more difficult than previous years (CESD, 2016).

4. RESULTS

Table 2 and Graph 11 identify the correlation between oil transfers and administrative expenditure of the legislation, executive government authorities. As the result of the analysis, there is a strong positive linear relationship between these variables.

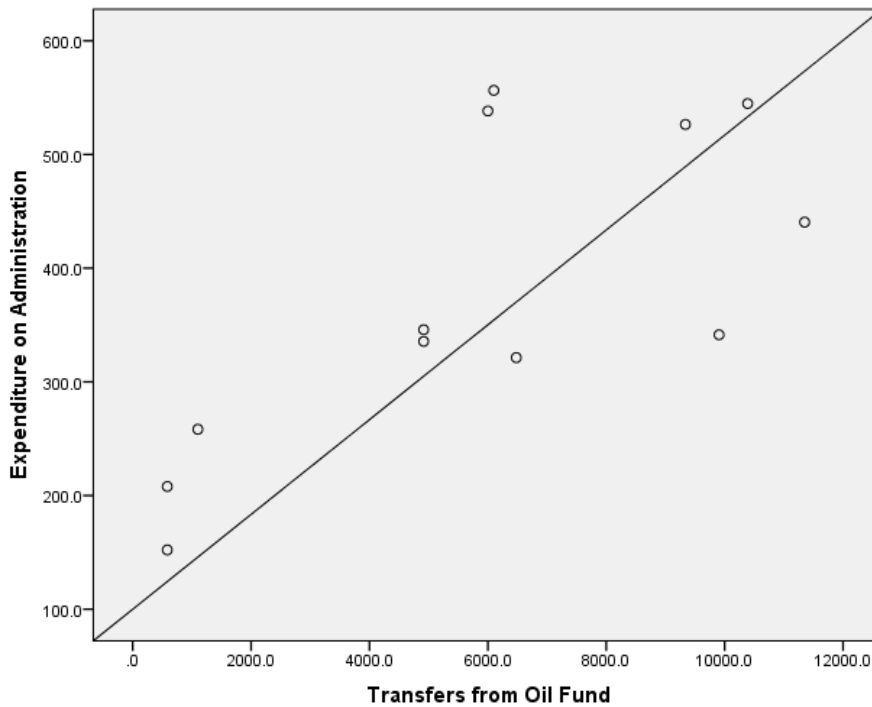
Table 2: The Correlation between Oil Transfers and Administrative Expenditure of the Legislation and Executive Government Authorities

		Transfers from Oil Fund	Expenditure on Administration
Transfers from Oil Fund	Pearson Correlation	1	.725**
	Sig. (2-tailed)		.008
	N	12	12
Expenditure on Administration	Pearson Correlation	.725**	1
	Sig. (2-tailed)	.008	
	N	12	12

** . Correlation is significant at the 0.01 level (2-tailed).

Source: According to the Statistics author’s own analysis

Graph 11: The Correlation between Oil Transfers and Administrative Expenditure of the Legislation and Executive Government Authorities



Source: According to the Statistics author’s own analysis

The Azerbaijan government projects to spend 11% of the total public spending for the construction purposes in 2017 (Table 1). However, this indicator is 100% less than the current year. In fact, the main reason is the declining oil rents in the economy. In this context, there is strong positive linear relationship between the oil transfers and the expenditure on construction (Table 3 and Graph 12).

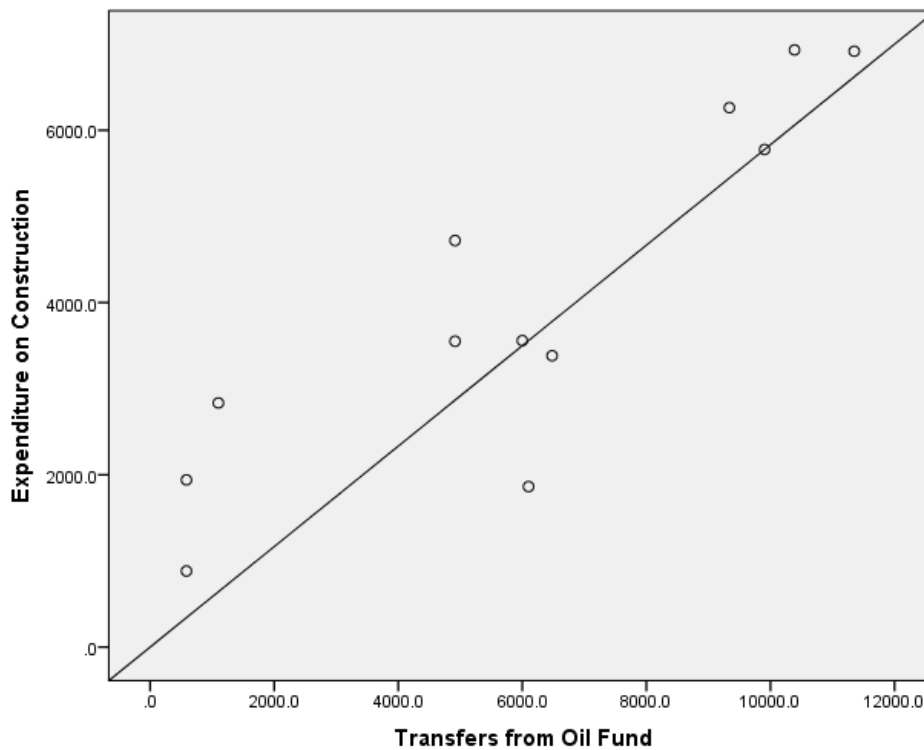
Table 3: The Correlation between Oil Transfers and the Expenditure on Construction

		Transfers from Oil Fund	Expenditure on Construction
Transfers from Oil Fund	Pearson Correlation	1	.881**
	Sig. (2-tailed)		.000
	N	12	12
Expenditure on Construction	Pearson Correlation	.881**	1
	Sig. (2-tailed)	.000	
	N	12	12

** . Correlation is significant at the 0.01 level (2-tailed).

Source: According to the Statistics author’s own analysis

Graph 12: The Correlation between Oil Transfers and the Expenditure on Construction



Source: According to the Statistics author’s own analysis

The Azerbaijan government projects to spend 5% of the total public spending for the agricultural purposes in 2017 (Table 1). In contrast, this indicator is 214 million USD more than the current year. That is why, there is moderate positive linear relationship between the oil transfers and the expenditure on agriculture (Table 4 and Graph 13).

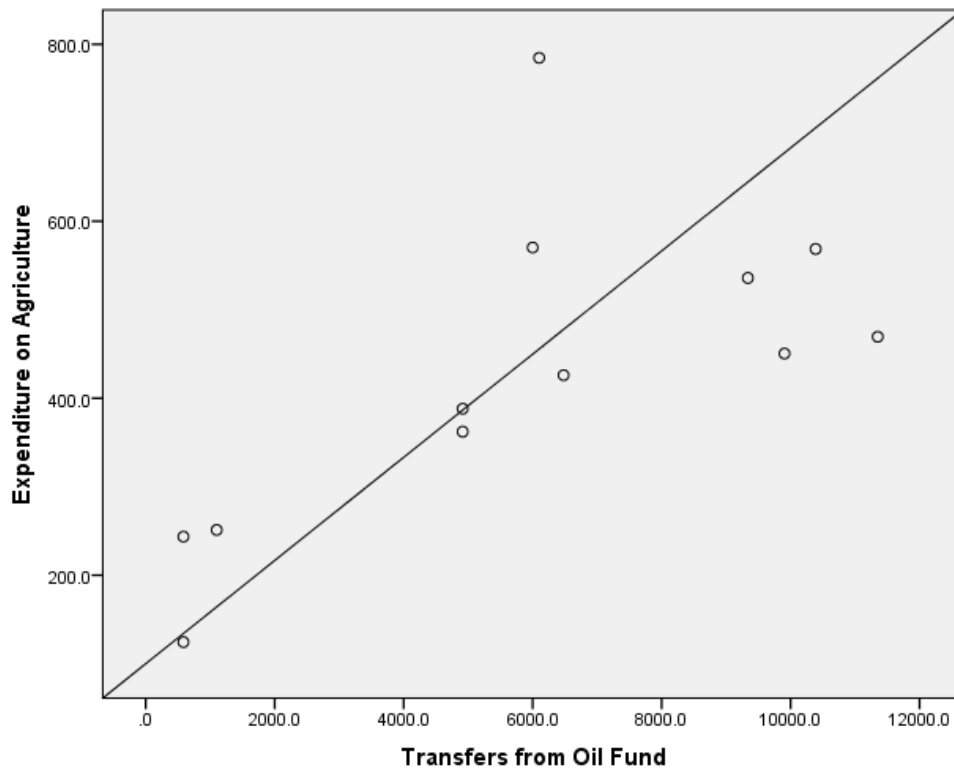
Table 4: The Correlation between Oil Transfers and the Expenditure on Agriculture

		Transfers from Oil Fund	Expenditure on Agriculture
Transfers from Oil Fund	Pearson Correlation	1	.667*
	Sig. (2-tailed)		.018
	N	12	12
Expenditure on Agriculture	Pearson Correlation	.667*	1
	Sig. (2-tailed)	.018	
	N	12	12

*. Correlation is significant at the 0.05 level (2-tailed).

Source: According to the Statistics author’s own analysis

Graph 13: The Correlation between Oil Transfers and the Expenditure on Agriculture



Source: According to the Statistics author’s own analysis

The Azerbaijan government projects to spend 11% of the total public spending for the education purposes in 2017 (Table 1). On the other hand, this indicator is 929 million USD less than 2014 due to falling oil rents. That is why, there is strong positive linear relationship between the oil transfers and the expenditure on education (Table 5 and Graph 14).

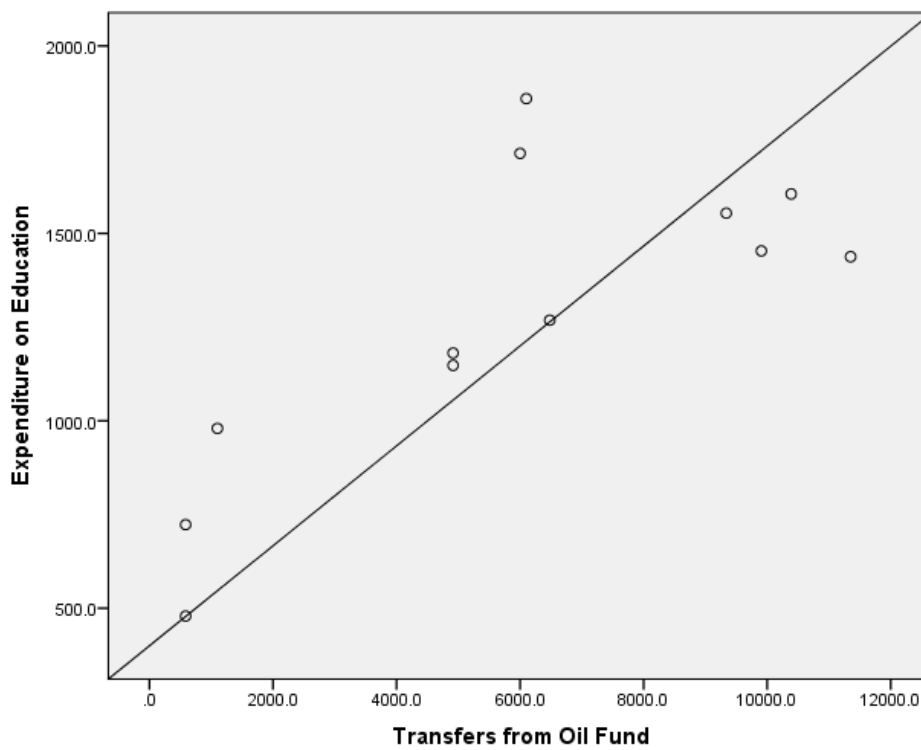
Table 5: The Correlation between Oil Transfers and the Expenditure on Education

		Transfers from Oil Fund	Expenditure on Education
Transfers from Oil Fund	Pearson Correlation	1	.761**
	Sig. (2-tailed)		.004
	N	12	12
Expenditure on Education	Pearson Correlation	.761**	1
	Sig. (2-tailed)	.004	
	N	12	12

** . Correlation is significant at the 0.01 level (2-tailed).

Source: According to the Statistics author’s own analysis

Graph 14: The Correlation between Oil Transfers and the Expenditure on Education



Source: According to the Statistics author’s own analysis

The Azerbaijan government projects to spend 11% of the total public spending for the health care in 2017 (Table 1). Nevertheless, this indicator is 43% or 350 million USD less than 2013 due to falling oil rents and the devaluation of the national currency. That is why, there is strong positive linear relationship between the oil transfers and the expenditure on health care (Table 6 and Graph 15).

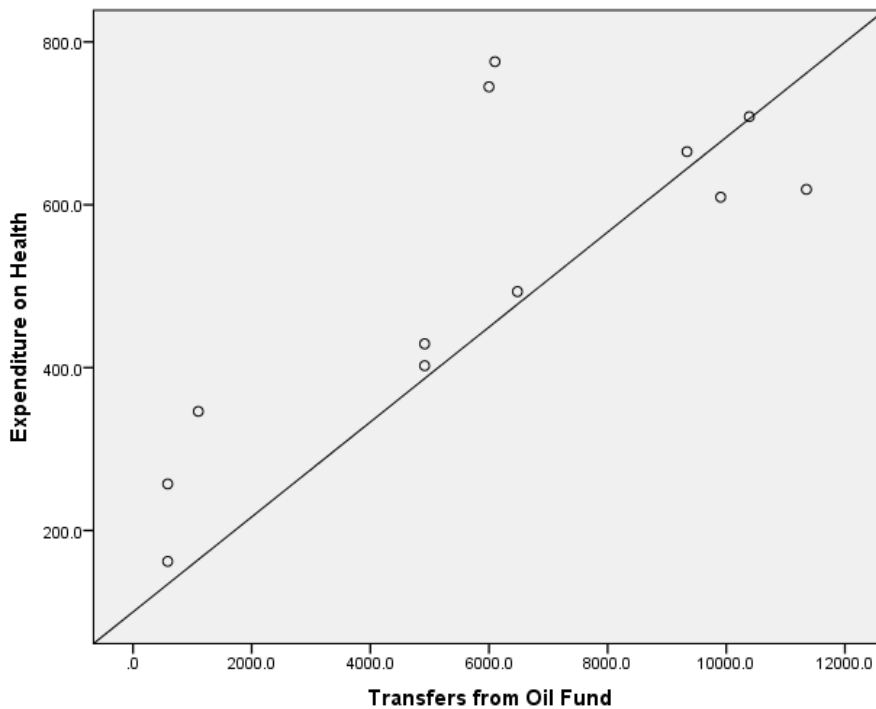
Table 6. The Correlation between Oil Transfers and the Expenditure on Health Care

		Transfers from Oil Fund	Expenditure on Health
Transfers from Oil Fund	Pearson Correlation	1	.792**
	Sig. (2-tailed)		.002
	N	12	12
Expenditure on Health	Pearson Correlation	.792**	1
	Sig. (2-tailed)	.002	
	N	12	12

** . Correlation is significant at the 0.01 level (2-tailed).

Source: According to the Statistics author’s own analysis

Graph 15. The Correlation between Oil Transfers and the Expenditure on Health Care



Source: According to the Statistics author’s own analysis

The Azerbaijan government projects to spend 13% of the total public spending for the social protection, security purposes in 2017 (Table 1). At the same time, this indicator is 52% or 1.3 billion USD less than 2014 due to falling

oil rents and the devaluation of the national currency. That is why, there is strong positive linear relationship between the oil transfers and the expenditure on social protection, security (Table 7 and Graph 16).

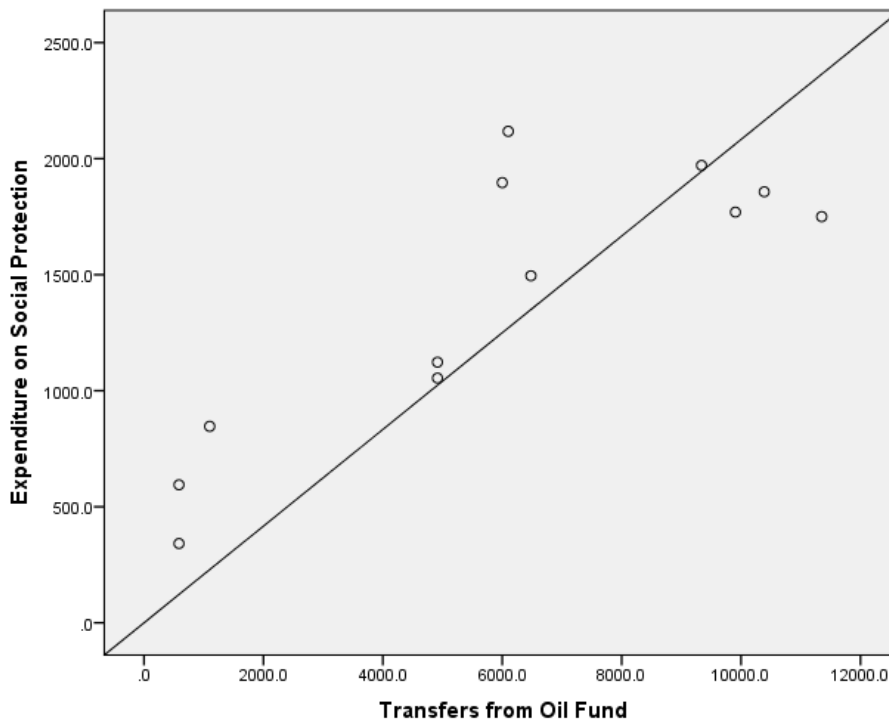
Table 7: The Correlation between Oil Transfers and the Expenditure on Social Protection and Security

		Transfers from Oil Fund	Expenditure on Social Protection
Transfers from Oil Fund	Pearson Correlation	1	.842**
	Sig. (2-tailed)		.001
	N	12	12
Expenditure on Social Protection	Pearson Correlation	.842**	1
	Sig. (2-tailed)	.001	
	N	12	12

** . Correlation is significant at the 0.01 level (2-tailed).

Source: According to the Statistics author’s own analysis

Graph 16: The Correlation between Oil Transfers and the Expenditure on Social Protection and Security



Source: According to the Statistics author’s own analysis

5. DISCUSSIONS

The most striking result to emerge from the data is that there has been positive linear relationship between the oil transfers from SOFAZ and the selected government expenditures. The most remarkable correlation is with the public spending on construction. That is why, within the booming years of the oil sector, the government has increased the share and amount of the expenditure to the construction projects. On the other hand, the least correlation coefficient in the selected variables is in the relationship between the oil transfers and the expenditure on agriculture. The main reason is the new approach by the government to the agricultural development in order to diversify the economy and to minimize the resource dependence. By all means, when there have been more resource revenues the government has spent more or vice versa. In fact, the Azerbaijan

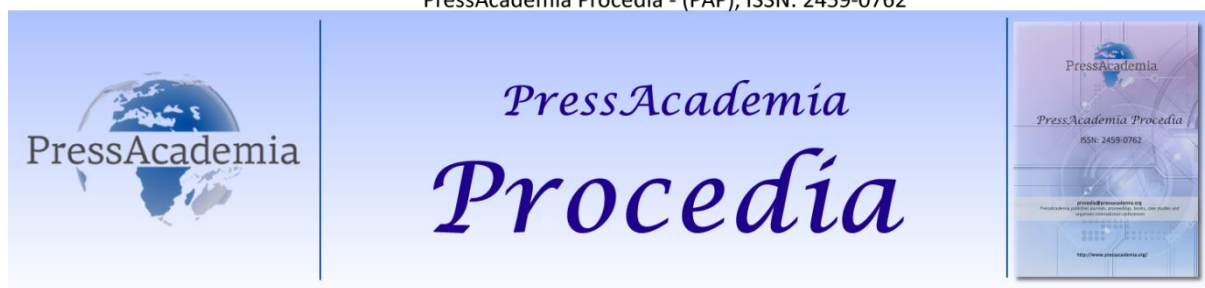
economy experiences the most difficult time in the last decade. Apart from the selected public expenditures, there are crucial cuts for other directions too. Surprisingly, the government still considers that, this dramatic changes in the fiscal policy, particularly, the decreasing oil transfers from SOFAZ is the important step to minimize this dependence. However, the government projects to collect more taxes in the comparison with previous years. As the result of these decisions, tax burden may affect the taxpayers negatively.

6. CONCLUSION

This paper has investigated the relationship between the oil transfers and the selected government expenditures. The results has shown that, there have been strong linear correlation between the oil transfers from SOFAZ and all of the selected expenditures. So, the coefficients of the correlations analysis of the variables have changed between 0.67 (expenditure on agriculture) and 0.88 (expenditure on construction). In general, the state budget of Azerbaijan has been "infected" with the resource revenue. The revenue and expenditure of the state budget oscillated in the last decade. So, in five years from 2007 to 2012 the size of the budget increased more than three times. Not only size of the state budget, but also the distribution of the public spending has been unstable. Without a doubt the falling world oil prices had impact on the resource dependent economies, including Azerbaijan. By all means, the main questions has been how much oil rent to spend as a transfer and save in the fund.

REFERENCES

- Aliyev, K. and Nadirov, O., 2016. How Fiscal Policy Affects Non-Oil Economic Performance in Azerbaijan?. *Academic Journal of Economic Studies*, 2(3), pp.11-29.
- Aslanli, K., 2015. Fiscal sustainability and the State Oil Fund in Azerbaijan. *Journal of Eurasian Studies*, 6(2), pp.114-121.
- CESD Research Team, 2016. *The CESD Assessment on the 2017 State Budget Project*. Baku: CESD Press. http://cesd.az/new/wp-content/uploads/2016/11/CESD-Assessment_Azerbaijani_State-Budget-2017.pdf [Accessed 01.12.2016]
- Guliyev, F., 2013. Oil and Political Stability in Azerbaijan: The Role of Policy Learning. *Caucasus Analytical Digest*, (47).
- Gurbanov, S., Nugent, J.B. and Mikayilov, C., 2015. Prudent Management of Oil Revenues: Impacts Of Government Capital Expenditures In Azerbaijan.
- OPEC, http://www.opec.org/opec_web/en/data_graphs/40.htm [Accessed 01.12.2016]
- The Ministry of Finance of the Republic of Azerbaijan <http://www.maliyye.gov.az/sites/default/files/2017-qanun.pdf> [Accessed 01.12.2016]
- <http://www.maliyye.gov.az/sites/default/files/BUDCE%20-%202016%20AN%20YENI.pdf> [Accessed 01.12.2016]
- <http://www.maliyye.gov.az/sites/default/files/2015-ci%20il%20d%C3%B6vl%C9%99t%20b%C3%BCdc%C9%99si%20haqq%C4%B1nda%20Qanun.pdf> [Accessed 01.12.2016]
- <http://www.maliyye.gov.az/sites/default/files/farman-2014-dovlat-budcasi-rasmi-sanadlar.pdf> [Accessed 01.12.2016]
- <http://www.maliyye.gov.az/sites/default/files/2013-Qanun-26%20novabr%202012.pdf> [Accessed 01.12.2016]
- <http://www.maliyye.gov.az/sites/default/files/download/2012-Qanun.pdf>
- The President Administration <http://president.az/files/QANUN-2011.pdf> [Accessed 01.12.2016]
- The State Statistical Committee of the Republic of Azerbaijan, <http://www.stat.gov.az/source/finance/indexen.php> [Accessed 01.12.2016]
- The State Oil Fund of The Republic of Azerbaijan (SOFAZ)
- http://www.oilfund.az/uploads/2010-cu_14.pdf [Accessed 01.12.2016]
- http://www.oilfund.az/uploads/qanun_2009-12.pdf [Accessed 01.12.2016]
- http://www.oilfund.az/uploads/2008_az-10.pdf [Accessed 01.12.2016]
- http://www.oilfund.az/uploads/qanun_2007-8_AA.pdf [Accessed 01.12.2016]
- http://www.oilfund.az/uploads/qanun_2006-6_az.pdf [Accessed 01.12.2016]
- http://www.oilfund.az/en_US/hesabat-arxivi/rublukh/2016_1/2016_1_3/ [Accessed 01.12.2016]



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GIFT GIVING BEHAVIORS OF CONSUMERS AND AN INNOVATIVE E-BUSINESS MODEL SUGGESTION

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ABSTRACT

Consumers give each other gifts for various reasons in every culture and they spend considerable amount of time and money on gift giving activity. Thus, gift giving behavior which is a need of consumers to be satisfied deserves a lot of academic studies and in this conceptual paper, gift giving behavior is examined in details after a comprehensive literature review. E-business is exponentially developing and digital marketing is trying to find out solutions for the problems of consumers more efficiently and effectively. In this exploratory research, after analyzing the problems consumers facing when they are trying to satisfy their need of gift giving, an innovative e-business model to coach consumers for their gift giving behaviors is suggested. This paper presents new study areas for academicians and new business opportunities for practitioners.

Keywords: Gift giving behavior, e-business model, digital marketing, innovation, e-marketing

JEL Codes: M310

1. INTRODUCTION

Consumers' needs are various and marketers are trying to satisfy these needs by developing new products, services, and systems to deliver these products and services to them. People from time to time give gifts to others for different motives and reasons on different occasions, and thus, gift giving should be considered as a significant need to be satisfied by marketers (Lee and Kim, 2008). Though gift giving behavior is observed in every culture, the way people give gifts, the products people give as a gift, and the occasions on which people give gifts to others might vary. Many academicians have done a lot of research on gift giving behavior in various cultures. However, so few studies have been done on problems consumers face when giving gifts. To better serve to consumers, it is marketers' job to examine these problems in details, so that new solutions might be presented to consumers. E-commerce and digital marketing is expanding thanks to developing technology and finding better solutions to consumers' problems. Billions of dollars is spent on online shopping by consumers and new actors appear in the e-business area and by disruptive innovation gain big shares in the marketplace and gain competitive advantage on e-commerce (Angelides, 1997; Tikkanen, 2009). Lots of innovations are made in various industries such as tourism (e.g., hotel reservations, Airbnb), car rentals (e.g., Uber), online retailing (e.g., Alibaba.com, Amazon.com), and etc. It is believed that it is possible to solve many of the problems consumers face when they are giving gifts to others by developing a new e-business model which will increase the service level and create more value to consumers. After examining consumers' gift giving behaviors, I suggest a new e-business model in this paper and draw a framework how this new e-business model will work. In fact, the idea of such an e-business model first came to my mind in 2002. However, e-trade was not so much developed then, and technology was still not sufficient enough to develop such a system. Moreover, it would be difficult to convince the people about the need for such an e-business model. Since then, so many interviews with related people such as academicians, businessmen, consumers, angel investors, and incubator investors, and computer software firms have been done and beneficial ideas have been gathered. In addition, lots of observations have been done about the developments in e-trade and digital marketing. These make this paper original and it is believed that it will contribute to gift giving behavior literature, digital marketing literature, and rising e-commerce.

2. LITERATURE REVIEW

People spent a lot of money on gift giving and almost 10% of the retail sales come from gift shopping and internet is used as an important medium for gift searching and buying, so there are big opportunities for organizations which serve to this

giant gift market (Jeng, 2013; Segev et al., 2013; Lee and Kim, 2008; Goode and Harris, 2007; Burke, 1997). Gift giving is a complicated activity and that is why a lot of research has been carried out in different scientific disciplines such as marketing, economy, sociology, and anthropology (Saad and Gill, 2003). Shopping for gift buying might be a desirable experience which some people might enjoy doing; however, to some people it might be a burdensome task which is time and energy consuming. Thus, it is believed that for this type of consumers a new e-business model is needed. Reichheld and Schefter (2000) focus on the need for choosing the right target customers even online although some e-businesses target a wide range of customers to make more profits. They believe that it is needed to be able to create loyal customers. Lee and Kim (2008) propose that consumers prefer to use the retailers that more useful and familiar to them. They all mentioned in their study that more and more people prefer online gift shopping and more academic studies need to be done about it.

A modern marketing approach is customer relationship management and internet makes it easier to apply. The logic behind this approach is developing long lasting relations with the customers, so that both sides benefit from this exchange relation. It is believed that internet is an outstanding medium to apply this marketing approach for the following reasons: Constant availability of information, interactivity, efficient transfer of information, individuality, and integration of communication and transaction (Bauer et al., 2002). Therefore, internet provides many opportunities to the businessmen. Another important marketing strategy used is customization which is tailoring the marketing activities according to the individuals' needs and database marketing are also modern marketing approaches requires and facilitates new ways of satisfying customers online (Huizingh, 2002; Luo, 2002; Keeney, 1999; Albert, 2004). Not only internet is already a vital tool to apply customization but it is believed that it also engenders the suggested e-business model in this paper. Srinivasan et al. (2002) explored the factors that impact e-loyalty in their study. One of the factors affective is customization. In their scale they measured customization with five items all of which is believed to reveal the need for the e-business model suggested in this paper. Internet is changing the feature of competition and new channels are being developed to carry out exchange activities and develop exchange relationships with customers (Montoya-Weiss et al., 2003). Parsons et al. (1998) contributed to the development of the concept of digital marketing. They say that digital marketing consists of two main activities: leveraging the unique capabilities of new interactive media and integrating interactive media with the other elements of the marketing mix. I believe that this definition forms the bases of the suggested e-business model in the paper in that this model might give the marketers to exert marketing activities in more integrated way.

2.1. Gift giving Reasons (motives)

Gift giving behavior is widely observed among consumers in every society. Goodwin et al., (1990) categorize gift giving behaviors as voluntary or obligatory motives. People give each other gifts for so many reasons (Mayet and Pine, 2010; Jeng, 2013; Parsons, 2002). Segev et al. (2013) in their research used three main motives of gift giving as facilitating the development of desired identities, the desire for protection from potential harm, and the desire to obtain valuable resources from others. However, these motives fall short to comprehend all the motive of giving gift. In the literature, there is no comprehensive categorization of gift giving behavior. Thus, there is need to make such a categorization, and in this paper, the motives and reasons are categorized as:

Social reasons

To maintain social relations

Cultural reasons

On special occasions and days

Altruistic reasons

Some people might give gifts to people they do not know

Religious reasons

To give an example, commemorating religious days is seen in almost every culture. For example for Christians Christmas is an important day and people give each other gifts on this day. In

Economic reasons

Motivate people such as workers, students etc.

Develop business relations

In different societies, different reasons might work more than others, and this is an important topic to research and cross cultural studies need to be done to compare societies. Gift giving is an important task and needs extra attention since it has a potential to effect relations and thus people's psychological well-being and to me professional support is needed when choosing a suitable gift for a person. According to Joy (2001) and Lowrey et al. (2004) gifts should satisfy the need of the recipient and be good indicator of the strength of the relationship, and to them, gifts should be relevant to the occasion.

Mayet and Pine (2010) and Clarke (2008) stress the significant role of gifts in a society and its potential to effect relations. They categorize the fundamental elements in the gift giving process as the giver, the recipient, the occasion, and the gift. I believe that a fifth element needs to be included and that is the gift provider. The gift provider supplies the gift and directly influences how well the gift giving process works. Belk (1996) determined six attributes a gift should have in order to perform its function (satisfy both the giver and recipient and add value to both them and the relationship between them). They are:

1. Illustrate true giver sacrifice.
2. The givers only wish should be the recipient happiness.
3. The gift is a luxury.
4. The gift is distinctively appropriate to the recipient.
5. The recipient is surprised by the gift.
6. The gift succeeds in pleasing the recipient.

To decide whether a gift possesses these attributes is a burdensome and complicated task for people and needs a lot of time and energy, so gift givers need professional lead.

2.2. Problems Consumers Face When Giving Gifts

Marketing consists of so many decisions and activities to find solutions to problems of consumers. Consumers face many serious problems some of which even might damage their relations and cause unhappiness for people when they want to give a gift to a person. If marketers and businessmen understand what kind of problems occur in the gift giving process of consumers, they might develop solutions and by creating higher value they can make more profit in return. When literature is reviewed I could not have reached a study dwelling upon the problems people are facing when giving gifts from marketing perspective. In this part, these potential problems are categorized into four groups as negligence, lack of knowledge, lack of resources, and situational problems and they are listed below, and it is believed that academicians should explore these problems thoroughly:

Negligence

- to forget special days or follow them
- to buy a similar gift for the same person repeatedly because of negligence
- to buy gift the person might not be interested in
- not being able to follow the innovations

Lack of knowledge

- to fail to choose an relevant gift for a relevant situation
- to buy a good as a gift a person already owns
- to buy a gift out of fashion
- to buy a poor quality gift
- to buy an irrelevant product as a gift (wrong size, wrong color, not suitable for an age group, not suitable for status of a person, etc.)
- to buy a product which another person around the person already owns

Lack of resources

- not to have enough time to shop for gifts and choose a gift and deliver it to the person
- not being able to afford a gift
- to buy a cheap product

Situational problems

- not being able to deliver the gift to the person because of time or location difference

2.3. Occasions on Which Turkish People Buy Gifts

People as discussed above give gifts to others for different motives on some occasions. These occasions might change from culture to culture, and cross-cultural research should be done to better understand cultural differences. Some occasions on which Turkish people give gifts to others are listed below. On some occasions listed below people deliver gifts on some they receive gifts. More research needs to be done in every culture to find out on what occasions people give each other gifts.

- Birthdays
- Wedding anniversary
- On new year (1st of Jan.)
- Religious festivals
- Saint Valentine's day
- Mothers' day
- Fathers' day
- When people graduate from a school
- When people win an exam (e.g. university entrance exam)
- When people are promoted at job
- When people find a job
- When people get their first salary (they buy gifts to their parents or people who have contributed to their education)
- When mothers give a birth
- When couples visit their parents for the first time after they marry
- April 23 Children's Day
- When schools close and students get report cards
- When people visit an orphan child or lonely elderly
- When people learn that a relative is pregnant
- When people get engaged
- Poor students
- Poor people
- People exposed to disaster
- People getting married
- When people visit the newly married couples for the first time
- When people buy a house or car
- When children start school
- When people come back from a long trip
- When people make pilgrimage
- Teachers' day
- To develop business relationships

3. DATA AND METHODOLOGY

The questions the paper is trying to find answer are as follows:

- What are the motives of buying gifts?
- What are the situations for which consumers buy gifts for others?
- What kind of problems consumers face when they are buying and giving gifts?
- How are current e-businesses serving consumers to help them buy gifts?
- What kind of solutions can businessmen find for the problems consumers face when buying gifts?

In this exploratory study, three main methods to gather data are used. A comprehensive literature review is done to find answers for the research questions. Another method used is content analysis. So many gift selling and retailer websites are analyzed to observe the way they serve to consumers and some are as follows: amazon.com, alibaba.com, ebay.com, gifts.com, thebrilliantgiftshop.co.uk, giftsforeurope.com, giftsnideas.com, giftalove.com. On world's most used search engine google.com, following key words are searched to whether such a business model exists: Top ten gift selling websites, top ten web retailers, top ten present selling websites, shopping for gifts, gift coaching online. The third method used is depth interviews. As depth interviews are frequently used by researchers in exploratory studies since they might provide valuable insights about the research topics, I preferred this method to get the ideas of shoppers, academicians, representatives of computer software firms, angel investors, business incubators, and businessmen. Unstructured questions are asked to these people to learn their views about the topics explored in this paper and the suggested e-business model. The data gathering process and observation on the developments in digital marketing started in 2002 and consumers' online shopping behaviors.

4. FINDINGS AND DISCUSSIONS

The literature review reveals that businessmen should make innovation to create more value to consumers and gain competitive advantage. Online retailing presents to a lot of opportunities to businessmen and entrepreneurs who find and develop new business models in an innovative way online become successful in the market place in a very short time. I have not faced such an e-business model suggested in this paper at e-commerce.

The results of content analysis show that there is a gap in the market place in serving consumers for their gift giving behaviors. Many online retailers exist but none of them really coach consumers in their gift giving activities. Most interesting findings have been got through depth interviews. The model is explained to several marketing academicians and

whether such a system would work or not is asked to them. Their reactions were positive but they believed that it is difficult to start such an e-business model. Some meetings were arranged with representatives of computer software firms. Their ideas about the suggested e-business model are asked and whether it is possible to realize such a model. Most of them believed that it is possible to realize such a system but it would require a considerable amount of financial resources. Some also accepted to be a representative of this idea and try to promote the idea. It was interesting to see that angel investors and business incubators were not reluctant to support such an e-business model. One reason might be that they failed to understand the logic behind the system and another reason might be that they found it difficult to realize and risky to operationalize. It was really interesting to see that almost all of the shoppers interviewed took up the idea seriously and got excited about it and they mentioned they would like to benefit from such an e-business model. Shoppers were also asked the problems they face in their gift giving activities and how important it was for them to give gifts to others. Their answers were all supporting the observations I did.

5. SUGGESTED INNOVATIVE E-BUSINESS MODEL

An important task done is content analysis of so many online shopping sites such as Amozom.com, Alibaba.com, etc. What these sites offering for people's gift giving need is millions of products categorized which is believed to make consumers' decision making even more difficult. Some are just providing advice to consumers what to buy to whom. Making decision for consumers is time and energy consuming. It is out of scope of this paper to discuss consumer decision types but if this topic is analyzed in details it will be possible to support this e-business model. Thus, it is not a surprise to see that current online retailers fail to offer solutions to problems which consumers experience when they are intending to give gifts to others. So a new e-business model needs to be developed. One of the costs consumers pay is search cost (Szymanski and Hise, 2000; Zeithaml et al., 2002; Bakos, 1997) and this suggested model will help reduce search cost to a minimum level for the consumers. Parsons et al. (1998) predict that new intermediaries will appear in some cases driving the existing classical ones out of competition. This prediction should encourage marketers that the suggested e-business model will work. For this model to be successful, gaining customer trust is vital since many business attempts fail due to consumers' suspicions about online selling systems. Especially to develop long lasting relations (though this is being questioned by some academicians whether it is relevant on online context) and thus to earn profits, customer trust is necessary (Reichheld and Schefer, 2000). Luo (2002) suggests trust building mechanisms which should be taken into consideration by the practitioners. Such mechanisms might be useful gain consumer trust. The fundamental steps in this model is to remind the customers about the relevant gift giving occasions and the people they need to give gift, to help consumers in choosing the suitable gifts for the people they intent to give (a kind of coaching them), and deliver the gift either to the recipient or the gift giver. These are the significant and complicated processes in the e-business model to be carried out delicately. In short, this model is designed to coach customer for their gift giving behavior and help them easily do gift giving activities by spending minimum time, energy, and effort. This model is believed to create value to consumers by helping them develop and continue long-lasting behaviors with people around them and make them satisfied and happy. This e-business model comprises six fundamental components which are briefly detailed below.

This new model has six fundamental components and they are:

1. A complicated software program
2. A comprehensive classification of products and services
3. Money earning model
4. Supplier partners
5. Customers
6. Strategic online partners

5.1. A Complicated Software Program

The most difficult and significant component of this e-business system is computer software program. Such a program needs to be developed and it would function as an artificial intelligence which will give advice to people and even make the decisions instead of them. Though difficult, it is not impossible to develop such a software program in this information age. Information and computer technology has so advanced that it is believed that more complicated software programs could be created. Customers will enter detailed information as a subscriber or one-time-user about themselves and the people to whom they want to give gifts. The more the information is provided, the better service they will receive. The information needed is the demographic features, address details, etc. The program will create a big data as time passes. It will also store every detail in order to give better decisions on behalf of consumers. The program will also coordinate the relations with suppliers and customers.

5.2. A Comprehensive Classification of Products and Services

A team of marketers need to make a comprehensive classification of as many products and services as possible, encode them, and enter the coded products and services into the software program. Thus, the program will match the encoded

products and services with the features of the gift recipient. Then it will present some alternative products and services to the gift givers and either let the person make the choice or the program itself will make the choice for them. As a result a large database of products and services could be generated.

5.3. Money Earning Model

Organizations need to make profit in order to survive and continue their businesses. In this e-business model, there are some alternatives of making money. Businessmen might use some them at the same time. Some of them are listed below and some other methods might also be applied.

1. broadcasting advertisements of manufacturers or retailers
2. getting subscriber fee from the customers
3. getting fee from the manufacturers or retailers whose products are sold on the site
4. getting commissions from each product sold
5. broadcasting other companies' advertisements

5.4 Supplier Partners

Suppliers are key for the e-business model to work (Huizingh, 2002; Hadaya, 2006). Companies which have good fame and image in the society should be chosen from as many as different industries so that it would be possible to have more product and service alternatives to choose. These partners should be given a content management system and codes given to products by the marketers so that they can enter their products into the product database. Suppliers should be led and educated not to make mistakes; otherwise, the system might collapse.

5.5 Customers

The managers of the system should struggle so much to convince as many consumers as to use this web service. The results of the depth interview reveal that consumers are open to innovations and ready to accept such an e-business model. Once, they see that their life becomes easier and the problems they face in their gift giving activities are resolved, they will keep benefiting from the program and promote the system with word-of-mouth online which is really a quick way of introduction of new businesses. It is really easy to reach millions of consumers online thanks to social media. To be successful, choosing the right segment will be critical. As a result of the depth interviews, it is believed that middle and upper income level customers will be more eager to use the service. This of course presents a good opportunity for the organizations to make more profit.

5.6 Strategic Online Partners

In today's virtual world, lots of things about consumers are followed and known by the search engines and social media web sites such as google.com, facebook.com, twitter.com, etc. They know who are interested in what and what people are up to. If companies which will adopt this e-business model develop partnerships with these websites, they might be easier for them understand and follow the gift recipients' choices, needs, interests, and etc. Thus software program might also use such information when choosing gifts for the recipients. These websites might be also used in the promotion of the new e-business model.

6. CONCLUSION

This study explores the gift giving behaviors of consumers and the problems they experience in the gift giving process. An innovative e-business model is suggested to overcome these problems and create higher value for the customers. The model and how it might work is detailed in the paper. The research findings reveal that there are some obstacles to realize this model. One of them is convincing entrepreneurs and the financiers. However, most of the academicians and consumers accepted that this model has a potential in the marketplace. Four main factors make this study original and supportive of literature: 1. It has been carried out since 2002, 2. To my knowledge, it is the first paper mentioning the problems consumers face in the gift giving process and categorizes these problems, 3. It develops and details an innovative e-business model, and 4. It mentions some research areas for academicians. Thus, it is believed that this study contributes to both literature and business life. For further research, the problems consumers are facing should be analyzed with empirical studies. In addition, cross-cultural studies about the gift giving behaviors also presents an interesting research area. Moreover, the e-business model should be tested both with the researches done with data gathered from consumers (to whether they will use the system or not) and with other models to see whether it is feasible or not.

REFERENCES

- Abhyankar, A. 1998, "Linear and Nonlinear Granger Causality: Evidence from the U.K. Stock Index Futures Market", *Journal of Futures Markets*, vol. 18, pp. 519-540.
- Albert, T. C., Goes, P.B., Gupta, A. 2004, "Gist: A Model for Design and Management of Content and Interactivity of Customer", *MIS Quarterly*, vol. 28, no. 2, pp. 161.
- Angelides, M. 1997, "Implementing the Internet for Business: A Global Marketing Opportunity", *International Journal of Information Management*, vol. 17, no. 6, pp. 405-419.
- Antonio, A., Holmes, P. 1995, "Futures Trading, Information and Spot Price Volatility: Evidence from the FTSE-100 Stock Index Futures Contract Using GARCH", *Journal of Banking and Finance*, vol. 19, pp. 117-129.
- Bakos, J. Y. 1997, "Reducing Buyer Search Costs: Implications for Electronic Marketplaces", *Management Science*, vol. 43, no. 12, pp. 1676.
- Bauer, H.H., Grether, M., Leach, M. 2002, "Building Customer Relations over the Internet", *Industrial Marketing Management*, vol. 31, pp. 155-163.
- Belk, R.W., 1996, *The Perfect Gift*. In: Otnes, C., Beltramini, R.F. (Eds.), *Gift Giving. A Research Anthology*. Bowling Green State University Popular Press, Bowling Green, OH, 59-84.
- Burke, R. R. 1997, "Do you see what I see? The Future of Virtual Shopping", *Journal of the Academy of Marketing Science*, vol. 24, no. 4, pp. 352-360.
- Clarke, J. 2008, "Experiences as Gifts: From Process to Model", *European Journal of Marketing*, vol. 42, no. 3/4, pp. 365-389.
- David, M. S., Hise, R. 2000, "E-Satisfaction: An Initial Examination", *Journal of Retailing*, vol. 76, no. 3, pp. 309-322.
- Goode, M.M.H., Harris, L.C., 2007, "Online Behavioral Intentions: An Empirical Investigation of Antecedents and Moderators", *European Journal of Marketing*, vol. 41, no. 5/6, pp. 512-536.
- Goodwin, C., Smith, K. L., Spiggle, S. 1990, "Gift Giving: Consumer Motivation and the Gift Purchase Process", *Advances in Consumer Research*, vol. 17, no. 1, pp. 690-698.
- Hadaya, P., 2006, "Determinants of the Future Level of Use of Electronic Marketplaces: The Case of Canadian Firms", *Electron Commerce Res*, vol. 6, pp. 173-185.
- Huizingh, E. 2002, "The Antecedents of Web Site Performance", *European Journal of Marketing*, vol. 36, no. 11/12, pp. 1225-1247.
- Jeng, S.P. 2013, "Online Gift-searching: Gift-giving Orientations and Perceived Benefits of Searching", *Online Information Review*, vol. 37, no. 5, pp. 771-786.
- Joy, A. 2001, "Gift-giving in Hong Kong and the Continuum of Social Ties", *Journal of Consumer Research*, vol. 28, no. 2, pp. 239-256.
- Keeney, R.L. 1999, "The Value of Internet Commerce to the Customer", *Management Science*, vol. 45, no. 4, pp. 533-542.
- Lee, H.H., Kim, J. 2009, "Gift Shopping Behavior in a Multichannel Retail Environment: The Role of Personal Purchase Experiences", *International Journal of Retail & Distribution Management*, vol. 37, no. 5, pp. 420-439.
- Lowrey, T.M., Otnes, C.C., Ruth, J.A., 2004, "Social Influences on Dyadic Giving over Time: A Taxonomy from the Giver's Perspective", *Journal of Consumer Research*, vol. 30, no. 4, pp. 547-558.
- Luo, X. 2002, "Trust Production and Privacy Concerns on the Internet: A framework Based on Relationship Marketing and Social Exchange Theory", *Industrial Marketing Management*, vol. 31, pp. 111-118.
- Mayet, C., Pine, K. J. 2010, "The Psychology of Gift Exchange", University of Hertfordshire Internal Report 2010. <http://karenpine.com/wp-content/uploads/2011/07/The-Psychology-of-Gift-Exchange.pdf>.
- Parsons, A. G. 2002, "Brand Choice in Gift-giving: Recipient Influence", *The Journal of Product and Brand Management*, vol. 11, no. 4/5, pp. 237.
- Parsons, A., Zeisser, M., Waitman, R., 1998, "Organizing Today for the Digital Marketing of Tomorrow", *Journal of Interactive Marketing*, vol. 12, no. 1, pp. 31-46.
- Reichheld, F., Scheffer, P. 2000, "E-Loyalty, Your Secret Weapon", *Harvard Business Review*, vol. 78, no. 4, pp. 105-113.
- Saad, G., Gill, T. 2003, "An Evolutionary Psychology Perspective on Gift Giving among Young Adults", *Psychology & Marketing*, vol. 20, no. 9, pp. 765.
- Segev, R., Shoham, A., Ruvio, A. 2013, "Gift-giving among Adolescents: Exploring Motives, the Effects of Givers' Personal Characteristics and the Use of Impression Management Tactics", *Journal of Consumer Marketing*, vol. 30, no. 5, pp. 436-449.
- Srinivasana, S.S., Andersona, R., Ponnalub, K. 2002, "Customer Loyalty in E-commerce: An Exploration of Its Antecedents and Consequences", *Journal of Retailing*, vol. 78, pp. 41-50.
- Zeithaml, V. A., Parasuraman, A., Malhotra, A. 2003, "Service Quality Delivery through Web sites: A Critical Review of Extant Knowledge", *Journal of Academy of Marketing Science*, vol. 30, no. 4, pp. 362.
- Tikkanen, H., Hietanen, J., Henttonen, T., Rokka, J. 2009, "Exploring Virtual Worlds: Success Factors in Virtual World Marketing", *Management Decision*, vol. 47, no. 8, pp. 1357-1381.



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AN EVALUATION OF CURRENT CAPITAL STRUCTURE DECISIONS OF TURKISH SMEs

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ABSTRACT

Findings of this study suggest that Turkish SMEs happen to experience obstacles in raising finance to improve and develop their business environment. In particular, as information asymmetry and uncertain economic environment are the key barriers, financial constraints turn out to be main handicap for SMEs' survival. Despite its own merits, SME owners, in family business case, are reluctant to take external finance for their projects with the intention not to lose their independence and control. The main purposes of this study are firstly to investigate the issue of financing of SMEs in Turkey in the theoretical context and secondly to make policy suggestions for the future. Miller and Modigliani (1958)'s basic capital structure theory, Myers, (1984)'s trade off theory, and Myers and Majluf (1984)'s the pecking order theory are the key standing theories to examine SMEs' capital structure needs. The results of this study are similar to those reported for most Western economies that owners of SMEs follow a pecking order theory and prefer retained profit to external finance in order to cover their financing gaps.

Keywords: SMEs, capital structure theories, financing

JEL Codes: O30, N70, N75

1. INTRODUCTION

The capital structure mix of both small and large firms has implications for their operations and survival (Baker and Martin, 2011) as an optimal capital mix minimizes their cost of capital. All modern economies have a large number of small and medium-sized enterprises (SMEs); a similar trend is exhibited by the Turkish economy. SMEs in Turkey represent 99.85 per cent of the total businesses; 76 per cent of total employees; 63 per cent of turnover; 38 per cent of capital investment; 54 per cent of all investment; 38.9 per cent of total commercial research and development; 59.2 per cent of total export and 25.9 per cent of total credits (KOSGEB, 2014), and they play a significant role in the Turkish economy. Nevertheless, during the recent global crisis the Turkish economy shrank by 6.2 per cent annually since the fourth quarter of 2008 (Ministry of Industry and Trade, 2010), which adversely impacted on SMEs' performance and competitiveness and further exacerbated their access to external finance. The main purpose of this paper is to review the existing financial problems of SMEs in Turkey from the theoretical perspective in the capital structure literature. In particular, this paper examines whether theories that have examined the financing structures of firms in the Western economies, and elsewhere in the emerging economies, are applicable to the Turkish case with its distinct financial institutions and cultural context. The paper further investigates SMEs' financial difficulties in Turkey by evaluating the factors influencing SMEs' capital structure through theoretical and empirical studies. The key questions that this paper examines are: what are the basic theoretical approaches that explain the capital structure phenomenon in the literature which are applicable to SMEs in both developed and emerging countries? Are factors such as firm size, profit and their capital structure significant for the Turkish economy and the firm? What determines the capital structure of Turkish SMEs? What strategies or policies may be advanced for Turkish SMEs to enable them to gain competitiveness in the domestic and international markets? The paper is organized as follows. First, it considers the literature on capital structure theories and SME related studies. Second, it examines factors affecting capital structure of Turkish SMEs in theory and practice. Third, it evaluates the causes and consequence of the finance gap for SMEs in Turkey. The paper concludes by reporting conclusions drawn from the empirical literature on capital structure theory in general and for Turkey in particular.

2. BASIC CAPITAL STRUCTURE THEORIES AND SME RELATED STUDIES

Efficient capital structure has implications for firms' efficiency and productivity (Jahanzeb et al., 2013). For small and large firms, having an unbalanced capital structure causes financial distress and gives rise to bankruptcy. As decision-making is a cognitive process of selecting an alternative among many possible alternatives (Jahanzeb et al., 2012; Muneer and Rehman, 2012), capital structure requires complex decision-making tactics to meet the needs of individual firms (Jahanzeb et al., 2013). The debate relating to the capital structure of firms has been of central importance for academics and policymakers around the world and has given rise to several theories (Modigliani and Miller, 1958; Kraus and Litzenberger, 1973; Kim, 1978; Myers, 1984). These theories are labelled (Frank and Goyal, 2007; Copeland and Weston, 2005) 'point of view' theories, which have provided the conceptual framework and guidelines to formulate a well-defined mathematical model to be tested for further predictions. However, such theories tend to cater for large firms and are a poor fit for SMEs.

2.2. Basic Capital Structure Theories in General

Modigliani and Miller (1958) proposed that firms' value is independent of capital structure. Jensen and Uhl (2008) referred to it as the first real theory on capital structure. The contention is that choice of debt or equity does not change the firm value in the situation of a perfect market (Jahanzeb et al., 2013) under certain restrictive assumptions: (a) there are no government taxes; (b) transactions are costless; (c) no insolvency costs; (d) cost of borrowing for the company is the same as lender; (e) perfect information between lender and the borrower and (f) firm earnings, pre-tax and interest, are not affected by the level of debt (Chen, 2004).

There has been an ongoing debate among academics and practitioners as to whether the trade-off theory explains the firm's capital structure in terms of whether the benefits to be derived from the tax shield are sufficient to offset the accruing cost of debt, while the firm's value of asset and investments are held constant (Myers, 1984; Kraus and Litzenberger, 1973; Hul, 2014; Berens and Cuny, 1995).

The pecking order theory (developed by Myers, 1984; Myers and Majluf, 1984) concludes that firms prefer to use retained savings (internal equity) to external loans because of information asymmetry about the firm value between the agent of the firm and the outside stakeholders (investors). Only when the internal financial resources are fully exploited do the firms seek external sources of financing. Managers prefer debt to equity finance to avoid losing control. The pecking order theory suggests that a firm prefers: first internally raised funds, such as cash reserves, then seeks external debt, and finally issues equity as a last resort. This order of finance is due to the fact that debtors are interested in security of funds and returns rather than in the value of the firm as they have the first claim on the assets of the firm (Myers, 2001).

2.3. Basic Capital Structure Theories in the Context of SMEs

In the capital finance literature, most research on the trade-off theory was performed on large firms due to the availability of data, but limited research has been conducted on small businesses, the dominant forms of business organization in any economy. This paper examines to what extent SMEs encounter similar problems to those of large firms regarding their capital structure in the context of the trade-off theory. Sogorb-Mira (2005) suggested that SMEs and large firms use similar considerations with regard to capital structure theories as they all encounter the same trade-off between the tax shield benefits and debt distress costs but larger firms consider these issues much more seriously. However, SMEs have limited choice in accessing external capital and experience different challenges; therefore, the experiences of small firms differ. The pecking order theory's relevance for SMEs was generally accepted wisdom among academics and policymakers in the past; however, over the last few decades, academics (Howorth, 2001; Paul et al., 2007; Atherton, 2009; Ang, 1991; Holmes and Kent, 1991) have started to question this assertion due to hurdles, choices and the cost associated with external finance. The pecking order theory's relevance stems from the fact that SME owners do not wish to use external finance that will affect their ownership rights and, therefore they often rely on and prefer internal finance for debt (Lopez-Gracia and Sogorb-Mira, 2008), especially at the start-up and development phases (Dahlstrand and Cetindamar, 2000; Giudici and Paleari, 2000; Hyytinen and Pajarinen, 2002; Chen et al., 2013). Furthermore, due to information asymmetry, access to equity markets and costs such as legal and compliance makes it expensive for small firms to raise equity finance. When dealing with equity markets, large companies often employ experts as equity is both expensive and subject to price volatility which has been shown to be particularly severe for SMEs (Chittenden et al., 1996; Ibbotson et al., 2001). Other sources of finance from private equity firms or business angels are not accessible due to the size of loan and the transaction costs which results from negotiating the complex contracts (Ou and Haynes, 2006). It is reported that financial constraints prevent SMEs from planning and acquiring long-term finance (Jensen and Uhl, 2008). Empirical evidence has suggested that there now exist a variety of pecking order theories due to varying financial and business environment facing firms (Atherton, 2009). The presence of the pecking order theory is particularly strong among SMEs operating in non-Anglo-Saxon countries (Sánchez-Vidal and Martín-Ugedo, 2005) due to the underdeveloped financial environment that gives rise to the 'financing gap' (see also Holmes and Kent, 1991).

3. FACTORS AFFECTING THE CAPITAL STRUCTURES OF TURKISH SMES FROM THE THEORETICAL PERSPECTIVE

Size, value added and employment among Turkish SMEs' vary from sector to sector. Turkish SMEs' share of total production is similar to other countries and trade accounts for 40 per cent, followed by manufacturing at 13 per cent and the construction sector at 5 per cent (Ministry of Industry and Trade, 2010; Turkish Statistical Institute, 2011). This supports the argument that, for Turkey, the financial environment, government policies and support mechanisms compare favourably with other developed and developing economies.

3.1. The 'SME Financing Gap' Phenomenon and the Capital Structure of Firms

Holmes and Kent (1991) claim that access to capital markets is limited for SMEs, regardless of whether they are located within developed or developing economies – referred to as the 'financing gap'. Many organizations, including the OECD (2006), have examined the 'financing gap' and it too reports that a large number of SMEs are unable to raise adequate finance to operate efficiently and are unable to access external finance from banks, financial markets or other finance institutions. Developed and emerging economies' experiences mirror the findings above. Hussain et al. (2006) examined and compared the financing preferences of SMEs in the UK and in China; they reported similar trends for both countries. For the SMEs' start-up finance, a large percentage of Chinese SMEs owner-managers suggested that they relied exclusively on their family and friends for unsecured finance. However, their reliance became less after two years, the respondents were able to access bank finance to an extent, and analysis after five years suggested family finance remained important. Whereas for the UK, after five years, most of the owner-managers reported that they had become bankable and acquired business loans from financial institutions. There appears to be a correlation between the growth of the economy and the bank finance used by SMEs. Japan appears to be in the lead and Turkey has merely 3.5 per cent of SMEs who have accessed bank finance (KOSGEB, 2012) that shows the financial environment is not favourable for SMEs as stated by Beck (2013). Access to finance in Eastern Europe suggests that the finance gap exists in the region. Empirical evidence reported by Cornelli et al. (1998) and Egerer (1995) suggested that leverage in Eastern Europe is found to be low and that businesses have insufficient debt finance in their capital structure; this is due to either the cost of debt or its availability. Most empirical findings point to some sort of institutional factor as the source of this problem. Turkey has many similarities with Eastern Europe because of shortcomings in the institutional environment in the Turkish system and insufficient financing opportunities due to moral hazard considerations and asymmetric information between bank managers and SME owner-managers.

4. EXAMINING CAPITAL STRUCTURES OF TURKISH SMES FROM THE EMPIRICAL PERSPECTIVES

The Turkish SME literature suggests that a firm's capital structure is composed of variables, such as the firm size, asset tangibility, profitability and growth. These variables are used to test the trade-off and pecking order theories to make predictions of the impact of the variables on the firm's capital structure. An increase in the size of Turkish SMEs will decrease the probability of bankruptcy and will reduce information asymmetry problems (Çakova, 2011). In the next section, capital structure theory related to empirical studies is evaluated to understand the financial difficulties encountered by SMEs in Turkey and to discuss policy implications. To examine the capital structure of the Turkish SMEs, Korkmaz et al. (2007) carried out an empirical study among 37 firms over the seven year period from 1977 to 2004. To study what determinates the firm's capital structure, they employed proxy variables such as the firm size, risk (measured by the variability in net sales), profitability, tax shield and the firm growth rate (change in Gross Domestic Product). The results of the study found that the most important factors that influence SMEs capital structure were the firm's profitability, firm risk and non-debt tax shields. Korkmaz et al. (2007) also observed in this study that there is a relationship between the firm's assets and its leverage; an increase in a firm's assets leads to an increase in the firm's leverage. Korkmaz et al. (2009) tested the same model for 16 companies from the auto parts industry and confirmed the results of their 2007 research. Çakova (2011) analyses the factors of capital structure of SMEs from the manufacturing sector in Turkey. Çakova (2011) used data from 1998 to 2008 and had 4,003 firms with average annual observations of 44,029. This research used a two-way fixed effect model estimation to study the short and long term debt ratios of SMEs, and supported the assertion that the capital structure of SMEs can be explained using the pecking order theory. The results of this study also confirm that there is an inverse relationship between SMEs average debt ratios and economic conditions in Turkey. The study also found, taking into account the industry variations, that firm's characteristics are important in explaining capital structure adapted by the Turkish SMEs. A major study carried out by Köksal and Orman (2014) for the period 1996–2009, using the data from Central Bank of the Republic of Turkey (CBRT), report the comparative tests of the trade-off and pecking order theories, for small, large and publicly traded firms for the Turkey. Köksal and Orman's (2014) findings report that the trade-off theory is in a better position to explain the capital structure of firms than the pecking order theory. The results of Köksal and Orman's (2014) study support the earlier studies findings and they reported that the trade-off theory is more suited to explain the capital structure of larger firms operating in economies that have a stable economic environment.

A study carried out by Booth et al. (2001) for ten developing countries (including Turkey) tested whether country-specific variables explain the capital structure of SMEs. They reported that general debt level of SMEs increases as the ratio of fixed asset to total asset rises, and it is the case for non-debt tax shields, growth rates and firm size. These findings are consistent with earlier studies discussed above. These findings suggest that financial institutions use asset profile and the age profile of the business to evaluate risk of the business. Their second finding is plausible – that financial advantage is negatively correlated with earnings, volatility and the probability of bankruptcy – as these variables make a limited contribution towards collateral and can encounter greater variability. As observed in the empirical studies that tested capital structure theories, profitability, firm risk, and non-debt tax shields are the most important factors that influence SMEs capital structure in Turkey (Demirbas et. al. 2011; Demirbas, 2011; Demirbaş, 2007). Turkish SMEs, particularly small manufacturing firms, follow the pecking order hypothesis in their debt behaviour, when the economic environment is not stable. In response, the Turkish government organization, KOSGEB has formulated policies for SMEs to enhance their competitiveness by enabling them to enhance their research and development and innovation capacities. Steps have also been taken to improve cooperation among SMEs themselves, support new entrepreneurial activities and enhance access to finance (KOSGEB, 2009). These outcomes would be achieved through improving the flow of information, financial education among SME owner-managers, and information problems through training of owners of SMEs. With these programs, KOSGEB has helped to increase the share of SME loans. Despite the fact that KOSGEB actively engages with SMEs and develops plans to increase the competitiveness of Turkish SMEs to minimize their financial problems, Turkish SMEs continue to experience many obstacles in accessing finance. In Turkey, private equity and venture capital funds are relatively insignificant in comparison with the bank finance for SMEs. The emergence and rise of private equity can be traced back to 1993 when the regulation approved the formation of venture capital firms – revised in 2003. The equity based transaction was conducted in 1995 by a foreign investment firm. Since 1996, a number of Turkish private equity firms have been set up but their size and participation within the sector is limited. The insignificance of venture capital firms can be gleaned from their numbers. In 2014, there were only five venture capital investments trusts listed on the Istanbul Stock Exchange and had a market value of US\$480m. However, due to the nature of loan size approved and legal issues, venture capital has limited relevance for a large number of SMEs.

There have been some bold government initiatives to mitigate the financial problems of SMEs in Turkey. To support SMEs, the Emerging Companies Market was established within the ISE after the financial crisis in 2009. To enable SMEs to tap into this fund, SMEs were exempted from the quantitative requirements of exchange trading. Furthermore, to engage and support SMEs, Capital Markets Board of Turkey (CMB) and the Central Securities Depository of Turkey (ISE and CRA) reduced their fees. Furthermore, to support SMEs, the bond market was promoted through the revision of financial regulations to revive the market, which had a very positive outcome in that the corporate debt securities market expanded significantly since 2010 and it received support from the banks. There is now more willingness among the financial institutions to issue debt finance. In 2012, 98 financial institutions issued debt securities and instruments and their value exceeded US\$2bn. Furthermore, 11 non-financial corporations also issued bonds worth US\$490m (KOSGEB, 2012). Despite the mentioned initiatives and innovations, the financial problems of SMEs are still a major issue for the whole sector due to structural and institutional reluctance and rigidities.

4.1. Main Reasons to Seek Access to Finance for Turkish SMEs

It has been recognized that (Turkish Industrial Strategy Document, Munich Personal RePEc Archive (MPRA, 2013)) SMEs in Turkey have difficulties in acquiring access to finance due to four main reasons:

1. the credit limit given to the banking sector due to financial reorganization of 2001;
2. underdevelopment of the capital market;
3. the underdeveloped financial structure to support SMEs; and
4. administrative and legal obstacles to access finance.

These findings are supported by Kaya and Alphan (2012) and Demirbas et al., (2011), who reported that a lack of financial information, poor experience of business decision-making among owner-managers, the underdevelopment of financial systems and the environment, a lack of credit volume and the cost of credit are the main financial obstacles faced by SMEs in Turkey. However, Şeker and Correa (2010) indicate that SMEs in Turkey are more dependent on bank finance than other countries to fund their fixed assets. The bank funding for fixed assets in Turkey accounts for 47 per cent of all loans, backed-up with collateral, yet SMEs are finding difficult to secure loans for operating cash flow and this is of particular concern during the periods of financial crises. Since the Turkish SMEs primarily depend on bank loans and the recent crisis revealed that bank financing is not a reliable source of financing, especially during periods of financial crises. In particular, after the financial crisis of 2008, that persuaded the banks to strengthen their capital requirement, which has created additional

challenges for SMEs to secure bank loans. Therefore, there is the need for policymakers to produce conducive policies and environments to provide well-diversified funding sources for SMEs to promote growth and expansion of SMEs in Turkey. In response, the government and regulators have to promote policies for banks to improve access to loans and promote the equity markets to provide finance for SMEs. Yet there is no evidence that SMEs are able to access equity markets; even in well-developed economies equity markets such as private equity and venture capital investments fail to meet the needs of SMEs. ICSA (2013) reported that there are also a few securitized products backed specifically by SME loans. There is a move towards creating structure and developing capabilities of SMEs to secure formal external finance through education and training. In the Turkish equity market, government has promoted the specific segments for SMEs through relaxing the listing and disclosure requirements in comparison with the main markets. The other strategy adopted by the government is to provide incentives for SMEs to encourage them to list. One such initiative is to promote Over-The-Counter (OTC) markets to support the unlisted SMEs. The Turkish government has encouraged the market advisors to provide advice to SMEs to gain listing on the exchanges (Nurrachmi and Foughali, 2012).

Müftüoğlu (2009) suggested training, mentoring, creating awareness initiatives for SMEs and training for bank lending managers to narrow the information gap, especially at the early stage where the business owners do not have enough finance knowledge, experience or necessary information about how the bank operates. The most important problem facing SMEs in Turkey is related to the high credit cost that adversely affects their survival. In addition, they do not have enough financial or physical asset security to negotiate competitive deals with the banks. Issuing of credit warranty is another hurdle or barrier for SMEs in Turkey. Because of the size of SMEs and their vulnerability in terms of management, the lending organizations see them as risky propositions. Hence providers of finance seek excessive collateral that works against the interests of SMEs. Another big issue for financial institutions is the pilferage of the loans specially approved for business activities; use of the loan other than business purposes increase the risk for the lenders (Kaya and Alpan, 2012; Demirbas et al. 2011). Therefore, research conducted with SMEs supports the view that the initial capital is provided by the individual from their own savings and, second, that the debt finance from their family and friends and the bank loan is used as a last resort. It is suggested (Kaya and Alpan, 2012) that in Turkey some SMEs are reluctant to use interest-bearing loans, due to their religious beliefs. Unlike Western economies, the Turkish government does not offer loan guarantee schemes to banks to support small businesses which lack collateral to secure finance. This leads enterprises to secure loans at higher interest rates in the absence of collateral or forgo the opportunity to enter self-employment. Finance constraints compound problems for SMEs. Lack of liquidity affect SMEs' purchases of stock on credit as they lack credit history, without which the provider of goods is not able to evaluate risk (Kaya and Alpan, 2012). However, over time as the business develops a track record and a relationship – the access to purchase goods on credit improves a pattern similar to that observed in the UK. Entrepreneurs in Turkey are averse to external finance as they fear loss of control and hence rely on their savings and debt from close friends that often leaves small enterprises to be undercapitalized (Kaya and Alpan, 2012; Ekinçi, 2003).

5. CONCLUSION

The application, usability and role of the pecking order theory for SMEs have evolved over recent decades. Paul et al. (2007) suggest that the rationale for the applicability of the pecking order theory to SMEs is due, first, to the tendency of SME owner-managers to demonstrate a strong aversion to losing control over their business when new financiers are involved (Berggren et al., 2000; Paul et al., 2007, Cosh and Hughes, 1994; Frank and Goyal, 2003, 2007). Consequently, the owner-managers of SMEs prefer retained savings as a source of finance to minimize the risk of losing control of their business (Newman et al., 2011). Secondly, due to poor management and financial control, SMEs tend to exhibit higher levels of asymmetric information when compared with the larger firms. This is due to the inability of SMEs to provide adequate financial and historical performance data to banks to use to make the lending decisions (Binks and Ennew, 1996; Reid, 1996; Hall et al., 2004), and small firms have to provide either collateral to secure external debt, use internal finance or borrow short-term or are more likely to rely upon internally generated retained profit that reduces their dependence on external finance. Therefore, the expectation, in line with the pecking order theory, is the more profitable the firm is, the less likely is the need for that firm to borrow externally, but is more likely to secure external debt.

There is consistency in the findings of empirical research that investigated the capital structure of the Turkish SMEs and, indeed, successive studies have concluded that the pecking order theories are a better fit to explain the capital structure of Turkish SMEs (Çakova, 2011; Korkmaz et al., 2007, 2009; Yıldız et al., 2009; Acaravcı and Doğukanlı, 2004; Köksal and Orman, 2014). This suggests that the less profitable the SMEs are in Turkey, the more likely they are to seek external finance. Our paper concludes that Turkish companies mainly follow the pecking order hypothesis in their capital structure for two principal reasons. First, because Turkish SMEs experience a 'finance gap', which prevents them from acquiring external finance at low cost. Second, they lack financial education and awareness about all the possibilities and aspects of external finance; thus the main long-term source of finance is retained earnings followed by bank loans. Turkish SMEs form the backbone of Turkish economic cohesion and social order, therefore it is imperative for the government and policy

makers to create and formulate progressive policies to support and encourage creation, and growth of SMEs by improving access to finance. Second, information asymmetry between insiders (owner-managers) and outsiders (lenders) gives rise to moral hazard that may be managed through financial education and the training of owner-managers of Turkish SMEs. It is generally accepted that to facilitate external finance for SMEs, there is a need for a robust legal, institutional and regulatory environment. In such conditions the government or banks initiatives alone cannot ease the financial problems of SMEs. Therefore, Turkish national and local governments need to initiate long-term governmental policies and institutional reforms to enhance the legal, institutional and regulatory environment to enable SMEs to access external finance.

REFERENCES

- Acaravcı, S. and Doğukanlı, H. (2004), 'Testing on manufacturing sector of determinants of capital structure in Turkey', *IktisatİşletmeFinans*, **19** (225): 43–57.
- Adedeji, A. (2002), 'A cross-sectional test of pecking order hypothesis against static trade off theory on UK Data', Working Paper, Birmingham: University of Birmingham.
- Akkaya, G.C. and Güler, S. (2008), 'Capital structure, assets and profitability: an application on manufacturing firms', *IktisatİşletmeFinans*, **23** (263): 41–52.
- Alti, A. (2006), 'How persistent is the impact of market: timing on capital structure?', *The Journal of Finance*, **61** (4): 1681–1710.
- Alti, A. and Sulaeman, J. (2012), 'When do high stock returns trigger equity issues?', *Journal of Financial Economics*, **103** (1): 61–87.
- Ang, J.S. (1991), 'Small business uniqueness and the theory of financial management', *Journal of Small Business Finance*, **1** (1): 1–13.
- Atherton A. (2009), 'Rational actors, knowledgeable agents: extending pecking order considerations of new venture financing to incorporate founder experience, knowledge and networks', *International Small Business Journal*, **27** (4): 470–495.
- Baker, H.K. and Martin, G.S. (2011), *Capital Structure and Corporate Financing Decisions: Theory, Evidence, and Practice*, London: John Wiley and Sons.
- Baker, M. and Wurgler, J. (2002), 'Market timing and capital structure', *The Journal of Finance*, **57** (1): 1–32.
- Bayraktaroğlu, A., Ege, İ. and Yazıcı, N. (2013), 'A panel data analysis of capital structure determinants: empirical results from Turkish Capital Market', *International Journal of Economics and Finance*, **5** (4): 131–140.
- Beck, T. (2013), 'Lessons from the literature – bank financing for SMEs', *National Institute of Economic Review*, **225** (1): 23–38.
- Berens, J.L. and Cuny, C.J. (1995), 'The capital structure puzzle revisited', *Review of Financial Studies*, **8** (5): 1185–1208.
- Berggren, B., Olofsson, C. and Silver, L. (2000), 'Control aversion and the search for external financing in Swedish SMEs', *Small Business Economics*, **15** (3): 233–242.
- Binks, M.R. and Ennew, C.T. (1996), 'Growing firms and the credit constraint', *Small Business Economics*, **8** (1): 17–25.
- Bistrova, J., Lace, N., and Peleckiene, V. (2011), 'The influence of capital structure on Baltic corporate performance', *Journal of Business Economics and Management*, **12** (4): 655–669.
- Booth, L., Aivazian, V., Demircuc-Kunt, A., and Maksimovic, V. (2001), 'Capital structures in developing countries', *The Journal of Finance*, **56** (1): 87–130.
- Çakova, U. (2011), 'Capital structure determinants of Turkish SMEs in manufacturing industry', unpublished Master's Thesis, Ankara, Turkey: Bilkent University.
- Chen, D.H., Chen, C.D., Chen, J. and Huang, Y.F. (2013), 'Panel data analyses of the pecking order theory and the market timing theory of capital structure in Taiwan', *International Review of Economics and Finance*, **27** (C): 1–13.
- Chen, J. (2004), 'Determinants of capital structure of Chinese-listed companies', *Journal of Business Research*, **57** (12): 1341–1351.
- Chittenden, F., Hall, G., and Hutchinson, P. (1996), 'Small firm growth, access to capital markets and financial structure: review of issues and an empirical investigation', *Small Business Economics*, **8** (1): 59–67.
- Copeland, T.E. and Weston, J.F. (2005), *Financial Theory and Corporate Policy* (4th edition), Reading MA: Addison-Wesley.
- Cornelli, F., Portes, R., and Schaffer, M. (1998), 'The capital structure of firms in Central and Eastern Europe', in O. Bouin, F. Coricelli and F. Lemoine (eds), *Different Paths to a Market Economy: China and European Economies in Transition*, s.l.: CEPR/CEPII/OECD.
- Cosh, A.D. and Hughes, A. (1994), 'Size, financial structure and profitability', in A. Hughes and D.J. Storey (eds), *Finance and the Small Firm*, London: Routledge, pp. 1–50.
- Cressy, R. and Olofsson, C. (1997a), 'European SME financing: an overview', *Small Business Economics*, **9** (2): 87–96.

- Cressy, R. and Olofsson, C. (1997b), 'The financial conditions for Swedish SMEs: survey and research agenda', *Small Business Economics*, **9** (2): 179–194.
- Dahlstrand, A.L. and Cetindamar, D. (2000), 'The dynamics of innovation financing in Sweden', *Venture Capital*, **2** (3): 203–221.
- Demirbaş D. (2011). Formal Informal Environmental and Skill Barriers for Entrepreneurs Microeconomic Evidence from 197 Turkish SMEs. *Journal of Business and Policy Research*, **6**(2), 15-37. (Yayın No: 1774689)
- Demirbaş D, Hussain, J. and Matlay, H. (2011). Owner Managers Perceptions of Barriers to Innovation Empirical Evidence from Turkish SMEs. *Journal of Small Business and Entrepreneur Development*, **18**(4), 764-780. (Yayın No: 1774441)
- Demirbaş D. (2010). How do entrepreneurs perceive barriers to innovation An Empirical evidence from Turkish SMEs. Northumbria University, Working Paper Series, **3**(7), 12-27. (Yayın No: 2157151)
- Egerer, R. (1995), *Capital Markets, Financial Intermediaries, and Corporate Governance: An Empirical Assessment of the Top Ten Voucher Funds in the Czech Republic*, New York: World Bank.
- Ekinci, M.B. (2003), 'Türkiye' de KOBİ' lerin Kurumsal Gelişimi ve Finansal Sorunları', İstanbul: AskonYayınları.
- Fischer, E.O., Heinkel, R. and Zechner, J. (1989), 'Dynamic capital structure choice: theory and tests', *Journal of Finance*, **44** (1): 19–40.
- Flannery, M.J. and Rangan, K.P. (2006), 'Partial adjustment toward target capital structures', *Journal of Financial Economics*, **79** (3): 469–506.
- Frank, M.Z. and Goyal, V.K. (2003), 'Testing the pecking order theory of capital structure', *Journal of Financial Economics*, **67** (2): 217–248.
- Frank, M.Z. and Goyal, V.K. (2007), 'Trade-off and pecking order theories of debt' in B. Espen Eckbo (ed.), *Handbook of Corporate Finance: Empirical Corporate Finance*, Boulder, CO: Elsevier, pp. 135–202.
- Giudici, G. and Paleari, S. (2000), 'The provision of finance to innovation: a survey conducted among Italian technology-based small firms', *Journal of Small Business Economics*, **14** (1): 37–53.
- Hall, G., Hutchinson, P. and Michaelas, N. (2004), 'Determinants of the capital structures of European SMEs', *Journal of Business Finance and Accounting*, **31** (5–6): 711–728.
- Hamilton, R.T. and Fox, M.A. (1998), 'The financing preferences of small firm owners', *International Journal of Entrepreneurial Behaviour and Research*, **4** (3): 239–248.
- Holmes, S. and Kent, P. (1991), 'An empirical analysis of the financial structure of small and large Australian manufacturing enterprises', *The Journal of Small Business Finance*, **1** (2): 141–154.
- Howorth, C. (2001), 'Small firms' demand for finance: a research note', *International Small Business Journal*, **19** (4): 78–86.
- Hull, R. van 't. (2014), Determinants of the capital structure of Dutch SMEs, PhD Thesis, Twente University of Twente, Netherlands.
- Hussain, J., Millman, C. and Matlay, H. (2006), 'SME financing in the UK and in China: a comparative perspective', *Journal of Small Business and Enterprise Development*, **13** (4): 584–599.
- Hyytinen, A. and Pajarinen, M. (2002), 'Financing of technology intensive small business: some evidence from the ICT industry', *Discussion Paper*, **813**, Helsinki: The Research Institute of the Finnish Economy.
- Ibbotson, R.G., Sindelar, J.L. and Ritter, J. (2001), 'Initial public offerings', *Journal of Applied Corporate Finance*, **6** (2): 37–45.
- ICSA (2013), *Financing of SMEs through Capital Markets in Emerging Market Countries*, London: ICSA Emerging Markets Committee.
- Jahanzeb, A., Muneer, S. and Rehman, S.U. (2012), 'Implication of behavioral finance in investment decision-making process', *Information Management and Business Review*, **4** (10): 532–536.
- Jahanzeb, A., Rehman, S.U., Bajuri, N.H., Karamiand, M. and Ahmadimousaabad, A. (2013), 'Trade-off theory, pecking order theory and market timing theory: a comprehensive review of capital structure theories', *International Journal of Management and Commerce Innovations*, **1** (1): 11–18.
- Jensen, N.S and Uhl, F.T. (2008), *Capital Structure in European SMEs. An Analysis of Final and Country Specific Variables in Determining Leverage*, Aarhus: Aarhus School of Business.
- Jordan, J., Lowe, J. and Taylor, P. (1998), 'Strategy and financial policy in UK small firms', *Journal of Business Finance and Accounting*, **25** (1–2): 1–27.
- Karadeniz, E., Kandir, S.Y., Balçılar, M. and Onal, Y.B. (2009), 'Determinants of capital structure: evidence from Turkish lodging companies', *International Journal of Contemporary Hospitality Management*, **21** (5): 594–609.
- Karadeniz, E., Kandir, S.Y., İskenderoğlu, Ö. and Önal, Y.B. (2011), 'Firm size and capital structure decisions: evidence from Turkish lodging companies', *International Journal of Economics and Financial Issues*, **1** (1): 1–11.

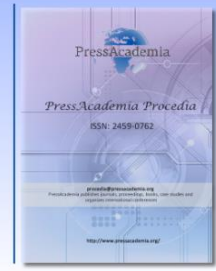
- Kaya, S. and Alpkan, L. (2012), 'Problems and solution proposals for SMEs in Turkey', *Emerging Markets Journal*, **2** (2): 30–45.
- Kaygın, B., Tankut, A.N. and Çaylı, M. (2008), 'The structural analysis of small and medium size furniture enterprises in Turkey based on production, capacity use and working environment', *African Journal of Biotechnology*, **7** (24): 4628–4634.
- Kim, E.H. (1978), 'A mean-variance theory of optimal capital structure and corporate debt capacity', *Journal of Finance*, **33** (1): 45–63.
- Köksal, B. and Orman, C. (2014), 'Determinants of capital structure: evidence from a major developing economy', Working Paper, **14/26**, Ankara: Central Bank of the Republic of Turkey.
- Korkmaz, T., Albayrak, A.S. and Karataş, A. (2007), 'The analysis of the capital structure of the SMEs registered in the ISE: 1997–2004', *İktisatışletmeFinans*, **22** (253), 79–96.
- Korkmaz, T., Başaran, Ü. and Gökbulut, R.D. (2009), 'The determinant factors of the capital structure of the automotive and auto parts companies registered in the ISE: panel data analysis', *İktisatışletmeFinans*, **24** (277): 29–60.
- KOSGEB (2012), *Enhancing the Competitiveness of SMEs in Turkey*. Submitted to the 28th Session of the COMCEC, Ankara: KOSGEB.
- KOSGEB (2014), *Financing of SMEs by KOSGEB*. SME Development Centers, Ankara: KOSGEB.
- Kraus, A. and Litzenberger, R.H. (1973), 'A state-preference model of optimal financial leverage', *Journal of Finance*, **28** (4): 911–922.
- Leary, M.T. and Roberts, M.R. (2005), 'Do firms rebalance their capital structures?', *Journal of Finance*, **60** (6): 2575–2616.
- Lopez-Gracia, J. and Sogorb-Mira, F. (2008), 'Testing trade-off and pecking order theories financing SMEs', *Small Business Economics*, **31** (8): 117–136.
- Michaelas, N., Chittenden, F. and P. Poutziouris (1999), 'Financial policy and capital structure choice in UK SMEs: Empirical evidence from company panel data', *Small Business Economics*, **12** (2): 113–130.
- Ministry of Industry and Trade (2010), *Turkish Industrial Strategy Document 2011–2014*, Ankara: Ministry of Industry and Trade.
- Modigliani, F. and Miller, M.H. (1958), 'The cost of capital, corporation finance and the theory of investment', *American Economic Review*, **48** (3): 261–297.
- Müftüoğlu, T. (2009), 'SME support policies in Turkey after 1990: review, evaluation and suggestions', Paris: Agence Française de Développement, mimeo.
- Muneer, S. and Rehman, S.U. (2012), 'Materialization of behavioral finance and behavioral portfolio theory: a brief review', *Journal of Economics and Behavioral Studies*, **4** (8): 431–435.
- Munich Personal RePEc Archive (MPRA) (2013), *The Development of SMEs in Turkey*, Munich: Munich Personal RePEc Archive.
- Myers, S.C. (1984), 'The capital structure puzzle', *Journal of Finance*, **39** (3): 575–592. Myers, S.C. (2001), 'Capital structure', *Journal of Economic Perspective*, **15** (2): 81–102.
- Myers, S.C. and Majluf, N. (1984), 'Corporate financing and investment decisions when firms have information that investors do not have', *Journal of Financial Economics*, **13** (4): 187–221.
- Newman, A., Gunessee, S., and Hilton, B. (2011), 'Applicability of financial theories of capital structure to the Chinese cultural context: a study of privately owned SMEs', *International Small Business Journal*, **30** (1): 65–83.
- Nurrachmi, R. and Foughali, K.A. (2012), 'The development of SMEs in Turkey', *MPRA Paper*, No. 46817, Munich: Munich Personal RePEc Archive.
- OECD (2006), *The SME Financing Gap – Theory and Evidence*, Volume 1, Paris: OECD Publishing.
- Ou, C. and Haynes, G.W. (2006), 'Acquisition of additional equity capital by small firms: findings from the National Survey of Small Business Finances', *Small Business Economics*, **27** (2–3): 157–168.
- Özer, B. and Yamak, S. (2000), 'Self-sustaining pattern of finance in small business: evidence from Turkey', *International Journal of Hospitality Management*, **19** (3): 261–273.
- Paul, S., Whittam, G. and J. Wyper, J. (2007), 'The pecking order hypothesis: does it apply to start-up firms?', *Journal of Small Business and Enterprise Development*, **14** (1): 8–21.
- Reid, G.C. (1996), 'Financial structure and the growing small firm: theoretical underpinning and current evidence', *Small Business Economics*, **8** (1): 1–7.
- Sánchez-Vidal, J. and Martín-Ugedo, J.F. (2005), 'Financing preference of Spanish firms: the pecking order theory in the context of small and medium-sized enterprises: a note evidence on the pecking order theory', *Review of Quantitative Finance and Accounting*, **25** (1): 341–355.
- Şeker, M. and Correa, P.G. (2010), 'Obstacles to growth for small and medium enterprises in Turkey', WPS 5323, New York NY: World Bank.

Sogorb-Mira, F. (2005), 'How SME uniqueness affects capital structure: evidence from a 1994–1998 Spanish data panel', *Small Business Economics*, **25** (5): 447–457.

Turkish Statistical Institute (2011), *SME Statistics*, Ankara: Turkish Statistical Institute. Yıldız, M.E., Yalama, A., and Sevil, G. (2009), 'Testing capital structure theory using panel data regression analysis: an empirical evidence from Istanbul Stock Exchange manufacturing firms', *İktisat İşletme Finans*, **24** (278): 25–45.



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ANALYSIS OF THE REGIONAL INNOVATION PERFORMANCE BY USING NORMALIZATION METHOD: TR1 (ISTANBUL) EXAMPLE

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ABSTRACT

Today, economic decision-making units need resources that will provide and improve economical growth in order to increase social welfare and competition. Within the economical structure, these resources emerge with knowledge, technology and innovation. Particularly regional innovation systems play a central role in meeting the requirements for the resources needed for economic growth. For this reason, it is important to analyze the relationship of the innovation with the economic growth in the new world economy, where it appears like a production factor. In this study, the innovation performance capacity of the TR1 region has been investigated by using the normalization methods. In this framework, it is aimed to establish criteria that are comparable to the Level 1 averages of the regions in Turkey.

Keywords: Regional, innovation, innovation index, innovation efficiency and normalization method.

JEL Codes: O3, O4, R3

1. INTRODUCTION

The phenomenon of globalization continues to change the world every day with information, technology and innovation. For this reason, economic units, political environments, and social and cultural values that emerge in the process of globalization are becoming the parts of the system that develops. In this context, in today's world, where knowledge is vital, and keeping up with innovations in technology or catching up with innovations become tougher, economies have been highlighting innovation as an integral part of the growth. The point that the countries or regions, which aim to grow economically in this framework, agree is creating the infrastructure necessary for these policies, as well as closely following the scientific and technological advances regarding the innovation policies. In order to understand the importance of innovation in the social, cultural, political and economical system, this understanding must be brought to a status where it is dominant. Technology and knowledge, which have developed due to the necessities within the past centuries, have been the bases for the innovation policies of the 21st century. Innovation policies are defined as a new product-process starting from the invention, until the scientific and technological progress and afterwards gaining economic added value. The concept that covers all of this product and process researches is innovation. Innovation; while it constitutes the basis for the economic growth at one side, it is also an important variable for countries', regions' and companies' having competitive structures in the international market in the long-term on the other side. The variable of innovation is being examined extensively in studies on economic growth, and it facilitates the distribution of the information across sectors, as well as reducing growth differences between the regions. In this context, coordination and cooperation between the sectors in the regions increase with innovation. In this way, regions concentrate on research and development (R&D) activities, which will contribute to the improvement of innovation processes that is one of the driving forces of competition. In addition, innovation contributes to the development and growth of underdeveloped regions. Innovation in this case; is considered as a phenomenon that embodies social, cultural, political and economic changes and is seen as an essential element in increasing profit maximization and competitiveness of the companies. Many studies have been carried out to explain the concept of innovation in the history of economics. The reason for that is innovation's being in constant change. Therefore, expressing the concept of innovation as a technical word provides convenience for semantic integrity. Innovation, which is a Latin-based term, is derived from the word 'innovatus'. The dictionary meaning of innovation is starting to use new

methods in economic, social, cultural and administrative matters. According to this definition, innovation represents not only a process but also a result. In this context, the term is used for the innovations that have economical value. Therefore, formations that have the innovation characteristics for society and the economy should be in a commercial nature, contributing to an increase in prosperity. Regarding this definition, first of all, it is necessary to solve the contradiction in the terms of invention and innovation. Schumpeter has pointed out the difference between innovation and inventions. According to Schumpeter, developing the ideas of a product or manufacturing process for the first time is invention, whereas the innovation is the transformation of a new idea into an economic value for the first time. At the same time innovation is a result of knowledge accumulation, while the inventions, are a product of scientific activities, which do not always result in innovation. Hence, inventions do not have economic effects by themselves. The transformation of inventions into innovation, in other words, their commercialization, is related to personal talent, i.e. the entrepreneur. According to Schumpeter, everything that brings profits to the entrepreneur as a result of technological advances is defined as innovation. In this scope, the activities of innovation consist of creating a new market and production method, inventing a product and establishing production factors in order to provide raw material input. In this context, innovation is the discovery of a new form of production on a scientific standpoint, the discovery of a new product that has not been found out by producers and consumers before.

Another important factor in innovation is the positive relationship between regionalization, institutional infrastructure and economic growth. In order for this positive relationship to be formed, technological products and the information should be produced, marketed, organized and presented in different forms, and commercialized. In this case, innovation systems make a very important contribution to economic growth by increasing competitive capacity of the nations and regions. In this direction, institutions-organizations such as university-industry collaborations, R&D institutes, technoparks-technocities, development agencies and research centers play an important role both in national and regional sense in economic growth process. In addition, innovation systems are processes that lead to drastic changes in the economic, political and social structures of the regions. Therefore, the factors such as intensity of innovation activities, incentives for R&D expenditures, accessibility of institutions that have undertaken the task of supporting the entrepreneurship are very important in terms of the development of regions.

The questions that have been addressed regarding the purpose of the work are:

- i. What is the innovation performance measurement capacity of the TR1 zone?
- ii. Is the region productive in terms of innovation?
- iii. What are the factors that influence the region that is related to innovation?

It is expected to contribute to the literature within the scope of the answers to these questions.

2. LITERATURE REVIEW

There are many empirical studies on innovations in the literature. These studies have been searching for the answers of the questions such as: "What are the determinants for the innovations at company, region and country level?", "How is the level of innovation performance measured?", and "Is innovation a process that enhances competition?". For this reason, in addition to the studies examining the effects of the components of innovation performance measurement and index values on innovation outputs, the innovation subject is included in empirical studies in the context of economic growth and regional competition. Some of these studies are as follows. Jaffe (1989) examined the effects of university researches and private sector R&D expenditures on innovation in the US between the years of 1972 and 1981. Analyzes have been separated into three groups as medicine, chemistry and electricity sectors. At the end of the study; it was stated that, while there was a positive relationship between university researches and private sector R&D expenditures, the strongest relation belonged to the pharmaceutical sector. This relationship leads to an increase in innovation as a result of the increase in university researches and private sector R&D expenditures. Popp (1998) analyzed the relationship between innovation and energy prices in the US economy between the years of 1970 and 1994. In the study, the number of patents was included as a dependent variable, and the Energy prices, public sector spending on R&D and information stocks were independent variables;. The analysis has resulted in a positive and strong relationship between the variables. It was stated that the increase in the number of patents and the increase in energy prices were in the same direction. Porter and Stern (2001) conducted a study covering 75 countries to show the innovation index capacity at national level. The study also included the main activities, including countries' patents, innovation policy, clustering and innovation connections, and different sub-variables. Index values were calculated by using standardization method in the model where 24 variables such as public-private sector R&D investments, population structure, suppliers, university-industry cooperation, and number of scientists were used. After the index values were calculated, the innovation capacity index was established by taking the non-weighted averages of the 4 main sub-indexes. These variables in the study were subjected to regression analysis. 23 of the

24 variables were statistically significant. In the study Turkey is ranked as 44th with 17.8 points in the innovation capacity index.

Porter, Stern, and Furman (2002) also conducted a study on innovation determinants. They have defined the innovation determinants based on the knowledge-based internal growth model, the national innovation system, and Porter's theory of competition. It was emphasized that, although these models have many common aspects, they differ in terms of the factors. In the study; the information stock in economy and the number of employees working in R&D was analyzed with the theory of internal growth, the innovation's micro-economical aspects were analyzed with the theory of competition, and the national innovation system was used to analyze the roles of institutions in the countries, the national politics, and higher education systems. Huggins (2003) carried out an index study on the regions in UK between 1993 and 1999. In the study, four variables were analyzed: regional economic growth, innovation activities, competition development and the number of knowledge-based firms. As a result of the analysis, it was found that there was a strong correlation between the variables. Martin (2004), reviewed the factors affecting economic growth in 207 regions of Europe. In this context, the effects on economic growth within the components were estimated with Barro type convergence approach between 1980 and 2001. These components include; per capita national income, R&D expenditures, physical capital, share of high technology sectors in total employment, proportion of higher education students and external economies. Regionally, the effect of these expenditures on per capita national income and R&D expenditures are concluded to be significant. Hu and Mathews (2005) studied the determinants of the innovation capacity of the countries of Taiwan, China, Korea, Singapore and Hong-Kong between 1970 and 2000. In this study; they used the population, national income per capita, number of scientists, expenditure on research and development, risk capital market power, number of academic publications in magazines, capacity to protect the intellectual property, openness to international investment and trade, the frequency of the antitrust policies, and the GDP share of high education expenditures as independent variables. As a result of the analysis; it was found that the protection of intellectual property rights negatively affects innovation. They concluded that there was a positive relationship between the other variables and the innovation capacity.

Lenger (2008) conducted a survey on Level 1 regions of Nomenclature of Territorial Units for Statistics (NUTS) of Turkey covering the years between 1998 and 2005. Lenger analyzed the effects of patent applications, which is the determinant of innovation performance, on the utility model, the cooperation of the state universities in the regions with the industry, and the number of publications in the universities. In addition, the data of the research variables were analyzed with the Generalized Moments Method (GMM). As a result of the analysis, it was found that there was a positive and strong effect between the patent and the other variables. Wonglimpiyarat (2010) tried to find the index of innovation capacity with components related to organization, process, service, and product and marketing innovation throughout Thailand. Under the main headings of "human capital", "infrastructure" and "innovation climate" in the study, the data regarding the variables were collected with the help of a questionnaire. The survey results were adapted to the index values between 0 and 4 points. As a result of the survey, the general index value of 2.3 points has been obtained and it has been found that Thailand has a moderate level of innovation capacity. Annoni and Kozovska (2010) calculated the European regional competition index. In their calculations, they used the normalization method in the "matlab" program. They sought answers to the question of "Why it is so important to measure regional competitiveness in EU regional competitiveness index calculations?". Index calculations have been made up of three variables. These are; education, macro-economic stability and infrastructure. These variables consist of 69 components. In the analyzes, it was concluded that, macroeconomic stability is the most important factor affecting the regional competition index.

Fritsch and Slavtchev (2011) examined the information production function in 93 regions in East and West Germany within the regional innovation system. They analyzed the relationship of regional patent applications, which were considered as outputs, with the variables such as research institutes, population density, funds allocated to university academic staff, employment in the sectors of service-transportation-electricity-chemistry, average employment and number of private sector R&D professionals, in the study covering 1995-2000 period. In the results of this study; the effects of average employment per institution and service sector employment variables on patent applications were significant and negative, while the effects of other variables on patent applications were positive and significant. Slaper et al. (2011) examined the relationship between regional innovation performance and economic growth. This work, which was based on 3110 residential areas in the USA, consisted of two parts. In the first part, to determine the regional innovation performance and capacity, regional innovation index was created by using the variables of the number of SMEs (small and medium sized enterprises), patents, private sector R&D expenditures, the ratio of the number of the license/associate's degree graduates to the population, the ratio of the risk capital to the investment, the infrastructure, employment structure in the high-tech industries belonging to the years between 1997 and 2006. The first part forms the input variable of the second part at the same time. In the second part of the study, the innovation outputs of the regions and the possible effects of their performances on the economic growth were analyzed by econometric method. As a result of analysis; it has been found

that there are positive and significant effects between the number of SMEs, private sector expenditures, number of patents, infrastructure, and economic growth in advanced technology industries.

Gömlüksiz (2012), calculated the innovation index of NUTS Level 2 regions in Turkey. In the study carried out by minimum-maximum normalization method considering global index sub-variables, the innovation inputs consisted of human capital-education, infrastructure-culture, market development and business environment. Innovation outputs were consisted of prosperity, and the creative and scientific outputs. All these sub-variables were examined within 45 components. Asheim et al. (2013) investigated the effects of public policy on regional innovation. In this research, they pointed out that it has important effects on the regional innovation system in the culture variable, like industrial information intensive products. However, they argued that these influences were hindered by public policy intervention in terms of scientific framework. In their study, they pointed out that a new regional innovation system approach will create a policy for regional advantages.

3. DATA AND METHODOLOGY

In the development of regional innovation indexes, NUTS indicators have been examined within the scope of the development of data, in a way that is consistent with the EU, and some variables that are discussed in the literature have been determined. These variables, which are examined under innovation inputs and outputs, consist of human, economic, social and structural variables. In this context innovation inputs consist of main variables such as; enablers, infrastructure-culture and entrepreneurship-trade. Sub-variables forming these main variables are; human resources, research systems, investments-loans-supports, population, energy, information communication technologies, health, transportation, culture, entrepreneurship, trade and financial intermediaries. In addition, these sub-variables consist of 48 components. Innovation outputs are listed as 4 sub-variables such as; innovations, scientific outputs, economical outputs and social welfare. These sub-outputs also consist of from 20 components. In the creation of the index variables, the information belonging to the components was collected based on the last available year. The information collected in this framework covers the period between 2009 and 2016. The collected data are basically obtained from reports, bulletins and databases published by organizations such as the Turkish Statistical Institute (TURKSTAT), Ministries, Program for International Student Assessment (PISA), Higher Education Council (Yüksek Öğretim Kurumu - YÖK), Turkish Banks Association (Türkiye Bankalar Birliği - TBB), Turkish Patent Institute (TPE) and University Ranking by Academic Performance (URAP). The general framework of these index variables is shown in Table 1.

Table 1: TR1 Of Regional Innovation Index Variables

1.Possible Sword	Data Source	Accessed Last Year
1.1. Human Resources		
1.1.1. Number of teachers per student in primary and secondary schools	TSI	2015
1.1.2. Sharp enrolment ratio in secondary education	TSI	2015
1.1.3. The number of 1000 per capita high school or equivalent vocational school graduates	MOE	2015
1.1.4. Science- math and reading in the areas of success rates	PISA	2016
1.1.5. 1000 per inhabitants higher education graduates	HEC	2015-2016
1.1.6. Number per 1000 of labor force by educational attainment	TSI	2015
1.1.7. The rate of higher education graduates in the total workforce	TSI	2015
1.2. Research Systems		
1.2.1. R & D manpower (public - commercial and higher education)	TSI	2015
1.2.2. The number of 10.000- employee per-capita staff researcher	TSI	2015
1.2.3 The number of 10,000-per-employee R & D personnel	TSI	2015
1.3. Investment, Credit and Supports		
1.3.1. GDP per capita R & D in the distribution of expenditures(thousand TL)	TSI	2015
1.3.2. Total public investments per capita (TL thousand)	MOD	2015
1.3.3. Total private investments per capita (TL thousand)	MOD	2015
1.3.4. Regional SME investment support (%)	MOE	2015
1.3.5. The total credit per capita (Specialization+Non-specialization TL million)	BAOT	2015
1.3.6. The number of technology development zones and centers	MOE-MOSIT	2015
1.4. Population		
1.4.1. Urban population growth rates (%)	TSI	2015
1.4.2. The dependency ratio of the population 0-14 years of age	TSI	2015
1.4.3. Population 65 years and over dependency ratio	TSI	2015
1.4.4. Sharp migration rate (%)	TSI	2015
2. Infrastructure and culture:		
2.1. Energy		

2.1.1. Total electricity consumption per capita (kWh)	TSI	2015
2.1.2.Green energy production per capita (kwh, power+thermal)	TSI	2005
2.2. Information Communication Technology		
2.2.1. Computer and internet usage rate (%)	TSI	2015
2.2.2. Internet access rate in households (%)	TSI	2015
2.3. Health		
2.3.1. Family physician number of patients per active employee	MOH	2015
2.3.2. Total number of physicians per 100.000 people	TSI	2015
2.3.3. Total number of hospital beds per 1.000.000 people	TSI	2015
2.3.4. The number of cases per ambulance-112 emergency aid	MOH	2015
2.4. Transportation		
2.4.1. Total road Length (km)	TSI	2015
2.4.2. The total number of vehicles	TSI	2015
2.4.3. Number of deaths in traffic accidents per 1,000,000 people	TSI	2015
2.4.4. Total number of passengers that use the airway	TSI	2015
2.5. Culture		
2.5.1. Number of person per movies	MOCAT	2015
2.5.2. Number of people per Theatre Show	MOCAT	2015
2.5.3. Number of public libraries per 1,000 people from benefiting	MOCAT	2015
3. Entrepreneurship and Trade:		
3.1. Entrepreneurship		
3.1.1. The number of venture total business according to the records	TSI	2015
3.1.2. The number of total established companies and cooperatives	TSI	2009
3.1.3. The total number of liquidated companies	TSI	2009
3.1.4. The share of the manufacturing sector in total attempts	TSI	2015
3.1.5. The share of information and communication sector's total attempts	TSI	2015
3.1.6. The share total attempts in professional scientific and technical activities	TSI	2015
3.1.7. The share total attempts to share educational activities	TSI	2015
3.2. Trade and Financial Intermediary Institutions		
3.2.1. Exports per capita (US \$)	TSI	2015
3.2.2. Imports per capita (US \$)	TSI	2015
3.2.3. In the manufacturing sector exports (US \$)	TSI	2015
3.2.4. In the manufacturing sector imports (US \$)	TSI	2015
3.2.5 Number of units in financial at local services	TSI	2015
3.2.6. The number of credit organizations of local units	TSI	2015
4.Innovation Outputs:		
4.1. Innovations		
4.1.1. Technological innovation initiative in economic activity total (%)	TSI	2008-2010
4.1.2. Total of economic activity initiative of product-process innovation (%)	TSI	2012-2014
4.1.3.Total economic activity initiative of the organization-marketing innovation (%)	TSI	2012-2014
4.1.4. Total economic activity initiatives in ongoing innovation (%)	TSI	2012-2014
4.2 Economic Output		
4.2.1. Total registered according to the number utility model	TPI	2015
4.2.2. Total registered according to the number patents	TPI	2015
4.2.3. Total registration according to the number industrial design	TPI	2015
4.2.4. Total registered according to the number brand	TPI	2015
4.3. Scientific Outputs		
4.3.1. The number of publications per capita 1.000.000	TSI	2013
4.3.2. An average of total points article	URAP	2015-2016
4.3.3. An average of total points cited	URAP	2015-2016
4.3.4. An average of total points scientific document	URAP	2015-2016
4.3.5. The average score of doctoral students	URAP	2015-2016
4.3.6. An average points of Lecturer / student	URAP	2015-2016
4.3.7. Total academic scores in the region of the University	URAP	2015-2016
4.4. Social Welfare		
4.4.1. According to expenditure groups general purchasing power parity	TSI	2012
4.4.2. The value added produced per labor	TSI	2011
4.4.3. The whole family level of happiness	TSI	2013
4.4.4. The whole family level of hopefulness	TSI	2013
4.4.5. Median income% 60 of 1.000 per capita the number of poor people	TSI	2014

A total of 68 components belonging to 15 sub-variables in 4 basic variables belonging to innovation inputs and outputs are shown in the Table. Even though the data for these components are composed of different level groups (Level 1, Level 2, and Level 3), whole of the data are combined within Level 1.

The Turkish averages and the variables belonging to the TR1 region are divided into two groups as basic and sub-variables. The basic variables are the outputs of: enablers, infrastructure- culture, entrepreneurship-trade and innovation. The sub-variables are: human resources, research systems, investments-loans-support, population, energy, information communication technologies, health, transportation, culture, entrepreneurship, trade and financial intermediary institutions, innovations, scientific outputs, economic outputs, and social prosperity. The data for all these variables will be examined below, using the minimum and maximum normalization method.

In the creation of regional innovation indexes in Turkey, the European innovation scoreboard and the method of normalization, which is a measure of regional innovation, have been used. The factors affecting the formation of regional innovation indexes and the effects of these factors on the regions have been examined. In this context, the factors affecting the regions are analyzed by normalization method (minimum-maximum). Additionally, this method is preferred, due to the reason that the regions will be able to be compared with each other. The index values for each given region, and innovation input and output variables are calculated by the normalization method, which is a standardization process.

Market actors have to analyze the dynamic market structure in their decision-making processes. Within this structure, many alternatives should be examined and comparisons should be made by evaluating these alternatives. This leads to the development of very different decision making methods within the dynamic structure. The normalization techniques are utilized in the analysis of the components with different variables. When the studies done with this method are examined, it is seen that the normalization methods are preferred (Wang et al., 2009: 2272).

Minimum-maximum normalization method is a generalized standardization process that is used to construct regional innovation indexes. Each component of the examined variables is used to generate the index values of the regions. These index values are in the range of 0 to 1 point interval according to minimum-maximum normalization method within the components (Aydin, 2012: 4-22). These regions that are mentioned are ranked according to their averages of general index score. The equation for the minimum-maximum normalization method is shown below.

In the equation;

x_i ; is the numerical value of the regions within the group where the index value will be calculated

x_{min} ; is the minimum value in each group

x_{max} ; refers to the maximum value in each group.

Regional Innovation Efficiency = Innovation Output Average/Innovation Input Average

Index values for each region are calculated by dividing the difference between the group value belonging to the region and the minimum value in the group by the difference between the maximum value and the minimum value in the group. Regions with high innovation performance have the value of 1 and values close to 1; while those with low innovation performance have the value of 0 and values close to 0 (Çakır, 2012: 10-11). Additionally, the indexes of innovation and productivity of the regions are presented in the findings.

4. FINDINGS AND DISCUSSIONS

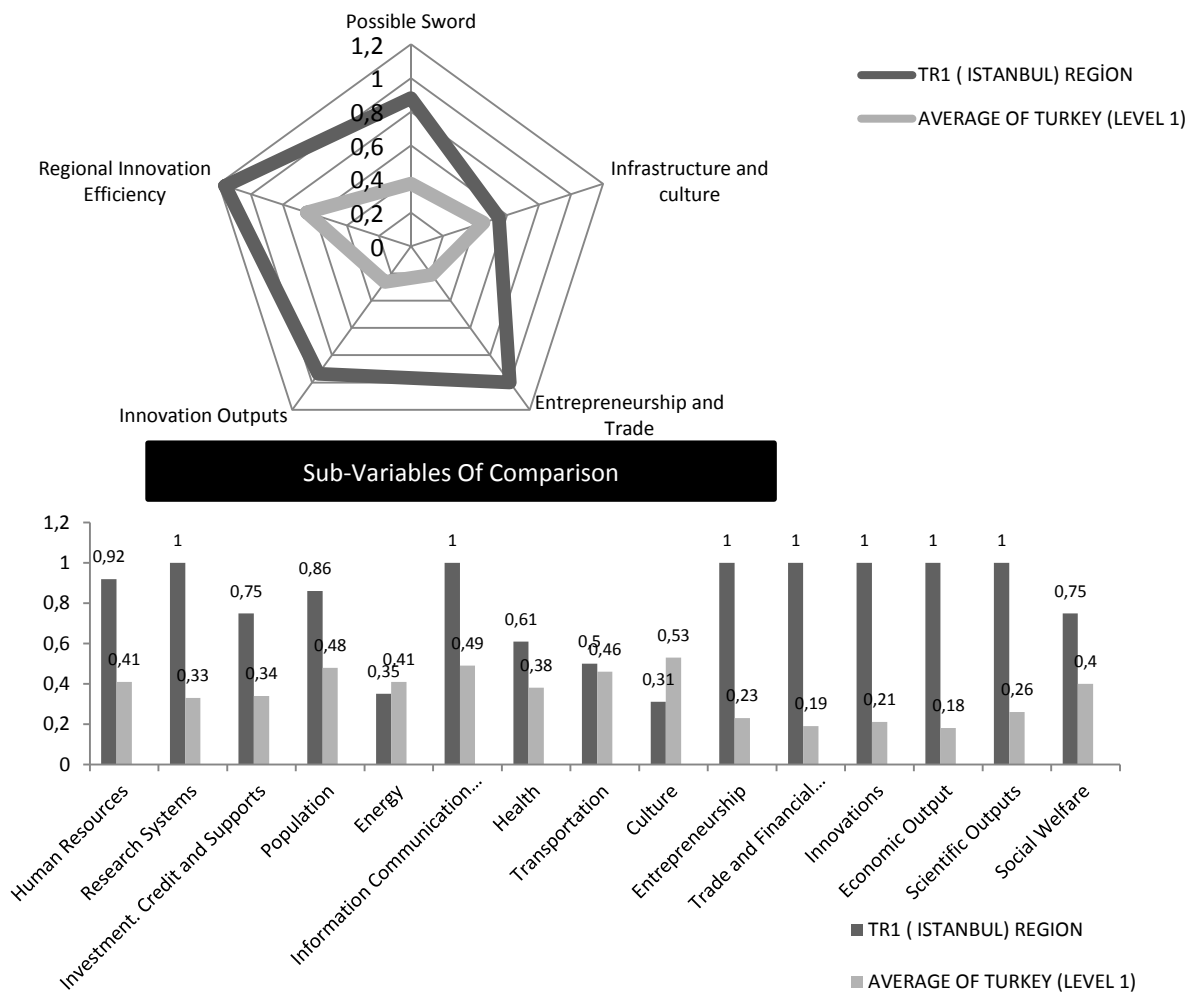
In the Table, regional innovation indexes and productivity scores are presented according to the minimum-maximum method. The ranking in the Table is based on the overall score averages. According to the calculations, TR1 (Istanbul) region's average index score and productivity score rankings are considerably higher than the average of Turkey.

Table 2: The Data of Minimum - Maximum Normalization Method

VARIABLES (LEVEL 1)	TR1 (ISTANBUL) REGION	AVERAGE OF TURKEY
1.Possible Sword	0.88	0.3725
1.1. Human Resources	0.918649474	0.41
1.2.Research Systems	1	0.33
1.3. Investment. Credit and Supports	0.745515303	0.34
1.4. Population	0.858950291	0.48
2. Infrastructure and culture:	0.55	0.454
2.1. Energy	0.345384127	0.41
2.2. Information Communication Technology	1	0.49

2.3. Health	0.612847222	0.38
2.4. Transportation	0.5	0.46
2.5. Culture	0.308855292	0.53
3. Entrepreneurship and Trade:	1	0.21
3.1. Entrepreneurship	1	0.23
3.2. Trade and Financial Intermediary Institutions	1	0.19
4. Innovation Outputs:	0.9375	0.2625
4.1. Innovations	1	0.21
4.2. Economic Output	1	0.18
4.3. Scientific Outputs	1	0.26
4.4. Social Welfare	0.753586636	0.4
Regional Innovation Efficiency	1.16	0.65

Figure 1: Turkey And TR1 Region Belong to That Comparison Of Variables



The Istanbul Region is on the top when ranked with minimum-maximum normalization method in Level 1 in terms of general, productivity and many other sub-variable indexes. The TR1 region needs to be developed in the infrastructure-culture input variable, from the innovation input variables, while it is in the forefront especially in the variables of enablers and entrepreneurship-trade. Moreover, it is above Turkey's average in the sub-variables of input, especially in human resources, research systems, investments-loans-supports, population, information communication technologies, health, entrepreneurship and trade-financial intermediaries. In the context of innovation outputs, the TR1 region is the leader in; innovations (In the entrepreneurships where the, technological, product-process, organizational-marketing innovations and

innovation activities continue in terms of total economic activities), economic outputs (utility models, patents, designs and number of brands according to total registration numbers), scientific outputs (Number of publications per million people, articles, citations, scientific documents, doctoral students and in the average academic point averages of the universities), social prosperity (the general purchasing power parity according to expenditure groups, the value added production per labor and the level of prosperity of the whole family), and in all of the other sub-component outputs. In this direction, it is in the higher class in terms of innovation. It is necessary to determine policies for energy, culture and transportation from infrastructure-culture input variables. Development of sub-variables in the middle ranks is important for the region, depending on investment, trade and entrepreneurship activities. Especially, it can be said that the presence of neighboring regions with heavy industrial density is effective in the energy sub-variable. In this context, the efficient use of energy resources and energy savings are important in terms of costs in the production phases for the region. In order for economic growth in Turkey to have a stable structure, the improvement of especially entrepreneurship, trade, innovation, economic and scientific outputs, from the sub-variables, will contribute to making the Turkish economy more dynamic. Particularly regional or national policies to be implemented for the development of skilled labor can be increased by Turkey's keeping its economic growth and international competitiveness continuous. In addition, the investments to be made in research centers with the university-industry cooperation within the regions are very important. Supporting entrepreneurship and commercial sectors in the context of R&D activities can provide a solid boost to regional innovation performance, because the entrepreneurial factor plays a key role in the innovation process. In other words, entrepreneurship will have a direct impact on enhancing regional innovation performance. In this case, goods and services with high added values can be produced and branding can be provided within economic sectors. Additionally, the reason for the culture, from the sub-variables, to be higher is the components. In this context, healthier results can be obtained in the calculation of innovation index if different components of culture sub-variable can be created (i.e. social capital and confidence index).

5. CONCLUSION

In the era of the information economy, countries and regions have adopted the innovation approach for the economic growth. This approach is based on the production processes that are differentiated within the capitalist economic system, the infinite needs of consumer societies, and the needs of innovation in production processes. In this context, it is important to evaluate the relations among many economic, social and humanitarian structural factors, which operate within the innovation approach. The prerequisite for Turkey's achieving sustainable economic growth is the development of regional innovation policies. In this study, 15 sub-variables in the regional innovation system and a total of 68 components belonging to these variables were analyzed in the context of Turkish NUTS Level 1 with a certain innovation input-output table. In this framework, this input-output model, which influenced regional innovation and economic growth, was examined by using normalization method. In this case, institutions and organizations need to prepare plans according to their regional characteristics in order to produce high value added goods and services in economic sectors and to provide branding. In this direction, measurement of performance between sub-variables of human resources, research systems, investments-loans-supports, population, energy, information communication technologies, health, transportation, culture, entrepreneurship, trade-financial intermediaries, innovations, economic and scientific outputs and social prosperity in the regional innovation system carries importance for the regions. This is because of the fact that the sub-variables are important competition factors in both economic growth and the innovation system. These factors, which affect the national and regional competitive superiority, also affect the economic growth in a positive way with the rapid development of the technology. In addition, when the population living in the regions believes that innovation is an indispensable element in terms of economic growth and turning it into a culture will positively affect the regional innovation.

REFERENCES

- Aydın, Cüneyt (2012). "MATLAB Lecture Notes"
http://www.yildiz.edu.tr/~caydin/publications_dosyalar/Matlab_basic.pdf, Date Of Access: 17.04.2014.
- Cappelin, Riccardo and Wink, Rüdiger (2009). "International Knowledge and Innovation Network" (1th Edition). Cheltenham, UK: Edward Elgar Publishing Limited, pp: 107-111.
- Çakır, Serhat (2012). "Compound R & D and innovation Indicators".<http://ocw.metu.edu.tr/course/view.php?id=186&lang=tr>, Date Of Access: 23.03.2017.
- Gömlüksiz, Mustafa (2012). "Regional Innovation Systems and Turkey: Region of Level 2 Innovation Index", Master's Thesis, Selcuk University Institute Of Social Sciences, Konya, pp: 80-110.
- Hu, M-Chih and John A. Mathews (2005). "National Innovative Capacity in East Asia. MGSM Working Papers In Management Research Policy, 34, pp: 1-58.

- Huggins, Robert (2003). "Creating a UK Competitiveness Index: Regional and Local Benchmarking". *Regional Studies*, (37), pp: 89-96.
- Jaffe, B. Adam (1989). Real Effects of Academic Research, *The American Economic Review*,79 (5), pp: 957-970.
- Kasza, Artur (2004). " Innovation Networks, Policy Networks, and Regional Development in Transition Economies: A Conceptual Review and Research Perspectives". Paper for EPSNET Conference, 18-19 June 2004, pp: 1-18.
- Lenger, Aykut. (2008). "Regional Innovation Systems and the Role of the State: Institutional Design and State Universities in Turkey". *European Planning Studies*, 16(8), pp: 1101-1120.
- Martin, L. Ronald (2004). "A Study on the Factors of Regional Competitiveness". *Cambridge Econometrics Of University Studies*, 44(5), pp: 2-30.
- Niosi, Jorge (2008). "Teknology, Development and Innovation Systems": An Introduction, *Journal of Development Studies*, 44(5), pp: 613-621.
- Porter, E. Michael and Stern, Scott (2001). " National Innovative Capacity. The Global Competitiveness Report" New York: Oxford University Press pp: 1-17.
- Schumpeter, A. Joseph (1939). "Business Cycles: A Theoretical, Historical and Statistical Analysis of the Capitalist Process". New York: McGraw-Hill Book Company, pp: 84-100
- TDK (Turkish Linguistic Society). (2011). "Glossary Of Economic Terms" Ankara: Publishing House Of The Turkish Language Association, pp: 345-350.
- Wang, J. Jiang, Jing, Y.You, Zhang, F. Chun and Zhao, H. Jun (2009). " Review On Multi-Criteria Decision Analysis Aid In Sustainable Energy Decision-Making", *Renewable and Sustainable Energy Reviews*, (13), pp: 2263–2278.



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COMPETITION POLICY AND ITS IMPORTANCE FOR THE ECONOMY

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ABSTRACT

The article analyzes and discusses topics such as competition and its importance for markets. Competition is a cornerstone of our economic and social order. The fact that competition leads to the best overall economic results is now undisputed in most economies around the world. Effective competition encourages businesses to push forward. They must make an effort to win customers. As a consequence, consumers can benefit directly from better quality at lower prices. Competition Agencies increased the effectiveness of their cartel prosecution efforts, for example by establishing specialized anti-cartel divisions, revising their leniency programme and launching anonymous whistle-blowing system. High-level fines can only give a deterrent effect if the cartel members have reason to expect that their cartel activities will be uncovered. The leniency programme as one of the sources available for uncovering anti-competitive agreements this also has a strong deterrent effect. Cartel members must expect at all time that one of them might have reported the illegal agreements to the competition authorities. The prosecution of illegal hardcore cartels¹ is of key relevance for effective competition protection and, as such, has a direct positive effect in the economy and consumers. Cartels cause great harm to the economy because they lead to higher prices, lower product quality and less innovation. This harm can only be prevented if cartels are effectively prosecuted. Also, anti-competitive agreements lead to excessive prices coupled with inferior product quality. At the same time the elimination of competition undermines the innovative power of businesses. Cartels thus hurt the economy as a whole and the consumer in particular. The motivation to study competition policy and its importance for economy is step to introduce more economic possibilities and partnerships in our developing world.

Keywords: Competition policy, economic order, social order

JEL Codes: D83, N75

1. INTRODUCTION

Competition puts businesses under constant pressure to offer the best possible range of goods at the best possible prices, because if they don't, consumers have the choice to buy elsewhere. In a free market², business should be a competitive game with consumers as the beneficiaries. Many developing countries now prioritize growth in their national poverty reduction strategies. Because effective competition is a driver of productivity, competition policy should be an essential component of any pro-poor growth strategy. Crucially, competition facilitates greater equality of opportunity by breaking down the barriers to fair competition that often help to protect incumbent elites. Competition policy is about applying rules to make sure businesses and companies compete fairly with each other. This encourages enterprise and efficiency, creates a wider choice for consumers and helps reduce prices and improve quality.

¹ Cartels-price, quota, customer allocation and territorial agreements.

² free market is a system in which the prices for goods and services are determined by the open market and consumers, in which the laws and forces of supply and demand are free from any intervention by a government, price-setting monopoly, or other authority. Another view considers systems with significant market power, inequality of bargaining power, or information asymmetry to be less than free.

Low prices for all: the simplest way for a company to gain a high market share is to offer a better price. In a competitive market, prices are pushed down. Not only is this good for consumers - when more people can afford to buy products, it encourages businesses to produce and boosts the economy in general. Better quality: Competition also encourages businesses to improve the quality of goods and services they sell – to attract more customers and expand market share. Quality can mean various things: products that last longer or work better, better after-sales or technical support or friendlier and better service. More choice: In a competitive market, businesses will try to make their products different from the rest. This results in greater choice – so consumers can select the product that offers the right balance between price and quality. Innovation: To deliver this choice, and produce better products, businesses need to be innovative – in their product concepts, design, production techniques, services etc. Better competitors in global markets: Competition within the EU helps make European companies stronger outside the EU too – and able to hold their own against global competitors.

The main aims of competition policy are to promote competition; make markets work better and contribute towards improved efficiency in individual markets and enhanced competitiveness. Competition policy aims to ensure:

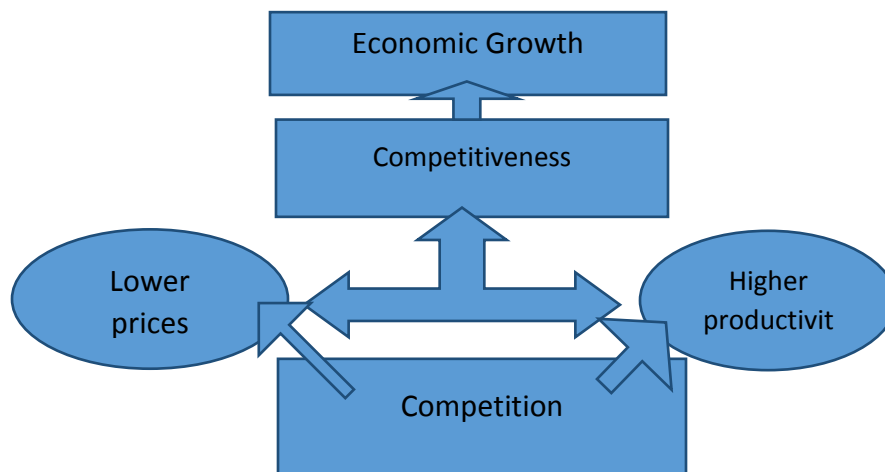
- Technological innovation which promotes dynamic efficiency in different markets
- Effective price competition between suppliers
- Safeguard and promote the interests of consumers through increased choice and lower price levels

There are four key pillars of competition policy in the European Union:

1. Antitrust & cartels: This involves the elimination of agreements that restrict competition including price-fixing and other abuses by firms who hold a dominant market position (defined as having a market share in excess of forty per cent)
2. Market liberalisation: Liberalisation involves introducing competition in previously monopolistic sectors such as energy supply, retail banking, postal services, mobile telecommunications and air transport
3. State aid control: Competition policy analyses state aid measures such as airline subsidies to ensure that such measures do not distort the level of competition in the Single Market
4. Merger control: This involves the investigation of mergers and take-overs between firms (e.g. a merger between two large groups which would result in their dominating the market)

2. COMPETITION SUPPORTS ECONOMIC GROWTH

Competition supports international competitiveness in two ways. The first and most visible effect is by keeping domestic prices down and by providing a greater choice and quality of goods and services. This means that companies can keep their costs down and produce cheaper, better products that can be more easily exported. Competition also drives productivity growth as firms continually strive to improve processes, reduce costs and produce products better suited to evolving consumer needs.



To increase productivity, that is, to get more output from a given level of inputs, a business must become more efficient. It must also innovate and develop new and highly sought after products that consumers want. Productivity is a measure of the level of value a business gets from its inputs. Where competition is strong, productivity is strong. If companies operating in competitive markets do not improve their productivity performance they will lose customers. Competition is the critical driver of performance and innovation. It benefits everyone by enabling us to choose from an array of excellent products at affordable prices. Competition also encourages the adoption of innovation as companies evolve and new ideas flourish in the marketplace. Competition is very important for developing and small countries, as Georgia³.

3. ABOUT THE LENIENCY POLICY

In cases of anti-competitive agreements (in contrast to most offences such as theft, criminal damage to property or bodily injury, it is not only unclear who committed an infringement. Even the fact that an infringement has taken place is initially unknown. Illegal cartel agreements are conducted in secret. There is a high level of conspiracy: The cartel members rarely produce written documents and try to hide possible evidence or destroy evidence at an early stage. In the eyes of outside observers the result of anti-competitive agreements, for example excessive prices, could have many other causes. As a consequence, it is usually a big challenge for competition authorities to discover an infringement at all, let alone secure sufficient evidence to prove the illegal cartel agreement and impose a fine. After all, the administrative order imposing the fine needs to withstand judicial review. In order to effectively combat cartels it is often necessary to uncover cartel agreements with the help of an insider. It is therefore essential to induce cartel members to cooperate with the competition authority. The leniency programme is applicable to all participants in a cartel, natural persons as well as companies. It clearly distinguishes between immunity from and reduction of a fine. Only the first applicant will be granted immunity from a fine, later applications can only lead to reductions of a fine of up to 50%: The first applicant to disclose information and evidence giving rise to the initial suspicion of a hardcore cartel will be automatically granted immunity from a fine. This provision only applies if the applicant cooperates fully and on a continuous basis with the agency, and was neither the only ringleader of the cartel nor coerced others to participate in it. If the first applicant only comes forward after the agency has already formed an initial suspicion, he/she will have to do more to be granted immunity.

All other applicants who cannot be granted immunity can have their fines reduced by a maximum of 50%, provided they cooperate fully and continuously with the agency. The amount of the reduction granted depends on the value of the cooperation and the order of precedence of the application in the leniency queue. The leniency programme is only applicable in cases of horizontal agreements and coordination between competitors. For other infringements of competition law, for example violation of the prohibition of vertical price fixing, the cooperation provided by applicants can, however, also be taken into account as a mitigating factor in the calculation of the fines. One objective of the leniency programme is to make it as easy as possible for cartel members to cooperate with the agencies. An application can therefore also be filed verbally and/or in English. The applicants' position in the leniency queue is decisive for their immunity from fines or the amount of reduction of their fines. However, cartel members often do not have immediately available the extensive information required for a leniency application. With its 'marker' system the leniency programme offers the possibility to secure a position in the queue for a certain amount of time. Applicants declare their willingness to cooperate with the agency and indicate the type and duration of the infringement, the product and geographic markets affected as well as the identity of the cartel members. In addition, a marker application must state at which other competition authorities applications have been or will be filed. The applicant then receives a confirmation of receipt and has a maximum of 8 weeks to draft a complete leniency application. If the application is filed within this period, the position in the leniency queue is safeguarded and other leniency applications filed in the meantime move down in the queue.

4. THE ROLE OF A COMPETITION AGENCY

Competition contributes to growth in many ways. For example: there is evidence that it reduces inflation rates, both at the sectoral and aggregate level⁴. And it is a defence against the entrenchment of vested interests and protectionism, opening up markets to new entrants and increasing the attractiveness of a country as a recipient of foreign direct investment. The role of competition in driving economic growth is especially important in the current economic climate. With macroeconomic tools likely to prove insufficient, and their use restricted by the need for fiscal consolidation, microeconomic instruments (such as the

³ is a country in the Caucasus region of Eurasia. Located at the crossroads of Western Asia and Eastern Europe

⁴ European Central Bank (2005), Does Product Market Competition Reduce Inflation? shows a robust and significant negative link between competition and inflation, both at the aggregate and sectoral levels.

removal of unnecessary regulatory burdens and the protection and promotion of competition) become all the more important. This is a message echoed by many commentators, including those from outside the competition regime. To fulfil its potential to contribute to economic growth. An effective competition policy needs to address both public and private restrictions on competition. The restrictions on competition that can result from the actions of private agents – for example the creation of price-fixing cartels or abuse of market power by dominant firms – and the impact that they can have on efficiency and innovation are well known.

But it is also essential to recognise that governments can also have an adverse impact on competition, and as a result, the growth of a particular public sector. This can occur through overt actions, such as exempting certain sectors from the application of competition laws or granting subsidies to industries or individual players. It can also occur through more subtle forms of market intervention (for instance, by introducing regulations that, while aiming to achieve public policy objectives, provide an advantage to incumbents). That is not to say that governments do not have a role to play in markets – in many cases, the role of government is a legitimate and necessary one – as markets cannot exist without a framework of rules. Markets, left to their own devices, can also fail because of market power, information asymmetries or externalities.

However, government interventions can have unforeseen, yet significant consequences. As such, the full cost of intervention needs to be carefully assessed before deciding whether, how much, and how to intervene – especially as over-intervention, not under-intervention is usually the bigger risk. In this respect, competition agencies have an important role to play in the sometimes difficult task of helping policymakers consider all costs and benefits of a market intervention. This is essential for a number of reasons. First, there might be a bias in evidence. The benefits of government interventions might be easier to see than the cost of lost competition, especially as much of the evidence is likely to come from interest groups (which have the most to lose) and might be weighed in a certain direction.

Second, governments need to factor in (but frequently overlook) the benefits of dynamic efficiency, and the risks derived from preserving business models that are unsustainable, while blocking innovation and new entrants to the market. These benefits, while potentially significant, can be difficult to assess or rely on in advance and may take years to materialise.

5. CONCLUSION

In conclusion, competition policy plays a key role in fostering dynamic markets and in stimulating economic growth. The international competitiveness of industries depends on access to inexpensive inputs, improvements in efficiency and productivity and innovation, all of which competition promotes. Competition is central to the operation of markets, and fosters innovation, productivity and growth, all of which create wealth and reduce poverty. However, markets do not always work well, and uncompetitive markets are often those that matter most for the poor. This paper outlines the direct and indirect, and often complex, linkages between competition and competition policy. The existence and importance of these linkages is still not sufficiently recognised in the developing world.

REFERENCES

OECD, Guide for helping competition authorities assess the expected impact of their activities, April 2014 (available at: www.oecd.org/competition/guide-impact-assessment-competition-activities.htm)

The ECN Leniency Programme is available here: http://ec.europa.eu/competition/ecn/mlp_revised_2012_en.pdf
<https://www.westeastinstitute.com/wp-content/uploads/2016/12/Giorgi-Benashvili-Nika-Asanidze.pdf>

Connor, John M., Global Price Fixing, Berlin 2008, p. 338.

Cf. Council Regulation (EC) No 1/2003 of 16 December 2002 on the implementation of the rules on competition laid down in Articles 81 and 82 of the Treaty, Official Journal L 1/1 of 4 January 2003.

Competition and growth: how can government policy help? - <http://www.offt.gov.uk/news-and-updates/speeches/2011/1511>

Laitenberger, Ulrich and Smuda, Florian (2015): Estimating Consumer Damages in Cartel Cases, Journal of Competition Law & Economics 11 (4), 955–973.

Nickell (1996), 'Competition and Corporate Performance', Journal of Political Economy

OECD (2007a), 'Competition Assessment Toolkit', www.oecd.org/dataoecd/15/59/39679833.pdf



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E-HEALTH APPLICATIONS in TURKEY

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ABSTRACT

Today's states are living the stage of information society after agriculture and industrial society level. The concepts such as speed, quality, efficiency and productivity have gained importance in the information society. The most important competitive tool in the information society is the acquisition of information and sharing among the institutions. The most important contribution of the information society to public administration reforms is the e-government, which provides advantages in terms of time and labour costs. E-government practices strengthen communication between citizens and administrative institutions. E-government is accelerating mutual communication between public institutions and increases communication possibilities. It makes public administrators accountable directly to the public. It prevents administrative corruption. It increases citizen participation in administrative processes and political practices in a democratic manner. The e-health, which refers to the e-government's practices in the health sector, ensures that the services provided to all stakeholders are delivered quickly and easily in the field of health. Turkey is still in its first phase in e-health applications. Since the announcement of the health transformation program in 2003, many e-health projects have been developed and put into practice. This study aims to explain the concepts of information society and e-government, to examine and evaluate the e-health applications in Turkey. From a methodological point of view, the study discusses the e-health projects in Turkey in a methodological way starting from the literature on e-government theory. It demonstrates the contribution of e-health projects in Turkey's e-transformation process.

Keywords: Information Society, Information Technology, e-government, e-health, Turkey.

JEL Codes: JI10, JI18.

1. INTRODUCTION

The most important agenda item in public administration reforms since the 1990s is the effectiveness of the state. The effectiveness of the state necessitates an increase in administrative performance. Administrative performance is directly related to the use of scarce resources allocated to public services. Qualified presentation of public services will reduce public expenses. With a decrease in public expenditure, the state will invest more in the public sector and economic rationality will be provided in resource use. When public services are offered equally to the citizens, the satisfaction of the citizens is of great importance. Meeting the expectations and demands of the citizens affects the level of trust in the state. In this context, information and communication technologies are being utilized by the government to implement fast, efficiency, effectiveness and low cost public policies. These technologies eliminate the differences between time and space.

E-government is one of the administrative reform instruments aimed at increasing citizen satisfaction in public services. With e-government applications bureaucratic procedures can be done easily and cheaper. One of the most important indicators of the information society is the increase in the use of information and communication technologies. With e-government policies, any public service can be offered to the citizen in an electronic form. Health services are public services that citizens use mostly as a semi-public service. The effective presentation of health services is a requirement of becoming a social state in the constitutional framework. In this regard, e-health applications are being spread so that public institutions can exchange

information among themselves and between institutions; make it easier for health personnel and citizens to access information about the health sector, and process and store national health data records for citizens. E-health applications aim to provide modern and quality health services based on knowledge and information systems. In this study, informatics politics in Turkey in the field of health services are considered from a theoretical point of view based on the literature reviews.

In the study, the concepts of information society and e-government are mentioned first. In the second part of the study, the policies carried out by the Ministry of Health are explained within the scope of starting e-health applications in Turkey. The Ministry of Health has undertaken a number of projects to provide transforming the information society and has acted as an active political leader in e-health applications. The scope of e-health projects in the study is also revealed. This study aims to analyze the position of Turkey in the field of e-health applications by evaluating the basic qualities of the e-health projects carried out by the Ministry of Health. The widespread use of e-health applications by citizens, apart from the policies of the Ministry of Health at the central level, will increase the chances of success of these projects.

2. INFORMATION SOCIETY and E-GOVERNMENT CONCEPTS

From past to present, humanity history has passed three important stages. These stages were described by Toffler as agricultural, industrial revolution and information revolution. Toffler notes that technical innovations have shaped the world by three waves. The first wave is the agriculture revolution that started in 8000 BC with the invention of primitive agricultural machines and wheat farming. The second wave is the technical developments that started discovering with the steam power in 1650 years and continued with the internal combustion engine and electricity. These technological developments have led to the Industrial Revolution. The beginning of the third wave dates back to the 1950s. In this period, the number of white-collar workers is more than the number of blue-collar workers. The peak point of the development of industrialization and the service sector in the third wave, the information revolution has emerged.

The process of transition from the industrial society to the information society has been accelerated by the development of technology and the use of information in all areas of life. The basic production factor in the economy in the information society is knowledge. The vast majority of people work in sectors based on knowledge. Constantly large amounts of information are produced in each area, and these informations can be easily transmitted with the aid of information technology. People can easily access information without time and space constraints (Güleş and Özata, 2005: 29-30). For this reason, one of the most emphasized points in post-modern management theories is the provision of organizational communication based on healthy information exchange. The best way to differentiate organizations from their competitors is to be able to make use of the information in a perfect way. The way of collecting, managing and using information determines to win and lose in the organizational competition (Gates and Hamingway, 1999: 23).

The organizational use of information technology changes the information processing operations vertically and horizontally. Some researchers have pointed out that information technology has strengthened the central decision-making process in a hierarchical structure upwards and downwards. Others state that information technology recognizes the ability to control the information processing process for lower-level employees effectively and efficiently and decentralizes the decision making process. (Moon, 2014: 8). The features distinguishing information technologies from other technologies are as follows (İzci, 2001: 41; Moon, 2014: 9):

- ✓ **The collection of information:** Information technology helps to provide, store, and protect information. It permits the taking of the printed copy, if necessary, to make corrections or additions. It ensures that every transaction made is recorded. The adoption of information technology by public administration is a tool for improving organizational performance and productivity.
- ✓ **The storage of information:** Information technologies accumulate and store information. It turns the information into numerical units and stores it for use.
- ✓ **The processing of information:** Data entered in the computer is processed into information.
- ✓ **The display of information:** Information technologies transmit and display informations electronically.
- ✓ **The control of bureaucratic transactions:** Information technology enables the determination and correction of deviations in bureaucratic transaction performance. The relationship between information technology and organizational performance focuses highly on internal management functions such as decision making, effective communication, and superior operational performance.

E-government is a term used to emphasize the application of information and communication technologies in administrative systems and processes. New models for policy formation, alternative forms of citizenship, changes in forms of power and partnership, new solutions for economic development are of interest to the e-government. It also adopts alternative approaches to increasing the participation of citizens in political processes. It looks favorably on different models of authority and partnerships. It produces new solutions related to economic development (Asgarkhani, 2005: 468).

The aims of the e-government are as follows (Asgarkhani, 2005: 469):

- ✓ To provide the on-line presentation of public services and the automation of administrative systems.
- ✓ To ensure widespread adoption of network-based technology.
- ✓ Reducing costs by moving administrative processes to internet environments.
- ✓ To prevent corruption in public administration.
- ✓ To encourage economic growth through information-communication technologies.
- ✓ To increase citizen participation to enable political accountability and to improve democracy.

The fact that the citizen and/or customer in e-government have paid more attention to the perceived qualitative value than the cost of a service must be considered in the implementation of services and costs. The e-government increases cooperation among public institutions by reducing public expenditures and attaches great importance to citizen satisfaction. It consists of phases such as increasing of different informations, online support, citizens' support and the foundations of operational facilities (Affisco and Soliman, 2006: 20).

The services offered in e-government practice are (Homburg, 2008: 755-756):

- 1- **Information Services:** These services focus on the disclosure of government regulations, policy reports, other official documents and brochures.
- 2- **Communication Services:** These are concerned with making a complaint to administration or asking questions to civil servants and politicians about the implementation of certain rules and programs.
- 3- **Transaction-Based Services:** It is about digital tax cuts, permits, licenses and subscriptions. It emphasizes the management of specific demands and applications for staff rights and responsibilities, electronic data entries.
- 4- **Participation Services:** It is broader than electronic voting. Electronic forums and virtual communities offer political participating opportunities to citizens, pressure groups and third parties for evaluating policy programmes such as rebuilding a railway, a shopping center, and a political program, the environment regulation.
- 5- **Data Transfer Services:** It enables basic and standard information sharing and exchange between public institutions, public and private sector organizations.

The administrative approach to information technologies in public administration and e-government studies is trying to put various administrative values into life through applications of information technologies. This approach requires information technologies to take the place of human power in organizations (Moon, 2014: 7-8). In services and costs offered through e-government, citizen and/or customer focuses on qualitative value perceived more than cost of the public service (Affisco and Soliman, 2006: 20).

In the public sector, the effectiveness of e-technologies and network-assisted solutions can be influenced by some social and cultural factors (Asgarkhani, 2005: 474):

- ✓ **Information Security:** Technological progress allows public institutions to aggregate and preserve data about individuals and organizations. This, however, can create a problem for the management of information for such institutions.
- ✓ **Impact on Occupations and Workplaces:** Despite technical progress, the idea that computers will take the place of human power is not on the agenda as it used to be. Instead, people are focused on the health risks associated with continuous computer-based working.
- ✓ **Impact on Individual Rights and Private Life:** Companies and administrative agencies collect, store, and make accessible data about individuals and their private lives. Access to such large-scale information may pose a danger, particularly in terms of politically corrupted public institutions.
- ✓ **Potential Impact on Society:** Despite some economic benefits of ICTs on individuals; the gap between computer literacy and those with and without internet access is increasing.

- ✓ **Impact on Social Interaction:** Progress in information-communication technologies and network-based technological solutions have enabled the automation of most administrative functions and the use of information within online environment.

Various methods are used to evaluate the performance of the e-government. From these methods, the transaction costs use the grouping method to calculate the benefits for different groups of users and the service receivers. It is an easy and fast way to estimate cost savings for e-government applications. Net present value is an easy way to measure monetary values and concrete benefits. It is used when the benefits are measurable, where the cash flows are on an individual level. Cost-benefit analysis is a flexible method that measures tangible and abstract benefits and evaluates them according to net total costs. It ensures that the benefits are analyzed in a good way. But it can be expensive and time-consuming. Cost-effectiveness analysis focuses on achieving specific objectives related to marginal costs. It is taken into account marginal benefits for some specific purposes. Document analysis measures the total risk of expected savings on paperwork at an institutional level. Especially making a risk analysis is important in document analysis. Value estimates are used to monitor performance against general policy targets (Foley and Alfonso, 2009: 378).

3. E-HEALTH PRACTICES IN TURKEY

E-health is the use of all the functions of information and communication technologies to improve the health of citizens and patients and to increase access to health care services (T.C. Sağlık Bakanlığı, www.e-saglik.gov.tr, 24.12.2016). E-health applications bring many benefits to health care delivery. For example; health care costs are falling. Efficiency is provided in health service delivery and resource distribution. Communication between health personnel is increasing. Citizens who have difficulty accessing health services, such as living in rural areas or difficulties in transportation, may benefit from health services. Health personnel and citizens can access the information more easily. Thanks to new technologies, the relationship-based approach has become more effective. The relationship-centered approach refers to a more sensitive approach to the needs of patients in accordance with doctors and patients' perspectives. It includes sharing treatment-related situations with patients and their relatives (Williams, et al., 2000: 80). In addition, today's patients have a more active role in the decision-making process to educate themselves about medical issues related to their illness before they come to see their doctors (Diaz, et al. 2002: 180). In this respect, e-health provides the improvement of the quality of the health services by taking the role of internet and similar technologies in the acquisition, transfer and development of the data related to the service. It requires the use of information and communication technologies for the development of local and general health services (Sivil Dayanışma Platformu, sdplatform.com, 22.12.2016). Thus, health services can be provided in the highest quality and fastest manner to big masses. E-health applications are a health presentation system based on knowledge and information systems. The system cares about human life. It seeks new methods in the treatment of diseases. It creates goals for the future. It provides quality service with stakeholders (IT Advisor, itadvisor.com.tr, 22.12.2016).

The basic aims of e-health projects are (T.C. Sağlık Bakanlığı, www.e-saglik.gov.tr, 24.12.2016): Establishment of data analysis support and decision support systems, acceleration of data flow among e-health stakeholders, to increase resource efficiency and productivity, to coordinate e-health initiative processes, to support scientific studies, adoption of e-health concept at national level.

There are five different stages of transition to the e-health system (Tan, 2005):

Level 1: At this stage patient records are still kept on paper in the patient services system. Some of the patient informations were transferred to the computer. Some of the procedures (such as patient registration, appointment, results, etc.) required by health services can be automated. Turkey is still first class.

Level 2: Patient records are digitalized and placed in the document monitoring system. The patient's information is scanned and transferred to the system as an optical image. However, the transfer of information to the system does not provide the opportunity to update and analyse user information to system's users.

Level 3: At this level, medical records serve as a decision-making support tool to user physicians. The records can alert service users.

Level 4: Electronic medical records keep only patient informations. Electronic patient service, as well as patient information records, include informations concerning all patient services and from other public institutions where the patient is connected. It is possible to see the information in the hospital where the patient applied in the past, which treatments were applied, and what kind of results the treatments gave.

Level 5: At this level, information is obtained from a wider audience. The information that will give rise to general conclusions is detected. For example; informations about the eating habits of the individuals, the frequency of using cigarettes and alcohol are collected and reports are made according to the results. At this level, records are kept as welfare services records (Wager and et al., 2009).

The technologies used in health services and related units are evaluated in four categories (Omachonu, 1991: 10):

- ✓ **Technologies in the Field of Diagnosis:** Diagnostic technologies are used for patient measurements and tests applied to the patient.
- ✓ **Technologies Used in Therapeutic Areas:** They are used directly in the treatment of the patients.
- ✓ **Technologies Used in Information System Fields:** It deals with providing, analyzing, storing and using information.
- ✓ **Multipurpose Technologies:** Two or more technologies are represented together.

The main values of e-health concept in the articles published in Medical Internet Research are as follows (Eysenbach, 2001: 20):

1- Efficiency: One of the most important effects of e-health is to increase productivity by lowering wages. The way to reduce wages is to prevent duplicate and useless diagnoses and treatments by improving communication between health care providers and patients.

2- Care for Quality: E-health has the ability to compare health care institutions. Patients prefer organizations that offer better quality public services.

3- To Be Evidence-Based: The validity of e-health initiatives has been proven by intensive scientific researches.

4- Authorization: Patients have access to basic medical informations and personal electronic records via the internet with e-health applications.

5- Encouragement: E-health transforms the health care into a form in which decisions are taken together, which treatment clearly describes.

6- Education: E-health supports the development of health professionals through online databases and consumers' through special preventive informations in health care.

7- Activation: E-health enables healthcare organizations to communicate with each other and exchange information in a common standard.

8- Expanding: E-health enables consumers to easily obtain health services from global service providers.

9- Ethics: E-health brings a new form to the interaction between patient and physician. Online professional practices introduce new problems in ethical issues such as information, privacy and equality.

10-Equality: Making health care more equitable for everyone is one of the main goals of e-health project.

Although health-related e-government practices began in 1991; it is known that integrated academic information systems created in the 1980s in healthcare in the US, one of the forerunners of e-government applications, are used. The ministry of health in Turkey has done a variety of studies for personnel movements, controlling of efficiency of the source, material and financial values over the internet. The document monitoring program was developed by the Ministry of Health Data Processing Center in order to be able to answer the documents in the provinces and to follow the results electronically via the internet and it started to be used in the intranet environment in the central organization of the ministry at the beginning of 2003 (Başbakanlık, 2002: 85). In May 2003, Turkey Health Information System Action Plan was prepared. The e-health studies in the Ministry of Health began in 2004 and were completed in January 2005. The necessary workings for e-health infrastructure in Turkey were made on 09.10.2016. In addition, since the year 2014, the Ministry of Health has set up health data warehouses covering across the country and plans to use the informatics applications through obtained the data from the center and the provinces over the Health Special Network (SB.net). In 2015, the Ministry of Health decided to transition to web-based architecture with applications such as Hospital Information Management Systems and Family Medicine Information Systems with the circular no. 2013/14 "Information and Communication Technologies". Established in 1996 and reorganized in 2011, the General Directorate of Health Information Systems has been brought to a contemporary structure.

Through the technological and administrative changes, the General Directorate of Health Information Systems developed new and effective strategies to implement the e-health transformation program (T.C. Sağlık Bakanlığı, 2013). Within the context of

the Health Transformation Program and the scope of strategic management, the Ministry of Health has prepared the first strategic plan covering 2010-2014 years. Accordingly, the ministry is required to establish mobile health stations that will increase access to health services, to train educated health professionals in the EU standard to improve e-health management, and to support health information systems with facilities, equipment and technology.

In this section, the e-health projects conducted by the Ministry of Health are mentioned.

3.1. Telemedicine

Tele-medicine is the provision of communication technology and the use of information in health care services to the individuals who are away from health service providers. Thus, health workers exchange views with each other. They can share data. They use information systems and communication technologies to conduct health-related researches (Demirel, 2013: 73; Wallace, 1998: 777; Blackwell et al., 1997: 583). The beginnings of tele-medicine applications extend back to the 1960s. First, in 1964, a 180-kilometer closed-circuit television system was established between the Nebraska Institute of Psychiatry in Omaha and the State Mental Hospital in Norfolk. In our country, tele-medicine was first used in health services in the field of radiology and pathology. The project covers the state, education and research hospitals in various parts of Turkey (Işık and Güler, 2010: 2).

The aims of the Tele-Medicine project are (T.C. Sağlık Bakanlığı, www.e-saglik.gov.tr, 24.12.2016):

- 1- All images and informations about the patient are collected in the electronic area for digital and paperless hospital establishment.
- 2- To provide quality and certainty in patient evaluation, to reduce costs.
- 3- Knowledge and experience sharing among physicians.
- 4- Consultation in complex cases.

3.2. Family Medicine Information System

The Family Physician Information System communicates with the Ministry of Health Central Database via the internet and can send the data from the local base to the center. The system allows the communication between the physician and the Ministry of Health and the Provincial Public Health Directorate. With the Family Physician Information System, family physicians can record the health service offered by them in an electronic form. The data sets requested by the Ministry of Health from these recorded data are transmitted directly to the Ministry in the electronic environment (Ministry of Health, 2005: 6). First, this program started to be implemented in Düzce.

3.3. Core Resource Management System

The implementation of the Core Resource Management System began in 1997. The systems were established to record, monitor and plan all the resources of the country's health system. Buildings, tools and equipment, medical devices and materials, financial resources; buildings, facilities, services and human resources belonging to the private sector are recorded in the public health facilities with the system. With the Core Resource Management System, the Ministry of Health is able to follow up and plan the situation of all public personnel. It is a system used to manage, monitor and support resource planning of the Ministry of Health. The system consists of five modules: The Human Resources Management System module enables the monitoring of personnel movements, payroll and accrual procedures to be carried out in the Ministry of Health. With the basic health module, statistical follow-up of diseases and diseases that can be encountered in health institutions are recorded as data and evaluated as statistical data.

With the investment tracking system; The Ministry of Health's investments are being followed. The system includes information such as code, substitution and land registry informations, fire controls and earthquake analysis of all the buildings connected to the Ministry. The material resources management system records all the materials needed. The system is looking for the answer to the questions of which material is used, which institution and organization, and how much it is used. The management system of private health institutions monitors the establishment and personnel movements of private health institutions. It provides all kinds of information and document flows by including these institutions in the health private network (T.C. Sağlık Bakanlığı, www.saglik.gov.tr, 24.12.2016).

3.4. E-Prescription

It is the regulation, correction, observation and transfer to the person or pharmacist of the pharmaceutical prescriptions using information and communication technologies. Under the e-prescription, the physicians transfer the prescription electronically to the pharmacists or persons in electronic environment (eHealth Initiative, 2010). It is possible to store the prescription electronically without the necessity of transferring the prescriptions to the paper environment. E-prescription minimizes human-induced mistakes. It constantly updates and improves the health system. It provides fast and repeatable service. It provides follow-up to the patient and controls unnecessary drug uses (T.C. Sağlık Bakanlığı, www.saglik.gov.tr, 22.12.2016). Considering that 1.5 million prescription papers are used daily in Turkey, it is understood that the system provides a great saving even in terms of paper savings (Demirel, 2013: 88).

3.5 Drug Monitoring System

Drug monitoring system is the adaptation of the follow-up and monitoring system that is applied all over the world to the pharmaceutical sector. Thanks to the electronic product code, it is a system to follow the drugs during the procurement and distribution. The most important purpose of the system is to ensure patient safety. Inputs and outputs are reported and stored in a database with the system since the production or import of drugs. Receiving a report on medicines is important both for ensuring drug safety and for detecting drug deceitfulness (T.C. Sağlık Bakanlığı, itsportal.saglik.gov.tr, 24.12.2016).

3.6. Medula (General Health Insurance)

It is aimed to record all the personnels and the health expenditures as the informatics arm of general health insurance. The general health insurance collects billing information electronically between health institutions. It is an integrated system designed to realize service payments (T.C. Çalışma ve Sosyal Güvenlik Bakanlığı, www.sgk.gov.tr, 24.12.2016).

With the Medula System, the disabilities of health services are prevented. The quality of the provided health services has increased. The health services are now available in a faster format. All information used in the health service is recorded in an electronic database with the Medula System. With the system, applications for monetary receivables of individuals and institutions have been resolved in a timely manner (SGK, 2013: 40).

3.7. Central Hospital Appointment System

The central hospital appointment system has made it easier for all citizens in the country to access health services within the scope of the health transformation program. It is a project developed for public hospitals to provide services more effective and efficient manner. With the project, it has been facilitated to apply health services from anywhere and all kinds of information communication tools. Citizens also can choose physicians according to their wishes. The project was first implemented in pilot regions of Erzurum and Kayseri in 2010. In 2011, this service was spread throughout the country (www.mhrs182.net, 24.12.2016).

3.8. Health-NET

Citizens with e-health portal called Health.NET can learn their own family physician and communicate with him. They also make appointments via the central hospital appointment system. They can see their health records. Health care personnels can also keep up-to-date informations and regulations about their area. They can report data through applications on the portal. They can access health reports and detailed statistics (Kırıcı, 2008). In this respect, Health.NET helps to identify problems and priorities and take measures in the health sector. The sector contributes to the planning of resources, workings and investments, and the assessment of the quality of health services. It collects and processes the data necessary for scientific researches and studies (T.C. Sağlık Bakanlığı, www.e-saglik.gov.tr, 24.12.2016). Health-NET has brought quality and standard to health services. With Health-NET, only the data collected in statistical and printed form have been collected to cover all the health information from the birth to the death of the patient. Electronic health records of citizens have been shared among different health institutions (Yıldız, Ertuna and Uçar, 2009: 108).

3.9. Decision Support System

The decision support system ensures that data in the decision-making process are collected, stored, analyzed and easily accessed. The data obtained are used in the planning of health services, in determining the strategies and in making critical management decisions. The Ministry of Health aims through the system to report the data in applications such as e-health, core resource management system to every level user over decision support system-geographical information system platform. In

this regard, the decision support system aims to support to the users in decision making process. Thus, the system helps to solve semi-structural and non-structural problems (Demirel, 2013: 71).

3.10. One-Order Accounting System

It has been determined that financial and fiscal statements of healthcare providers are different in accounting, business and the Ministry of Health. In this respect, it is necessary to tabulate the financial and fiscal tables in the accountings in a uniform and appropriate standard. For this, it is aimed to process the accounting records and informations with standard software in one-order accounting system (T.C. Sağlık Bakanlığı, www.tdms.saglik.gov.tr, 24.12.2016).

3.11. Ministry of Health Communication Center

Ministry of Health Communication Center has been active in 1.1.2004. The aim of the center is to make interactive management effective with the participation of ministry personnels and citizens. The center contributes to the resolution of problems arising from lack of communication between the public and the administrators. It serves citizens for seven days and 24 hours by phone number 184. Each Provincial Director of Health and the assistants of the director were appointed as the Ministry of Health communication center authority (T.C. Sağlık Bakanlığı, sabim.saglik.gov.tr, 24.12.2016).

3.12. Electronic Transfer System

With the implementation of the central hospital appointment system, it became possible for patients to make appointments to a different hospital over the Health.NET infrastructure. In this context, the information of patients who have made an appointment from a different hospital with electronic transfer system is sent in an electronic environment and transfer of the patient is carried out (T.C. Sağlık Bakanlığı, www.e-saglik.gov.tr, 24.12.2016).

3.13. National Health Data Dictionary

It is a dictionary work that is referenced by the hospital information systems used by the health institutions in Turkey. The dictionary contains hierarchical inter-term relations that are of different data sets. The data dictionary simply provides for the collection, analysis and evaluation of data from health institutions in accordance with established standards. The first version of the National Health Data Dictionary was created in 2007 by the Ministry of Health Data Processing Department (T.C. Sağlık Bakanlığı, www.e-saglik.gov.tr/TR7141/usvs.html, 24.12.2016).

3.14. E-Pulse

It is a personal health record system where all health information is managed and can be accessed from one location to the medical background. Detailed information on all examinations and treatments can be obtained with e-pulse. The examinations are evaluated in terms of service quality. You can comment on the health services you received. All laboratory test results and radiological views are recorded on e-pulse. In the e-pulse application, all data is encrypted and stored. The project has been in operation since 1 March 2015. The system has been used by all family physicians and other health care providers through a common channel. The project provides access to all health informations and documents from everywhere in the most economical way (T.C. Sağlık Bakanlığı, enabiz.gov.tr/Yardim.html/#url13, 24.12.2016).

3.15. The Pension Fund and SSK E-Health Applications

With the supervision project of the pension fund's health expenditures, while pharmacies act on prescription process, they connect to the computer center of the pension fund and perform the data entry from their computers. Thus, it is evident whether the person has the right to benefit from the health service, whether the medicines entered into the system will be paid, or how much will be paid. In addition, patient participation payments and the amount that the pension fund will pay to the pharmacy are reflected on the pharmacy's computer. The tests and treatments made by the health centers are evaluated according to the coding system and the budget implementation order prices and they are taken into computer records on a person basis. Under the Social Insurance Institution (SSK), the infrastructure of the central and provincial insurance units has been renovated and a e-insurance project has been passed down for follow-up of the institution's revenues and expenditures. With the e-insurance project, all the employer informations, accrual and collection accounts in the province can be monitored from the center in Ankara. The affiliated institutions of the Ministry of Health require provision for the SSK members who apply to them. During the provisioning process, it is checked whether the SSK member has the right to receive health services or not. It is called "entitlement" for an SSK insured or a pensioner to qualify for health care. The rights acquisition control web service does this procedure. (Güleş ve Özata, 2005: 159-163).

4. CONCLUSION

The importance of social change in the development of the states is great. The social change process has started with the transition to the agricultural society and continued with the industrial society where production and consumption are important. The transition to information society, which is perceived as the last wave, and information and information technologies have started to be used almost everywhere from education to health. The most important element in the information society is the widespread use of produced knowledge. The prevalence of information increases organizational effectiveness in terms of operational processes. For this purpose, steps such as the collection, storage, processing, display and control of information are important for the development of information technologies. In the public sector, e-government emphasizes the importance of concepts such as speed, time and quality, and argues that information technology produces new solutions for administrative reforms. According to this; in public administration, e-government will reduce costs together with on-line presentation of public services and will prevent bureaucratization. It will provide administrative transparency and accountability by increasing citizen participation in administrative and political processes. It is expected that e-government applications will be useful in services based on information, communication, participation, data transfer services and transactions. With the use of e-government applications in the health sector, all detailed information about patients can be kept within a system. Physicians can access all the information about the patients instantly and make more accurate diagnoses. Technological applications in health services are aimed at reducing costs in the health sector, facilitating operations, creating a competitive environment and providing quality. The internet is one of the most common applications in researching health related informations. Patients can easily access medications, treatments and new applications in the healthcare sector from the internet. It has become possible with information and communication technologies that health information can be accessed from the desired place and at any time. With the use of electronic data entry systems, electronic applications have gained widespread use in the health sector. This situation ensures time and labor costs savings. The correctness of the data, transfer speed, wide accessibility, and interconnection of data elements improve performance on a technical system basis. The records stored in the long term in the electronic environment are important for medical researches, comparative statistics on health, quality studies and national strategic planning goals. E-health applications are expected to increase effectiveness in health care services. These practices give the patient more responsibility. Individuals decide more conscious about own health conditions. In addition, it increases the interaction between the patient and the healthcare provider in health care. Thus, healthcare services are delivered by reducing the number of medical errors and making clinical processes more efficient in accordance with the requirements of the information society.

Although Turkey is in the first stage of transition to the e-health system; Turkey has achieved an important milestone in the last decade, along with a health transformation program. The Ministry of Health, which has carried out many successful projects in the field of e-health, has increased the effects of technological development on health sector by supporting its health policies with information technologies. It has become possible to exchange views between health personnel with tele-medicine. The family medicine information system allows family physicians to record patient informations and, if necessary, transfer these informations to the Ministry of Health.

The core resource management system allows the Ministry of Health to manage, monitor and plan for its own resources. E-prescription practices have reduced red tape and unnecessary bureaucratic processes. The drug monitoring system records the inputs and outputs of drugs. It secures drug safety. The Medula system is provided to store informations from health services in an electronic database.

The central hospital appointment system made it easier for citizens to apply for health services. The Health.NET portal provides quality control of health services and standardization of services offered. The decision support system adopted a user-focused approach and made the decision-making process easier.

The one-order accounting system ensures that accounting entries are recorded in a standardized order, avoiding the fragmentation in financial records in the health field. The electronic transfer system has carried out the transfer of patients from one hospital to another without the need for bureaucratic procedures. The national health data dictionary is an essential resource for hospital information systems. The e-pulse project allows patients to receive detailed information about their examinations and treatments. The pension fund and SSK's e-health applications control health spendings and automatically identify those who qualify for health care. As you can see; The Ministry of Health has demonstrated the importance of information technology in health policies by introducing multi-directional projects in e-transformation process. The widespread use of e-health applications by citizens consciously will further enhance the impacts and successes of information technologies on the health policies.

REFEFERENCES

- Affisco, John F. and Khalid S. Soliman, 2006, "E-government: A Strategic Operations Management Framework for Service Delivery", Business Process Management Journal, Vol.12, Iss.1, pp-13-21.
- Asgarkhani, Mehdi, 2005, "Digital Government and its effectiveness in Public Management Reform: A Local Government Perspective", Vol.7, I. 3, pp.465-487.
- Başbakanlık, 2002, E-Türkiye Girişimi Eylem Planı, Ankara.
- Blackwell Nikki A. M., Graeme J. Kelly and Lee M. Lenton, 1997, "Telemedicine Ophthalmology Consultation in Remote Queensland", The Medical Journal of Australia, 167 (11-12), pp.583-586.
- Demirel, Ahmet, 2013, Sağlık Hizmetleri Yönetiminde Sağlık Bilgi Sistemleri ve Kullanım Modülleri, Beykent Üniversitesi Sosyal Bilimler Enstitüsü Yayınlanmamış Yüksek Lisans Tezi, İstanbul.
- Diaz, Joseph A., Griffith Rebecca A. et. al, 2002, Patient's Use of Internet for Medical Information, Journal Gen Intern Medicine, 17 (3), pp.180-185.
- eHealth Initiative, 2010, The Basics: What is Electronic Prescribing?, [http:// www.ehealthinitiative.org/basics-what-electronic-prescribing.html](http://www.ehealthinitiative.org/basics-what-electronic-prescribing.html), (27.12.2016).
- Eysenbach, G., 2001, "What is e-Health?" Journal Medical Internet Research, 3 (2): e20.
- Foley, Paul and Ximena Alfonso, 2009, "eGovernment and the Transformation Agenda", Public Administration, Vol.87, No.2, pp.371-396.
- Güleş Hasan Kürşat ve Musa Özata, 2005, Sağlık Bilişim Sistemleri, Nobel Yayınevi, Ankara.
- Gates, Bill ve Hamingway C., 1999, Dijital Sinir Sistemiyle Düşünce Hızında Çalışmak, (Çev. Ali Cevat Akkoyunlu), Doğan Kitapçılık, İstanbul.
- Homburg M. F. Vincent, 2008, "Red Tape and Reforms: Trajectories of Technological and Managerial Reforms in Public Administration", 31:7, pp.749-770.
- İzci, F., 2001, Bilişim Teknolojilerinin Kamu Örgütleri Üzerindeki Etkileri ve Sağlık Bakanlığı Örneği, Cumhuriyet Üniversitesi Sosyal Bilimler Enstitüsü, Yayınlanmamış Doktora Tezi, Sivas.
- IT Advisor, <http://itadvisor.com.tr/e-saglik-hizmetleri-hizla-gelisiyor>, (22.12.2016).
- Işık, A. H., Güler İ., 2010, "Teletipta Mobil Uygulama Çalışması ve Mobil İletişim Teknolojilerinin Analizi", Bilişim Teknoloji Dergisi, 3 (1), ss.1-10.
- Kırıcı, S., 2008, "Sağlık-NET Portalı ve Karar Destek Sistemi", www.sagliknet.saglik.gov.tr/giris.htm, (27.12.2016).
- Moon, Jae M., Jooho Lee, Chul-Young Roh, 2014, "The Evolution of Internal IT Applications and e-Government Studies in Public Administration, Research Themes and Methods" Administration&Society, Vol.46 (1), pp.3-36.
- Omachonu, Vincen, K., 1991, Total Quality and Productivity Management in Health Care Organizations, Georgia Industrial Engineering and Management Press.
- SGK, 2013, Genel Sağlık Sigortası Medula Web Servisleri Kullanım Kılavuzu, Ankara.
- Sivil Dayanışma Platformu, sdp.platform.com/Dergi/138/Saglik-bilisimi-ile-SGK-saglikta-tek-aktor-olmaya-dogru-ilerliyor.aspx, (22.12.2016).
- Tan, Joseph, 2005, E-Health Care Information Systems: An Introduction for Students and Professionals, Jossey-Bass, USA.
- T.C. Çalışma ve Sosyal Güvenlik Bakanlığı, Sosyal Güvenlik Kurumu, www.sgk.gov.tr/wps/wcm/connect/6bcc4d2870314d04963ea500ad6a0ea/MedulaSistemi.ppt?MOD=AJPERES, (26.12.2016).
- T.C. Sağlık Bakanlığı, 2005, Aile Hekimliği Uygulamasına Başlarken Yapılması Gereken Hazırlıklar, Ankara.

T.C. Sağlık Bakanlığı, 2013, Sağlık Bilgi Sistemleri Genel Müdürlüğü 2013/14 Sayılı Genelge, Ankara.

T.C. Sağlık Bakanlığı, www.e-saglik.gov.tr/ERadyoloji.aspx; www.saglik.gov.tr/SBWEBUYGULAMA/belge/1-17502/ckys.html, (24.12.2016).

T.C. Sağlık Bakanlığı, www.saglik.net.saglik.gov.tr, (22.12.2016).

T.C. Sağlık Bakanlığı, its.portal.saglik.gov.tr/index.php?run=content&get=14&mp=3,10, (24.12.2016).

T.C. Sağlık Bakanlığı, www.e-saglik.gov.tr/belge/1-33811/sagliknet-hakkında.html; www.tdms.saglik.gov.tr; [sabim.saglik.gov.tr; enabiz.gov.tr/Yardim.html/#url13](http://sabim.saglik.gov.tr/enabiz.gov.tr/Yardim.html/#url13), (24.12.2016).

T.C. Sağlık Bakanlığı, www.e-saglik.gov.tr/TR,7141/usvs.html, (24.12.2016).

Wager, K., Lee, F., Glaser, J., 2009, Health Care Information Systems: A Practical Approach for Health Care Management, 2nd Edition, Jossey-Bass, USA.

Williams C. Geoffrey, Frankel M. Richard, Campbell L. Thomas and Deci L. Edward, 2000, "Research on Relationship Centered Care and Health Care Outcomes from the Rochester Bio psychosocial Program: A Self-Determination Theory Integration", Families, Systems&Health, Vol.18, No.1, pp.79-90.

Wallace, Gordon, 2001, "Information Technology and Telemedicine", CMAJ: Canadian Medical Association Journal, 165 (6), pp.777-779.

www.mhrs182.net, (24.12.2016).

Yıldız İ., Ertuna E., Uçar E., 2009, "Sağlık-NET ve Harran Üniversitesi Uygulamaları", 9. Akademik Bilişim Konferansı Bildirileri, Şanlıurfa, ss.107-110.