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## DETERMINANTS OF REINSURANCE COSTS FOR TURKISH NON-LIFE INSURANCE COMPANIES\*

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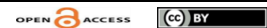
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### ABSTRACT

**Purpose-** Reinsurance is one of the most common practices in the insurance sector, however, it is not free of charge. The insurance companies have to bear some costs to assure the reinsurers for sharing the risks of potential losses. The objective of this article is to explore the firm-level factors that may affect the cost of reinsurance to an insurance company. In order to achieve the objective, the relationship between reinsurance cost and financial and technical ratios, which are good monitoring tools for insurance companies, has been analyzed.

**Methodology-** The relationship between reinsurance cost and financial and technical ratios has been analyzed using panel data analyses. The data was obtained from the official website of the Insurance Association of Türkiye (IAT). The data set include variables for 26 non-life companies for the period of 2009 - 2021. Two separate models have been developed; one model with financial ratios and the second model with technical ratios. The analyses are also repeated by uncovering the COVID-19 period and the 2018 currency crisis.

**Findings-** The findings of the study revealed that the financial ratios, namely return on assets and debt ratio; technical ratio as retention ratio all have a negative significant effect on reinsurance cost. That is the higher the profit, debt level, and retention ratio, the more reluctant the insurance companies are to bear insurance costs and carry most of the risks. Such variables have a negative effect on reinsurance costs with a higher significance level, even after uncovering the recent COVID-19 pandemic and 2018 currency crisis periods. When COVID-19 and 2018 currency crisis periods are excluded from the data set, Net Combined Ratio becomes an additional significant factor affecting the reinsurance costs.

**Conclusion-** As long as there is an insurance sector, there must be a reinsurance sector alongside. Companies from both sectors need to go hand in hand in order to eliminate the possible future severe damages in case of fire, flood, or earthquake. However, reinsuring an insurance contract would generate costs like every transaction in this economic system. The findings indicate that determinants of reinsurance cost are as follow; return on asset, debt ratio, and retention ratio. This result would help management teams of insurance companies foresee the cost of reinsurance when they monitor closely the ratios. In other words, the management team of an insurance company could control and handle the condition of reinsurance contracts that generate cost.

**Keywords:** Reinsurance cost, insurance, firm performance, panel data analysis, ratio analysis.

**JEL Codes:** G22, L25, C23

## 1. INTRODUCTION

People face uncertainty and risks throughout their lives. Uncertainties and risks can cause losses unexpectedly. Thus, personal savings are subject to losses and future living standards may be endangered. Throughout history, to prevent or compensate for such future material losses, some charitable foundations or entrepreneurs have started to cover the damages of the others by establishing similar institutions, like insurance companies, with their current meaning. However, the insufficiency of these unorganized activities and the increasing demand from individuals or corporates for protection against risks have led to the emergence of the insurance sector.

The emergence of the insurance sector has caused the damages to be met from the funds created by the insurance companies. The insurance activity had started with the focus on activities of marine transportation and continues to develop

\* This article is adopted from master's thesis by Burak Alan at Marmara University in the Finance and Accounting MS Program under the supervision of Professor Emin Avci.

with insurance in all other branches (Morris, 2018). The insurance sector has gained a prominent place in social life, both in terms of enabling safe investment and trade, as well as the benefits and externalities that provides in terms of funding function in financial markets.

Although insurance corporations are established to cover the potential losses incurred by insured parties, they also need additional insurance to ensure their ability to meet possible claims. Thus, insurance companies also insure their potential risks, which gives a raise to reinsurance.

The insurance itself and re-insurance of course are not free of charge. While the insured need to pay premiums to the insurance company, the insurance company also bare some costs to assure the re-insurer company shares the risks of potential losses. While the amount of premiums paid by the insured is related to the level of exposure, the cost of reinsurance may be related to several other factors including the nature of risks to be shared, and the financial and technical position of the insurance company.

It is aimed this article to explore the firm-level factors that may affect the cost of reinsurance to the insurance company. In this study, the relationship between reinsurance cost and the financial and technical position of the insurance companies has been examined for 26 non-life insurance companies in the period 2009-2021 (13 years). The findings of the panel data analyses revealed that Return on Asset and Debt Ratio on the financial side and the Retention Ratio on the technical side are the factors affecting the cost of reinsurance.

The literature investigating the relationship between the cost of reinsurance with financial and technical ratios has been examined and summarized in the second section of the study, including the effects of the COVID-19 pandemic on the insurance sector. In the third section, the methodology and data utilized are introduced. In the fourth section, the empirical findings are presented. The study is completed with the conclusion section where the empirical analysis results are evaluated.

## **2. LITERATURE REVIEW**

The insurance companies are trying to achieve a balance between the amount of capital invested and reinsurance purchased because such balance affects the capital requirements (Altuntas et al., 2018). In this manner, the demand for reinsurance is a capital structure problem (Cummins et al., 2021). While the capital structure preferences affect the demand for reinsurance, the demand for reinsurance affects the cost of reinsurance that is born by the insurance company.

Existing literature analyzed several factors that may affect the demand for insurance including the general economic factors and firm-level factors. Firm-level factors are mostly examined in terms of financial and technical ratios or the position of the insurance sector.

Among studies, which examine the insurance companies' financial position and the reinsurance, Lee and Lee (2012), Mayers and Smith (1990), Cole and McCullough (2006), and Adams et al. (2008) document that insurance companies with higher ROA tend to have fewer reinsurance contacts, resulting in less reinsurance cost. Furthermore, Berger et al. (1992) present evidence that insurance company performance is positively connected to the proportion of liquid assets; implying that liquid insurance businesses with sufficient liquidity reinsure less (Chen & Wong, 2004). Hence, Lee and Urritia (1996) and Lee and Lee (2012) also find a negative and highly significant relationship between liquidity and reinsurance. Moreover, from the reinsurer perspective, Cole and McCullough (2006) suggest that liquidity in the reinsurer part could be evidence of excess cash circulation, which leads to giving more reinsurance supply.

While most of the studies discover similar relation between insurer performance and reinsurance, the evidence about the relationship between financial leverage and demand for reinsurance is mixed. According to Garven and Tennant (2003) and Hoyt and Khang (2000), reinsurance financing is essentially a replacement for insurers' equity, and there is a strong positive association between leverage and reinsurance. Carneiro and Sherris (2005) also discovered substantial evidence of a positive link between financial leverage and reinsurance demand. While Lee and Lee (2012) and Aunon-Nerin and Ehling (2008) find no substantial influence on reinsurance costs, Zou et al. (2003) discover a strong negative link.

From the technical point of view of the insurance companies, huge casualties will reduce the total reinsurance availability and raise reinsurance rates. Reinsurance enhances cash flow predictability and reduces profit fluctuations (Weiss & Chung, 2004). Cole and McCullough (2006) and Cummins et al. (2021) found a negative relationship between reinsurance cost and reinsurance demand. On the contrary, Hoerger et al. (1990) show the existence of a positive relationship, stating that increase in reinsurance price, thus cost, will result in a decrease in reinsurance demand. On the other hand, Lee and Lee (2012) found no significant relation.

Lee and Lee (2012) discovered a substantial positive relationship between reinsurance cost and underwriting risk, implying that insurers with higher underwriting risk are more likely to buy more reinsurance. In the same vein, Winter (1991), Doherty and Garven (1993), and Browne and Hoyt (1995) found a highly positive significant relationship between the combined ratio and insolvency rate, which leads increase in the need for reinsurance, thus reinsurance cost. Cole and McCullough (2006) found that the combined ratio is negatively correlated to the price, thus increasing the demand for reinsurance contracts. It is expected for insurers to move toward the reinsurance market at a lower price.

As mentioned by Altuntas et al. (2018), several factors other than firm-level factors are affecting the demand for reinsurance; the recent COVID-19 pandemic is one example of those factors. The COVID-19 pandemic has certain consequences on real-life as well as on economic activities such as supply chain disruptions, business close-downs, decrease in job creation, and increases in the unemployment rate. Although the economic effects of the pandemic are evident for all countries and sectors, such effects may not be disruptive for all, while some sectors turn pandemics into an opportunity, some sectors come to the point of bankruptcy.

Considering the impact of the pandemic on the insurance industry from two different perspectives, Babuna et al. (2020) state that with the effect of the pandemic, people around the world started to see the insurance industry and governments as a ray of hope, however, some insurance companies weakened financially because the rapid increase in the number of cases was higher than the number of recoveries. Stojkoski et al. (2021) find an aggravating effect of COVID-19 on the insurance sector for the Republic of North Macedonia; Parvathi and Lalitha (2021) and Kaur and Singh (2022) for India; Shevchuk et al. (2020) for Ukraine; Vojinović et al. (2022) for Serbia; Puławska (2021) and Cristea et al. (2021) for EU countries; Ikhwan and Rusydiana (2022) for Indonesia; Worku and Mersha (2020) for Ethiopia; Haque et al. (2021) for Bangladesh; Wang et al. (2020) for China; Babuna et al. (2020) for Ghana. On the other hand, Yıldız (2021) found a positive impact of COVID-19 on Turkey's insurance sector in terms of total written premium. In addition to that Atukalp (2021) found that after COVID-19, the health insurance increased since the number of coverages increased.

### **3. DATA AND METHODOLOGY**

This section describes the data and methodology used in this study to examine the firm-level financial and technical factors affecting the cost of reinsurance.

#### **3.1. Data**

This study employs a balanced sample of the yearly panel data of the Turkish insurance companies. The sample consists of a balanced panel data set from 26 non-life insurance companies from 2009 through 2021 (13 years). These 26 companies are taken as a sample, because of their persistence to exist in the insurance sector, continuously. In addition to that, these 26 companies represent 93.23% of the whole sector in terms of gross premium written throughout 13 years. All data were extracted from the publicly open database given on the official website of the Insurance Association of Türkiye (IAT). Table 1 presents dependent, independent, and control variables with their descriptions.

The reinsurance cost (REC) is not just the price paid up to the reinsurance company. All reinsurance-related items, ranging from premiums to commissions, are summed up to reach the figure of the reinsurance cost of a company. Reinsurance costs may be negative or positive. As a technical term, the share of risk that the main insurer transfers to another insurer (reinsurer) is referred to as "reinsurance ceded" in the insurance business. When ceding premium would be a cost to an insurance company, ceding claims (either paid, outstanding, or CF outstanding) is taken as revenue. Table 1 presents the accounts listed that are used to calculate reinsurance cost, which is used as a dependent variable in empirical analysis.

Possible relation between firm-level financial factors and reinsurance has been examined in the literature section above. Following the literature, among the alternative firm-level, financial factors Return on Assets (ROA), Liquid Asset Ratio (LIQ), and Debt Ratio (DEB) are taken as independent variables. The insurance companies with higher ROA generally favor not making more reinsurance agreements because they are profitable and able to pay the coverage whenever the claims happen. Therefore, an increase in ROA, decreases the number of reinsurance agreements, thus reinsurance costs.

The liquidity ratio is an important sign of the soundness of the company or solvency. The insurance company with more liquid assets would be less likely to be open to the risks of possible claims shortly. Thus, if the company is liquid enough, that means the company would need fewer contracts of reinsurance than non-liquid companies would. If an insurance company has an abundance of liquid money, then its reinsurance cost will decrease because of no-demand reinsurance contracts. It is expected to have a negative relationship between being liquid and reinsurance costs.

If a company's total debt is increasing, while keeping other things constant, then the company's debt ratio is increasing. Because the probability of default for a company with more debt is higher than for a debt-free company, a high leverage ratio

(known as debt ratio) can even cause bankruptcy. So, the company needs to buy an extra cushion for the unwanted consequences of high debt. This cushion could be a reinsurance contract with another risk-bearer, which is a reinsurer. Reinsurance contracts make reinsurers share the burden of the claims from insured parties given a fixed amount of capital. Therefore, it is expected that reinsurance costs will be increasing when a company has high financial leverage. On the other hand, there is another side of the coin. If a company is facing financial constraints and has high financial leverage, it would not want to have any more costs than it already has. Thus, a company with high leverage would not make a reinsurance contract to avoid an extra cost. Thus, the relation between the leverage and the cost of reinsurance can also be negative.

**Table 1: List of Variables**

<b>Dependent Variable</b>	<b>Description</b>
REC - Reinsurance Cost	<p>Illustrates the cost of reinsurance for insurance companies that are calculated as the sum of all the reinsurance-related items such as premiums, claims, expenses, or reserves. The accounts used to calculate REC include:</p> <ol style="list-style-type: none"> <li>1. Ceded Premiums</li> <li>2. Ceded Unearned Premium Reserve (UPR), and Carried Forward (CF) UPR</li> <li>3. Ceded Unexpired Risk Reserve (URR) and CF URR</li> <li>4. Ceded Claims (Paid, Outstanding, CF Outstanding)</li> <li>5. Ceded Discount and CF Discount</li> <li>6. Received and Paid Commissions</li> <li>7. Ceded Technical Income or Expense</li> <li>8. Ceded Recoveries and Salvage and Their Receivables</li> <li>9. Ceded Mathematical Reserves and CF Mathematical Reserves</li> <li>10. Ceded Equalization Reserve</li> <li>11. Ceded Financial Risk Reserves</li> <li>12. Ceded Other Technical Reserves</li> </ol>
<b>Independent Variables</b>	
<b>Financial Ratios</b>	
ROA – Return on Assets	It indicates how a company efficiently and effectively uses its assets to generate income.
LIQ – Liquid Asset Ratio	It shows the proportion of liquid assets out of total assets.
DEB – Debt Ratio	It estimates how easily an organization could pay its debts using its profit.
<b>Technical Ratios</b>	
RET – Retention Ratio	It measures how much of the risk is carried by an insurer rather than passed on to reinsurers in terms of premiums.
REP - Reinsurance Price	It is calculated as dividing ceded premium minus received commissions (from reinsurers) by reinsurance share of claims.
COR – Net Combined Ratio	It gives a comprehensible, overall analysis in terms of profitability. More than 100% is non-advantageous.
<b>Control Variables</b>	
LEQ - Equity Capital	It is the natural logarithmic equivalent of a company's equity.
LBC - Line-of-Business Concentration	It is calculated by finding every company's part of the Herfindahl-Hirschman index.

Possible relation between firm-level technical factors and reinsurance has also been examined in the literature section above. Following the literature Retention Ratio (RET), Reinsurance Price (REP), and Net Combined Ratio (COR) are taken as independent variables for representing technical factors. The more the insurance company cedes its premiums, the more reinsurance cost increases. If this RET is low, that means the principal subsistence of the insurance company, premiums, mostly goes to the reinsurer. In the case of poorly made reinsurance contracts or risk-averse companies, the income will be turned out to be low because of the low retention rate. On the contrary, the insurance company would choose not to make a reinsurance contract, bringing a 100% retention rate as an extreme example. In this case, the insurance company takes all the risks on them and cancels out the reinsurance cost. Therefore, having a high retention rate would decrease the reinsurance cost. It is expected that as the cost of reinsurance increases, the amount of reinsurance demand will decrease. In other words, when the reinsurance price increases, the reinsurance cost will increase, too. On the other hand, COR is an indicator of profitability for insurance companies, when it is increasing, the demand for reinsurance contracts is also increasing alongside it. It can be studied and looked upon as two components. If Net Loss Ratio is about to increase over time, that means the insurance company needs to have the cash to pay claims or need reinsurance contracts for covering the



possible future claims. If the Net Expense Ratio, on the other hand, is increasing, the company's cash belongings are canalized to operational costs rather than claim payments. Therefore, the company needs to find an extra fund to cover possible losses or make a reinsurance contract since its money is gone for operational expenses. In summary, when Net Combined Ratio increased, the demand for, therefore cost of, reinsurance increased.

The less reinsurance that insurance firms desire, the more focused they are on the line of business (Chidambaran et al., 1997; Mayers & Smith, 1990). Lee and Lee (2012), Cole and McCullough (2006), Garven and Tennant (2003), and Mayers and Smith (1990) suggest the negative impact of line-of-business concentration on a firm's reinsurance cost is highly significant. Because when an insurance company is highly concentrated on one line of business, it can soundly and healthily predict the risks in new businesses, thus does not seek any reinsurance to secure itself.

Companies with no sound equity structure would be more likely to be funded by loans. The more loans borrowed; the higher default risks arose. That situation, naturally, leads to the craving for more reinsurance (Lewis & Murdock, 1996). Likewise, smaller insurance companies are also at higher default risks and possibly become insolvent. Thus, they need to avoid broad claims and require reinsurance contracts more than big companies need. Therefore, they improve their own risk of engaging efficiency. Thence, their demand for reinsurance becomes high. It is expected to have a negative relationship with size and reinsurance cost. One-unit improvement in a company's equity resulted in less demand for reinsurance. That would decrease the reinsurance cost. Studies suggested that reinsurance is negatively related to the company's size or in this case, the natural logarithmic of the equity (Garven & Tennant, 2003; Powell & Sommer, 2007; Adams, 1996). In the study by Lee and Lee (2012), the result suggested there is no significant relationship between the size and reinsurance cost.

Based on the explanations above, the hypothesis of this study is presented in Table 2.

**Table 2: Hypotheses**

Technical Ratio Model		Financial Ratios Model	
<i>H0:</i>	Reinsurance cost is not affected by technical ratios	<i>H0:</i>	Reinsurance cost is not affected by financial ratios
<i>H1:</i>	Reinsurance cost is affected by technical ratios	<i>H1:</i>	Reinsurance cost is affected by financial ratios

Table 3 presents the basic statistics of the dependent variables and explanatory variables. Reinsurance cost has a mean of 0.1568 and a standard deviation of 0.2473. Some variables have been winsorized at 1% and 99% for eliminating outliers and normalized from -1 to 1 (from 0 to 1 when there is no negative value in the variable) with the target of adapting the range to the other independent variables.

**Table 3: Descriptive Statistics**

Variables	Mean	Median	Standard Error
REC	0.1568	0.1265	0.2473
ROA	0.4979	0.8117	0.5288
DEB	0.5101	0.5182	0.1747
LIQ	0.5730	0.5991	0.2352
RET	0.5508	0.5760	0.2215
COR	0.1955	0.1576	0.1457
REP	0.2377	0.2319	0.1848
LBC	0.2234	0.0958	0.2680
LEQ	0.1143	0.0502	0.2303

Tables 4 and 5 below show the correlation between dependent, independent, and control variables with the Pearson correlation statistics.

According to both tables below, REC is positively correlated with ROA, RET, REP, LBC, and LEQ, only negatively correlated with COR. There are no significantly high correlations among independent variables with no more than a 70% correlation level.

**Table 4: Correlation Matrix for Financial Ratios and Control Variables**

	REC	ROA	DEB	LIQ	LBC	LEQ
REC	1.0000					
ROA	0.1333**	1.0000				
DEB	0.0608	-0.3447***	1.0000			
LIQ	0.0536	0.1003*	-0.0361	1.0000		
LBC	0.4059***	0.2470***	-0.0534	0.0260	1.0000	
LEQ	0.3756***	0.4059***	-0.2299***	0.1484***	0.6407***	1.0000

\*Significant at 0.10 level; \*\*significant at 0.05 level; \*\*\* significant at 0.01 level.

**Table 5: Correlation matrix for technical ratios and control variables**

	REC	RET	COR	REP	LBC	LEQ
REC	1.0000					
RET	0.0980*	1.0000				
COR	-0.1856***	-0.2638***	1.0000			
REP	0.0913*	0.0135	-0.2105***	1.0000		
LBC	0.4059***	0.2738***	-0.2592***	0.0735	1.0000	
LEQ	0.3756***	0.1269**	-0.2724***	0.0185	0.6407***	1.0000

\*Significant at 0.10 level; \*\*significant at 0.05 level; \*\*\* significant at 0.01 level.

### 3.2. Methodology

This study uses panel data for analysis. One of the main advantages of panel data analysis, which reduces the disadvantages of time series analysis by combining it with the cross-section analysis method, is that the obtained estimates provide more information and are more effective. Another advantage is that panel data analysis combines cross-section and time-series observations to have a larger number of observations, thus enabling more reliable predictions to be made.

In the upcoming panel data analysis, two separate models arose: Financial Ratio Model and Technical Ratio Model. Because these ratios are two different concepts, it was beneficial to look at the relationship with reinsurance cost, separately; so that the effects would be more precise.

After conducting the Hausman (1978) test, both models turned out to be suitable for a random effect model. The financial and technical ratio model is constructed are illustrated by equations 1 and 2.

Financial ratio model:

$$REC_{it} = \alpha + \beta_1 ROA_{it} + \beta_2 LIQ_{it} + \beta_3 DEB_{it} + \beta_4 LEQ_{it} + \beta_5 LBC_{it} + u_{it} \quad (1)$$

Technical ratio model:

$$REC_{it} = \alpha + \beta_1 RET_{it} + \beta_2 REP_{it} + \beta_3 COR_{it} + \beta_4 LEQ_{it} + \beta_5 LBC_{it} + u_{it} \quad (2)$$

Several diagnostic tests have been conducted in order to test the model properly<sup>†</sup>. First of all, based on the results of the Likelihood-ratio (LR) Test, the unit effect is included in the models. As heteroscedasticity can occur because the results originate from a wide number of cross-sectional insurance companies. The result of the Levene (1961) and Brown and Forsythe (1974) tests reveal the presence of heteroskedasticity for both models. To test for autocorrelation, the Breusch and Pagan (1980) test is performed and found that there is autocorrelation for the financial and technical ratio model (no inter-unit correlation according to Friedman (1937) for the financial model; and both autocorrelation and inter-unit correlation for technical model). Accordingly, the model is estimated as a one-sided unit effect model with a random effect. Because both models have heteroskedasticity, autocorrelation, and inter-unit correlation, it's better to use Driscoll and Kraay (1998) for more robust outputs. (Tatoğlu, 2012).

D'Agostino et al. (1990) normality test has been done after testing for heteroskedasticity and autocorrelation. The test results suggest that all the variables used in the analysis are not normally distributed. Therefore, outliers have been removed from the data as stated above.

<sup>†</sup> The diagnostic tests mentioned in the methodology section are not reported in the article but available upon request.

#### 4. EMPIRICAL FINDINGS

As explained in the previous section, firm-level financial factors can influence the cost of reinsurance for a company. Table 6 presents the findings of the financial ratio model.

**Table 6: Results of Panel Data Analysis for Financial Ratio Model**

Dependent Variable: REC				
Variables	Expected	Coefficient	Standard	t
ROA	-	-0.0180*	0.0088	-2.03
DEB	+ / -	-0.1743**	0.0693	-2.52
LIQ	-	-0.0898	0.0588	-1.53
LBC	-	-0.2583***	0.0771	-3.35
LEQ	-	-0.1836**	0.0822	-2.23
CONS		0.0712	0.0562	1.27
R-squared	0.1979	Wald chi2 (5)		140.15
Rho	0.1649	Prob>chi2		0.0000

\*Significant at 0.10 level; \*\*significant at 0.05 level; \*\*\* significant at 0.01 level.

The ROA has a weak negative effect on the reinsurance cost at a 10% significance level. This finding is in line with the empirical studies of Lee and Lee (2012), Mayers and Smith (1990), Cole and McCullough (2006), and Adams et al. (2008) that all are suggesting that an increase in ROA would decrease the reinsurance contracts, thus reinsurance cost.

The debt ratio, on the other hand, has a stronger negative effect on insurance costs, with a 5% significance. Thus, according to the findings, an increase in debt is expected to decrease reinsurance costs. It seems that the companies, which already bear a high cost of debt, are reluctant to insure additional costs in terms of reinsurance; hence reinsurance costs are decreasing as leverage is increasing. The negative effect resulting in the table above is consistent with the findings of Zou et al. (2003).

Although several studies have documented a significant negative relationship between liquidity and reinsurance (Chen & Wong, 2004; Lee & Urritia, 1996; Lee & Lee, 2012), such significant relation could not be found in this study. The findings revealed that liquidity has a negative effect on reinsurance cost but it is not significant.

Table 7 presents the findings for firm-level technical factors. The findings reveal that reinsurance cost is significantly affected by only retention ratio (RET), whereas both control variables have a significant effect. Nonetheless, no significant effect was found on the reinsurance cost for net combined ratio (COR), and reinsurance price (REP).

**Table 7: Results of Panel Data Analysis for Technical Ratio Model**

Dependent Variable: REC				
Variables	Expected	Coefficient	Standard	t
RET	-	-0.0311*	0.0145	-2.14
COR	+	-0.1104	0.1080	-1.02
REP	+	0.0486	0.0316	1.54
LBC	-	-0.2467**	0.0974	-2.53
LEQ	-	-0.1727*	0.0912	-1.89
CONS		0.1091	0.0446	2.45
R-squared	0.1940	Wald chi2 (5)		19.74
Rho	0.1955	Prob>chi2		0.0014

\*Significant at 0.10 level; \*\*significant at 0.05 level; \*\*\* significant at 0.01 level.

The retention ratio negatively affects the reinsurance cost at a 10% significance level. This result suggests that the less an insurance company cedes its premium, the less it holds the money itself, and the less reinsurance cost incurs. In other saying, ceding a high percentage of premium to reinsurance would increase the reinsurance cost.

In the analyses presented in Tables 6 and 7, both control variables have significant effects on reinsurance cost. Line-of-business concentration has a highly significant negative effect on reinsurance costs. When a company is too much concentrated on and an expert in a specific line of business, it knows the future risk well, and would not require reinsurance contracts, accordingly. This result is in line with the empirical findings of Lee and Lee (2012), Cole and McCullough (2006),

Garven and Tennant (2003), and Mayers and Smith (1990). Equity capital has a significant negative impact on reinsurance costs as in line with the previous studies (Garven & Tennant, 2003; Powell & Sommer, 2007; Adams, 1996).

One might think that the recent COVID-19 pandemics and the currency crisis of 2018 in Turkey affect the findings presented above. To test the robustness of our findings presented above, the same analyses were carried out from 2009 to 2017.

The most significant difference between analyses for the 2009-2017 period is that the combined ratio (COR) in the technical model becomes significant at 1%. Moreover, although the ROA, DEBT, and RET factors have a similar effect on the cost of reinsurance, the significance levels are subject to increase to 1% or 5%. Similar differences are also found for control variables. While both control variables are significant for the 2009-2021 period for both analyses under financial and technical factors, for the 2009-2017 period these variables become insignificant either financial or technical factors.

Such differences can be explained by the COVID-19 effect due to the imbalances in the number of claims and premium income (for instance see, Haque et al., 2021; Puławska, 2021; Wang et al., 2020; Stojkoski et al., 2021; Worku & Mersha, 2020; Parvathi & Lalitha, 2021). Moreover, by 2019, several mergers and acquisitions have been experienced in the insurance sector. Like the establishment of Türkiye Sigorta in June 2020 by the merger of Güneş Sigorta, Ziraat Sigorta, and Halk Sigorta (Birleşme Sözleşmesi, 2020); while HDI Sigorta bought Liberty Sigorta in July 2018 and Ergo Sigorta in December 2019 (Birleşme, n.d.).

## **5. CONCLUSION**

If there is an insurance sector, there must be a reinsurance sector alongside. Companies from both sectors need to go hand in hand to eliminate the consequences of possible future big damages in case of fire, flood, or earthquake. However, reinsuring an insurance contract would generate costs like every transaction in this economic system.

Insurance companies may prefer not to cede the written policies to the reinsurers. At first glance, it is a costless choice, however, the company must face all the risks of the policies it holds. The company, on contrary, may not want to face risk and reinsure all the policies it has written. Whenever there would be a claim, the company will not feel financial distress. However, if an insurance company reinsures all policies and ceded the premiums, then its profit potential will be limited. Consequently, this way is taken to be granted as the costliest. The management and reinsurance department of the insurance companies needs to find the optimal reinsurance contract agreement to make the most suitable, profitable, and applicable situation.

This article is aimed to show the relationship between the financial and technical ratios and reinsurance costs. Thus, the objective of this study is to reveal the effects of insurance companies' financial position (in terms of profitability, liquidity, and leverage) and technical performance (in terms of retention, combined costs, and reinsurance price) on reinsurance costs.

The findings of the study revealed that the financial ratios, namely return on assets and debt ratio; technical ratio as retention ratio all have a negative significant effect on reinsurance cost. Such effects are even significant even after uncovering the recent COVID-19 pandemics and the 2018 currency crisis periods.

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## INFLATION AND A PREDICTABLE PANDEMIC, FEMICIDE: EVIDENCE FROM ARDL BOUNDS TESTING APPROACH FROM TURKEY

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### ABSTRACT

**Purpose-** Although femicide has been an ongoing "problem" for centuries, it has started to attract the attention of researchers in recent years. Femicide has been explored in many ways, but its research from an economic perspective has been neglected. The main motivation of this study is the economic analysis of Femicide. The aim of this paper is to determine whether there is a correlation between inflation and femicide.

**Methodology-** To achieve this, monthly data on Femicide in Turkey (case taken from We Will Stop Femicide Platform) and monthly inflation data from the Central Bank of Turkey (CBT) balance sheet for the period between 2013:01 and 2020:11 were tested using the Normal LM Test with two breaks, Enders and Lee (2012) Flexible Fourier Unit Root Test and ADF and PP unit root test, the ARDL Bounds Test Approach, and Error Correction (VECM). The VECM model has also been used to investigate the short-term relationship.

**Findings-** According to the analysis's results, inflation and femicide have a long-term correlation. A rise in inflation of one unit was followed by an increase in femicides of 0.95 units, and it was demonstrated that a long-term variation between the variables approached each other by 47% in the subsequent era.

**Conclusion-** Politicians should take note of the discovery that inflation and femicide are cointegrated and that inflation will increase femicide in the current inflationary process to avert these avoidable social and economic costs. These findings are of utmost significance to society, and this study, which is a first, adds to the body of literature.

**Keywords:** Inflation, femicide, bounds testing, ARDL

**JEL Codes:** E31, E58, I18, C01, D19

### 1. INTRODUCTION

Inflation is a permanent and long-term increase in the general level of prices (CBRT, 2004). The principal aim of central banks is to provide price constancy. Failure to achieve price stability, which expresses a low inflation rate that economic agents do not need to take into account in their decisions on consumption, investment, and savings, damages the economy, political and social structure of a country; Inflation negatively affects the labor market, causes cyclical fluctuations, reduces international competitiveness and distorts income distribution. Those with fixed incomes suffer the most from inflation, and income distribution deteriorates to the detriment of those who cannot protect themselves from inflation. These segments are generally the lower groups in society with middle incomes. In addition, due to the unexpected increase in inflation, the lenders and the borrowers due to the decrease will suffer, and consequently, the distribution of income will deteriorate. Social harmony and peace are adversely impacted by the degradation of the income distribution (CBRT, 2013). The emphasis of the Central Bank of the Republic of Turkey (CBRT) on the importance of price stability is remarkable;

*"It should not be forgotten that it is a right for people to live in an environment where price stability is ensured. By ensuring price stability in our country, not only will it contribute to economic stability, but also the quality of life will increase, people's trust in each other and their future will increase, and the way for improvement in the social field will be paved."*

Inflation reduces the purchasing power of low-income groups, increases unemployment rates, and redistributes income from high-income groups to low-income groups in financial markets (Blejer & Guerrero, 1990; Chatterjee & Corbae, 1992; Ribba, 2003; Meh & Terajima, 2010). Inflation not only reduces the purchasing power of countries but also hurts their welfare levels. While inflation is viewed as a persistent issue in emerging and underdeveloped nations, it can escalate into a worldwide issue during times of crisis (Kopuk and Meçik, 2022). Today, inflation is a global threat. In the COVID-19 process, which started with a shock of uncertainty, various policies implemented to stop the epidemic from spreading and ensure survival brought an increase in money supply and an increase in inflation. Permanent increases in the amount of money created as part of the fight against COVID-19 result in inflation. In this process, the increase in government deficits is largely financed by banks and central banks, and the inflationary effects of monetary financing of the deficit emerge. The analyzes draw attention to a great recovery in inflation (Castañeda and Congdon, 2020). Energy and food-based inflation increased due to the Russia-Ukraine War to this difficult process caused by the pandemic. A rather pessimistic picture emerges, with the fear of a recession caused by the FED's increase in interest rates as part of the fight against inflation, and the concern created by the stagflation phenomenon that follows the war processes.

These negativities have revealed another pandemic; FEMICIDE. Femicide, or the murdering of women just because they are females, is a worldwide epidemic that happens in all societies and at all levels. It was not previously recognized as an issue. Femicide, unlike COVID-19, is a pandemic that has not yet been recognized. The difference between coronavirus and femicide is that coronavirus is unpredictable and occurs suddenly, whereas femicide is consistent and, regrettably, predictable (Weil, 2020). An increase in femicide and domestic violence cases is reported in all countries, but violence against women and femicide pandemics are ignored (Standish and Weil, 2021). Femicide has drawn the interest of numerous international researchers and some studies provide important evidence (Sanz-Barbero et al., 2016). However, the economic investigation of this phenomenon has been neglected (Çiğdem, 2021). From this point of view, in the studies I started, firstly, after testing the relationship between the exchange rate and femicide, I questioned whether there is a relationship between inflation and Femicide in this study. For this purpose, in this study, I have analyzed the Femicide and inflation data for the period 2013:01-2020:11 and then evaluated the findings obtained from the analysis results. In this study, as in the previous one, I had difficulties obtaining data. As a result of not being able to reach the data, I requested support from a non-governmental organization. The problem is also a public health problem, and it is in the public interest to keep regular records and even share them with scientists.

## **2. LITERATURE REVIEW**

First of all, I did a literature review on whether there is a study that questions the existence of a relationship between inflation and Femicide. During the survey, it was seen that various empirical studies were conducted on the effects of inflation. For example; In the regression analysis conducted by Romer & Romer (1998) for 76 countries in the period covering the years 1970-1990, he concluded that inflation worsened the income distribution. Based on household data for 38 nations. According to Easterly & Fischer (2001) inflation increases income inequality and that the welfare of low-income groups is inversely related to inflation in a non-linear manner. Erosa & Ventura (2002) determined that inflation in the USA has an effect like a decreasing tax and revealed that inflation increases income inequality. Albanesi (2007) found that inflation increased income inequality for 51 developed and developing countries in the period covering the years 1966-1990. Thalassinos, Uğurlu & Muratoğlu (2012), on the other hand, found that inflation had a substantial and positive impact on income disparity in the panel data analysis they conducted for 13 European countries from the period 2000-2009. Tskhadadze (2019) found a positive relationship between inflation rates and foreign debt in his panel data analysis on Georgia in the 2003-2017 period. Yenipazarlı & Demir (2019) applied the Vector Autoregressive method to the quarterly data of the 2003: Q1-2017: Q4 period on the Turkish economy and found that high inflation in the long run, increases external debt stocks. Nguyen (2015), who examined public borrowing and its effect on inflation, in the 1990-2012 period, revealed a positive effect between inflation and public debt, while panel data analysis on the annual data of 6 countries (Chile, Ghana, Thailand, Kenya, Indonesia, and Malaysia) by Yeboah et al. (2016) discovered a positive impact between inflation and external debt.

However, in the literature review, no studies were found to test whether there is a relationship between inflation and femicide. Thereupon, I researched whether there was a study questioning the effect of an economic crisis or a deterioration in economic conditions on Femicide. It is seen that the studies that can be detected mostly focus on unemployment, the working status of the spouses, poverty, gender wage differentiation, and economic difficulties. However, there have been reports that the economic crisis increased violence against women because of factors like high inflation rates, price hikes, and fear of unemployment (KADAV, 2021). These reports reveal that women who are thinking of divorce cause to become dependent on the men they are married to for economic reasons and negatively affect the fight against women's poverty and violence against women. It has also been confirmed by Anderberg et al. (2013) that in cases where the likelihood that women will be unemployed rises, their economic dependency on their wives prevents them from getting divorced. Gelles (1976) conducted a pioneering study on the fact that an



abusive relationship is less likely to be ended by a woman because she has fewer resources. The fact that the woman is dependent and the probability of separation decreases may reveal the abusive tendencies of male partners who are prone to violence. This is why a high rate of female unemployment raises the possibility of intimate partner violence. In this study, Anderberg et al. (2013) found that intimate partner severity declines when male unemployment rises, whereas female unemployment rises, domestic violence increases. According to the study covering the period 2004-2011, a 3% increase in female unemployment causes a 10% increase in domestic abuse cases. Anderberg et al. (2015) and Terrazas-Carrillo & McWhirter (2015) draw attention to the fact that countries experiencing economic crisis may face “additional social problems” such as interpersonal violence, and the citizens of these countries are likely to encounter increased unemployment as well as problematic relationships within the family. Anderberg, Rainer Wadsworth & Wilson (2015) found in their study that intimate partner severity is less likely to emerge when men are unemployed, whereas domestic abuse is more likely to occur when women are unemployed. The results of the analysis show that a 1% score increment in the unemployment rate for men results a reduction of approximately 3% in the incidence of physical abuse of women, whereas a corresponding rise in the unemployment rate for women has the reverse impact. Men who are afraid of losing their job or have lost their job can avoid abusive behavior to avoid divorce and the spousal insurance loss that comes with it. However, in cases where women's unemployment risk is high, their economic dependence on their partners could stop them from separating from their spouses. This can lead violent male partners to expose their abusive behaviors. Therefore, increased female unemployment results in a high risk of spousal severity. Despite all these studies, Krishnan et al. (2010), Dalal (2011), and Rahman, Hoque & Makinoda (2011) did not find a relationship between domestic violence and unemployment. Terrazas-Carrillo & McWhirter (2015), approaching from a different angle, empirically determined that when the husband's controlling behavior is removed from the model, the working status of the woman is an important determinant of domestic violence against women. Aizer (2010) also presented important evidence that reducing the gender pay gap reduces spousal violence against women. Golden, Perreira & Durrance (2013) found that economic hardships, such as underpayment of bills, enhance American women's likelihood of experiencing domestic severity. According to studies, economic difficulties, poverty, and stress all have been linked to abusive conduct in relationships and families (Mason & Smithey, 2012; Zhang, 2012; Golden et al., 2013).

In the literature review, I could not find a study that tested the presence of a connection between macroeconomic factors and femicide, thereupon, in a study, I conducted in 2021, I found that exchange rate and Femicide in Turkey are cointegrated in the long-run (Çiğdem, 2021). I started to question Femicide from an economic perspective, and this time I tested the relationship between the effects of inflation on Femicide and the variables I saw in the literature. For this study, primary data and methodology will be given.

### 3. DATA, METHODOLOGY AND EMPIRICAL RESULTS

The association between inflation and femicide has been empirically tested in this section.

#### 3.1. Data and Methodology

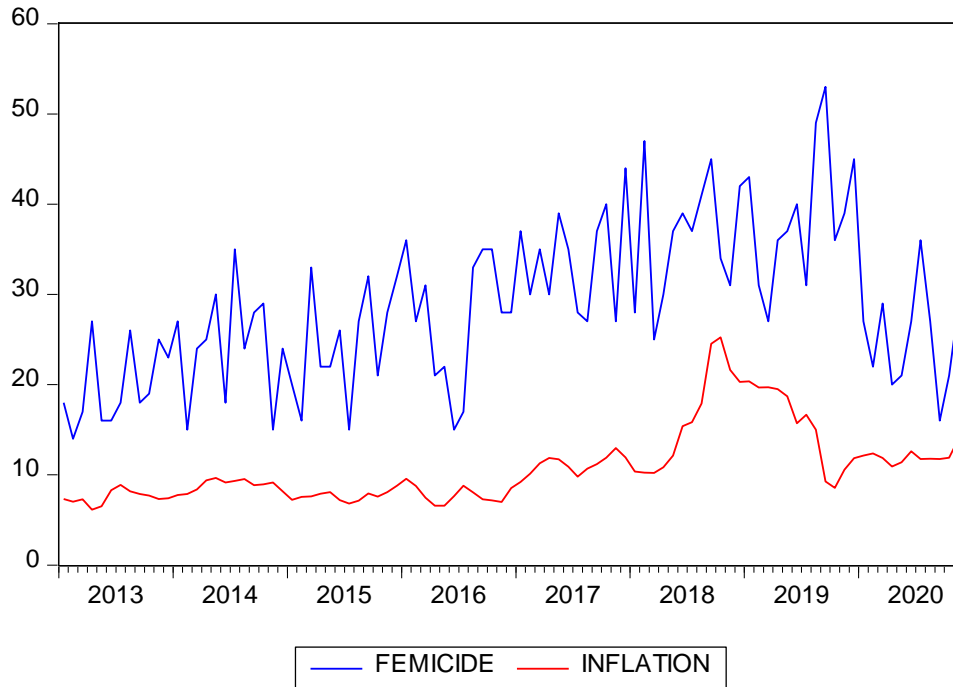
During the testing of whether inflation affects Femicide, there was a problem in obtaining data. Thereupon, support was received from a non-governmental organization. In this study covering the period 2013:01-2020:11, data on Femicide were obtained from the We Will Stop Femicide Platform, and inflation (CPI) data were obtained from the CBRT electronic data system. The data containing 95 observations used in the analysis are monthly data. For the analysis, E-Views10 was employed. The variables utilized in the analysis are displayed in Table 1.

**Table 1: Variables**

Variable Name	Data Frequency	Code	Unit	Source
Inflation	Monthly	INF	Ratio	Central Bank of Turkey (CBT)
Femicide	Monthly	FEM	Ratio	We Will Stop Femicide Platform

In the graphic analysis carried out grounded on the data obtained, it is seen that the series have the same trend (Figure 1).

Figure 1: Time Path Plots of Variables



It was employed the ARDL Bounds Test Approach to question the cointegration relationship between the variables following the graph analysis.

The ARDL-based Bounds Testing Approach, which allows obtaining robust results even when time series are subject to both I(0) and I(1) processes, was proposed by Pesaran, Shin, and Smith (2001).  $y_t$  is a declared variable and  $x_{j,t}$ ;  $j = 1, \dots, k$  is included in an ARDL  $(p, q_1, \dots, q_k)$  model as explanatory variables, then the relevant structure is shown as it is in equation (1).

$$y_t = \alpha_0 + \alpha_1 t + \sum_{i=1}^p \varphi_i y_{t-i} + \sum_{j=1}^k \sum_{l_j=0}^{q_j} \beta_{j,l_j} x_{j,t-l_j} + \varepsilon_t \tag{1}$$

In this equation (equation 1),  $\alpha_0$  corresponds to the constant term of the model,  $\alpha_1$  trend coefficient,  $\varphi_i$  coefficients of the lagged values of the dependent variable,  $\beta_{j,l_j}$  corresponds to the lagged values of “k” explanatory variables, and  $\varepsilon_t$  to the error term series. Based on equation (1), Pesaran et al. (2001) recommended five different conditional error correction models (CEC) and investigated the cointegration relationships between the variables by means of bounds tests (F and t bounds tests) on the five models. In this study, Pesaran et al. (2001) Model 3 (Case 3) was selected and introduced among the models suggested. Model 3 specifies the conditional error correction model with only the constant term and is shown as;

$$\Delta y_t = \alpha_0 + b_0 y_{t-1} + \sum_{j=1}^k b_j x_{j,t-1} + \sum_{i=1}^{p-1} c_{0,i} \Delta y_{t-i} + \sum_{j=1}^k \sum_{l_j=1}^{q_j-1} c_{j,l_j} \Delta x_{j,t-l_j} + \sum_{j=1}^k d_j \Delta x_{j,t} + \varepsilon_t \tag{2}$$

The error correction model obtained from equation (2) is as shown in equation (3) (Pesaran et al., 2011).

$$EC = y_t - \sum_{j=1}^k \frac{b_j}{b_0} x_{j,t} \quad (3)$$

In fact, if the basic hypothesis, in which the coefficients are equal to zero, is rejected, it is concluded that there is a cointegration relationship between the variables. Pesaran et al. (2001) calculated constrained F-test statistics to test the main hypothesis. However, since the F statistics calculated at this stage are not compatible with the standard F distribution, Pesaran et al. (2001) critical values (limit values) accepted as a lower limit, in which all variables are assumed to be stationary at level  $I(0)$ , are derived for different levels of importance. Therefore, based on this approach, in the first case, if the value of the F statistic is less than  $I(0)$ , which is determined as the lower bound critical value, the basic hypothesis will not be rejected. Thus, it will be concluded that there is no cointegration relationship between the variables. In the second case, if the calculated F statistic value is greater than  $I(1)$ , which is determined as the upper critical value, the basic hypothesis will be rejected and it will be decided that there is a cointegration relationship between the variables. As a third case, if the calculated F statistic value takes a value between the lower limit  $I(0)$  and the upper limit  $I(1)$ , it cannot be decided whether the variables have a cointegration relationship (Mert ve Çağlar, 2019:283).

### 3.2. Analysis and Findings

For the tests of stationarity, which is the first and mandatory step when starting the analysis, the two-break Normal LM Test and the Enders and Lee (2012) Flexible Fourier Unit Root Test were applied to the series and the results are presented in Table 2 and Table 3.

**Table 2: Normal LM Test Results with Two Refractions**

Variables	Coeff	Critical Value (Meng 2016)	Result	Break Date
INF	-2,62771	-2,216	$H_0$ rejected. Stationary	2019:07 , 2020:01
FEM	-1,61001	-2,216	$H_0$ rejected. Stationary	2018:08 , 2019:08

Table 2 shows that there are two breaks. It is possible to explain the break dates determined in the analyzes with the 2018 August and 2019 Crises.

**Table 3: Enders ve Lee (2012) Fourier Unit Root Test Results**

Variables	Tau_df	Critical Values	Result	F_j	Critical Values	Result
FEM	-6,01092	4,35	$H_0$ rejected. Stationary*.	6.31026	9,14	$H_0$ can not be rejected. Unit Root **
INF	-3.71463	4,05	$H_0$ can not be rejected. Unit Root***			

As a result of Enders and Lee (2012) Flexible Fourier Unit Root Test, the series has unit root, so the test turned to ADF. To determine the stationarity levels of the series to be used in the analysis, the traditional unit root tests ADF and PP unit root tests were applied and the results are given in Table 4.

**Table 4: ADF and PP Unit Root Test Results**

Variables	ADF			
	t-Statistics	%1	%5	%10
FEM, Level	-6.790337	-4.058619	-3.458326	-3.155161
INF, Level	-2.898402	-4.062040	-3.459950	-3.156109
INF, 1 <sup>st</sup> Level	-5.035789	-4.063233	-3.460516	-3.156439
Variables	PP			
	t-Statistics	%1	%5	%10
FEM, Level	-7.025139	-4.058619	-3.458326	-3.155161
INF, Level	-2.321772	-4.058619	-3.458326	-3.155161
INF, 1 <sup>st</sup> Level	-6.632616	-4.059734	-3.458856	-3.155470

Note: The Schwarz criteria, a more potent criterion that produces preferred results compared to the other criteria, is used to determine the quantity of delays in the ADF testing. The number of delays identified per Newey-West Bandwith is received in the Philips Perron tests. The maximum amount of latency is four.

In the ADF and PP stationarity tests, it was determined that the FEM variable was  $I(0)$  and the INF variable was  $I(1)$ , and there was no second-order  $I(2)$  stationary series among the variables. It has been determined that there is no problem in the application of ARDL Bounds Test Approach, which can be used for series with different degrees of cointegration to examine whether the variables' cointegration relationship exists. In the study, ARDL (Autoregressive Distributed Lag) Bounds Test Approach was used to analyze the relationship between inflation and femicide. Before starting the ARDL analysis, the appropriate lag length was determined first. For this purpose, the variables are tested with various delay combinations, and the optimal model is the one that produces the lowest value based on the information criteria (AIC, SIC, or HQ). In this investigation, the optimal lag length was identified as 4, taking into account the minimum Akaike Information Criteria (AIC). The F statistical value must be established before using the ARDL test.

**Table 5: ARDL Bounds Test Results**

Predicted Equality		
F Statistic	6.560295	
Significance Level	Critical Value	
	Lower Value	Upper Limit
%1	4.04	4.78
%5	4.94	5.73
%10	6.84	7.84
<b>Diagnostic Tests</b>	Statistics	
R <sup>2</sup>	0.017351	
Adjusted R <sup>2</sup>	-0.052012	
F-Statistics	0.250153	
Breusch-Godfrey (Autocorrelation)	0.4753	
Breusch-Pagan-Godfrey (Heteroscedasticity)	0.5144	
Jarque-Bera (Normality)	0,359585 (0,01)	
Ramsey-Reset (Model Specification)	0,4449 >0,01	

Note: The probabilities are shown by values in parenthesis. The independent variable is INF, and the dependent variable is FEM.

Considering the diagnostic tests of the model; It is seen that there is no model building error and the model provides all the assumptions. It is seen that there is no problem as deterministic and stochastic. That is, according to the statistical results obtained, the functional form of the model was determined correctly, and there was no autocorrelation ( $0.4753 > 0.01$ ) and varying variance problems ( $0.5144 > 0.01$  and  $0.05$ ) in the model. In addition, the model provides the assumption of normality ( $0.359585 > 0.01$ ). Following the diagnostic tests, CUSUM and CUSUM-of-Square tests were performed to investigate the stability of the predicted ARDL model, that is, to test whether there is a structural change, CUSUM and CUSUMQ graphs shown in Figure 2 and Figure 3 were examined to determine whether parameter stability is provided in the model.

Figure 2: CUSUM

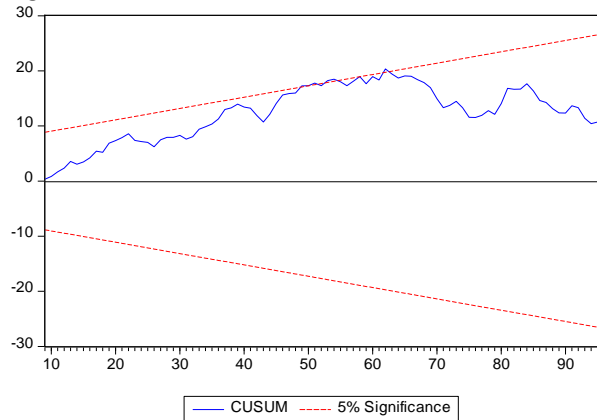
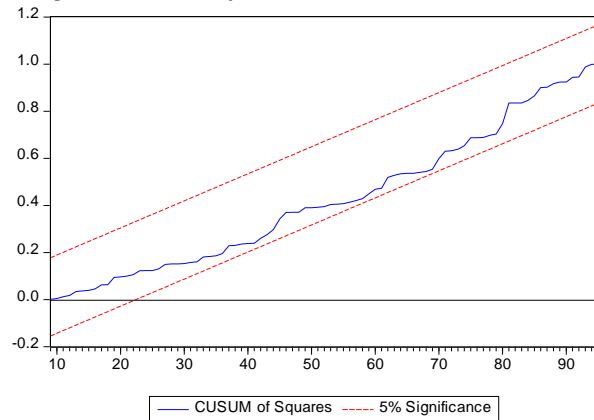


Figure 3: CUSUM Square



As a conclusion of the CUSUM and CUSUM-of-Square tests, it is seen that the model is stable during the estimation period, that is, there is no structural break, and the parameter stability is ensured because the residuals are within the confidence limits.

After this stage, the presence of cointegration between the variables was tested. No matter if the variables are  $I(0)$ ,  $I(1)$ , or mutually cointegrated, this test is conducted (De Vita ve Abbott, 2002: 294). Since the calculated F statistic value (6.560295) was higher than the upper critical value (5.73) at the 5% significance level, the  $H_0$  hypothesis was rejected and the existence of a cointegration relationship between the variables was determined. As a result of the analysis, a long-term relationship was determined between Inflation and Femicide.

After it has been established that a cointegration relationship exists, the short and long-term parameters of the variables were calculated. To ascertain the short-term equilibrium correlation between the variables, ARDL Error Correction Model was estimated and the outcomes are shown in Table 6.

Table 6: Error Correction Model

ECM				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FEMICIDE(-1))	-0.293841	0.128103	-2.293793	0.0242
D(FEMICIDE(-2))	-0.182726	0.105211	-1.736762	0.0860
<b>CointEq(-1)*</b>	<b>-0.478429</b>	<b>0.131329</b>	<b>-3.642993</b>	<b>0.0005</b>

The error term must be negative and statistically significant. If these conditions are not met, the model does not work (Turgut, Uçan ve Başaran, 2021:154). According to the values in Table 6, it is seen that a long-run correlation between series can be assumed to exist in the event that the error correction coefficient (CointEq (-1)) is negative and statistically significant.

It shows that 47% of the deviations from the long-term balance following short-term shocks can be eliminated after 1 period.

Table 7: Long-Run Coefficients

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF	0,956943	0.373328	2.563278	0.0121

Dependent Variable: FEM.

Long-term coefficients show that a one-unit increase in inflation causes a 0.95-unit increase in Femicide (Table 7).

#### **4.FINDINGS AND DISCUSSION**

The analysis findings reveal that inflation and Femicide are cointegrated in the long run. Moreover, analysis has shown that a one-unit increase in inflation increases Femicide by 0.95 units. These results are as disturbing as they are thought-provoking. Permanent and long-term increase in the general level of prices brings about a decrease in purchasing power. This decrease in purchasing power increases Femicide, which is the ultimate point of interpersonal violence. The decreased purchasing power and insufficient income cause the individual to feel inadequate. The individual thinks that he cannot meet the needs and expectations of the people he is responsible for, and for this reason, he may be angry, anxious, and have negative feelings. In case of increased uncertainty, the individual's tolerance level of uncertainty decreases. He has trouble tolerating them and may experience intense anxiety. Inadequate income of the individual who provides the livelihood of the family, while family solidarity is needed in crisis environments, on the contrary, it can lead to damage to family integrity. In studies examining economic conditions and mental health, it is seen that many psychopathologies have increased (Yaşantı psikolojisi).

*Resource Theory*, which is one of the main theories explaining domestic violence against women, is remarkable; indicates a relationship between financial power and violence. According to this theory, men with limited financial power and no resources may resort to physical force or violence. If the individual can control less personal, economic, or social external resources, he may have a greater need for the use of force for violence or control. William Good states that whoever is stronger socially and economically in the family, this person uses this power. As a result, the husband who wants to be the dominant person in the family but has a low education level or a low income and has few skills in interpersonal relations may choose to use force to maintain his dominance (Najafova, 2020). In the home environment, if a man feels strong economically and socially, he does not use violence. On the contrary, if the spouse's status difference is in favor of the woman, the man may be a perpetrator of violence at home (Karaduman et al., 1993). Economic stress, job stress, and unemployment, which are environmental factors, cause the husband to feel powerless in the family and cause him to display violent behavior (Avci, 2004; Edleson, 1999).

Bancroft & Silverman (2002) say that the “*addictive relationship*” increases violence against women. Women who are economically dependent on men are more exposed to economic violence and these women do not have the authority to decide on their own lives. This situation is maintained by exposing women to physical violence, intimidation, threats, devaluation, and leaving them alone. DeKeseredy and Schwartz (2011) list poverty, unemployment, exclusion, housing problem, lack of support, and loss of social status of men as factors that cause domestic violence. Yaşar (2017) also includes economic issues such as unemployment and poverty among the causes of violence in his study.

As can be seen; there are studies based on psychology and sociology that make a connection between the economic situation and violence. This study differs from other studies in that it empirically determined the relationship between the inflationary process, which leads to the deterioration of the economic situation of individuals and the decrease in purchasing power, and Femicide, which is the end point of interpersonal violence. In the study, it was also determined that only 47% of the deviation from the equilibrium following the shocks could be eliminated after 1 period. This demonstrates the damage that Femicide, which is a predictable and preventable pandemic, as Weil (2020) states, will cause if not prevented.

#### **5. CONCLUSION**

There is a terrible pandemic, both human and economic, triggered by COVID-19; Femicide. Researchers have become interested in the topic of Femicide recently, but its economic research is neglected. In the current period, which started as a health problem with COVID-19 and turned into a global economic crisis, the phenomenon of inflation has very current and critical importance. So, does this problem, which reduces the purchasing power of individuals, affect femicide?

This study's objective is to investigate whether there is a connection between inflation and femicide because there was no record of such a study in the literature review. For this purpose, data for the period 2013:01-2020:11 were obtained from the We Will Stop Femicide Platform and the CBRT electronic data system. I would like to emphasize that I had difficulties in obtaining data and finally I received support from a non-governmental organization. Keeping regular data and even sharing the data with scientists is for the benefit of society. To check for stationarity of the obtained data, Two-break Normal LM Test, Enders and Lee (2012)'s Flexible Fourier Unit Root Test, and ADF and PP unit root tests were applied to the series. The existence of the connection between the variables was then called into question using the ARDL Bounds Testing Approach. The created model provides all the assumptions. In the findings from the analysis, a long-term relationship was found between inflation and Femicide. Short and long-term parameters were calculated after determining that the variables were cointegrated. The results show that a long-term deviation between the variables approaches each other by 47% in the next period, and a one-unit increase in inflation causes a 0.95-unit increase in femicide.

Fighting inflation is a choice. It is crucial for policymakers to know that an increase in inflation will increase femicide if efforts to combat inflation are not prioritized or prioritized but the wrong policies are put in place because doing so will result in terrible economic and humanitarian consequences in addition to inflation costs. These findings are vital to society and public health.

According to Weil (2020), matter of power and control are indissolubly linked to violence against women. In Turkey, the means (interest) and purpose (price stability) in the fight against inflation have changed places, and -despite the current inflationary process-, interest rate cuts have been realized by targeting the interest rate decrease. In addition to the global inflation triggered by the COVID-19 process, the Russia-Ukraine War also brings with it an increase in energy, commodity, and food-based inflation. In addition, there is the fear of stagflation that will occur throughout the post-war era and the fear of recession that will occur with the FED's interest rate hikes in the fight against inflation. In this mixed picture, it is worrying that Turkey has withdrawn from the Istanbul Convention and thus has not fulfilled its duty of protection against Femicide and severity against women and girls. In this mixed process, Femicide, unlike COVID-19, is a predictable and preventable pandemic. The existence of the relations between macro-economic variables and Femicide and the direction of causality should be determined and policies should be put into practice accordingly, and this will lead to a much cheaper cost.

*Violence and Femicide against women and girls can be prevented through policies.*

Money supply, which is an important cause of inflation, is under the control of central banks. Determining a reference value compatible with price stability for the large money supply will allow to keep inflation under control and monitor the performance of the central bank more easily. This reference value is 0-2% inflation rate according to Castañeda and Congdon (2020).

Policies designed to combat inflation, increase employment of women, and increase the security of women's employment will contribute significantly to reducing domestic severity and severity against women, and Femicide, which is the most extreme point of violence.

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## A QUALITATIVE RESEARCH ON THE RELATIONSHIP BETWEEN ENTREPRENEURIAL BEHAVIOR AND INNOVATIVE WORK BEHAVIOR

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### ABSTRACT

**Purpose** – The purpose of this study is to reveal the entrepreneurial and innovative behavior tendencies and skills of Y and Z generations based on experiences and perceptions, and to provide an understanding of the problems these generations face while collaborating and the needs necessary for their cooperation.

**Methodology**– In order to obtain in-depth information about the subject, the qualitative research method was used in the research. Semi-structured interviews were conducted with the entrepreneur mentors of Ege University Technopolis and the entrepreneurs in the technopolis. The sample consists of 8 people in total. The data were analyzed with descriptive and content analysis.

**Findings** – The expressions of the participants were evaluated under the themes of entrepreneurship and innovation skills of the Z generation and the entrepreneurship and innovation perceptions of the Y generation, which emerged as a result of the analysis. Entrepreneurship and innovation skills for the Z generation; being a researcher, being aware of what one wants, agility, social relations, being able to offer different suggestions, self-confidence, being open-minded, being open to learning, being result-oriented, being proactive, taking risks, having business management knowledge. For the perception of entrepreneurship and innovation of the Y generation; commercial perception, innovation barriers, time, scaling, realism, and result-oriented qualities came to the fore.

**Conclusion** – Entrepreneurship is often defined in terms of risk taking, self-confidence and proactive behavior. These general behavior patterns are not well understood in entrepreneurship and innovation surveys. There are many more factors to be discovered for scaling these concepts. In this study, it was revealed that in order to be an entrepreneur, it is necessary to be innovative first, and being innovative is related to openness to learning and frequency of experimentation in addition to general behavior patterns.

**Keywords:** Innovative work behavior, entrepreneurial behavior, entrepreneurship, innovation.

**JEL Codes:** M10, O30, L26

### 1. INTRODUCTION

There are three trends in organizational innovation research, each of which has a different focus. The purpose of organizational design theory, which focuses on the relationship between structural forms and organizational innovation intensity, is to describe the structural features of the innovative organization or to identify organizational variables on product/process innovation. In contrast, organizational cognition and learning focuses on the processes by which organizations develop new ideas for problem solving and provides an understanding of the capacities of organizations for the creation of new knowledge needed for innovative activities. The third trend is related to the process of organizational change, adaptation and creation of new organizational forms (Yavuz, 2010 cited by Oğrak and Eldemir, 2020: 342).

This research examines how the individual acquires innovative work behavior in the work environment in relation to his innovativeness, and draws attention to the lines and relationships between entrepreneurship and innovation. In this context, firstly, entrepreneurial behavior, then innovative behavior was discussed, and innovation was evaluated in terms of business management. In the research part, answers to the questions “What skills should young people have if they want to be entrepreneurial and innovative?” and “How do current employees perceive and evaluate entrepreneurship and innovation?” were sought. Semi-structured interviews were conducted with the entrepreneur mentors of Ege University Technopolis and the entrepreneurs in the technopolis about entrepreneurship and innovation skills and perceptions of Generations Y and Z.

Every person has the potential to innovate, but it is important to know how to acquire this valuable feature, how to be an entrepreneur, in which situations innovative skills are activated in organizations and how they are managed. Today, in addition to very important issues for the organization such as entrepreneurship and innovation, the fact that members of two different generations work together in the organization reveals the necessity of evaluating all issues affecting working life within the scope of different generations at the same time (Altan, 2019: 84). Generation is defined as a group of individuals who come to life in a common time period, share common life and age periods, and are shaped in terms of the tendencies and events of a common period. Each generation has its own characteristics, value judgments, attitudes, strengths and weaknesses (Lower, 2008 cited in Altan, 2019: 86).

The following parts of the study continue with the literature review on the concepts of entrepreneurial behavior and innovative behavior, qualitative research method, data analysis, findings, results and conclusion.

## **2. LITERATURE REVIEW**

### **2.1. Entrepreneurial Behavior**

External shocks can force firms to downsize, shut down or leave the region. In such cases, new ventures arise in the resources or gaps freed by the exiting firms. Organizations allocate time, technology and money to their struggle for survival. These shocks create periods of economic instability and market instability. During these periods, opportunities arise and entrepreneurs emerge as vendors or service providers. The support provided by entrepreneurs helps existing organizations with positive results. In this way, restructuring facilitates the establishment of more resilient institutions and can even improve a business environment. The assumption underlying this process is that market inefficiencies create motivation, intentions and opportunities to provide new products and services. It is certain that entrepreneurs have a deeper qualified knowledge to recognize local problems and offer viable solutions. Existing markets are in a better position because they have knowledge about customer problems and how to solve them (Monllor and Murphy, 2017: 620). Entrepreneurship is a process that increases the individual's contribution to society, leads to new contributions, creates innovation opportunities, produces innovative businesses that continue to supply competition and support economic growth (Ghouse et al., 2017: 998).

Perceptions and attitudes play a decisive role in the transition to active entrepreneurship. It is stated that the intention to start a business arises from the knowledge and understanding of the person and the support and feasibility perceptions received by the corporate environment (Galanakis and Giourka, 2016: 320). As Shaver and Scott (1992) noted, "people do not force themselves by chance". For this reason, it expresses a decision-making result that combines the ability to see opportunities in the market and personal abilities for the intention of starting a business (Krueger et al., 2000 cited in Mawson and Kasem, 2019: 1131). In other words, it can also be understood as the belief that one can do this job. The common feature of all entrepreneurship types is that they include the dimension of opportunities. Therefore, entrepreneurial individuals perceive some types of entrepreneurship as more attractive than others, depending on their preference of entrepreneurship types according to their value perceptions (Baron, 2006 cited in Vuorio et al., 2017: 360). It has been stated that different types of entrepreneurs have different values and motivations, have different tendencies, and their intentions and interests are specific to certain types of entrepreneurship (Schwartz, 1992 cited in Vuorio et al., 2017: 363). Value-laden factors are very important for understanding the phenomenon of entrepreneurship. Values, attitudes, beliefs and perceptions are closely related to the intention to create a new business and to running the business. There are important relationships such as explaining sustainability with the motivation of the individual, individuals pursuing profitable business making it operational by prioritizing environmental and social business goals, finding that conscientiousness is the personality structure that shows the biggest difference between entrepreneurs and managers, as a result of the meta-analysis, the strongest connection between conscientiousness and entrepreneurial intention, conscientiousness showing a significant difference between entrepreneurs and non-entrepreneurs (Muñoz, 2017: 789; Şahin et al., 2019: 1191).

Planned behavior theory refers to three dimensions of intentions as attitudes, subjective norms, and perceived control or self-efficacy. An individual's positive evaluation of starting a new business is defined as his attitude towards behavior, the perceived social pressure to start a new business is defined as subjective norm, and the perceived ease of starting a new business is defined as self-efficacy or perceived behavioral control. It has been found that attitudes and perceived behavioral control have a positive and significant effect on entrepreneurial intentions (Aragon-Sanchez et al., 2017: 753).

There are different theories from different fields that deal with entrepreneurial behavior. Psychological approaches focuses on personality traits such as need for achievement, locus of control, ability to take risks, etc. (McClelland, 1987; Dyer, 1994; Rotter, 1966), Planned behavior theory (PBT), which claims that entrepreneurial behavior is intentional and emphasizes the importance of intention (Ajzen, 1987; Ajzen, 1991; Krueger et al., 2000; Audet, 2002; Kolvareid, 1996; Tkachev and Kolvareid, 1999) is used to explain entrepreneurship. Shapero's (1982) Entrepreneurial event model is based on a perception of opportunities and feasibility. Institutional economic theory (Krueger and Brazeal, 1994) is another theory that focuses on informal factors and formal factors such as policies, laws, regulations, government aid, culture, etc. Social network theory,

on the other hand, draws attention to the fact that as people enter business networks, their entrepreneurial skills can develop and they can access the information and business connections necessary for their success and sustainability (Singh Sandhu et al., 2011: 431).

Entrepreneurs demonstrate entrepreneurial intention to recognize opportunities, seek information, find resources, and create business strategies before starting their ventures. There are various models that reveal entrepreneurial intention; the most widely used model has been the Planned behavior theory (PBT). This model, which includes normative beliefs and attitudes, provides an adequate framework for the prediction of human behavior in many situations. Planned behavior theory (PBT) has been used in research to understand and explain entrepreneurial intention. Cognitive social theory has also been used to understand the phenomenon of entrepreneurship; argues that knowledge is gained through observing and interacting with others in a social context; social norms, social networks, and social capital can also influence entrepreneurial behavior. These ties form structures with other actors (suppliers, customers, and entrepreneurial networks) where they can influence entrepreneurial behavior, impact on personal and functional competencies, use leadership skills to organize resources, and support entrepreneurial goals. Leadership emerges as a skill that can be learned, acquired and developed. There are studies that deal with various aspects between entrepreneurship and leadership, with characteristics such as leadership skills, individual motivation, tolerance for uncertainty and risk-taking ability (Henley et al., 2017: 1017-1018).

Social capital includes processes that involve creating new ventures, identifying business opportunities, developing and mobilizing resources. Social capital theory (Lin, 2002) argues that it emerges from this network of relationships with colleagues, friends, family, and business people based on goodwill and resources; and strong social capital is necessary for the success of new business ventures, as those who are well connected can access valuable resources. Social capital is important for entrepreneurs to legitimize their work, to receive social and individual support, to access the needed resources on time and easily, and to provide cooperation (Lux et al., 2020: 1013-1014).

Ecological systems theory is necessary in order to understand how contextual factors at various levels affect human development, to examine the direct effects of context on development, to focus on context-individual interactions, to understand proximal processes, interactions between contextual systems. Individuals with desirable personality traits, assets, and abilities in terms of the individual's characteristics and the influence of their environment are more likely to be successful. Ecological systems theory positions an individual within five nested systems: "microsystem" refers to direct relationship between individual, group, institutions; "mesosystem" refers to systems between different groups and institutions; "exosystem" refers to larger systems in which the individual is not interacting; "macrosystem" refers to superior systems in which the individual is not interacting; and "chronosystem" refers to system indicating change over time. Ecological systems theory is used to understand the relations of systems with entrepreneurs and business environments, and to explain how the business environment is affected by the macro system (Neal and Neal, 2013 cited in Lux et al., 2020: 1015).

Identity theory (Stryker, 1980) and Social Identity theory (Tajfel, 1981; Tajfel and Turner, 1979, 1986) focus on the fundamental interaction between the individual and the social world. Both theories connect the individual to the social world through a concept of "self" that includes various social identities. Identity theory focuses on "roles" while social identity theory focuses on "social groups". While explaining entrepreneurial behavior, identity theory focuses on individuals and the various roles they adopt in a social context, and deals with the emergence of discrete identities related to their social roles that often become evident in various situations. Whether the entrepreneurial role is in that society or not, the opinion on the benefit to the structure is subject to individual interpretation. The concept of role identity was developed to emphasize the close link between the behaviors provided by that role and the individual's unique interpretation of that role. As the bond between role and identity gets closer to the individual, compatibility will increase. While self-determination by itself does not make an individual an entrepreneur, when combined with an internalized understanding of the values associated with self-identity, it does contribute to an individual's belief in one's own role as an entrepreneur. It brings entrepreneurship closer, but it is not enough to make the determination and entrepreneurial values necessary to be an entrepreneur a meaningful identity. The way an individual perceives himself generates energy to act as an entrepreneur. Self-perception is related to roles and values, beliefs. Being an entrepreneur means that the individual has an internalized set of values (needs, beliefs). The association of entrepreneurship with risk perception is generally characterized by individual initiatives due to the unique, creative and deliberate focus of entrepreneurial behavior on innovation. This extraordinary difference is perceived by others as different and inherently risky (Kirkley, 2016: 296-310). Perception of self-efficacy refers to the belief that a person has the ability to combine and apply a perception of self-confidence and self-control in perceiving the personal resources, skills and expertise required to be successful in a particular job. It is argued that individuals with high self-efficacy can be more productive and effective. Perception of self-efficacy can stimulate the tendency to be close to behavior (Uygun and Güner, 2016: 42). For this reason, the perception of self-efficacy, the perceptions of individual actors regarding the economic environment, their perceptions of the convenience of the local business environment, the relations between personal resources and firm performance enable entrepreneurship in a positive way (Bisgaard, 2015 cited in Lux et al., 2020: 1016).

## 2.2. Innovative Behavior

Today, the environment of uncertainty creates various opportunities and threats for organizations. Managers should be aware of the need to innovate in order to take advantage of these opportunities and protect themselves from threats (Zengin and Kaygin, 2019: 906). In the business environment that becomes dynamic with the increase in digitalization and the acceleration of technological developments, the fact that businesses are open to innovation accelerates their adaptation to change (Kaymakçı and Görener, 2019: 105; Nart, 2019: 12). Cohen and Levinthal (1990) stated that in acquiring the innovation capacity of an enterprise; recognition and awareness of new values, obtaining new information that will lead to innovation, business adaptation and application to commercial outputs are important factors (Akkoç et al., 2011: 87).

Firm-related reasons for innovation are; to be recognized as an innovator, to have a wide range of products, to increase profits, to keep employee morale high, to create an environment conducive to more innovation and creativity in the organization. In addition, there may be employee-related reasons such as attracting and retaining talented employees, giving employees the opportunity to enjoy their work and adding meaning to their work, and motivating them by asking for help in solving problems. Non-operational reasons are divided into two as market-related and social causes: market-related causes are based on concerns such as being a pioneer, providing a competitive advantage, and being the only one. Social reasons are; to satisfy customers waiting for change, to prove the social benefit and to leave a positive impression on the public (Taskiran, 2004 cited in Nart, 2019: 39).

Innovative work behavior is the main element in revealing innovative outputs in businesses (De Jong and Den Hartog 2010; Kanter 1988; Oldham and Cummings 1996; West and Farr 1989; De Spiegelaere et al. 2014 cited in Kale, 2019: 145). Innovative behaviors that will develop in a dynamic environment are vital for the effectiveness of organizational processes and the success of the company, as well as helping to overcome various problems and providing competitive advantage (Çevik Tekin and Akgemci, 2019: 1678). There are different definitions and approaches for innovative behavior. While according to one approach, innovative behavior is the individual's adoption of innovation faster than other employees in the work system he is in; according to another approach, it is the individual volunteering of an employee to create a new product or service (Blake et al., 2003 cited in İspir, 2018: 123). Various definitions found in the literature are shown in Table 1.

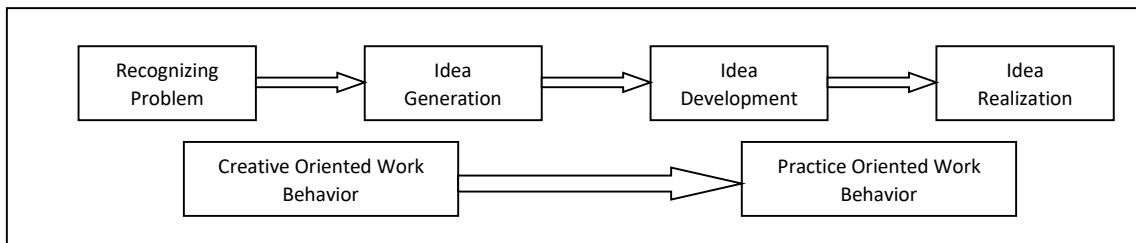
**Table 1: Definitions of Innovative Behavior**

Author	Definition of Innovative Behavior
West and Farr (1989)	All individual activities in an organization to develop, promote and implement a useful innovation.
Scott and Bruce (1994)	It is a multi-stage process that starts with the definition of the problem, the creation of new or previously accepted ideas and solutions, continues with the search for support for the innovative idea, and ends with the transformation of the idea into a visible and tangible model or prototype.
Janssen (2000)	It is the conscious creation and implementation of ideas for the benefit of the organization.
Amo and Kolvareid (2005)	It is the ability of employees in organizations to take initiatives for new products, new markets, new processes and new combinations.
Carmeli et al. (2006)	It is defining the problem, producing a solution and applying this solution in-house within the organization.
Jong and Hartog (2008)	It includes behaviors aimed at advancing the processes needed to implement change and new knowledge or improve performance, as well as the exploration of opportunities and the generation of new ideas.
Ards et al. (2010)	It is the process of revealing new problem solving practices.
Yuan and Woodman (2010)	An employee's deliberate initiation or implementation of new ideas, products, processes, and procedures for their job role, business unit, or organization.
Mura et al. (2012)	It is the individual behavior that enables the employees to add new and useful ideas, processes and products to the work environment and to introduce these added products.
De Spiegelaere et al. (2014)	An employee consciously develops, adopts, or implements new ideas (within a role, group, and organization) of products, processes, and procedures.
Li and Zheng (2014)	It is the creation, promotion and application of innovative thinking in the organization for the purpose of personal and organizational efficiency, which enables employees to use innovative ways of thinking and to respond quickly and accurately to changes in customer demands.
Prieto and Perez Santana (2014)	It is a behavior that consists of generating, promoting and implementing new viable ideas, processes and solutions.
Işık and Aydın (2016)	It is the process of voicing ideas that organizations will benefit from, being able to apply these ideas, defining the problems that arise during the implementation of these ideas, and solving the identified problems.

Source: İspir, 2018: 123; Turgut and Begenirbas, 2014: 149; Derin, 2018: 68; Kale, 2019: 145; Çevik Tekin and Akgemci, 2019: 1678; Kaymakçı and Görener, 2020: 107.

As seen in Figure 1, innovative behaviors are a multi-stage process that starts at the stage when the employee identifies a problem, then generates new ideas about the problem, and finally develops a suitable model to benefit from and use these applications. The first two stages reflect creative-oriented, and the last two stages reflect practice-oriented work behaviors (Turek, 2012; Dorenbosch et al., 2005 cited in Çevik Tekin and Akgemci, 2019: 1678).

Figure 1: Phases of Innovative Work Behavior



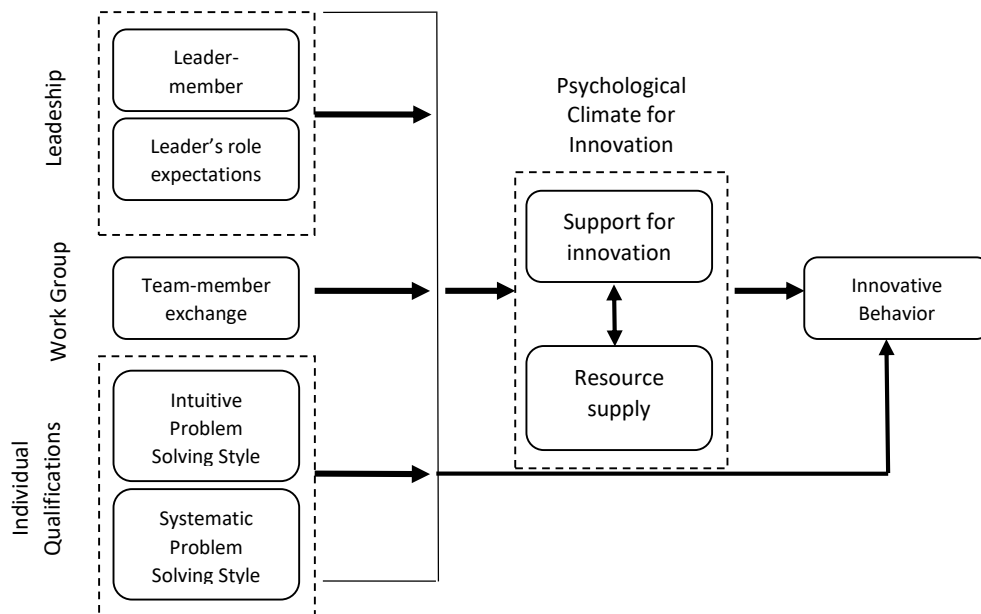
Source: Çevik Tekin and Akgemci, 2019: 1678.

According to De Jong and Den Hartog (2007), a perceived threat, a perceived problem, and a performance gap, necessity, or chance are necessary for the initiation of innovative work behavior phases. The need for innovation begins with the perception of the difference between current performance and potential performance. The idea generation phase is about breaking out of existing patterns by thinking about different business-related variables. After the idea is created, it should be shared in social networks and developed with feedback. At the phase of realizing the idea, the prototype of the idea should be developed and presented to the market (Kaymakçı and Görener, 2019: 108).

The source of innovation is creativity; the application of creative ideas constitutes innovative behavior (Pirola et al., 2004; West, 2002 cited by Caliskan et al., 2011: 369). While creativity expresses the ability to create new ideas, innovative behavior also includes the ability to implement and implement new ideas (Yunus et al., 2014 cited in Derin, 2018: 68). According to Kanter (1985), the innovative behavior process is a knowledge-intensive process. Intensive knowledge production depends on the individual's intelligence, creativity and interactive learning ability (Kaymakçı and Görener, 2019: 107-108). Examples of innovative behavior include researching new technologies, proposing new ways to achieve goals, applying new working methods, and seeking and securing resources to implement new ideas (Yuan and Woodman 2010: 324).

Scott and Bruce (1994: 582) defined innovative behavior as the result of four systems interacting with each other, as shown in Figure 2: individual, leader, workgroup and innovation climate.

Figure 2: Identifying Innovative Behavior



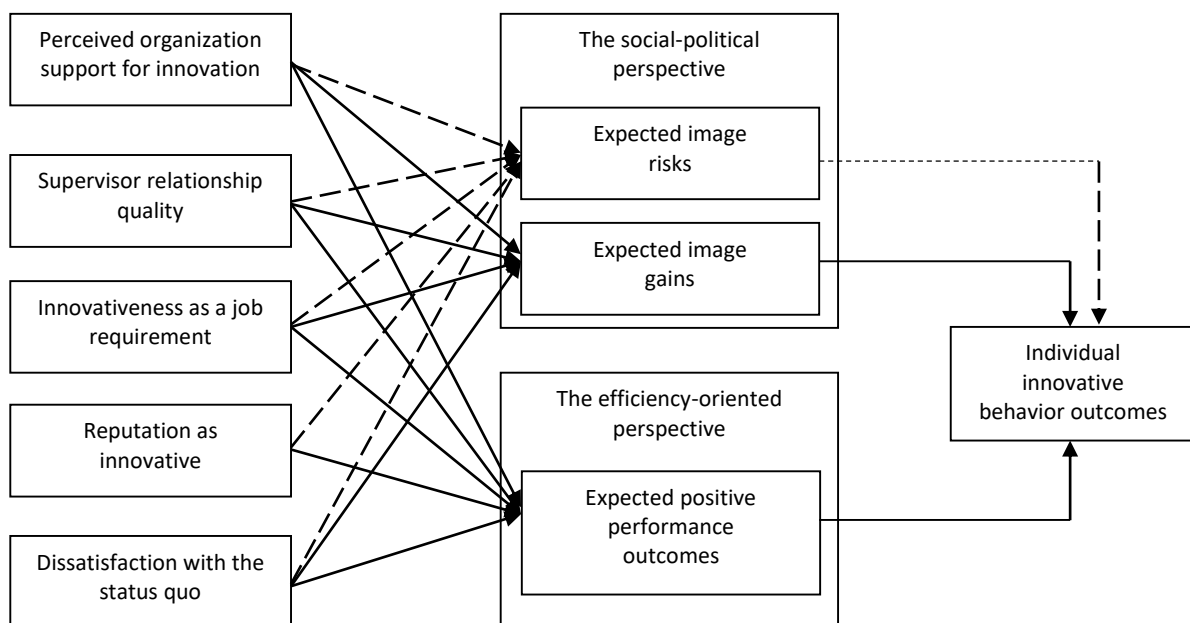
Source: Scott and Bruce, 1994: 583.

Some of the qualities required for the emergence of innovative behaviors in organizations are attributed to the personality structures and motivations of individuals, and some to the organizational structure, organizational culture and climate (Yahyagil, 2001 cited in Turgut and Begenirbaş, 2016: 122). Proactive personality positively affects innovative work behavior. Employees who take initiative are pioneers, and have the courage to change the current status quo, produce and implement more innovative ideas (Kale, 2019: 149). Motivational behaviors such as trust, leader-member interaction and job satisfaction

also increase innovative behavior and entrepreneurial behavior (Çalışkan et al., 2011: 387). In the context of leadership style, transformational leaders have the ability to encourage innovative behaviors by increasing the courage of their followers with effective communication and mutual trust. By supporting common organizational learning processes, proactivity and risk taking, it expects its followers to display high performance with ideas and behaviors that will make a positive difference (Aragón-Correa et al., 2007; Karcioğlu and Kaygın, 2013 cited in Çalışkan and Arıkan, 2017: 23). Organizational citizenship behaviors have a mediating role in the effect of transformational leadership on innovative behavior. Li Yan and Jun Yan (2013) also found that organizational citizenship behaviors have a positive effect on innovative behavior (Çalışkan and Arıkan, 2017: 34). The psychological contract, which expresses the beliefs of employees about their mutual obligations with the organization, is also an important determinant of employee behavior. Perceptions of employees that their psychological contracts are violated cause them to remain silent because of their psychological and safety concerns. Employee silence can reduce innovations and hinder organizational change efforts (Morrison and Robinson, 1997; Rousseau, 1989; Argyris and Schön, 1978; Morrison and Milliken, 2000 cited in Köksal et al., 2018: 687-688). The sense of psychological ownership leads to change, transformation, innovation and creativity in the organization; can lead to innovative work behavior in employees (Sieger et al., 2013; Karadal and Akyazı, 2015; Biçkes, 2016 cited in Derin, 2018: 67).

Exhibiting an innovative behavior is not only related to personal characteristics, it is also important that how the individual will be perceived by his environment after this behavior (Turgut and Begenirbaş, 2014: 147). According to the planned behavior theory proposed by Ajzen (1991); attitudes towards behavior, subjective norms and perceived behavioral control affect the individual's intention towards behavior (Çetin and Şentürk, 2016: 244). While the norms that support knowledge sharing and innovative behavior in the organization may encourage individuals towards these behaviors, negative norms such as "bringing a new tradition to the old village" may have the opposite effect and lead the individual to maintain the existing rather than seeking innovation. One of the important elements in the realization of support for innovative behavior is relational social capital, which includes elements such as trust, norms and identification. Relational social capital, developed for knowledge sharing and innovative behavior in the organization, encourages the display of these behaviors (Turgut and Begenirbaş, 2014: 147; Turgut and Begenirbaş, 2016: 123). In various studies, the positive effect of social capital on innovative behavior has been determined (Çalışkan et al., 2011; Mura et al., 2012; Xerri and Brunetto, 2011 cited by Turgut and Begenirbaş, 2016: 133). Yuan and Woodman (2010: 323), on the other hand, put forward a model in which expectations to affect job performance (expected positive performance results) and image in the organization (expected image risks and expected image gains) affect the innovative behavior of employees. Contextual and individual difference factors such as perceived organizational support for innovation, quality of supervisor relationship, business necessity for innovation, employee reputation as an innovator, and dissatisfaction with the status quo are also added as psychological processes to this model seen in Figure 3.

**Figure 3: Explanation of Innovative Behavior with Performance and Image Expectations**



\* Solid lines represent positive relationships and dashed lines represent negative relationships.

Source: Yuan and Woodman, 2010: 326.

Since generating and implementing innovative ideas is defined as extra role behavior rather than typical for employees (Janssen, 2000), additional incentives are needed. For example, organizational climate is a guide that directs the behavior of employees. Employees' acceptance of innovative values, adopting an attitude towards them and exhibiting innovative work behavior are closely related to the organizational climate (Chen and Lin, 2004; Long, 2000; Sveiby and Simons, 2002 cited by Turgut and Begenirbaş, 2016: 121-122; Sezgin and Aksu, 2020: 577).

Studies have found that perceived organizational support positively affects innovative work behavior (Çapraz et al. 2014; Yıldız, et al. 2017; Qi, et al. 2019; Özer 2014 cited by Sü Eröz and Şittak, 2019: 1591). Organizations organize the innovative activities of their employees with their socio-political structures. One of the most important factors in creating a flexible and risk-taking atmosphere in the organization is the attitude of the manager towards employees (Khalili, 2016; Janssen, 2005; De Jong and Den Hartog, 2007; Kozłowski and Doherty, 1989; Sanders et al., 2010 cited in Sezgin and Aksu, 2020: 563). Management's support is important in creating an innovative and creative organizational culture, empowering employees and creating an environment where they will have a say in decision making. It is important for the managers to be willing to create an environment in which innovative and creative activities are intense, to support the new ideas of the employees about new ways and methods that will improve the way they do business, and to provide sufficient opportunities for the development of these ideas (Eren and Kılıç, 2013: 236). Rather than command, rule, stagnation, regulatory and organizational culture structures (hierarchical culture), an organizational culture that attaches importance to flexibility, entrepreneurial, creative and adaptive should be created (Yıldırım and Karabey, 2016: 451). The type of organizational culture that contains innovation in its structure is defined as the culture of innovation. Effectiveness of the employee and the management in the creation of an innovative culture will ensure that this culture is felt throughout the organization (Aksay, 2011; Bozkurt and Taşçioğlu, 2007 cited in Nart, 2019: 23).

Intense global competition and customer demands; the need for speed and flexibility, perfection and transparency; horizontal structures organized around business processes; emphasis on creating an environment that compels employees to use their talents and take personal responsibility for tasks; encouraging creativity, risk taking and commitment at all levels; managers delegate authority and assume a supporting role; the emphasis on communication, cooperation and building trust has created the need for employee empowerment (Coleman, 1990: 30). Employee empowerment can be expressed as the power to make decisions on their own without consulting their managers for their actions depending on the situation of the job (Ramesh and Kumar, 2014 cited in Zengin and Kaygin, 2019: 907). Empowerment is not just a series of external actions, but an act of strengthening the individual's belief in the sense of effectiveness (Conger, 1989: 18). It refers to practices and conditions in which employees are motivated, trust their knowledge and expertise, desire to act using initiative, and believe that events are under their control. In this way, employees think that they have the power to contribute more to the organization and they spend more effort for this (Koçel, 2005 cited in Zengin and Kaygin, 2019: 907). Employees in an organization where personnel are empowered see themselves as the owner of the job, learn to think and act as a group with the effect of high-level knowledge sharing, and reveal their innovative side (Kirkman & Rosen, 1999; Yukl, 2002; Spreitzer, 2007 cited in Çalışkan, 2013: 97).

Employee empowerment accelerates the innovation process in the business and encourages the employees to innovate, so that innovative behavior is carried out more easily (Yıldırım and Karabey, 2016: 432; Çalışkan, 2013: 97). As employees gain the freedom to make and implement independent decisions, the level of innovation also increases (Çavuş and Akgemci, 2008: 241). In addition, employee empowerment plays a role in reducing the negative impact of the hierarchy culture, which negatively affects innovation (Yıldırım and Karabey, 2016: 451). Approaches to empowerment are divided into two: Structural empowerment developed by Kanter focuses on the organization, while psychological empowerment developed by Spreitzer focuses on the individual. Psychological empowerment is a cognitive perception about how employees interpret the structural empowerment conditions in the organization. Studies have found positive relationships between psychological empowerment and innovative work behavior (Wiens, 2012; Bass, 1985; Spreitzer, 1995; Redmond et al., 1993; Çekmecelioğlu and Eren, 2007; Çavuş and Akgemci, 2008; Çetin and Evcim, 2009; Knol and VanLinge, 2009; Pieterse et al., 2010 cited by Çevik Tekin and Akgemci, 2019: 1675).

### **3. RESEARCH METHOD**

#### **3.1. Sample**

Purposive sampling was used to discover the components of the innovative behavior tendencies of the Y and Z generations in the İzmir labor market and to create new assumptions about the effects of the assumptions tested in the literature in terms of innovation management and organizational behavior tendencies. Semi-structured interviews were conducted with the entrepreneur mentors of Ege University Technopolis and the owners of the companies (entrepreneurs) in the technopolis. Entrepreneurial mentors consist of 3 participants and 5 technopolis entrepreneurs, a total of 8 participants. Participants in the study are between the ages of 30 and 51. Education levels are undergraduate and postgraduate. All of the participants have more than 5 years of professional experience.

### **3.2. Analysis**

Data were collected by interview technique, one of the qualitative research techniques. Within the scope of the field study, face-to-face, in-depth, semi-structured interview method was applied. Our first research question was “What skills should young people have if they want to be entrepreneurial and innovative?” and second was “How do current employees perceive and evaluate entrepreneurship and innovation?”. The interviews lasted approximately 1 hour. These interviews were analyzed by deciphering the audio recordings and converting them into transcripts. MAXQDA 2020 Pro qualitative data analysis program was used for the analysis of the research. The data were analyzed with descriptive and content analysis. In the descriptive analysis, direct quotations were included in order to reflect the views of the participants. After the descriptive analysis phase, content analysis was started. The purpose of content analysis is to reveal concepts and relationships. Content analysis consists of systematic and interpretive analysis sections. In the systematic analysis part, the codes and themes that could not be obtained in the descriptive analysis were created. For this purpose, the interviews of the participants were read several times, the expressions were coded, and the codes that were similar to each other in terms of meaning and relationship were brought together to form themes. In the interpretative analysis part, the findings were interpreted by the researchers and compared with the findings of some similar studies in the literature.

### **4. FINDINGS AND DISCUSSION**

The aim of the research is to reveal the entrepreneurial and innovative behavior tendencies and skills of the Y and Z generations, to provide an understanding of the needs and imperatives necessary for the generations to work together, to explain how they cooperate, the advantages it provides and the problems they encounter, based on the experiences and perceptions of the participants. In this context, the statements of the participants regarding the research questions are stated under two themes: the elements of entrepreneurship and innovation skills of the Z generation and the entrepreneurship and innovation perceptions of the Y generation.

#### **4.1. Elements of Entrepreneurship and Innovation Skills of Generation Z**

Institutions' meeting with innovation started with the production of new ideas by the employees within the company; practices such as idea boxes were implemented within the organization, but R&D units were established due to reasons such as the ideas coming from the employees were below expectations and the good ideas did not turn out as desired, and through the creation of new uses, new revenues have been rather limited. In order to be successful, there has not been an established culture, sufficient human resources and time within the company to make continuous attempts and to be able to do this (TÜSIAD, 2019:14). The one that will meet this need of institutions will be the entrepreneurial new generation labor market. The answers given by the participants to the question “What skills do young people need if they want to be entrepreneurial and innovative?” are as follows:

P1, “He should be a researcher, a researcher who has a command of technology, knows the computer, will be active, know what he wants.”

P2, “I think an entrepreneur candidate should have a very good research ability, if he has different talents, he should follow his own enthusiasm and talents, have good social relations and be agile, not afraid to do something, able to offer different suggestions, self-confident and open-minded, and a certain level of education is a must.”

P3, “In general, developing learning abilities and learning habits, knowing a multidisciplinary approach, being familiar with various working methods, being away from clumsiness, being agile in human relations, being proactive, results-oriented, being patient in different subjects, knowing when to quit, knowing what issues to worry about and how much, knowing yourself, feeling yourself according to your abilities have started to become the qualities demanded by the workforce as of today.”

P4, “First of all, I think that entrepreneurship exists in personality. Likes to take risks, knows business management, marketing of products and services, cost calculations, investment decisions, etc. It is necessary that many issues can be considered by entrepreneurs. This is a commercial partnership and the entrepreneur must be able to protect their rights.”

P5, “For example, in order to carry out a business, you need to have technical skills, have strong bilateral relations, have sales skills, imagine a salable product while making the product, and be a good dialogue person.”

P6, “The ability to take initiative, to be hardworking, to have advanced research skills, the ability to find the right words, the ability to place, the ability to derive, the ability to compare, the ability to not believe in every information they find, the ability to compare, make sense of, they do not have to be a good salesperson or very super. It doesn't matter if he can do that work on technology or innovation, he needs to be a good teammate, able to assemble a team, respectful, understanding, they need to be open to digital tools or innovative tools, they should not be prejudiced and they should be able to try, they should have the ability to learn on their own.”



P7, "Knowing that it will not be easy, being enthusiastic, not playing bossy, being able to handle the intense work tempo, adapting to different jobs, having a high business awareness, being able to read innovation correctly; radical innovation and process innovation at the point of incremental innovation... I think it is important for an enterprise or business idea to act with the spirit of team friendship and motivation."

P8, "Problem solving ability, this doesn't usually happen, you give it later, you put it on, the talent that young people should have."

In the above statements, important trends and attitudes regarding the entrepreneurship and innovation skills of Generation Z are indicated. These trends and attitudes also form a part of entrepreneurship and innovation trends, as they express indicators such as understanding, developing and applying entrepreneurship and innovation. However, although these variables are compatible with the generally accepted structures of entrepreneurship in the classical sense, they will not represent the generality of entrepreneurship in different contexts for these phenomena. For this reason, in order to improve the existing entrepreneurial strategies and diversify the ecosystem, it is necessary to increase the knowledge of the routers in order to increase the quality of service. Otherwise, they will not be able to make good observations and their determinations will not be able to deepen.

The answers given by the participants to the question "What skills do young people need if they want to be entrepreneurial and innovative?" were subjected to content analysis to reveal their entrepreneurship and innovation skills, and the findings are given in the table below.

**Table 2: Findings on Entrepreneurship and Innovation Skills**

Skills	(f)
Researcher	3
Aware of What He Wants	3
Agile	2
Active	1
Social Relations	1
Able to Offer Different Suggestions	1
Self-confident	1
Open-minded	1
Openness to Learn	1
Result Oriented	1
Proactive	1
Risk Taking	1
Business Administration	1

The fact that the Z generation can have entrepreneurship and innovation skills means that they have an advantage in technology companies. The variables in Table 2 overlap with the sub-behavior dimensions of entrepreneurs and innovative individuals (Ahl, 2006: 600; Uygun et al., 2012: 147; Ballı and Üstün, 2019: 310-311; Esen and Şekerdil, 2017: 14-15; Yigit, 2014: 417). As can be seen in Table 2; being a researcher, being aware of what one wants, agility, social relations, being able to offer different suggestions, self-confidence, being open-minded, openness to learning, being result-oriented, being proactive, taking risks, having business management knowledge. Four of the participants expressed the advantages of having entrepreneurship and innovation skills as follows: "He should be a researcher, have a research spirit" (P1). "The ability to do research needs to be very good" (P2). "For young people to work in technology companies, if you ask me, two things; first, having the ability to research, secondly, having good social relations and being able to offer different suggestions that are not afraid to do something agile and self-confident, open-minded and a certain level of education are a must" (P3). "A person who does not like to take risks cannot be an entrepreneur. They call it youth fire, but it is also necessary to know business management. Because it is not only technically an enterprise, but also marketing the product and service, cost calculations, investment decisions, etc. It is necessary that many issues can be considered by entrepreneurs. Of course, investors can be beneficial in these areas, but after all, this is a commercial partnership and the entrepreneur must be able to protect their rights." (P4).

#### 4.2. Perceptions of Entrepreneurship and Innovation of Generation Y

If the employees of the institutions are entrepreneurs, innovation will start to work. Today, the business world has started to shift entrepreneurship into the institution, and for this, the need for an in-depth understanding of entrepreneurship has emerged (TÜSİAD, 2019: 9). Employees are no longer expected to be satisfied with their jobs and duties within the organization; in order to take the company one step further, a number of new roles and tasks are given, such as gaining

entrepreneurial and innovation skills, activating them, and initiating applications. The answers given by the participants to the question "How do current employees perceive and evaluate entrepreneurship and innovation?" are as follows:

P1, "If you do something, you have to get an economic contribution from it. It is important to be results oriented. If you do something, it is perceived as having to contribute to humanity, it has to be beneficial."

P2, "Because they are pushed to the point of view of doing business, products turn into engineering services, therefore they either lose or abandon the perception of innovation, lose motivation, go through tiring and difficult processes, most of them fail, they cannot enter the process of developing something new."

P3, "First of all, it is not something that changes with age. Secondly, disconnections in communication may be differentiating between traditional and internalized business models. It can be education level, business model, working environment. If you have an entrepreneurial structure in a corporate company where 5,000 people work, you will strive for it and expect it to bear fruit. The sooner it starts, the better."

P4, "My personal opinion is that it is important to be young, to have energy and to adapt to innovation, and the maturity of Z's in the way they do business. Since the consumers of new products and services in companies are the Z generation, they understand it best. However, in the commercial field, that is, in the B2B field, the sectoral experience outweighs. At this point, I think that being experienced is more effective in determining the need".

P5, "My observation is that people over the age of 30 turn their own experiences into entrepreneurship, on the other hand, when they sit down with a manufacturer, they think they own half of the company, they think as old business partner rather than investment, sometimes they treat them like an employee, sometimes like a child, so they don't work with him, they may prefer to buy the product more expensively from a larger company"

P6, "Y is traditionalist, guaranteeing, in learned helplessness, does not try, and Z tries again in different ways, goes on, has higher motivation, has the ability to scan."

P7, "Because they are a little more assured with the problems at the point of commercialization, Y generation leave the customer meeting to the last. Generation Y is old enough and competent to know what to buy. Generation Y listen and ask questions because they came from such a culture."

P8, "I direct everyone to entrepreneurship, so I can't speak for them, but I can't hire an employee from our company who doesn't have a positive attitude towards entrepreneurship."

The above statements show that the Y generation focuses on the problems arising from the nature of the business and the difficulties arising from the commercialization phase while perceiving entrepreneurship and innovation. However, the impression has emerged that the commercialization and innovation barriers, which are the most difficult point for entrepreneurs in general, are important and cause many other issues to fall behind.

The answers given by the participants to the question "How do current employees perceive and evaluate entrepreneurship and innovation?" were subjected to content analysis for the Entrepreneurship and Innovation Perceptions of Generation Y and the results are given in the table below.

**Table 3: Findings Regarding Entrepreneurship and Innovation Perceptions of Generation Y**

Perceptions	(f)
Commercial Perception	3
Innovation Barriers	3
Time	2
Scaling	2
Realistic	1
Result Oriented	1

The way generation Y perceives entrepreneurship and innovation is very important. Because these perceptions project to the future, it is very important to create actions for possible risks and to understand the cooperation that will occur with the generation Z. The variables in Table 3 coincide with the barriers and concerns experienced by entrepreneurs and the innovative field. As can be seen in Table 3, commercial perception, innovation barriers, time, scaling, being realistic and result-oriented are emphasized. Commercial perception and innovation barriers are the most mentioned topics by the participants, and the issues that the Y generation's perception of entrepreneurship and innovation draws attention to also constitute the framework of the cooperation to be formed with the Z generation, they stated as follows: "It is always the basic principle to think commercially in entrepreneurship and innovation. There are startup teams that fail for this reason. 9 out of 10 startups are already failing because the part about what is needed to commercialize this innovative product is missing. He develops

a product, but his team disintegrates for commercialization, his motivation is lost, and he leaves because he cannot make any difference in this period” (P2). “Disruptions in communication may differ between traditional and internalized business models. It can be education level, business model, working environment” (P3).

## 5. CONCLUSION

In line with the findings obtained when the personal and organizational characteristics affecting this behavior were investigated in researches on innovative work behavior; it has been revealed that innovative work behavior is related to concepts such as organizational justice, job characteristics, psychological contract, intrinsic motivation, rewards, leadership, organizational climate, quality of working relations, and innovative organizational culture. In addition, it is thought that the individual's computer and internet use may also affect innovative work behavior (Afşar, 2015; Taştan and Davoudi, 2015 cited in Derin, 2018: 68). Some of the findings obtained within the scope of innovative behavior research conducted in Turkey are as follows:

- Job satisfaction and innovative behavior have a positive effect on individual performance (İspir, 2018: 122).
- Relational social capital positively affects innovative behavior (Turgut and Beğenirbas, 2014: 146).
- Satisfaction regarding human resources practices affects the innovation culture positively and significantly (Pelenk, 2020: 237).
- Motivational behaviors have a mediating effect on innovative and entrepreneurial behaviors (Çalışkan et al., 2011: 363).
- The exploratory and developer market orientation has a positive effect on management innovation (Aksoy, 2020: 234).
- Innovative organizational citizenship behavior increases as the age, total years of service and title of the employees increase (Oktay, 2016: 341).
- There is a positive relationship between psychological ownership and innovative work behavior; increasing psychological ownership towards the institution and reducing the rate of cyberloafing can increase innovative work behavior (Derin, 2017: 63).
- Managers' encouragement of their subordinates and their efforts to take action by their subordinates improves the perception of the expertise climate and increases the innovative behavior of the employees (Sezgin and Aksu, 2020: 561).
- There are significant relationships between organizational culture and organizational innovation, and between organizational innovation and personnel empowerment (Zengin and Kaygın, 2019: 903).
- Psychological contract violation negatively affects the innovative behavior of employees and organizational silence has a full mediation effect in this relationship (Köksal et al., 2018: 687).
- Proactive personality affects innovative work behavior positively, and external locus of control negatively affects innovative work behavior (Kale, 2019: 144).
- There is a positive relationship between perceived organizational support and innovative work behavior, also innovative work behavior is higher in married employees than singles, and it increases as age, position in the company, working time in the organization and sector (Sü Eröz and Şittak, 2019: 1574-1592).
- Psychological empowerment positively affects innovative work behavior (Akgemci and Çevik Tekin, 2019: 1674).
- Innovative climate positively affects social capital; social capital also positively affects innovative behavior and implicit knowledge sharing behavior (Turgut and Beğenirbaş, 2016: 113).
- There are significant and positive relationships between transformational leadership and innovative behavior, organizational citizenship behaviors have a mediating role in this relationship (Çalışkan and Arıkan, 2017: 17).

In order to contribute to economic development, there is a need for competition, employment, market and the ability to produce qualified goods. Productivity increase and competitiveness affect each other. While better meeting customer needs increases the efficiency of labor and production, the increase in productivity affects the acceleration of competition in the market. In this context, the most important way to keep the economy alive is the development of entrepreneurship (Güner and Korkmaz, 2011: 45). Entrepreneurship is the most important tool in reducing unemployment in economies, and it is possible to say that the basis of all policies developed in particular is to increase employment by reducing unemployment and to provide decent jobs. Good jobs and qualified employment are the basis of development. It is thought that as entrepreneurship reduces unemployment, unemployment also pushes entrepreneurship. With this thought, it is explained that being unemployed for a long time is related to the opportunity cost of entrepreneurship (Bozkurt, 2014: 27-28). According to another view; empirical studies have proven that innovative firms outperform non-innovative firms in terms of employment and output (Bozkurt, 2014: 82). Countries that want to benefit from this leverage effect need to bring entrepreneurship and innovation mentality to all individuals and institutions of the society. In this sense, the fact that individuals in the current labor market have entrepreneurship and innovation skills means both working in qualified jobs and increasing individual and social welfare, as well as the development of the country's economy and abilities. Today, institutions

want to carry entrepreneurship into companies and benefit from the effect of sustainable competitive advantage. The reason for this is that it creates a structure that directs a holistic change inside and outside the company, enabling developments such as economic stability, employment, creation of new industries, and the introduction of technology-based products to the market throughout the country (TÜSİAD, 2019: 14). Companies can establish entrepreneurship and innovation units to strengthen entrepreneurship. The establishment of governance structures for entrepreneurship and innovation in companies and the formalization of innovation and entrepreneurship policies in companies increase the attention of employees to the issue and ensure that it is perceived as important (TÜSİAD, 2019: 29). In today's rapidly changing business world, the main purpose of all businesses should be innovation and innovation-oriented business strategies should be developed. Employees should be encouraged to contribute to the organization. In order for them to develop innovative ideas, a suitable climate should be created, new ideas should be listened to, necessary resources should be provided, if the results are positive, employees should be rewarded etc. expectations must be met. Risks should be taken together, in case of failure only employees should not be held responsible. Information sharing between managers and employees should be given importance (Sü Eröz and Şittak, 2019: 1593). Managers should adopt and apply the employee empowerment approach; For this, first of all, they should create an innovative organizational culture by placing this understanding within the organizational culture. Employees should participate in decisions, show the courage to produce new ideas about the business, access information, share information and create a sense of responsibility (Gürbüz, et al., 2013 cited in Zengin and Kaygın, 2019: 908). While planning work in the organization, attention should be given to giving employees time to think and generate ideas for improving products and processes, as well as routine work. As a matter of fact, Budak (1998) stated that excessive preoccupation prevents allocating time for creativity (Turgut and Begenirbaş, 2016: 134). In addition, identifying the personal characteristics that affect innovative behaviors and recruiting them according to these characteristics is an important issue in revealing and implementing innovative ideas by employees (Kale, 2019: 145).

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## OCCUPATIONAL STRESS AND MINDFULNESS: AN EMPIRICAL STUDY

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### ABSTRACT

**Purpose-** There is a need for organizations to be innovative and keep on adapting to changes and new circumstances in today's highly competitive world. Accordingly, some challenges emerged for both organizations and employees in adapting to the new situations as well as work-related daily routine tasks. Adaptation and coping capabilities of the employees have become an essential part of the work environment. These challenges have created stress among employees, affecting their personal lives and business lives. A concept of "Mindfulness" that enables people to be flexible and adaptable in adverse environments, and this, in turn, reduces people's stress levels is used in business life as well. The purpose of this paper is to explore the factors affecting employees' occupational stress and clarify their coping capabilities using mindfulness during turbulent times.

**Methodology-** There are qualitative and quantitative studies about occupational stress and mindfulness in business and psychology disciplines. This research consists of an extensive literature review regarding the factors found in the literature, including stress and employee coping capabilities in terms of mindfulness, and an empirical field study applied through an experimental group. They had an eight-week MBSR course and a survey applied before and after the training, in 2021. The data from the research was analyzed through the SPSS 25 program.

**Findings-** According to literature, employees' stress levels increased because of many factors like workload, time pressures and deadlines, extended working hours, work/family conflict, and an environment of uncertainty in general. On the other hand, in the literature, the factors affecting employees' coping capabilities with stress are two crucial: employee well-being and resilience at work. The analyzed data from the experimental study supported the literature that mindfulness training reduces the stress level of employees while increasing their resilience and well-being levels.

**Conclusion-** The study encourages Mindfulness-based Stress Reduction (MBSR) programs to be applied to employees during challenging times when there are high levels of uncertainty and stress. Experiential studies of mindfulness interventions demonstrate that mindfulness serves to reduce stress and improve well-being and resilience.

**Keywords:** Stress, mindfulness, resilience, well-being, coping capability.

**JEL Codes:** M10, M12, M19

## 1. INTRODUCTION

Occupational stress is a problem for employees and organizations in terms of mental health, well-being, and its effects on tasks. Studies support the argument that mindfulness training has benefits for work engagement, burnout, leadership, productivity, and cognitive functioning (Bartlett et al., 2019; Pattnaik & Jena, 2020). Workplace stress affects job performance including decision-making, problem-solving, and productivity. Mindfulness improves attention, awareness, flexibility (cognitive and responsive), and tolerance, and reduces prejudice and misperception. This enables employees to behave effectively and not respond automatically (Shapiro et al., 2015). Mindfulness also improves the coping mechanisms and fast recovery connected to resilience. Mindfulness creates an environment that supports learning, and this compassionate, non-judgemental environment activates the neural systems that support learning and adapting to the situation (Shapiro et al., 2015).

During turbulent times, employees are expected to adapt to the changing circumstances. As an example: The COVID-19 virus was declared a pandemic by the World Health Organization on 11 March 2020 (Weigelt et al., 2021; Kondratowicz et al.,

2021). Fear of an unknown disease, uncertainty, and governmental restrictions triggered a sudden and comprehensive switch to remote life, both professionally and personally (Kondratowicz et al., 2021; Weigelt et al.2021). Approximately 68 % of the global workforce began to work under nationally-imposed pandemic restrictions (ILO, 2020). This unexpected situation decreased people's level of well-being by more than 71 % (Kondratowicz et al., 2021). People had both pleasant and unpleasant experiences in their personal and professional lives.

Stress is a part of human life; it is inevitable. According to Lazarus, a person's cognitive appraisal decides whether stress is threatening or challenging (distress), or motivating (eustress) (Pandey & Gaur, 2005). Through our experiences, we tend to label the events as good or bad. The COVID-19 pandemic has given each of us diverse experiences, and these have affected our perceived stress levels accordingly.

Perceived stress causes both psychological and physical changes. Accordingly, working conditions affected workers' levels of well-being, resilience, self-efficacy, and self-awareness. In turn, the workers' performances were affected. Mindfulness is paying attention to the present moment, non-reactively, non-judgmentally, and open-heartedly (Alidina S., 2010). Mindfulness is a tool that enables people to be flexible and adaptable in adverse environments, and this, in turn, reduces people's stress levels.

The second part of the study reviews the literature about occupational stress, the relationships between resilience and stress, well-being and stress, and mindfulness. The third part discusses the experimental research, including the methodology, sampling, scales, and hypothesis testing. Moreover, the fourth part mentions the research model, and the experimental research findings are discussed. In the last chapter, the study is concluded.

## 2. LITERATURE REVIEW

### 2.1. Occupational Stress

Stress has many definitions, from the feeling of illness to anxiety that causes depression (ILO, 2016). Hans Selye defined *stress* as the biological and non-specific response of the body to the environment of change or demand in 1936. (Selye, 1976; Valanciene et al., 2020; Kabat-Zinn, 2013). The rapidly changing working environment and global competition create challenges in adapting to new situations among employees. (ILO, 2016).

Stressors cause stimuli to be triggered (Lazarus & Folkman, 1984), paving the way for psychological and physical responses (Kabat-Zinn, 2013). Psychological responses may be a lack of concentration, depression, anxiety, burnout, boredom, and easily getting frustrated. Those responses accompany by bodily responses like headaches, sweating, stomach problems, cardiac problems, breathing problems, and so on. The stressors also lead to stressful behaviors like aggressiveness, making more mistakes, addictions, and so on. (Valanciene et al., 2020). A stressor can be caused by an environmental event (ILO, 2016), a biological situation or can also be an emotion or thought (Kabat-Zinn, 2013).

Workers' interactions create stressors (like interpersonal demands, policies, or conditions at work) (Simmons & Nelson, 2007), defined as psychosocial hazards. They are the factors that may cause stress in the work environment. Such as workload (overload or underload), time pressure, working hours (longer working, unpredictable or inflexible working schedules), high uncertainty, fragmented work, facility problems (availability, fixing, or maintenance problems), role problems (role ambiguity, conflict), communication problems, career problems (over or under promotion, payment problems, job insecurity), role conflict, lack of participation or control over work, social or physical isolation from work, lack of support from superiors, and conflicts due to home and work duties. (ILO, 2016).

After the COVID-19 pandemic, sudden changes in peoples' lives happened and made homes their new workplaces. (Anderson & Kelliher, 2020). Remote working has been the new working type in the world. The remote working employee percentage in 2020 became 88% globally (Global Workplace Analytics, 2020). New stress sources have arisen due to remote working: Work and family balance, social and workplace isolation (Mulki, 2020), uncertainty about the future of work (Chanana, 2020), communication problems, overworking, and burnout (Prasad et al., 2020).

### 2.2. Resilience and Stress

Resilience is deemed a prominent psychological capacity that implies how individuals sustain and bounce back (Rahman & Cachia, 2021) from adversity stronger and even more resourceful (Avolio, *et.al.* 2010). It is particularly defined as the positive psychological 'capacity to rebound or bounce back from adversity, conflict, failure, or even positive events, progress, and increased responsibility (Luthans, 2002). There is a plethora of empirical research that has revealed positive emotions are likely to enhance resilience in the face of adversity, thus putting emphasis on its state-like quality (Tugade, Fredrickson & Barrett, 2004). The insight provided by this capacity does not imply a risk-free life, but rather enables individuals to exercise effective management of scarce resources toward a more auspicious life despite risks (Luthans, et.al. 2007).



The adverse effects of stress can be healed through the high resilience levels of employees. According to Shatte et al., a high level of supportive work environment increases employee resilience and reduces anxiety, and depression, while increasing employee attendance, productivity, and performance (Shatte et al., 2017).

### 2.3. Well-Being and Stress

As Wiland (2022) reminds the academia humanity had not been satisfied with discreet modes of well-being within their societies since ancient times; instead, since Socrates, the focus has explicitly been on the well-being of the whole community, in other words, *polis* (city). Inevitably the state of well-being for an organization stems from the well-being of individuals. Employee well-being is the whole experience that an employee has in the workplace. Those are emotional, psychological, physical health, and happiness (Prahan & Hati, 2019). Well-being at the workplace is a requirement rather than an option to improve productivity in business settings (Baccarani et al., 2013; Dinesh et al., 2022). Wright & Bonett (2007), and Valkenburg (2022) assert positive affect, happiness, and life satisfaction as the fundamental constituents of well-being. Employee well-being reduces the potential costs of illness, absenteeism, and low production. Improves employee participation and job involvement even in challenging situations (Prahan & Hati, 2019).

The occupational stressors affect the well-being of employees. High-stress levels cause physical and mental problems including anxiety, burnout, and physical symptoms such as cardiovascular problems (ILO, 2016).

### 2.4. Mindfulness

According to John Kabat-Zinn, mindfulness is “the awareness that emerges through paying attention on purpose, in the present moment and non-judgementally to the unfolding of experience moment by moment” (Panditharathene & Chen, 2021). It is a skill that can be learned and developed through practice. It enables people to become aware of their thoughts, feelings, thoughts, and present moment experiences without judging. (Steinhouse, 2010). In addition, practicing mindfulness has effects on the perceived relationship with the experience (Shapiro et al., 2012). Which improves resilience and boosts employee abilities to cope with adverse experiences (Steinhouse, 2018).

Heedful engagement supplied by mindfulness facilitates modifiable feedback capability to stress-generating factors (Choi et al., 2021). Besides, according to Yusufov et al. (2019) stress reduction is a natural trait that has been embroidered into mindfulness. Mindfulness and mindfulness-based practices reduce the symptoms of stress both physically and psychologically. It increases the hormone of melatonin levels and decreases blood pressure, pain, and somatic health problems. Positive emotions arise, social connectedness, motivation for the achievement of a goal, positive relationships, and life satisfaction (Glomb et al., 2011).

Mindfulness is used to improve well-being toward oneself (hedonic well-being) and others (eudaimonic well-being) (Rehman et al., 2021; Zheng et al., 2022). Hedonic well-being is taken as subjective actuality and contexted as a person's satisfaction with life, generally called also as happiness (Jones & Drummond, 2022; Wijngaards et al., 2022). On the other hand, psychological well-being is generally associated with eudemonia and gauged with personal growth, environmental mastery, self-acceptance, positive relations, purpose in life, and autonomy attributes (Ryf & Keyes, 1995; Chan et al., 2019; Zheng et al., 2022). Jackson Preston (2022) advises a simpler or in other words an easier-to-manage quad structure which is composed of individual, interpersonal, communal, and societal stages of well-being resulting in a hierarchically incrementing performance of the employees in a holistic manner. This societal communication helps in the attenuation of stress and enhances a healthier self and a better quality of life (Carotta et al., 2022; Jones & Drummond, 2022; Wijngaards et al., 2022). The motivation to achieve goals is also backed by well-being (Jones & Drummond, 2022).

Mindfulness is regarded as an outstanding tool not only for amplifying the well-being of employees (Christopher et al., 2012; Choi et al., 2021; Jones & Drummond, 2022) and university students (Rehman et al., 2021) but also for avoiding retrogression of it amongst employees (Creswell, 2017; Dinesh et al., 2022). Besides, mindfulness is used to predict various performance indicators from productivity to turnover in order to generate continuity in employees (Wright & Bonett, 2007; Wijngaards et al., 2022) and university students (Yusufov et al., 2020; Simonsson et al., 2021); and their good performance level in a circadian rhythm by reducing stress (Baccarani et al., 2013; Danish et al., 2022; Ito et al., 2022; Jones & Drummond, 2022). A current study by Zheng et al. (2022) conducted in China reveals that mindfulness studies deflate adverse feelings which helps to improve subjective well-being and serves as an antecedent to facilitate the required background for psychological well-being. Rehman et al., (2021) state that this development generates by social connectedness and utilizing mediation practices.

The most common structured and the applied mindfulness-based program is the mindfulness stress reduction (MBSR) program. It was created by Jon Kabat-Zinn in 1979 at the University of Massachusetts Medical Center. (Kabat-Zinn, 2019). It is an eight-week long program, with 2.5 hours of weekly sessions and an additional six hours of mindfulness day (Kabat-Zinn, 2021). The MBSR program has a growing interest all around the world, since its supportive role in health care and stress (Lehrhaupt & Meibert, 2017).

To sum up, according to the literature, stress is a natural part of human life and exists in various areas including business life. Occupational stress has adverse effects on employees' well-being and resilience levels. However, mindfulness training has supportive effects on employees and decreases the level of stress. Mindfulness also increases employees' well-being and resilience levels (Figure 1). This study is based on that information and is applied to the Turkish context accordingly.

**Figure 1: The Relationship Between Stress, Well-being, Resilience, and Mindfulness**

	OCCUPATIONAL STRESS	MINDFULNESS
STRESS		Decreases
WELL-BEING	Decreases	Increases
RESILIENCE	Decreases	Increases

### 3. DATA AND METHODOLOGY

This study was designed to be an experimental study. Before the study was conducted, an online survey was prepared to measure the sample employees' perceived stress levels, well-being, and resilience levels. An experimental group of 34 people was employed from both a food company and an insurance company. The participants were voluntarily selected and attended the MBSR training. During the training, the participant number decreased to 33.

The MBSR training was given to two companies separately for eight weeks. Participants were asked to fill out the survey before and after the training.

#### 3.1. Measures

The survey was created from three different scales whose reliability and validity were scientifically tested and adapted to the Turkish context.

First of all, the Perceived Stress Scale was developed by Cohen, Mermelstein, and Kamarck in 1983 (Klein et al., 2016). The scale was translated into Turkish and adapted by Eskin et al. in 2013. According to their study, the internal consistency of Cronbach's Alpha was .82, and the correlation of test-retest was .88. The study showed that the Turkish version of the Perceived Stress Scale is both reliable and valid to be used in studies in Turkey (Eskin et al., 2013). The scale has ten questions.

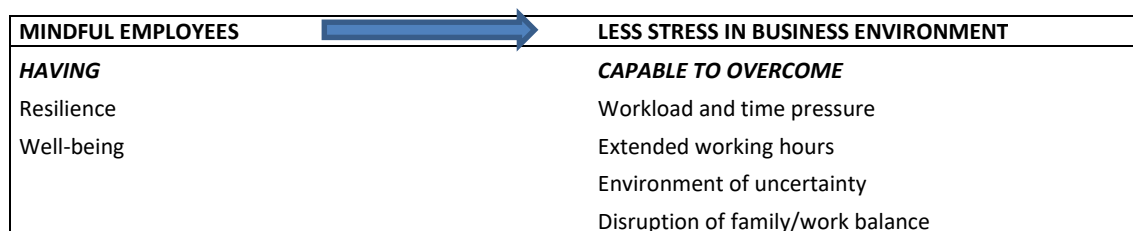
Secondly, The World Health Organization developed The WHO-5 Well-being Scale in 1998 (Topp et al., 2015). It was translated and adapted to Turkish by Erhan Eser in 1999. The internal consistency of Cronbach's Alpha was .81 (for adults) and the correlation of test-retest was .63.9. The study showed that the Turkish version of the WHO-5 Well-being Scale is both reliable and valid to be used in studies in Turkey (Eser, 1999). The scale has five questions.

Thirdly, the Brief Resilience Scale was developed by Smith et al. in 2018 (Malik & Garg, 2018) and translated and adapted to Turkish by Tayfun Doğan in 2015 (Doğan, 2015). The internal consistency coefficient was .83 and the correlation of test-retest was between .49 and .66. According to the findings of the study, the scale has validity and reliability for studies in Turkey (Doğan, 2015). The scale has six questions.

#### 3.2. Research Model

The model of the study is provided in Figure 2. The model of the study claims that mindfulness improves the employee's coping capacity with stress, decreasing perceived stress levels. Those attending the eight-week MBSR course will be mindful employees and have a substantial capital of resilience and well-being to cope with the strain and stress of the business environment. The employees may have to cope with occupational stress sources such as workload, time pressure, extended working hours, uncertainty related to the business environment, and problems related to family and work balance disruption. The MBSR training develops the personal awareness of employees and improves the observation capacity of responses. This ability supports employees' coping capabilities in challenging times and reduces stress.

**Figure 2: A Conceptual Framework of Remote Working, Stress, and Employee Coping Capabilities in terms of Mindfulness**



### 3.3. The Hypothesis

The hypotheses were formed according to the literature that mindfulness has a significant effect on reducing stress levels and increasing the well-being and resilience levels of people.

Hypothesis 1: MBSR training is significantly effective in reducing the stress level of employees.

Hypothesis 2: MBSR training is significantly effective in increasing the well-being of employees.

Hypothesis 3: MBSR training is significantly effective in raising the resilience level of employees.

### 4. FINDINGS AND DISCUSSIONS

The data from the online survey was collected before and after the MBSR training. After the data was collected, t-tests were prepared to test the hypothesis via the SPSS 25 program. The findings related to the hypothesis testing are as follows:

Hypothesis 1: MBSR training is significantly effective in reducing the stress level of employees.

**Table 1: t-Test Results for Comparing Experimental Group's Pre-test and Post-test Stress Levels**

Measurement	N	$\bar{X}$	S	sd	t	p
Pre-test	34	30.05	5.82	33	-6.020	0.00
Post-test	33	23.93	5.21			

According to the t-test results of the experimental group (Table 1), the application of the MBSR program was significantly effective in reducing the participants' stress levels [ $t(33) = -6.020$ ;  $p < 0.05$ ]. Before the MBSR program, the experimental group's mean stress level was calculated as  $\bar{X}_{\text{pre-test}} = 30.05$ . After the MBSR program, this mean level was calculated as  $\bar{X}_{\text{post-test}} = 23.93$ . This result showed that applying the MBSR program had a significant effect on reducing the participants' stress levels. Based on this finding, it can be said that the tested hypothesis should be accepted.

Hypothesis 2: MBSR training is significantly effective in increasing the well-being level of employees.

**Table 2: t-Test Results for Comparing Experimental Group's Pre-test and Post-test Well-being Levels**

Measurement	N	$\bar{X}$	S	sd	t	p
Pre-test	34	15.38	3.28	33	4.263	0.000
Post-test	33	18.15	2.97			

According to the t-test results of the experimental group (Table 2), the application of the MBSR program was significantly effective in increasing the participants' well-being levels [ $t(33) = 4.263$ ;  $p < 0.05$ ]. Before the MBSR, the experimental group's mean well-being level was calculated as  $\bar{X}_{\text{pre-test}} = 15.38$ . After the MBSR, this mean level was calculated as  $\bar{X}_{\text{post-test}} = 18.15$ . The finding that emerged according to the calculated values showed that applying the MBSR program to the participants had a significant effect on their well-being levels. Based on this finding, it can be said that the tested hypothesis should be accepted.

Hypothesis 3: MBSR training is significantly effective in increasing the resilience level of employees.

**Table 3: t-Test Results for Comparing Experimental Group's Pre-test and Post-test Resilience Levels**

Measurement	N	$\bar{X}$	S	sd	t	p
Pre-test	34	18.97	3.22	33	4.656	0.000
Post-test	33	21.87	4.14			

According to the t-test results of the experimental group (Table 3), the application of the MBSR program was significantly effective in increasing the resilience levels of the participants [ $t(33) = 4,656$ ;  $p < 0.05$ ]. Before the MBSR program, the experimental group's mean resilience level was calculated as  $\bar{X}_{\text{Pre-Test}} = 18.97$ . After the MBSR program, this mean level was calculated as  $\bar{X}_{\text{post-test}} = 21.87$ . The finding values showed that applying the MBSR program to the participants significantly increased their resilience levels. Based on this finding, it can be said that the tested hypothesis should be accepted.

To sum up, this study is the first MBSR applied study to employees in Turkey in business administration science. The study supported the hypothesis that MBSR training applied to Turkish employees significantly reduces the perceived stress level. It has also supported the other hypothesis that MBSR training has increased the level of well-being and resilience after the

training. Those findings show that mindfulness training improves employees' psychological capital and becomes a supportive instrument for challenging experiences in business.

## 5. CONCLUSION AND IMPLICATIONS

Stress is an undisputable ingredient of human life. When stress occurs, our perceptions shape our way of thinking, emotions, and automatic reactions. In terms of business, stress blurs or blocks employees' vision and prevents them from finding effective or alternative solutions to the problems. Effective management of psychological capital renders companies adaptive and balanced in challenging situations. There is no shortage of evidence when one intends to highlight the relationship between employees' well-being and resilience levels increase when stress decreases. Employees with a high level of well-being and resilience are more likely to feel happier and healthier. They engage more in their tasks and become more productive.

There are numerous sources of stress in work life, especially under the circumstances, employees have been introduced during global pandemics. Demands, workload, time pressure, having long working hours, having uncertainty, and family and work balance disruption (COVID-19 times) may cause stress to employees. According to the literature, mindfulness supports employees by improving their awareness and attention, which creates flexibility and rapport in any situation. Employees with strong psychological capital adapt quickly to sudden and unexpected changes in the business environment. The flexible and liberated way of thinking through mindfulness training makes the challenging problems to be solved.

The proposed conceptual model in this paper suggests that employees who are supported through mindfulness training experience less stress, have a high level of well-being, and are more resilient in their business life. Based on relevant literature, the model suggests that employees who undergo an MBSR training program become psychologically more equipped to overcome the strains of business life. The relationships embedded in this model might provide a guideline for organizations in search of turning their work environments into capable settings adapting to challenging situations with the support of their employees. The ability to embrace adversity and become aware of reality without biased perceptions will change the adverse effects of situations into learning opportunities. The MBSR (Mindfulness-based Stress Reduction) program appears as an appropriate method to use to validate the model. The experimental part of the study supported the conceptual model and the literature that employees having mindfulness training (MBSR) have their perceived stress level decreased, and their well-being and resilience (psychological capital) levels increased.

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