

NEW FRONTIERS IN SOCIAL, HUMAN AND ADMINISTRATIVE SCIENCES

Editors:

Assoc. Prof. Enis Baha BİÇER

Dr. Orhan ŞANLI



DUJAF

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Chapter 1

The Impact of The Total Subsidies on Total Input Costs: The Case of EU¹

Eyüp TANIL², Ali Yasin KALABAK³

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INTRODUCTION

Agriculture is an important economic activity meeting people's basic food needs, providing raw materials for the production of consumer goods, and creating high employment in some parts of the world. Every country, particularly developed countries, implements its own unique agricultural policy. Undoubtedly, these policies have great importance for the agriculture sector which is sensitive to climate and environmental conditions. Moreover, the events occurring today, such as climate change, the Ukraine-Russia war, and increasing global risks, make the agriculture sector even more special and strategic. For all these reasons, reducing agricultural costs is one of the most important aims of agricultural supports and subsidies.

As the phenomenon of globalization spreads worldwide, increasing liberalization tendencies rapidly spread in all sectors, while the state intervention continues in the agricultural sector. Today, every country has an agricultural policy implemented for various goals. Governments support agriculture because it is the main source of livelihood in less developed and developing countries, and it is considered a strategic sector in developed countries. The effectiveness of the agricultural support policies is usually evaluated based on variables such as output, efficiency of farms, consumer and producer welfare.

Countries allocate significant amounts of resources from their national budgets every year to support agriculture. As a result of this allocation, countries not having an absolute advantage in the agriculture sector suffer a welfare loss. There is also an opportunity cost for the resources allocated for the agriculture sector. Countries can achieve greater welfare by channeling the resources allocated to agriculture to sectors in which they have an absolute advantage. From this perspective, it is necessary to examine the efficiency and productivity of the resources allocated to agriculture.

In the literature, agricultural subsidies affect the profitability of farms through various transfer mechanisms. First of all, subsidies can benefit suppliers providing inputs to agricultural production by increasing input prices. Secondly, it can increase consumer welfare by reducing costs and enabling the sale of agricultural products to consumers at a lower price. Lastly, subsidies can interact with other factor markets or influence farmer behavior (Ciaian, et al., 2015: 21). According to Aubert and Enjolras (2022), direct subsidies increase pesticide costs, while rural development support decreases them. In their study, Aubert and Enjolras (2018) find that direct subsidies increase pesticide usage, while rural development support reduces it. Ciaian and Swinnen (2009), in a model that considers land as a fixed factor and includes credit market

imperfections, suggest that area payments increase land rental costs. Henningsen et al. (2011), in their econometric analysis using farm data from Norway for the years 1991-2006, find that coupled subsidies have a significant impact on input usage and output level, while decoupled subsidies have almost no effect on them. In other words, these results indicate that coupled subsidies affect costs.

The CAP, which was established with its basic principles since 1960, was implemented in 1962. It is one of the four main policies of the EU. Since its establishment, CAP has experienced a dynamic process of reform. Every reform brings about a change in the support methods of CAP. One of the main reasons for these changes is the pressure that the support of the CAP provided to producers creates on the EU budget. In the 1980s, about 75% of the EU budget was allocated to agriculture within the scope of the CAP, whereas today, one-third is allocated to agriculture (Figure 1.). The efficiency and productivity of the CAP subsidies receiving such a high share of the EU budget should be investigated. In this way, it can be understood whether the subsidies spent on the agricultural sector are used effectively and efficiently.

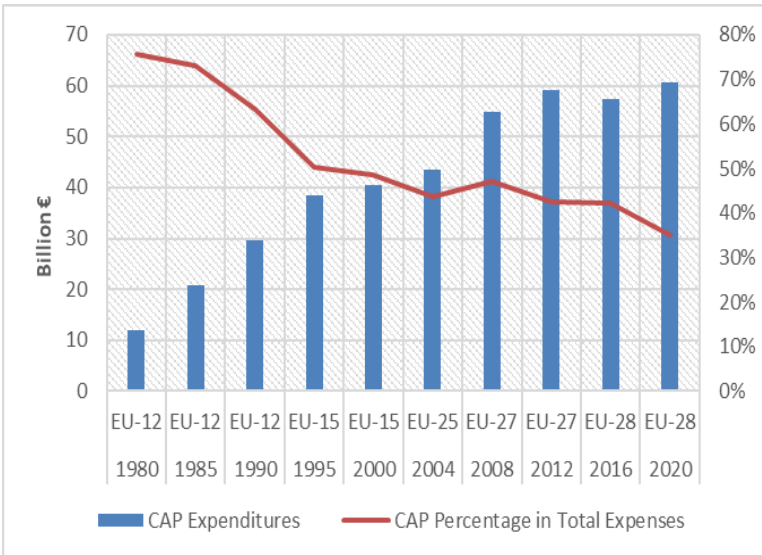


Figure 1: EU Budget and CAP Expenditures

Source: European Commission **Note:** We prepare it using the annual EU budget data.

The Common Agricultural Policy (CAP) initially started implementing agricultural subsidies in the form of Price and Market support in 1962. Over time, numerous changes have been made to subsidy policies up to the present day. Current modifications mainly focus on providing support to smaller farms,

developing mechanisms that align with the EU's environmental and climate change objectives, enhancing animal welfare, funding regional development projects, and rewarding farmers who achieve environmental targets.

Since its establishment, CAP has undergone several different changes in its subsidy mechanisms, but the most significant reform emerged with the 1992 MacSharry reform. This reform marked a shift from market support mechanisms, such as price guarantees, quotas on agricultural products, and export subsidies, which negatively affected the EU budget, to a system that directly provided income to farmers. Subsequent reforms that gained prominence include the Agenda 2000 reform and the Fischer 2004 reform. Under the Agenda 2000 reform, CAP subsidies were divided into two pillars. The first pillar included market support items such as direct payments, decoupled supports, and export subsidies, while the second pillar encompassed support within the scope of rural development policy (Fouilleux, 2010: 346-350). The Fischer 2003 reform, considering both internal factors (environmental concerns, budget constraints, quality food production, and animal welfare) and external factors (trade agreements), focused on creating a more sustainable agricultural structure. Coupled payments were significantly reduced, and a single farm payment system, independent of production quantities, was emphasized. The new support plan aimed to foster environmental protection, food security, animal welfare, and the establishment of a fair competitive environment among farmers (Chatzopoulou, 2020: 10-11).

The 2014-2020 period of the Common Agricultural Policy (CAP) reform led to several significant changes in the EU's agricultural subsidy mechanisms. In this reform, a targeting strategy emphasizing the achievement of specific objectives took precedence over the strategy of decoupling agricultural subsidies from production. Within this framework, seven different multi-purpose payment types were defined under the Direct Support arrangements. The main elements of the reform included the Basic Payment, the Greening component, support for young farmers, redistributive payment, income support for areas facing natural constraints, coupled support for production, and a simplified system tailored to small farmers. The Greening component aims to promote environmentally-friendly farming practices, while the support for young farmers sight to encourage the involvement of new generations in the agricultural sector. This reform can be considered as a reflection of the EU's efforts to make its agricultural policies more sustainable, effective, and efficient (Nègre, 2022).

The 2023-2027 period of the Common Agricultural Policy (CAP) reform aims to focus on a fair, environmentally-friendly, and performance-based

approach, supporting the European Green Deal and the 'Farm to Fork' and biodiversity strategies. The new policy regulations within this framework are linked to ten specific objectives jointly identified by the EU for social, environmental, and economic sustainability in agricultural and rural areas. These objectives include providing fair income distribution for farmers, enhancing competitiveness, strengthening farmers' position in the food supply chain, tackling climate change, promoting environmental sensitivity, preserving landscapes and biodiversity, supporting generational renewal, enhancing vitality in rural areas, ensuring food and health quality, and promoting knowledge and innovation. According to this reform, EU member countries can design their own national strategies, aligning with their needs and capabilities, to contribute to the ten specific objectives. Additionally, countries can combine their funds for income support, market measures, and rural development within the framework of a national CAP strategy (European Commission, n.d.).

The new Common Agricultural Policy (CAP) includes new commitments and incentives concerning the environment and climate. Some of these are as follows:

- Member states must redirect at least 10% of direct payments to support small farms for a fairer distribution of subsidies.
- Member states are required to allocate at least 3% of their direct payment budgets to encourage and support young farmers.
- EU countries are obligated to include "eco-schemes" in their plans to promote and support environmentally-friendly agricultural practices. As part of these plans, they must allocate at least 25% of direct payments to this area.
- Member States must allocate at least 35% of their rural development budgets to activities related to the environment, climate, and animal welfare (European Commission, 2022).

The Common Agricultural Policy (CAP) initially implemented agricultural subsidies in the form of Price and Market Support in 1962. Over time, there have been numerous changes in subsidy policies up until the present day. Current modifications generally focus on providing more support to small-scale farms, developing mechanisms in line with the EU's environmental and climate change goals, improving animal welfare, funding regional development projects, and rewarding farmers who achieve environmental objectives. Despite various changes made to the CAP since its establishment, the most substantial reforms were carried out with the Agenda 2000 reform and the Fischer 2004 reform. Under the Agenda 2000 reform, CAP subsidies were divided into two pillars. The first pillar encompassed market support measures such as direct

payments, production-independent payments, and export support, while the second pillar included support measures under rural development policy (Fouilleux, 2010: 347-350). The 2003 Fischer reform focused on achieving a more sustainable agricultural structure, considering internal factors like environmental concerns, budget constraints, quality food production, and animal welfare, as well as external factors like trade agreements. The new CAP reform abandoned production-linked support and introduced the decoupled Single Payment Scheme, aiming to promote environmental protection, food security, animal welfare, and fair competition among farmers (Chatzopoulou, 2020: 10-11).

Empirical studies in the literature generally investigate the effects of subsidies on output (Zhengfei and Lansink, 2006; Olagunju et al., 2019; Vigani and Curzi 2019; Duquenne et al., 2019) or technical efficiency (Latruffe et al., 2017; Minviel and Sipilainen, 2018; Zhu and Lansink, 2010) or farm efficiency (Frýd and Sokol, 2021; Rizov et al., 2013; Kazukauskas et al., 2014) or agricultural land rental prices and the value of agricultural land (Patton et al., 2008; Baldoni and Ciaian 2021; Michalek et al., 2011; Herck and Vranken, 2013; Valenti et al., 2021; Guastella et al., 2018). In this study, we attempt to evaluate the efficiency of subsidies of the CAP through the impact on total input costs. Thus, this study aims to fill the gap in the literature by focusing on a parameter (total input costs) not investigated in previous studies. Another distinction of this study from its counterparts is the difference in the sample, method, and period. The main objective of the study is to determine how the CAP support of the EU affects the total input costs (such as land, seed, fertilizer, plant protection, machinery and equipment). Thus, we aim to determine the overall impact of subsidizing the agricultural sector on the market for production factors.

The study consists of two sections. The first section of the study focuses on the relevant literature. Then, we perform an analysis using the balanced panel data method with data from 12 EU members between 2004 and 2020. In the final section of the study, we evaluate the findings obtained from the empirical analysis.

THEORY AND LITERATURE

Subsidies play an important role in affecting the supply and demand of a good. Subsidies for consumption affect the demand curve, while subsidies for production affect the supply curve (Parkin, 2011: 140).

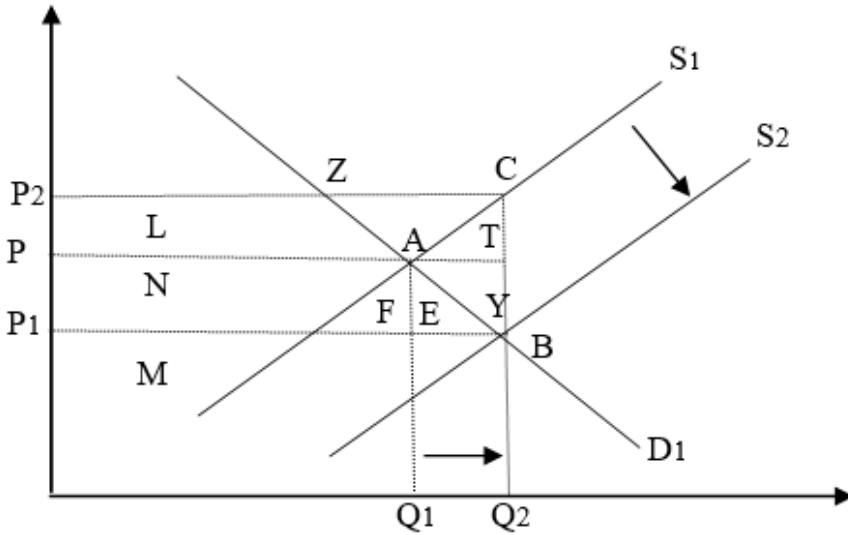


Figure 2: Subsidies for Production
Source: (Hutchinson, et al., 2017, 228)

Before the subsidy, figure 2 shows that consumer surplus is $K + L$ and producer surplus is $M + N$. A subsidy for production shifts firstly the supply curve from S_1 to S_2 . Then, the new consumer surplus is the sum of the areas $K+L+N+F+E$, while the new producer surplus is the sum of the areas $M+N+L+Z$. As a result, subsidies increase both producer surplus and consumer surplus. Figure 2 shows that the total subsidy payment by the government is equal to the area P_2CBP_1 . The sum of the areas T and Y represents the deadweight loss caused by the subsidies.

As seen in Figure 2, subsidies lead to an increase in the supply (S to S_2), a decrease in the price level (P to P_1), and the formation of production surpluses (Q_1 to Q_2). However, subsidies lead to an increase in marginal costs and public expenditures by using inefficiently use of resources. On the other hand, the excessive production caused by subsidies may lead to marginal social cost (the falling market price) being greater than marginal social benefit. The decrease in global prices of agricultural products particularly affects developing and underdeveloped countries that are active in the agricultural sector, in a negative way (Parkin, 2011: 140-141).

We examine various studies on the relationship between different subsidies and cost variables. However, these studies have generally focused on subcomponents, prompting the need for a more comprehensive and holistic

investigation of the relationship between total subsidies and total input costs. Therefore, in this study, we aim to examine this relationship from a broad perspective and provide a more comprehensive outlook by considering the total subsidies and total output.

In their study, Kumbhakar et al. (2023) use data from Norwegian farms and conduct both parametric and non-parametric model analyses. According to their findings, they claim that subsidies, scale, and efficiency components lead to an average increase of 2.3% in profitability. Ciaian et al. (2015) perform a panel data analysis using data from 15 EU countries for the period 1999-2007. They evaluate the economic effects of agricultural support and suggest that these subsidies positively contribute to farmers' income. Espinosa et al. (2020) analyze the microeconomic effects of the 2013 CAP reform using the Individual Farm Model for the CAP (IFM-CAP) across the EU. According to their results, subsidies are effective in reducing inequality among farm incomes. On the other hand, in their study, Kryszak et al. (2021) conduct a panel data analysis using data from EU countries for the period 2007-2018. Their findings provide evidence that subsidies positively affect farm profitability, but they also indicate potential negative effects on larger farms.

In the literature, Patton et al. (2008) conduct panel data analysis using data from the Northern Ireland regions for the period 1994-2002. They find that CAP subsidies influence rental costs depending on the payment methods. Van Herck and Vranken (2013) use unbalanced panel data analysis for the period 1994-2009 in the Czech Republic, Poland, Slovakia, Hungary, Lithuania, and Latvia, suggesting that CAP direct payments increase land rental costs and are associated with high agricultural production and high rental prices. Valenti et al. (2021) analyze panel data for Italy from 2006 to 2013 and claim that production-linked supports had a greater impact on land costs compared to decoupled supports. Baldoni and Ciaian (2021) use dynamic panel data analysis for the period 1989-2016 in the EU and find that production-linked and decoupled subsidies influence land costs, but rural development support has no effect. Guastella et al. (2018) use panel data analysis for Italy from 2000 to 2008, and they find no impact of production-linked subsidies on agricultural land costs, but they argue that decoupled subsidies have a limited effect.

Michalek et al. (2011) conduct panel data analysis for 25 EU countries from 1995 to 2007 and highlight that agricultural landowners do not significantly benefit from CAP support. Latruffe and Letort (2011) use a symmetric generalized McFadden Cost Model for France from 1995 to 2006. They find that CAP direct payments are associated with high production costs in general, but there is no relationship between direct payments and production costs in

dairy farms. Buysee et al. (2011) analyze unbalanced panel data for the Netherlands from 2000 to 2008, suggesting that environmental investment support has no significant impact on output but increase costs and reduce farmer income. Kropp and Whitaker (2011) use weighted regression analysis for the US from 2005 to 2007, claiming that direct payments reduce farm operating costs through better credit conditions. Vollaro (2012) conducts research on Italian regions from 2000 to 2002 and 2005 to 2007 using panel data analysis, finding that an increase in a single farmer payment led to higher fertilizer and plant protection costs. Jaraite and Kazukauskas (2012) conduct panel data analysis for 15 EU members from 2001 to 2007, suggesting that CAP cross-compliance policies reduce fertilizer and pesticide costs. Aubert and Enjolras (2022) use panel data analysis for French farms from 2007 to 2015, claiming that CAP decoupled subsidies increase pesticide costs, while rural development supports decrease them. Martinho et al. (2022) use data efficiency analysis for some EU farms from 2004 to 2018, indicating that 2013 CAP policy instruments incentivize increased input usage or at least higher costs to achieve the same production level.

In the literature, the effectiveness of subsidies is not solely investigated based on cost factors. There are several studies that explore the economic efficiency of subsidies on farms and their impact on various aspects of agricultural performance.

In their study, Staniszewski and Borychowski (2020) use the stochastic frontier model and fixed-effects model to analyze data from FADN regions for the years 2007-2017. Their findings confirm the hypothesis that the impact of subsidies on efficiency depends on the size of the farms. They identify a statistically significant stimulating effect only among the largest farms group. Marzec and Pisulewski (2017) analyze data from Polish dairy farms for the years 2004-2011 in their study. They use the translog production function and employ a Bayesian approach for estimation. According to their results, subsidies have a negative impact on technical efficiency. Hlavsa et al. (2017) examine the economic efficiency of subsidies on farms in the Czech Republic for the period 2007-2013. Their findings reveal that farms receiving support in Less Favored Areas (LFA) show higher economic performance and labor productivity. Bereznicka and Wicki (2021) investigate the relationship between operational subsidies and labor efficiency in agricultural enterprises in Poland for the years 2010-2018 using panel data analysis. They find that labor efficiency is positively influenced by factors such as capital per worker and the area of land, but there is a negative relationship between labor efficiency and the subsidy rate. Tan et al. (2013) study the relationship between subsidies and

total factor productivity in cotton production in China using the Malmquist index. Their results indicate that the subsidy policy in cotton production led to a decrease in total factor productivity instead of increasing it. Garrone et al. (2019) conduct panel data analysis using data from 213 regions in the EU for the years 2004-2014 to investigate the relationship between subsidies and agricultural productivity. Their findings suggest that CAP subsidies increase agricultural labor productivity on average. However, production-linked subsidies slow down productivity growth. Latruffe et al. (2017) use panel data analysis with data from 9 Western European countries for the years 1990-2007 to study the relationship between subsidies and technical efficiency in dairy farms. Their results indicate that the impact of subsidies on technical efficiency could be positive, neutral, or negative depending on the country. They also find that the decoupled subsidies implemented with the 2003 CAP reform weaken the relationship between subsidies and technical efficiency.

MODEL, DATA AND METHOD

In this study, we investigate the impact of total subsidies of CAP on total input costs in 12 EU members between 2004 and 2020. The start year of the subsidies is 2004. Since we have complete data for the 12 EU members from this date, we use a balanced panel data approach with the data of these countries. The countries are Germany, Belgium, Denmark, Greece, Spain, France, Ireland, Italy, Luxembourg, Netherlands, Portugal, and United Kingdom. In this analysis, the dependent variable is total input costs, and the independent variable is total subsidies. Using total output as a control variable is appropriate as it has the potential to influence both the dependent and independent variables. We obtain the entire dataset from the European Union Farm Accountancy Data Network (FADN) on an annual average farm basis. Our variables are calculated SO (Standard Output) method by FADN. Additionally, we transformed the obtained series into real terms using the GDP deflator. Equation 1 shows the econometric model of the study.

$$TIC_{it} = \beta_0 + \beta_1 TSUB_{it} + \beta_2 TO_{it} + v_{it} \quad (1)$$

TIC_{it} : Total input cost (€)

$TSUB_{it}$: Total subsidies (€)

TO_{it} : Total output (€/farm)

β_0 : Intercept

v_{it} : Error term

Total input costs consist of intermediate consumption costs, external factor costs (such as wages, rents, and interest payments), and depreciation expenses. Total intermediate consumption costs are divided into total specific costs (seeds and plants, fertilizers, plant protection products, feed, etc.) and total farming overheads (current costs of machinery and buildings, energy, labor contracts, and other direct inputs). The total subsidies consist of subsidies on crops, subsidies on livestock, total support for rural development, subsidies on intermediate consumption, subsidies on external factors, subsidies on decoupled payments, and other subsidies. Finally, the total output variable consists of the total value of agricultural products, live animals and animal products, as well as other outputs, in addition to other profitable activities of the farms.

In the study, we use a panel data method that takes into account multiple cross-sectional units. Firstly, we apply the delta test to determine whether the slope coefficients are homogeneous (Pesaran and Yamagata 2008). Next, we perform a test for cross-sectional dependence and apply panel unit root and co-integration tests in accordance with the results of this test. Afterwards we employ panel causality tests that are robust to heterogeneity and cross-sectional dependence issues.

Table 1: Delta Test Results

	Test Statistics	P-value
$\hat{\Delta}$	5.808	0.000
$\hat{\Delta}_{adj}$	6.642	0.000

According to Table 1, the null hypothesis that the slope coefficients in the model are homogeneous is rejected (with a probability value of less than 0.05). Based on these results, we apply tests that take into account heterogeneity in the following of the study.

Cross-sectional dependence is when a shock that occurs in one of the cross-sections (N) of the panel data affects the other cross-sections through common factors. This situation, which can be considered as one of the consequences of globalization, can lead to biased results in panel data analysis. Therefore, we should identify the relationship between the cross-sections making up the panel data to conduct a reliable analysis (Hsiao, 2014, 347).

In the literature, there are various tests to detect cross-sectional dependence. In the study, we use Breusch and Pagan (1980) LM, Pesaran (2004), and Pesaran, Ullah, and Yamagata (2008) bias-adjusted LM tests that meet the

necessary condition (when the time dimension is greater than the cross-sectional dimension, $T > N$). The null hypothesis being tested in the mentioned tests assumes that there is no cross-sectional correlation amongst the errors.

Table 2: The Results of Tests for Cross-Sectional Dependence

Tests	Statistics	P-value
Breush-Pagan (1980)	135.9	0.000
Pesaran (2004)	11	0.000
Pesaran, Ullah and Yamagata (2008)	7.236	0.000

According to Table 2, since the p-value is less than 0.05, we reject the H_0 for all three tests. In other words, we conclude that there is cross-sectional dependency.

Table 3: Pesaran (2004) CD Test for Variables

Variable	CD-Test Statistics	P-value
TIC_{it}	26.168	0.000
TO_{it}	23.28	0.000
$TSUB_{it}$	2.953	0.003

When the cross-sectional dependency is tested separately for each variable, as seen in Table 3, the results are consistent with the result of Table 2. In this stage of the study, we apply two robust unit root tests against cross-sectional dependence, one based on the ADF test called CADF, and the other based on the IPS test called CIPS. Table 4 and Table 5 respectively present the results of mentioned tests.

Table 4: CADF Test Results

Variables	Level		First Difference	
	C	C + T	C	C + T
<i>TIC_{it}</i>	-1.661	-1.854	-3.691*	-3.717 *
<i>TO_{it}</i>	-1.114	-1.151	-4.159*	-4.251*
<i>TSUB_{it}</i>	-1.469	-2.427	-4.299*	-4.328*

*, **, *** indicate significance levels of 1%, 5%, and 10%, respectively. The CADF test has two statistics, t-bar and z[t-bar]. The t-bar statistic is valid for balanced panels. The lag length is 1.

As can be seen from Table 4, all variables are non-stationary at both the constant and constant and trend models at the level values. When we take the first difference of the series, we realize that they become stationary at the 1% significance level.

Table 5: CIPS Test Results

Variables	Level		First Difference	
	C	C + T	C	C + T
<i>TIC_{it}</i>	-	-	-	-
	2.048	2.145	3.691*	3.717*
<i>TO_{it}</i>	-	-	-	-
	1.506	1.682	4.198*	4.361*
<i>TSUB_{it}</i>	-	-	-	-
	1.848	2.866**	4.299*	4.328*

*, **, and *** indicate the significance levels of 1%, 5%, and 10%, respectively. The lag length is 1.

According to table 5 all variables are non-stationary at the both the constant and constant and trend models at the level values except ***TSUB_{it}***. When we take the first differences of variables, all variables become stationary.

The unit root tests provide different results for trend model of ***TSUB_{it}*** variables. In the literature, although different panel unit root tests applied to the levels of series may give different results, the fact that the differenced series become stationary is sufficient to accept that the series are integrated of order one, I(1) (Rao and Kumar, 2009; Singh, 2013). Therefore, we continue the study by assuming that the series are I (1).

In the literature, cointegration tests are performed to detect the presence of a long-term relationship between variables. In this context, we also apply two panel co-integration tests developed by Gengenbach, Urbain and Westerlund (2016) and Westerlund (2008). When developing Gengenbach, Urbain and Westerlund (2016) co-integration test, they use a common factor structure and base it on error correction model. Finding a statistically significant 1-lag dependent variable $y(t-1)$ in the co-integration test indicates the presence of a long-term relationship among the variables. Table 6 shows the results of the co-integration test.

Table 6: Gengenbach, Urbain and Westerlund (2016) Panel Cointegration Test Results

d.y	Coefficient	T-bar Statistic	P-value
y(t-1)	-0.879	-2.265	>0.01

The lag length is chosen to be heterogeneous, varies from unit to unit.

According to the results of the panel co-integration test shown in Table 6, the probability value for the significance of $y(t-1)$ is more than 0.10, indicating that the null hypothesis is not rejected, and there is a no co-integration relationship among the variables. In other words, we couldn't find evidence of the presence of a long-run relationship among the variables.

We also employ Durbin-Hausman co-integration test developed by Westerlund (2008) which takes into account cross-sectional dependence. This test can be employed when the dependent variable is integrated of order one I (1) and the independent variables are integrated at different levels. In this test, two different statistics are calculated: the panel statistic (DHp) when the slope coefficient is homogeneous, and the panel group statistic (DHg) when the slope coefficient is heterogeneous.

Table 7: Durbin-Hausman Panel Co-integration Test Results

D Hg	P rob.	D Hp	P rob.
1	1.	4	1.
.989	000	.296	000

According to the results of the Durbin-Hausman panel co-integration test shown in Table 7, the probability value for the significance of DHp and DHg is more than 0.10, therefore we cannot reject null hypothesis. Thus, we could not

find evidence of preference of long-term relationships cannot be detected in co-integration tests, this study continues with causality tests.

By employing panel causality tests that consider cross-sectional dependence and heterogeneity, we can better understand the endogeneity between variables and gain insights into the effects of subsidy policies. The results of these tests contribute to the understanding of the relationships between the variables and shed light on the impact of total subsidies on the total agricultural costs. To detect the causal relationship between variables, we use panel causality tests considering cross-sectional dependence and heterogeneity. These tests are Emirmahmutoglu and Kose (2011) causality test and Dumitrescu and Hurlin (2012) causality test. Table 8 presents the results.

Table 8: Panel Causality Test Results

Emirmahmutoglu and Kose Causality Test					Dumitrescu and Hurlin Causality Test		
Direct.	Stat.	Cv.1	Cv.5	Cv.10	Direct.	Stat.	Prob.
TSUB ==>TIC	16.805	60.636	48.666	42.787	ΔTSUB ==>ΔTIC	-0.735	0.447
TIC ==>TSUB	33.833	57.656	45.833	40.532	ΔTIC ==>ΔTSUB	-0.170	0.836
TO ==>TSUB	49.003	61.331	48.320	42.081	ΔTO ==>ΔTSUB	1.470	0.103
TSUB ==>TO	25.835	62.635	48.118	42.020	ΔTSUB ==>ΔTO	0.066	0.943
TO ==>TIC	39.017	58.651	46.569	40.933	ΔTO ==>ΔTIC	1.999	0.073
TIC ==>TO	21.224	66.980	50.524	42.129	ΔTIC ==>ΔTO	-0.523	0.657

(The Dumitrescu and Hurlin test can be applied when the variables are stationary. For this reason, we take first difference of the variables to make them stationary. Since the analysis period is short, we choose a maximum lag length of 1.)

The results of the Emirmahmutoglu and Kose (2011) casualty test suggest a one-way causal relationship from total output to total subsidies at a significance level of 5%. However, there is no causal relationship between other variables. On the other hand, the results of the Dumitrescu and Hurlin (2012) causality test indicate a one-way causal relationship from total output to total input costs at a significance level of 10%. Again, no causal relationship is observed among other variables. We discuss these findings in the conclusion section of the study.

CONSLUSION

Undoubtedly, agricultural policies today are of vital importance for an environmentally and climate-sensitive agricultural sector. Factors such as the rapidly increasing world population, climate change that is increasingly being felt, and food security are especially important for the sustainability of the agricultural sector. In this context, policies to be implemented for the agricultural sector have a significant impact not only on the sector's future but also on the future of humanity. In this regard, agricultural policies implemented and to be implemented have an important impact both in terms of efficient use of resources and on the productivity of agricultural production.

One of the most comprehensive agricultural policies in the world today is the CAP, created and implemented by the EU. In its early years, the policy had a high share of 90% in the EU budget, but today it receives a share of 35% from the budget. The effectiveness and efficiency of such a policy, which has such a high share, need to be researched. Undoubtedly, the support provided to the agricultural sector plays an important role in agricultural production. However, the advantages and disadvantages provided to producers by these policies, which are supported by a high amount of resources, constitute important areas of research. In this direction, the relationship between agricultural production and subsidies, as well as the relationship between subsidies and various factors such as farm productivity, technical efficiency, income distribution, fertilizer and plant protection expenses, agricultural land prices and rents, etc., are highly interesting areas in the economics literature.

In this study, we investigate the relationship between CAP subsidies and total input costs. When we examine the literature, we find that the relationship between CAP subsidies and various input factors such as agricultural land rental prices, fertilizer and plant protection expenses, etc., is studied, but we do not come across a study that generally examines the relationship between subsidies and total input costs. Therefore, this study aims to provide a general perspective on the literature from a cost side.

Limitations of the study include:

- Limited Period: We cannot include data prior to 2004 in the study because the data for the period between 1989 and 2004 was calculated using a different method (SGM).
- Absence of data between 2021-2022 in the FADN database.

According to the results of the causality analysis, we find certain causal relationships between total input costs, total subsidies, and total output variables. One of these relationships is a one-way causality from total output to total input costs. The presence of a one-way causality from total output to total

input costs indicates that changes in agricultural production affect input costs. In other words, increases or decreases in total output influence total input costs. This is in line with economic theory, which states that the optimal level of production is determined by parameters such as capacity utilization rate and production quantity. Full capacity utilization, where average costs are minimized, can result in efficient production, while levels below or above full capacity can increase costs and lead to inefficiencies. Therefore, the existence of a one-way causality from total output to total input costs provides valuable insights for policymakers and serves as a valuable guide for effective management of costs and productivity in agricultural production. Being aware of such a relationship can help in developing more efficient and purposeful policies on how input costs should be regulated. Additionally, it can offer important strategies for agricultural producers to improve their productivity and manage costs. Therefore, the causality relationship revealed in our study holds great importance for the sustainability of the agricultural sector and maintaining economic competitiveness.

In this context, agricultural factor productivity should also be taken into account. To increase productivity, agricultural enterprises need to use their resources more efficiently and effectively. The results of the research show the existence of a causality relationship between total input costs and output. In this case, improving agricultural factor productivity becomes an important step in reducing input costs and ensuring efficient resource utilization. Policymakers can effectively utilize subsidies and support mechanisms to enhance agricultural factor productivity. For example, productivity-focused incentives and training programs can increase the use of technology by agricultural enterprises and optimize their productivity. By establishing a strong link between the management of costs in agricultural production and agricultural factor productivity, the sustainability and competitiveness of the agricultural sector can be ensured.

The one-way causality relationship from total output to total subsidies actually confirms an existing situation. In the early years of implementing the CAP (Common Agricultural Policy), the surplus in agricultural production led to an increase in subsidies. However, as the increase in subsidies began to burden the EU budget, there was a transition from production-linked subsidies to more decoupled supports over time. The causality relationship identified in the study indicates that changes in output continue to have an impact on the evolution of subsidies during the period from 2004 to 2020. At this point, we can anticipate that the EU may revise subsidies based on changes in total output. Consequently, this relationship demonstrates that, just like in the past,

changes in total output still influence the transformation of subsidies in the present day.

The main reason for not detecting a long-term relationship between the series in the study could be the limited period. Therefore, our recommendation to future researchers is to calculate the data using both SGM and SO methods, and to expand the analysis period. By doing so, they would increase the likelihood of identifying a long-term relationship between the series.

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Chapter 2

Omnichannel Marketing in the Digital Age: Challenges and Solutions

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ABSTRACT

In the ever-evolving landscape of consumer behavior shaped by digitalization, businesses find themselves at a crossroads, necessitating swift adaptation and innovation. Omnichannel marketing, a strategic approach aimed at creating a seamless and interconnected customer experience across a multitude of channels, has emerged as a critical response to these shifting dynamics. As consumers seamlessly traverse between online and offline realms, the demand for a unified marketing approach has reached unprecedented heights. This literature review embarks on a comprehensive exploration of the challenges confronting businesses when implementing omnichannel marketing strategies and delves into the ingenious solutions proposed by both researchers and industry practitioners.

In the digital age, it has become evident that thriving in this environment requires businesses to transcend traditional silos and adopt a holistic, customer-centric strategy. This not only entails understanding the obstacles inherent in omnichannel marketing but also involves seeking innovative solutions to fully harness its vast potential.

This literature review delves deeply into these challenges and their corresponding solutions. We scrutinize the complexities of data integration and management, emphasizing the imperative of consistency across channels. The proliferation of digital touchpoints, formidable technological hurdles and paramount concerns regarding customer privacy and security are also examined. In each of these domains, we analyze the obstacles businesses encounter and explore the strategies and solutions that have emerged to overcome them.

Furthermore, as we traverse the dynamic realm of omnichannel marketing, we discover that technology and data-driven insights are indispensable allies. Advanced analytics and artificial intelligence are unlocking new methods for integrating and interpreting data, empowering businesses to deliver personalized experiences that resonate with their customers. Unified customer profiles take center stage in achieving consistency across channels, while cloud-based solutions offer scalability and adaptability to meet the ever-evolving expectations of consumers.

In summary, this literature review provides a comprehensive understanding of the challenges and innovative solutions that define the landscape of omnichannel marketing in the digital era. By navigating these complexities, businesses can position themselves to thrive in an environment where seamless customer experiences are not just an expectation but a necessity.

Keywords: Omnichannel marketing, digital marketing, marketing strategy

1. INTRODUCTION

In the era of digitalization, where the consumer landscape is constantly evolving, businesses are compelled to adapt and innovate. Omnichannel marketing, the strategy of creating a seamless and interconnected experience for customers across a multitude of channels, has risen to prominence as a critical response to these evolving consumer behaviors. With consumers seamlessly transitioning between online and offline realms, the demand for a unified marketing approach has never been more pressing. This literature review embarks on a comprehensive exploration of the challenges that confront businesses when implementing omnichannel marketing strategies, and it investigates the ingenious solutions put forth by both researchers and industry practitioners.

As the digital age reshapes the marketing landscape, it has become abundantly clear that to thrive in this environment, businesses must transcend traditional silos and embrace a holistic, customer-centric strategy. This entails not only understanding the challenges that lie in the path of omnichannel marketing but also seeking innovative solutions that can enable businesses to harness its vast potential fully.

This literature review takes a deep dive into these challenges and their corresponding solutions. We examine the complexities of data integration and management, the imperative of consistency across channels, the proliferation of digital touchpoints, the formidable technological hurdles, and the paramount concern of customer privacy and security. In each of these areas, we scrutinize the obstacles that businesses face and explore the strategies and solutions that have emerged to overcome them.

Moreover, as we journey through the dynamic realm of omnichannel marketing, we find that technology and data-driven insights are pivotal allies. Advanced analytics and artificial intelligence are unlocking new ways to integrate and interpret data, granting businesses the ability to deliver personalized experiences that resonate with their customers. Unified customer profiles are central to achieving consistency across channels, while cloud-based solutions are offering scalability and adaptability to meet the ever-evolving expectations of consumers.

2. LITERATURE REVIEW

2.1. Understanding Omnichannel Marketing

Omnichannel marketing is a comprehensive strategy that aims to unify a brand's presence across all customer touchpoints, both online and offline. It goes beyond the traditional multichannel approach, which merely involves using

various channels to communicate with customers. Instead, omnichannel marketing seeks to provide a consistent and interconnected experience for customers, regardless of the channels they choose to engage with (Hossain et al., 2020: 225; Neslin, 2022: 113; Hendriyani and Chan, 2018: 567; Abraham and Joseph, 2019: 88). Omnichannel marketing prioritizes the customer's needs and preferences. It recognizes that customers often switch between channels during their buying journey and aims to make this transition as smooth as possible.

In an omnichannel strategy, the focus is on creating a seamless customer journey, where customers can transition effortlessly from one channel to another while maintaining a consistent brand experience. This approach acknowledges that consumers today are not limited to a single channel but prefer to interact with brands through various means, such as websites, social media, email, mobile apps, physical stores, and more (Solem, Fredriksen and Sorebo, 2023: 21; Hickman, Kharouf and Sekhon, 2020: 266; Palazon, Lopez, Sicilia and Lopez, 2022: 553-554). Customers have the flexibility to choose the channels that suit their preferences and needs at any given moment. They might start their journey on a mobile app, continue researching on a website, engage with a brand's social media posts and finally make a purchase in a physical store. An omnichannel strategy recognizes and accommodates this channel flexibility

2.2. The Importance of Omnichannel Marketing

Omnichannel marketing places the customer at the center of the strategy. By offering a consistent and personalized experience across all touchpoints, businesses can meet customer expectations and build stronger relationships (Melero, Sese and Verhoef, 2016: 19; Riaz, Baig, Meidute-Kavaliauskiene and Ahmad, 2021: 14-15; Yin et al., 2022: 11-12). Omnichannel strategies facilitate better communication with customers. Brands can engage with customers at various stages of the buying journey, offering assistance when needed and staying top-of-mind throughout the customer lifecycle.

When customers have the flexibility to choose how they interact with a brand, they are more likely to engage. This leads to higher levels of interaction, customer satisfaction and brand loyalty (Lazaris et al., 2021: 440; Hamouda, 2019: 608; Tran Xuan, Truong and Vo Quang, 2023: 663). A flexible approach to customer interactions contributes to higher levels of customer loyalty. When customers feel that a brand respects their choices and provides a seamless experience, they are more likely to remain loyal. Repeat business and long-term relationships become more likely.

Omnichannel marketing generates a wealth of data from various touchpoints. Analyzing this data can provide valuable insights into customer behavior,

preferences and trends, enabling businesses to make informed decisions and refine their marketing efforts (Vidhya et al., 2023: 2421; Hossain et al., 2017: 788). Data analysis can help in segmenting customers based on various factors, such as demographics, purchase history, behavior, or engagement level. These segments can then be targeted with tailored marketing messages and offers.

As more businesses adopt omnichannel strategies, those that excel in delivering consistent and convenient experiences will stand out in the market. This can lead to a competitive advantage and increased market share (Hendriyani and Chan, 2018: 359; Verhoef, 2021: 614; Jones et al., 2021: 150; Zuberi and Rajaratnam, 2020: 124-125). A strong omnichannel strategy can also enable businesses to expand into new markets or demographics more effectively. When customers have positive experiences, they are more likely to follow the brand to new channels or geographic regions.

By tracking customer interactions across channels, businesses can allocate their marketing budget more effectively. They can identify which channels and campaigns deliver the best results and adjust their strategies accordingly (Cai and Choi, 2023: 8-9; Cui et al., 2021: 116-117). Effective tracking helps in identifying underperforming marketing channels or campaigns quickly. This allows businesses to reallocate or reduce spending on these areas, preventing wastage of resources.

3. FINDINGS FROM LITERATURE

3.1. Challenges in Omnichannel Marketing

A recurring challenge in omnichannel marketing is the integration and management of vast volumes of data from various sources. Customer data, purchase history and behavioral data need to be harmonized to gain a comprehensive understanding of the customer journey (Meyer and Schwager, 2007: 5; Lemon and Verhoef, 2016: 84; Shi et al., 2020: 335). Ensuring the quality of the data is crucial. Inaccurate, incomplete, or outdated data can lead to flawed insights and decisions. Data cleansing and validation processes are essential for maintaining data quality.

Maintaining a consistent brand image and message across numerous channels is easier said than done. Ensuring that the customer receives a uniform experience regardless of the touchpoint remains a challenge (Ailawadi and Farris, 2017: 121; Bae and Deborah, 2020: 3; Cui et al., 2021: 104-105). The timing and frequency of communication can vary significantly across channels. Ensuring that messages are coordinated and not overwhelming for customers requires careful planning.

With the advent of new digital channels and platforms, businesses find it challenging to identify the most relevant ones for their target audience. This

proliferation can lead to a scattergun approach, diluting the impact of marketing efforts (Simone and Sabbadin, 2018: 87; Hossain et al., 2017: 784; Melero, Sese and Verhoef, 2016: 21). For example, if audience is primarily young and tech-savvy, platforms like Instagram and TikTok might be more relevant than traditional email marketing.

Implementing the necessary technological infrastructure for omnichannel marketing often requires substantial investments. It's not just about having the tools but ensuring they work seamlessly together (Mishra, 2021: 570-571; Cook, 2014: 264). Implementing advanced analytics tools is critical for tracking and measuring the effectiveness of marketing efforts across channels.

The collection and utilization of customer data must adhere to stringent privacy regulations. Failing to do so can result in legal ramifications and damage to a brand's reputation (Cheah et al., 2022: 9; Cui et al., 2021: 116-117; Chatterjee, Chaudhuri and Vrontis, 2021: 618). Providing customers with the ability to access their data, correct inaccuracies and request its deletion is a good practice.

3.2. Solutions to Omnichannel Marketing Challenges

Leveraging advanced analytics and artificial intelligence can assist in data integration and interpretation. Predictive analytics can provide insights into customer behavior and preferences, facilitating personalized marketing efforts (Pawlica and Bal, 2022: 32; Cui et al., 2021: 116-117; Sameer, 2021: 5; Raju et al., 2022: 4192). AI algorithms can process data in real time to deliver personalized content, offers and messages to customers as they interact with the brand across different channels. This real-time personalization may enhance customer engagement.

Building unified customer profiles that consolidate data from various touchpoints helps in providing a consistent experience. Customer relationship management (CRM) systems play a vital role here (Park and Lee, 2017: 1398; Cummins, Peltier and Dixon, 2016: 11; Mehta, 2022: 117). CRM systems can enrich customer profiles with external data sources, such as social media profiles, publicly available information and third-party data providers. This additional data may enhance the depth and accuracy of customer profiles.

Instead of trying to be everywhere, businesses should focus on the channels that align with their audience. Regularly reviewing channel performance and adjusting strategies accordingly is key (Hadas and Wojciechowski, 2020: 230; Wollenburg, Holzzapfel and Hübner, 2019: 7). Different audiences have varying preferences for communication and interaction. By identifying and prioritizing

the channels that resonate most with target audience, firms can create more meaningful and effective engagements.

Cloud-based marketing solutions offer scalability and flexibility, making it easier for businesses to adapt to changing customer preferences and new technologies (Watanabe et al., 2021: 17-18; Venkatasubramanian, 2021: 228). Cloud-based solutions make it easier to access and share data across departments and teams. This data accessibility is crucial for creating a unified view of customer data and facilitating collaboration.

Embracing ethical data practices and ensuring compliance with data protection regulations is essential. Businesses should be transparent about data collection and use (Chang et al., 2023: 14-15; Cui et al., 2021: 116-117; Cheah et al., 2022: 9). Transparency builds trust with customers. When individuals understand how their data will be collected and used and they have control over their data, they are more likely to engage with businesses and share information.

4. CONCLUSION

In the dynamic landscape of omnichannel marketing within the digital age, businesses stand at the intersection of immense opportunity and formidable challenge. These challenges, while undeniably complex, should be seen as catalysts for growth and innovation rather than insurmountable obstacles. This literature review has revealed a landscape where technology, data-driven insights and a commitment to ethical practices converge to offer businesses a blueprint for success in the omnichannel realm.

The challenges discussed, from data integration to maintaining consistency across channels, are not roadblocks but rather the very points at which innovation and transformation can occur. By addressing these challenges proactively, businesses have the opportunity to not only meet but exceed customer expectations.

Advanced analytics and artificial intelligence have emerged as invaluable tools, allowing businesses to extract meaning from the vast troves of data at their disposal. Predictive analytics, in particular, stands out as a beacon, illuminating the path to a deeper understanding of customer behavior and preferences. Through these technologies, personalized marketing becomes more than just a buzzword; it becomes a reality, fostering genuine connections with customers.

Unified customer profiles are the linchpin for consistency across channels, enabling businesses to deliver coherent and contextually relevant experiences. In an era where consumers demand fluid transitions between online and offline worlds, this coherence is a hallmark of customer-centricity.

The agility afforded by cloud-based solutions cannot be underestimated. In a digital landscape characterized by rapid change, these solutions empower businesses to adapt to shifting customer preferences and emerging technologies. Rather than being constrained by infrastructure limitations, they can pivot and evolve as needed.

Crucially, compliance with ethical data practices and adherence to data protection regulations are foundational. Transparency and integrity in data collection and usage not only build trust but also shield businesses from legal and reputational risks.

As we draw this literature review to a close, it is abundantly clear that while omnichannel marketing presents its fair share of challenges, it also offers unparalleled opportunities. By embracing these challenges as catalysts for innovation and by harnessing the power of technology and data-driven insights, businesses can unlock the full potential of omnichannel marketing in the digital age. Moreover, by grounding their strategies in customer-centric principles and ethical practices, they can create enduring connections with their customers across all channels.

In this ever-evolving landscape, businesses that rise to the occasion and embrace the principles of omnichannel marketing stand not only to survive but to thrive in the digital age, delivering extraordinary experiences and cementing their place as industry leaders.

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Chapter 3

Forecasting of Real Effective Exchange Rate in Turkey with Box-Jenkins Approach: After the 2008 Global Crisis

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ABSTRACT

Sudden movements in exchange rates are associated with increased risk aversion in cyclical uncertainty. In particular, in the floating exchange rate system, this relationship, which is reflected as volatility in the exchange rate, directs the monetary and exchange rate policy as changes in the national currency price of foreign currencies. In this sense, Box-Jenkins (1976) autoregressive integrated moving average (ARIMA) models offer ease of analysis to economic authorities in forecasting univariate time series. The aim of this study is to make predictions regarding the future course of the real effective exchange rate under cyclical uncertainty from the 2008 global crisis to the present. In the first stage, ARIMA (1,1,2) was determined as the best model for the real effective exchange rate in the period 2008:M1-2023:M7. In the second stage, it was observed that the course of the real effective exchange rate in the out-of-sample 2023:M8-2024:M7 period continued the downward trend of the previous period.

JEL Classification: C53, F31

Keywords: Real Effective Exchange Rate, Forecasting, ARIMA

INTRODUCTION

While the effects of the 2008 global crisis were felt primarily in financial markets, macroeconomic indicators showed the extent of the crisis. The crisis, which spread as a global contraction, has been decisive in international economic relations. In this context, the policies implemented by economic authorities nationally directly affected the currencies. It turned into a European debt crisis for the EUR, and the USD gained value against almost all currencies. On the other hand, social and political developments that indirectly affect the global economy have also led to cyclical uncertainties. When an evaluation was made specifically for the Turkish economy, the reflections of the cyclical uncertainties of the USA and the EU and the pressure on USD and EUR were observed, especially since they are important foreign trade partners of Turkey.¹ Therefore, the value of the real effective exchange rate, which consists of the currencies of important foreign trade partners, has played a key role.

Figure 1 shows the course of the real effective exchange rate in the Turkish economy for the period 2008-2022. At the end of 2008, uncertainties in global financial markets led to an increase in the demand for USD and a depreciation of TL (CBRT, 2008-IV). At the end of 2009, expectations for the recovery of the global economy increased the risk appetite in financial markets, foreign capital flows to Turkey accelerated and appreciation of TL.

In the 2011-2012 period, with the contribution of the measures taken to solve the problems in the Eurozone, the global risk perception began to change partially in a positive direction, which was effective in the appreciation of the TL. However, as the slowdown in global economic activity became chronic, the volatility in the exchange rate in the 2012-2013 period as a result of the uncertainties that the Federal Reserve System (FED) would abandon its low interest policy in the second quarter of 2013 caused the TL to show a downward trend. As of the end of 2013-2014, TL gained value due to the increase in risk appetite around global uncertainty (CBRT, 2014-IV).

In 2015, the TL lost value as a result of the FED's interest rate increase, the completion of the elections in the USA and the UK in the 2016-2017 period, negative policy interest rate of the European Central Bank (ECB) and Brexit being brought to the agenda. Both the effects of these developments and protectionism in foreign trade caused the TL to lose value in 2018.

¹ In the real effective exchange rate indices calculated by the Central Bank of the Republic of Turkey (CBRT), the trade weights of 60 developed and developing countries were used, using the 2014 United Nations classification of development levels.

In 2019, although the FED preferred a low policy rate and the ECB insisted on a negative interest rate policy, uncertainty in the financial markets continued in the first quarter of 2020 due to the coronavirus pandemic in the last quarter of 2019 (CBRT, 2020). Therefore, there was a depreciation in TL between the end of 2019 and 2021. With the measures taken against the increase in the foreign trade deficit and the negative developments in the global risk appetite, the depreciation in TL started to reverse in the 2021-2022 period.

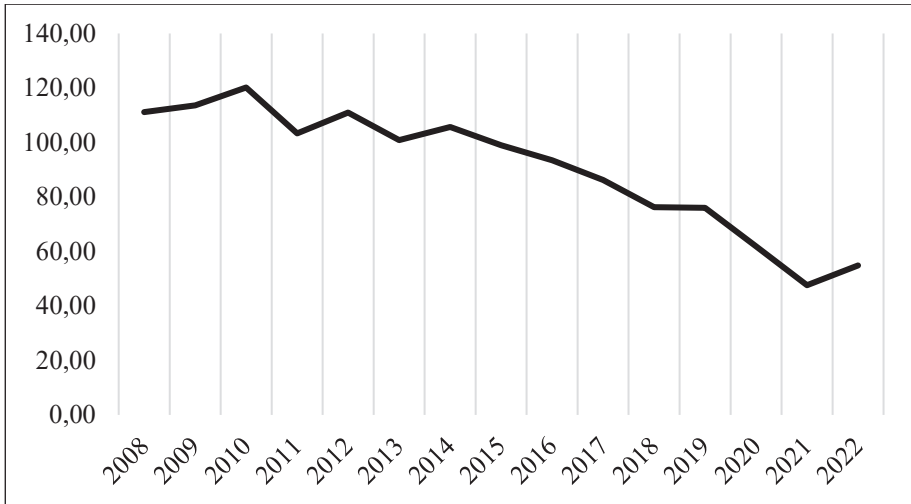


Figure 1: Annual Real Effective Exchange Rate Based on Consumer Price Inflation (2003=100)

Source: CBRT (2023) data was followed and created by the author

The aim of this study is to make predictions about the future course of the real effective exchange rate under cyclical uncertainty from the 2008 global crisis to the present. In the study, the out-of-sample period 2023:M8-2024:M7, which represents the next one-year period, will be analyzed through the best ARIMA model based on the Box-Jenkins (1976) approach of the real effective exchange rate for the period 2008:M1-2023:M7. Thus, the patterns of trends of the real effective exchange rate between past and future periods will be determined.

The remainder of the study includes the theoretical framework, related literature, research methodology and conclusion.

THEORETICAL FRAMEWORK Continuous movement of national currencies against each other causes fluctuations in the real effective exchange rate. For a stable exchange rate, the real effective exchange rate can be kept constant (Branson and Katseli, 1981). Accordingly, the changes in the real effective rate index of the host country are as follows (Branson and Katseli, 1981, s. 6-9):

$$\hat{I} = \sum_1^N w_i (\hat{T}_i + \hat{q}_i - \hat{p}_0); Ew_1 = 1 \quad (1)$$

In equation (1), I ; host country real effective rate index, w_i ; the weight of other countries in the index, T_i ; index of host country currency for foreign currency, q_i ; cost index of other countries in terms of exports and imports, p_0 ; is the cost index of the host country in terms of non-traded goods. The weight of other countries in the index is effective in determining exchange rate changes. Accordingly, the real effective exchange rate of the host country is obtained as follows:

$$\hat{I} = \sum_N w_i (\hat{J}_i + \hat{r} + \hat{q}_i - \hat{q}_N + \hat{q}_N - \hat{p}_0) \quad (2)$$

$$\hat{I} = (\hat{r} + \hat{q}_N - \hat{p}_0) + \sum_N w_i (\hat{J}_i + \hat{q}_i - \hat{q}_N) \quad (3)$$

$$(\hat{r} + \hat{q}_N - \hat{p}_0) = \sum_N w_i (\hat{J}_i + \hat{q}_i - \hat{q}_N); \hat{I} = 0 \quad (4)$$

Where, j_i ; foreign currency per host country currency, r ; foreign currency per country number.

The equivalent of the changes in the real effective exchange rate represented in Equation (4) of the host country in the foreign trade balance (BT)² is as follows:

$$dBT = (X - M)\hat{p}_0 + [x_k(1 + s_x) - m_k^i(1 + d_m)](\hat{r} + \hat{q}_N - \hat{p}_0) + x_k(1 + s_x) \sum_N \alpha_i (\hat{J}_i + \hat{q}_i - \hat{q}_N) + m_k^i(1 + d_m) \sum_N \beta_i (\hat{J}_i + \hat{q}_i - \hat{q}_N) \quad (5)$$

In equation (5), X ; export, M ; import d_x, d_m ; host country export and import demand, s_x ; host country export supply, α_i, β_i ; export and import shares of other countries, k ; inverse index of host country export market power and $k = d_x/(d_x - s_x)$. Sudden changes in the real exchange rate will cause fluctuations in the foreign trade balance. As a prevention, a currency basket rate consisting of

² $BT = p_x X - p_m M, p_x = p_m = 1.$

certain export and import weights of the countries is used. Therefore, the currency basket rate that stabilizes the foreign trade balance is defined as:

$$(\hat{r} + \hat{q}_N - \hat{p}_0) = \frac{(X-M)}{x_k(1+s_x) - m_k^l(1+d_m)\hat{p}_0 \sum_N w_i(\hat{J}_i + \hat{q}_i - \hat{q}_N)} \tag{6}$$

$$w_i = \frac{x_k(1+s_x)\alpha_i - m_k^l(1+d_m)\beta_i}{x_k(1+s_x) - m_k^l(1+d_m)} \tag{7}$$

$$(\hat{r} + \hat{q}_N - \hat{p}_0) = - \sum_N w_i(\hat{J}_i + \hat{q}_i - \hat{q}_N) \tag{8}$$

As a result, the use of optimum weights based on trade compared to the currency of the trade is the determining factor in the currency basket where the currencies of the countries in the field of foreign trade are combined.

RELATED LITERATURE

In the economics literature, forecasting models for exchange rate changes constitute a wide range of discussion. Because there is no consensus on the methodology that will represent the best model estimation. In practice, Box-Jenkins models, neural networks and fuzzy algorithms, which are considered as classical methods, come to the fore. In this context, ARIMA models belonging to various countries based on Box-Jenkins (1976) methodology are given in Table 1.

Table 1: Empirical Literature

Study	Country and Period	Data	The Best ARIMA Model
Bircan and Karagöz (2003)	Turkey 1991:M1-2002:M12	USD/TRY	ARIMA (2,1,1)
Appiah and Adetunde (2011)	Ghana 1994:M1-2010:M12	USD/GHS	ARIMA (1,1,1)
Olajunti and Bello (2013)	Nigeria 2000:M1-2012:M12	USD/NGN	ARIMA (1,1,2)
Onasanya and Adeniji (2013)	Nigeria 1994:M1-2011:M12	USD/NGN	ARIMA (1,2,1)
Osarumwense and Waiziri (2013)	Nigeria 1990:M1-2010:M12	USD/NGN	ARIMA (0,1,1)
Nwakwo (2014)	Nigeria 1982-2011	USD/NGN	ARIMA (1,0,0)
Spiesová (2014)	Romania, Great Britain, Czech	USD/RON, USD/GBP, USD/CZK,	ARIMA (1,1,1) for USD / RON, USD / GBP USD / CZK, USD / PLN

	Republic, Poland, Sweden and Hungary 1998:M12-2013:M12	USD/PLN, USD/SEK and USD/HUF	ARIMA [(1,7), 1 (1,7)] for USD / SEK, USD / HUF
Ayekple et al. (2015)	Ghana 2004:M1-2015:M2	USD/GHS	ARIMA(1,2,1) (0,0,2)
Gupta and Kashayap (2015)	India 2014:M4-2015:M3	USD/INR, EUR/INR, GBP/INR and JPY/INR	ARIMA (0,1,1) for USD / INR ARIMA (2,1,1) for EUR / INR ARIMA (0,1,1) for GBP / INR ARIMA (2,1,2) for JPY / INR

Table 2: Empirical Literature (Continue)

Study	Country and Period	Data	The Best ARIMA Model
Mohammed and Abdulmuahymin (2016)	Nigeria 1972-2014	USD/NGN	ARIMA (0,2,1)
Yıldıran and Fettahoğlu (2017)	Turkey 3/1/2005-8/3/2017	USD/TRY	ARIMA (2,1,0)
Abdelaziz et al. (2018)	Sudan 1999: M1-2015:M11	USD/SDG	ARIMA (1,1,0)
Driss and Fatima (2018)	Morocco 3/1/2000-9/3/2018	USD/MAD and EUR/MAD	ARIMA (3,1,2) for USD / MAD ARIMA (2,1,2) for EUR / MAD
Hatta et al. (2018)	Malaysia 2015:M1-2017:M12	USD/MYR	ARIMA (0,1,6)
Nyoni (2018)	Nigeria 1960-2017	USD/NGN	ARIMA (1,1,1)
Olakorede et al. (2018)	Nigeria 1980:M1-2015:M12	USD/NGN	ARIMA (0,1,1).
Nyoni (2019)	India 1960-2017	USD/INR	ARIMA (0,1,6)
Ashour and Al-Dahhan (2020)	Turkey 1/2/2018-30/6/2018	USD/TRY	ARIMA (1,0,0)
Jackson (2020)	Sierra Leone 2001:M1-2019:M12	USD/SLL	ARIMA (1,4,7)
Qureshi et. al. (2023)	Pakistan 2019:M1-2022:M6	REER	ARIMA (2,1,2)

In summary, ARIMA models that functionally associate the future values of variables with current and past values have become an effective method in foreign exchange forecast analysis.

RESEARCH METHODOLOGY

Box-Jenkins (1976) ARIMA models represent linear modeling of stationary (non-trend) and non-stationary (trend) variables. ARIMA models, in which the behavior of series in relation to past period values are analyzed, consist of autoregressive (AR), moving average (MA) and integrated (I) components. The AR (p) model, which is the stochastic and finite linear sum of the current and past values of the variable, is as follows (Box et al., 2016: 8-11):

$$\tilde{z}_t = \phi_1 z_{t-1} + \phi_2 z_{t-2} + \dots + \phi_p z_{t-p} + a_t \quad (9)$$

In Equation (9), \tilde{z}_t ; series of deviations and $\tilde{z}_t = z_t - \mu$, a_t ; a set of identically distributed uncorrelated deviations is the error term. Based on this, a past operator (B) of the variable is:

$$\phi(B) = 1 - \phi_1 B - \phi_2 B^2 - \dots - \phi_p B^p \quad (10)$$

or

$$\phi(B)\tilde{z}_t = a_t \quad (11)$$

In the estimation of the current and past term error terms of the variable, the MA model is applied.

Based on the finite number of past a_t , the MA (q) model is written as:

$$\tilde{z}_t = a_t + \theta_1 a_{t-1} + \theta_2 a_{t-2} + \dots + \theta_q a_{t-q} + a_t \quad (12)$$

$$\theta(B) = 1 - \theta_1 B - \theta_2 B^2 - \dots - \theta_q B^q \quad (13)$$

$$\tilde{z}_t = \theta(B)a_t \quad (14)$$

With the help of equations (9) and (12), the mixed AR-MA (p, q) model is as follows:

$$\tilde{z}_t = \phi_1 z_{t-1} + \phi_2 z_{t-2} + \dots + \phi_p z_{t-p} + a_t - \theta_1 a_{t-1} - \theta_2 a_{t-2} - \dots - \theta_q a_{t-q} \quad (15)$$

$$\phi(B)\tilde{z}_t = \theta(B)a_t \quad (16)$$

Finally, ARIMA models provide integration between the non-stationary past values of the variable and its homogeneous behavior. In case the unit root is expressed as (d), the generalized autoregressive operator $\phi(B)$ will be written as follows:

$$\phi = \phi(B)(1 - B)^d \tag{17}$$

In equation (17), $\phi(B)$; is the stationary autoregressive operator. So the homogeneous non-stationary behavior process would be:

$$\phi(B)z_t = \phi(B)(1 - B)^d z_t = \theta(B) a_t \tag{18}$$

or

$$\phi(B)w_t = \theta(B)a_t \tag{19}$$

Thus, the model that requires the homogeneous non-stationary behavior process to be stationary is as follows:

$$w_t = (1 - B)^d z_t = \nabla^d z_t \tag{20}$$

Where, w_t ; represents a mixed autoregressive moving average. The roots of the two polynomial equations in B , $\phi(B) = 0$ when w_t stationary; $\theta(B) = 0$ when reversibility. If the ARMA process is stationary, all AR roots are inside the unit circle, if the ARMA process is reversible, all MA roots are inside the unit circle.

Using equations (17) and (20), ARIMA (p,d,q) model is defined as follows:

$$w_t = \phi_1 w_{t-1} + \dots + \phi_p w_{t-p} + a - \theta_1 a_{t-1} - \dots - \theta_q a_{t-q} \tag{21}$$

In summary, the ARIMA model is controlled cyclically with identification, prediction and diagnosis stages, respectively (Newbold, 1975, s.399-400). First, when defining temporary values for p, d, q; then the selected models $\phi_1, \phi_2, \dots, \phi_p, \theta_1, \theta_2, \dots, \theta_q$ coefficients are estimated. Checks are made regarding the adequacy of the models. If the inadequacy of the model is detected, the cycle is repeated by suggesting alternative models until the best result is achieved.

Data

In this study on the best ARIMA model determination of the real effective exchange rate, data for the period 2008:M1-2023:M7 was taken from the CBRT Electronic Data Distribution System (EDDS). Detailed information about the real exchange rate series, which was made suitable for analysis by making logarithmic transformation, is presented in Table 3.

Table 3: Definitions of Variables

Abbreviation	Description
<i>Ln REER</i>	CPI Based Real Effective Exchange Rate (2003=100)

Notes: *REER*; is the real effective exchange rate. *Ln*; indicates that the variable is logarithmic transformation.

Table 4 presents the mean, median, minimum-maximum and standard deviation values of the *Ln REER* series.

Table 4: Summary Statics of *Ln REER*

Mean	Median	Maximum	Minimum	Standard Deviation
92.267	100.020	127.390	47.610	22.167

Empirical Analysis and Results

Primarily, autocorrelation (AC) and partial autocorrelation (PAC) functions were used to define the ARIMA model. Twenty-four lagged ACF and PACF correlograms are given in Figure 1 and Figure 2 to determine both the stationarity of the *Ln REER* series and the autoregressive (p) and moving average (q) values. AC starts with a large and positive value and decreases gradually. PAC is rapidly approaching zero after the first lag with a positive peak. In this case, the *Ln REER* series is not stationary.

ACF and PACF of $\ln REER$

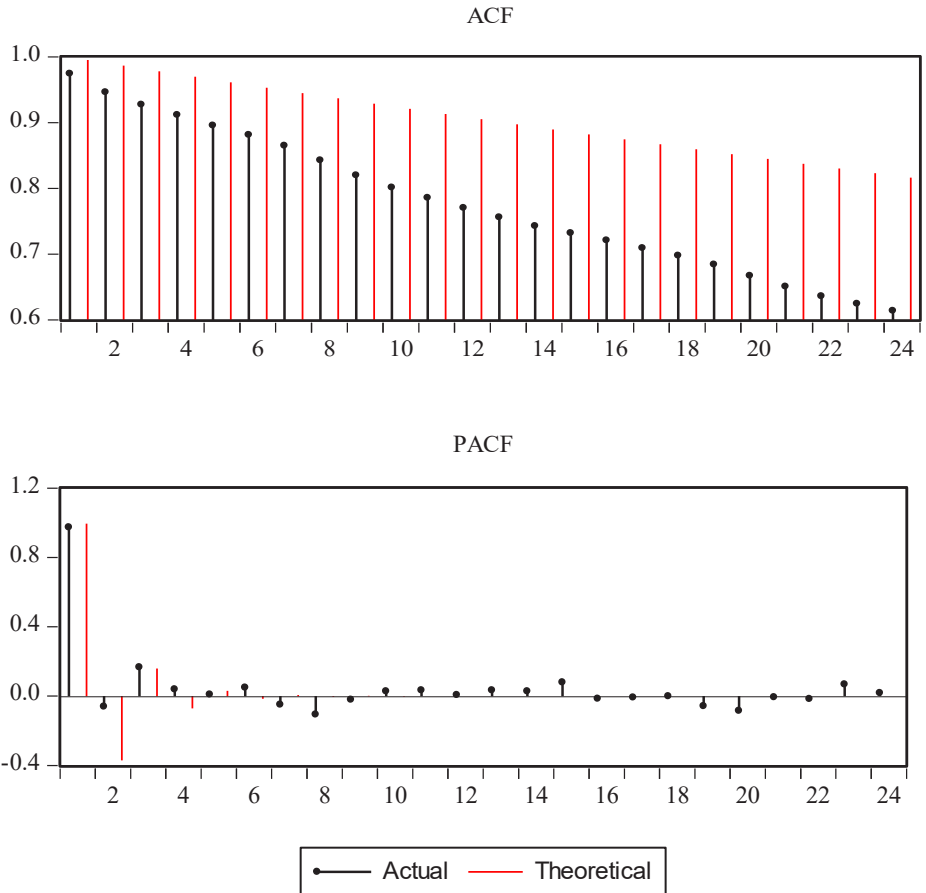


Figure 1: ACF and PACF Graphs of AR and MA Components

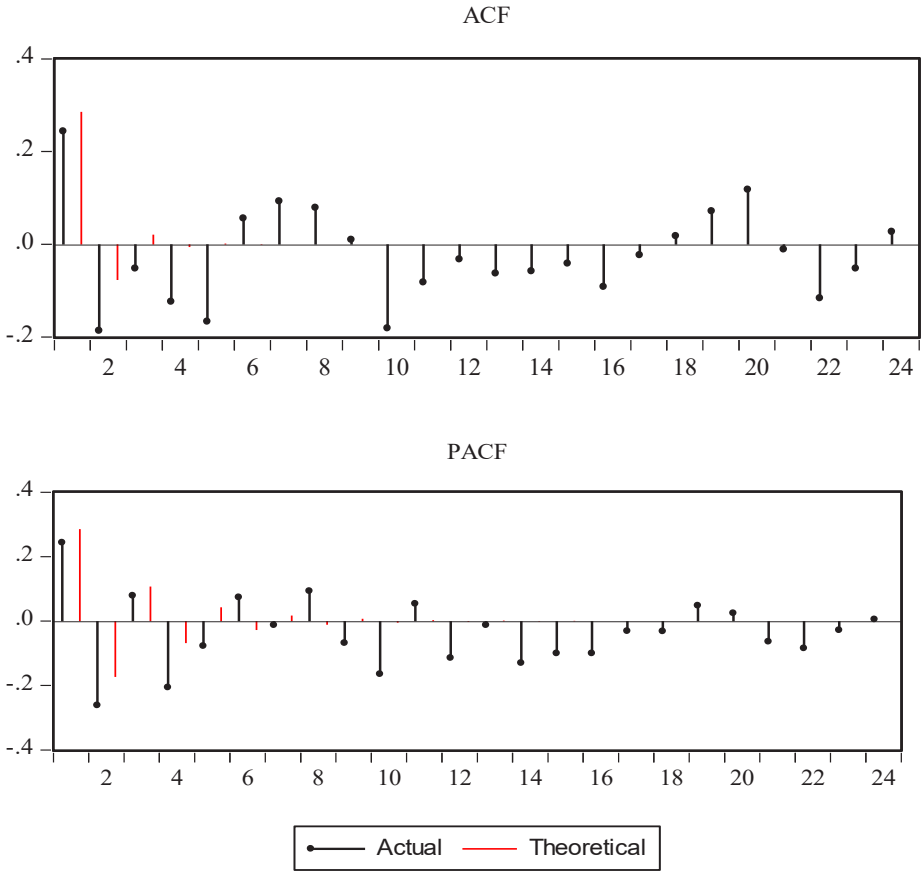


Figure2: ACF and PACF Graphs of AR and MA Components

After the autocorrelation test, the stationarity test was passed. Table 5 shows the results of Augmented Dickey Fuller (ADF) and Phillip-Perron (PP) unit root test results. The $\ln REER$ series is stationary in the first difference.

Table 5: ADF and PP Unit Root Test

Variables	ADF Test		PP Test	
	Constant	Constant & Trend	Constant	Constant & Trend
$\ln REER$	-0.193	-2.885	-0.425	-2.775
$\Delta \ln REER$	-11.045	-8.140	-10.236	-10.222

Notes: The critical values for 1%, 5% and 10% in the constant, level and first difference of the series are -3.466, -2.877, -2.575, respectively. The critical values

for 1%, 5% and 10% in the constant and trend, level and first difference of the series are -4.009, -3.434, -3.141, respectively.

Figure 3 shows stationarity graphs showing the difference between stationary and non-stationary $Ln REER$ series. It is seen that the $Ln REER$ series follows a downward trend at the level and moves around a certain value after the first difference is taken.

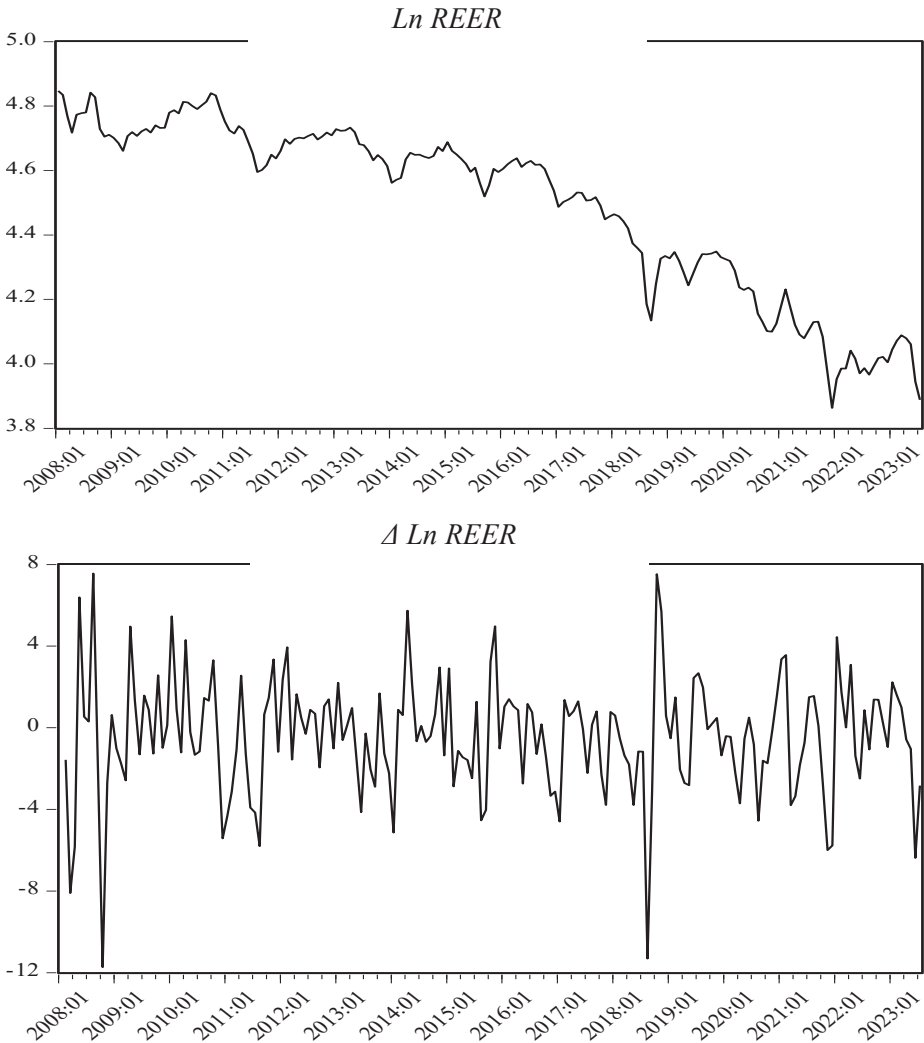


Figure 3: Plots of the Variables, Sample 2008:M1-2023:M7

Within the framework of ACF and PACF results, the best ARIMA (p, d,q) model was estimated for the $Ln REER$ series. Table 6 shows the prediction results of ARIMA (p,d,q) models.

Table 6: Estimating Equations of ARIMA Models

Models	Variables	Coefficient	t-Stat.
ARIMA (1,1,2)	Constant	-0.401	-1.988 (0.048)**
	AR(1)	0.326	4.003 (0.000)
	MA(2)	-0.342	-5.045 (0.000)
	SIGMASQ	6.977	11.565 (0.000)
ARIMA (2,1,1)	Constant	-0.409	-1.796 (0.074)*
	AR(2)	-0.199	-3.017 (0.003)
	MA(1)	0.351	4.460 (0.000)
	SIGMASQ	7.044	11.224 (0.000)
ARIMA (2,1,2)	Constant	-0.389	-5.505 (0.000)
	AR(2)	0.682	7.433 (0.000)
	MA(2)	-0.912	-5.045 (0.000)
	SIGMASQ	7.442	12.748 (0.000)

Notes: Probability values are included in parentheses. **, * denote significance level at 5% and 10%.

Based on this, in selecting the best ARIMA (p,d,q) model in terms of prediction performance, the maximum R-squared (R^2) and Adjusted R-squared (\bar{R}^2); the minimum Akaike (AIC), Schwarz (SC) and Hannan-Quinn (HQ) critical values were compared. The ARIMA (p,d,q) model selection results for the *Ln REER* series are presented in Table 7. Accordingly, ARIMA (1,1,2) is the best model.

Table 7: Model Selection Criteria

Models	R^2	\bar{R}^2	AIC	SC	HQ
ARIMA (1,1,2)	0.147	0.133	4.825	4.894	4.853
ARIMA (2,1,1)	0.139	0.125	4.835	4.904	4.863
ARIMA (2,1,2)	0.090	0.075	4.893	4.962	4.921

Figure 4 shows the characteristic inverse roots of the ARIMA (1,1,2) model polynomial. ARIMA (1,1,2) model has a stable and stationary process because the inverse roots are inside the unit circle.

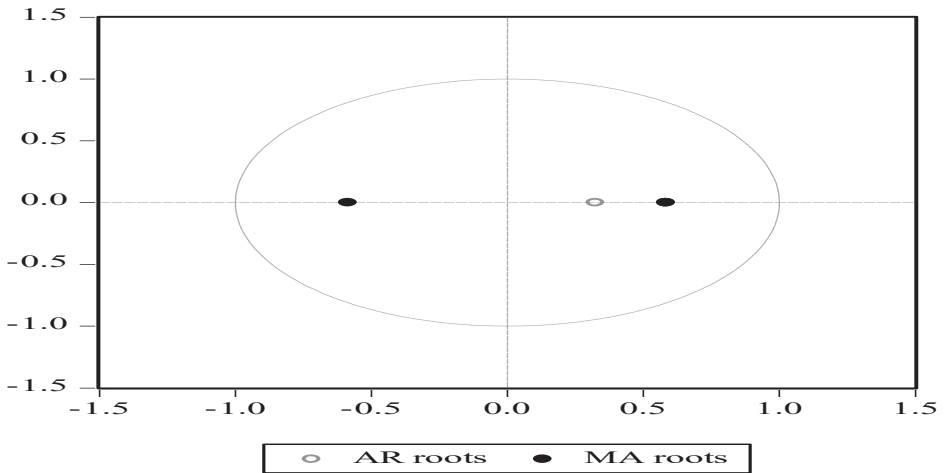


Figure 4: Inverse Roots of ARIMA (1,1,2) Model Polynomial

Confirmation tests were carried out to complete the model selection. The first of these is to test whether the model error terms for the stationarity of AR and MA processes are white noise. As seen in Figure 5, the ARIMA (1,1,2) model follows a stable process with error terms moving around a certain value.

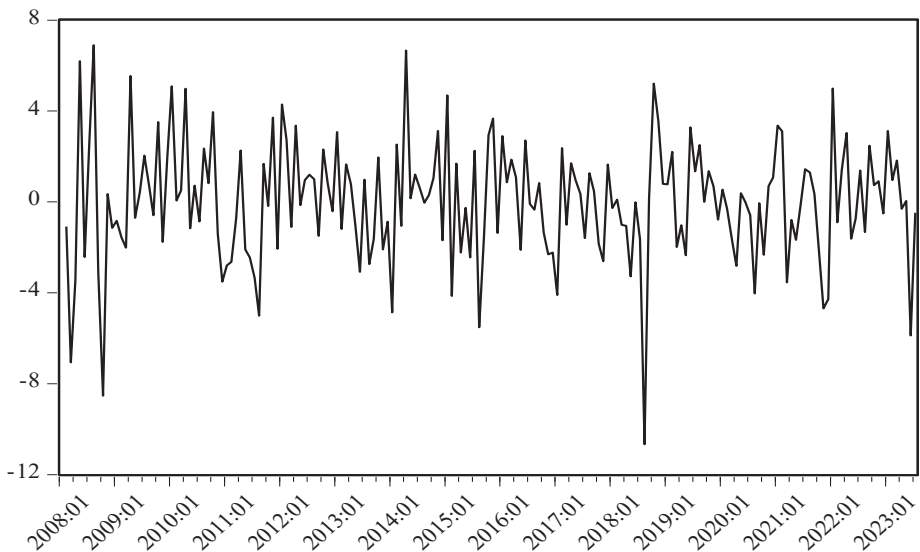


Figure 5: White Noise Test for ARIMA (1,1,2) Model Residuals

Finally, the course of the Ln REER series over the next year is predicted. For this purpose, ARIMA (1,1,2) model out-of-sample forecast results for the 2023:M8-2024:M7 period are seen in Figure 6. Ln REER series will generally follow a downward trend with cyclical fluctuations in the next year.

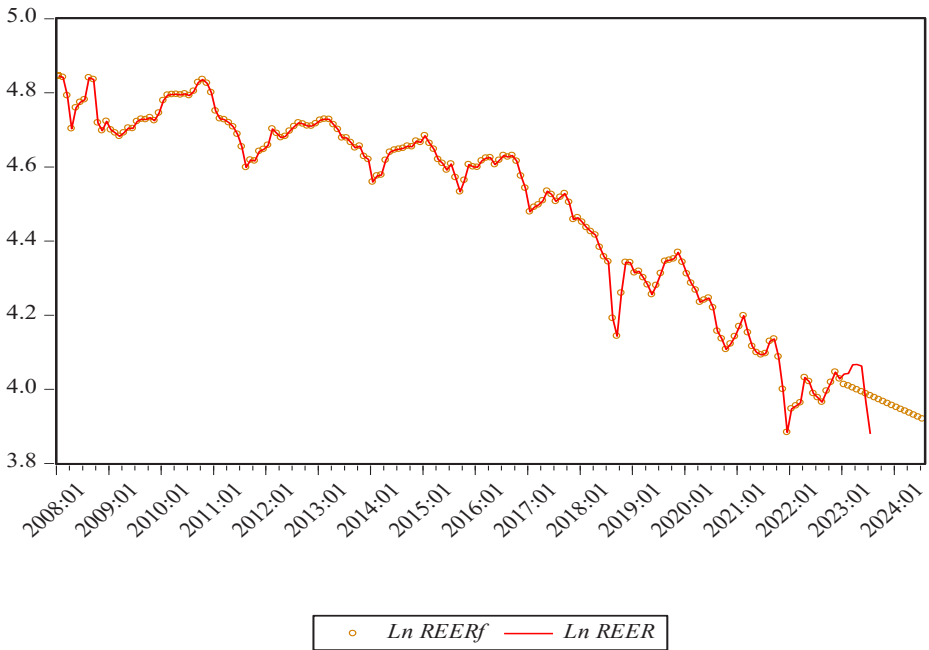


Figure 6: Out of the Sample Forecasted Ln REER

When economic findings are evaluated from a theoretical perspective, the decrease in the real effective exchange rate indicates that the national currency has lost real value and the price of domestically produced goods in terms of foreign goods has decreased. Exports become cheaper and imports become more expensive compared to trading partners. In general, it provides external competitive advantage. One of the issues to consider here is the price elasticity of exported goods. If the price elasticity of export goods is high, exports will increase. Another consideration is the volatility of the real effective exchange rate. Sudden increases and decreases will affect the current situation of economic units, especially exporters, and will determine future expectations. As a result, trends in the real effective exchange rate determine the direction in which the value of the national currency will change; Therefore, it is effective in determining the monetary and exchange rate policies to be followed by economic authorities.

CONCLUSION

The effect of cyclical uncertainties on the exchange rate is generally in the direction of increased risk aversion. A possible impact on the EUR side after the 2008 global crisis, which could turn into a European debt crisis; the appreciation of USD against almost all currencies is an unexpected effect. The aim of this study is, first of all, to determine the best ARIMA model based on the Box-Jenkins (1976) approach for the real effective exchange rate in the 2008:M1-2023:M7 period. Afterwards, it is to analyze the course of the real effective exchange rate in the out-of-sample period 2023:M8-2024:M7.

In the first stage, whether the *Ln REER* series is stationary or not and p and q values were determined within the scope of ACF and PACF correlograms according to the Box-Jenkins (1976) procedure. In the second stage, ARIMA (p,d,q) models were estimated. In selecting the best model in terms of prediction performance, maximum R^2 and $\overline{R^2}$, minimum AIC, SC and HQ values were compared. For *Ln REER* series, ARIMA (1,1,2) is the best model. It has been determined that the ARIMA (1,1,2) model is stable and stationary because the inverse roots are inside the unit circle. Based on this, it has been observed that the error terms of the ARIMA (1,1,2) model move around a certain value. Finally, the sample forecast of the ARIMA (1,1,2) model for the 2023:M8-2024:M7 period was made, and it was determined that the *Ln REER* series would follow a downward trend in the next one-year period.

In practice, economic authorities take action regarding future projections of the exchange rate. From this perspective, the CBRT first adopted the floating exchange rate system after the 2001 crisis. Although the CBRT does not have a nominal or real exchange rate target, it has intervened in the exchange rate risk that may arise due to domestic and international economic shocks, social and political developments, forward-looking expectations and national macroeconomic dynamics. Since the 2008 global crisis, emphasis has been placed on foreign exchange transactions through auctions or direct intervention. Within the framework of financial stability, the CBRT developed the reserve option mechanism (ROM), which is a unique tool. In this way, in the ROM targeting required reserves, a certain portion of the required reserves in TL were evaluated as foreign currency and gold. As a result, the CBRT aims for the stable functioning of the foreign exchange market by closely following the developments affecting the exchange rate.

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Chapter 4

Development Of Science Textbook Evaluation Form: 5th Grade Science Textbook Example¹

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ABSTRACT

A textbook is a written material that is suitable for the purpose and objective of the curriculum, examined by the relevant institutions and found suitable for printing. It is important that the textbooks are of high quality since they are the guides to which students turn for information and to which extent teachers will transfer the information. The aim of this study is to develop an evaluation form for examining science textbooks and to determine teachers' opinions about the 5th grade science textbook with this form. For this purpose, a form consisting of 40 items and 6 factors was developed by the researcher to analyse the science textbook. These factors are visual design, readability, teaching approach, content, laboratory activities and measurement and evaluation. During the development process of the form, Lawshe technique was used for content validity and Fleiss Kappa, Krippendorff Alpha and Cronbach Alpha coefficient were used for reliability. As a result of the analyses, a valid and reliable form was obtained. Cronbach's Alpha reliability coefficient for the whole form prepared in 5-point Likert type was found as 0,894; 0,725 for visual design; 0,782 for readability; 0,739 for teaching approach; 0,757 for content; 0,793 for laboratory activities; 0,817 for measurement and evaluation. Regarding the 5th grade science textbook prepared by the General Directorate of Primary Education and approved to be taught by the Presidency of the Board of Education, the opinions of 55 science teachers working in the central district of Kocaeli province Izmit were determined within the scope of the items in the form developed. It is thought that the science textbook review form developed for those who want to work in the field and in the process of updating the books that are still in use will be a guide to a great extent.

Keywords: Scale development, evaluation form, textbook, science textbook, science education

INTRODUCTION

Human beings have developed different ways to record the knowledge they have and transfer it to the generations that come after them throughout their journey starting from ancient times and continuing towards civilisation. This process, which started with pictures drawn on cave walls, continued with those drawn on animal skins and later on wood and bone fragments. With the emergence of papyrus, the use of clay tablets, the development of the printing press and the emergence of printed books, written materials have been used.

Textbooks are the most important written materials used as the main source of information in education and training from past to present. Textbooks appear as a teaching tool that directs the appropriate activities for students, ensures that students at the same level benefit from the course content in the same way and guides teachers, which greatly affects and even directs the implementation process of the curriculum (Büyükkaragöz, 1997) in the classroom environment. While the teacher obtains the order in which the objectives and outcomes of the curriculum are given and how much of them should be transferred to the students from the textbooks, which can be defined as the concrete reflection of the abstract objectives of the curriculum (Katipoğlu & Katipoğlu, 2016), it is an assistant or guide for students in acquiring and using information in in-class and out-of-class environments.

In the literature, there are some studies investigating the effects of textbooks on the education process. Baştürk (2012) concluded that the motivation of students who used textbooks in their lessons was higher than the motivation of students who did not use textbooks and that they exhibited better behaviours. Digisi and Willett (1995) stated that textbooks can improve students' reading and thinking skills and increase their vocabulary when used with in-class activities. Önal and Kaya (2004) emphasised that textbooks are an important factor affecting the learning level and that textbooks should be the main source in order to create a rich learning environment.

With the change and development of the education system in our country, changes have been made in the curriculum. Changes in the curriculum have led to changes in the objectives, content and achievements of the courses. With the changes in the curriculum, it was found appropriate to make changes in the textbooks used in the courses. Science textbooks were also changed and renewed for this purpose. Research results show that textbooks are sometimes more decisive for teachers than the curriculum and that teachers tend to refer to textbooks more than the curriculum in planning the learning-teaching process (TTKB, 2020). Therefore, it is of great importance to conduct research based on the opinions of teachers, who are the implementers of the curriculum with their

observations in the education and training process and their experiences regarding the needs of their students, to what extent the textbooks reflect the curriculum, whether they respond to the needs of the students and whether there are open areas for improvement in their content.

In many studies (Arıkan et al., 2017; Aydın, 2015; Demir et al., 2009; Dökme, 2014; Ünsal, 2002; Ünsal & Güneş, 2004; Yapıcı et al., 2009) in which textbooks were evaluated in the literature, it was determined that the textbooks were not of the desired quality, there was insufficient, incomplete and even wrong information in terms of content in the textbooks, science and technology could be explained incorrectly (Yılmaz et al, 2017), although it is stated that they are written in accordance with the principles of constructivist learning theory, many of these principles are not reflected in the presentation of the content of the textbooks, they are not sufficiently related to the daily life of the student, some activities are not compatible with the acquisitions (Karadaş et al, 2012), problems related to visual design and text association (Kurnaz et al., 2016), inadequacy or errors related to content and measurement and evaluation sections (Gündüz et al., 2016; Karamustafaoğlu et al., 2015), problems in terms of content, educational design and visual presentation (Özay & Hasenekoğlu, 2007; Ünsal & Güneş, 2003), critical thinking (Aybek et al, 2014) and some steps of scientific process skills were not met (Aslan-Efe et al., 2012; Feyzioğlu & Tatar, 2012; Şen & Nakiboğlu, 2014), and some activities given in the book were not applicable (Ayvacı & Devecioğlu, 2013).

In 2017, the Science Curriculum was updated and it was decided to be implemented gradually starting from the fifth grade of secondary school. With the updating of the programme, the need for updating the textbooks also emerged. One of the updated textbooks was the middle school fifth grade science textbook. The updated science textbook has been used in the fifth grade since the 2017-2018 academic year. In the literature, the measurement tools (Maskan et al., 2007; Demirbaş, 2008), which were prepared before 2017, did not include items such as science and engineering practice and life skills, which were newly included in the curriculum. Therefore, there is a need for a measurement tool prepared for the examination of science textbooks that have been updated with the new science curriculum prepared in 2017.

The criteria according to which the textbooks will be evaluated is also of great importance. It has been revealed that some of the evaluation scales developed have not reached satisfactory dimensions (Ayvacı, Çepni, & Akdeniz 1999). Researchers in our country have recently argued that special attention

should be paid to the issue of textbook evaluation scales (Gülseven & Bakırcı, 2018).

This research was planned to develop an evaluation form for analysing science textbooks and to determine the opinions of science teachers about the 5th grade science textbook. It is thought that the data to be obtained by determining the opinions of the teachers about the 5th, 6th, 7th and 8th grade science textbooks used in the evaluation form will be a source of guidance and guidance for updating the existing books and eliminating the existing deficiencies in the process of preparing the new books to be designed.

The aim of this research is to develop an evaluation form for analysing science textbooks and to determine teachers' opinions about the 5th grade science textbook with this form.

METHOD

Research Model

The survey model was used in the study. Survey models are studies that aim to collect data to determine the characteristics of a group (Büyükoztürk et al., 2017).

Participants

The study group of the research was formed by 'convenient sampling' technique, one of the non-random sampling methods. Convenient sampling method is the sampling of those who are in the immediate vicinity and easy to reach (Kılıç, 2015). The sample of this study consists of 55 science teachers who are working in secondary schools in Izmit district and teaching 5th grade students. Demographic characteristics of the teachers are given in Table.1.

Table 1: Demographic Characteristics of the Teachers Participating in the Study

Occupational Seniority	0-5 Years	12	21,8
	6-10 Years	18	32,7
	11-15 Years	14	25,5
	16-20 Years	6	10,9
	21 Years and Over	5	9,1
Educational Status	Ön lisans	0	0
	Lisans	52	94,5
	Yüksek Lisans	3	5,5
	Doktora	0	0
Gender	Kadın	34	61,8
	Erkek	21	38,2
Age	20-30 Years	17	30,9
	31-40 Years	26	47,3
	41-50 Years	8	14,5
	51 Years and Over	4	7,3

As seen in Table 2.1, 21,8% (N=12) of the teachers participating in the study had 0-5 years of service, 32,7% (N=18) had 6-10 years of service, 25,5% (N=14) had 11-15 years of service, 10,9% (N=6) had 16-20 years of service and 9,1% (N=5) had over 21 years of service. According to the education level, 94,5% (N=52) of the teachers who participated in the study were undergraduate graduates, 5,5% (N=3) were postgraduates, while there were no teachers with associate degree and doctorate degrees. According to gender, 61,8% (N=34) of the teachers participating in the study were female and 38,2% (N=21) were male. Of the teachers participating in the study; 30,9% (N=17) were between the ages of 20-30, 47,3% (N=26) were between the ages of 31-40, 14,5% (N=8) were between the ages of 41-50, and 7,3% (N=4) were 51 years and over.

Data Collection Tools

In this study, a form containing demographic information was used as a data collection tool. In order to analyse the science textbooks "Science Textbook Evaluation Form" developed by the researcher was used. Information about the measurement tools is given below.

Science Textbook Evaluation Form

In order to analyse the 5th grade science textbook, the "Science Textbook Evaluation Form" developed by the researcher was used. This form consists of 40 items and 6 factors. These factors are visual design, readability, teaching

approach, content, laboratory activities and measurement and evaluation. In the form prepared in 5-point Likert type; 1 option means 'strongly disagree', 2 option means 'disagree', 3 option means 'undecided', 4 option means 'agree', 5 option means 'strongly agree'. Cronbach's Alpha reliability coefficient for the whole scale was 0.894; 0.725 for visual design; 0.782 for readability; 0.739 for teaching approach; 0.757 for content; 0.793 for laboratory activities; and 0.817 for assessment and evaluation.

Form Development Process

In the first stage of the form development studies, the literature on the book review process was examined and similar studies were reached. Thus, the structure of the subject to be analysed was formed. The scale development stages suggested by De Vellis (2003) were followed.

Creating the item pool:

In order to create an item pool, similar studies in the literature were analysed. Among these studies (Arslan et al., 2012; Aybek et al., 2014; Ayvacı & Devecioğlu, 2013; Bakar et al., 2009; Bayri, 2014; Çepni et al., 2001; Çetinkaya, 2014; Demirbaş, 2008; TTKB, 2017; Erten, 2017; Girgin, 2012; Gömleksiz & Bulut, 2007; Güzel & Adıbelli, 2011; Harrison, 2001; Keleş, 2001; Keleş et al, 2001; Kuzu Serdarer, 2016; Maskan & Atabay, 2007; Mor Dirlik, 2014; Narguizian, 2002; Özdemir & Yanık, 2017; Semerci, 2004; Ünsal, 2002; Ünsal & Güneş, 2004; Yıldız Feyzioglu & Tatar, 2012; Yıldırım, 2007), a first form consisting of 65 items with 6 factors was prepared. In the first form, 6 items related to visual design factor; 6 items related to readability factor; 14 items related to teaching approach factor; 18 items related to content factor; 10 items related to laboratory activities factor; 11 items related to measurement and evaluation factor were written. Then, this form was sent to the experts for their opinions.

a)Evaluation of the Substance Pool by Experts

The prepared items were examined by a total of eight experts, four in the field of science education, one in the field of Turkish education, two in the field of statistics and one in the field of curriculum development. In this process, an expert evaluation form was prepared in the form of 'suitable, not suitable, your suggestions' for the experts to express their opinions and this form was sent to them to fill in. As a result of the feedback received from the experts, necessary arrangements were made, 16 items were removed from the scale and it was decided that the draft form of the scale consisted of 49 items. The reason for the

removal of these 16 items was that these items were below the content validity ratio of 0.78 in the item analysis (Yurdugül, 2005). In addition, it was found appropriate to remove these 16 items from the form because the experts stated that these 16 items were not suitable for the categories they were in, were not understandable and clear, and would be insufficient as a criterion for measuring the textbook. Answering the items was structured as a 5-point scale (1=Strongly disagree, 2=Disagree, 3=Disagree, 4=Agree, 5=Strongly agree) considering the structure of the scale. Negative items were reverse coded (5=Strongly disagree, 4=Disagree, 3=Undecided, 2= Agree, 1=Strongly agree).

b) Pilot Application

After these procedures, a pilot study was conducted to determine which of the items designed in the form had the desired qualities and which did not have the desired qualities. A total of 20 teachers working in secondary schools in Derince district of Kocaeli province were reached. As a result of the pilot application, 9 items were removed from the scale by making necessary arrangements in line with the feedback from the participants. The reason for the removal of these 9 items was that the content validity ratios remained below 0.78 as a result of the item analysis (Yurdugül, 2005). Thus, the draft form of the scale was finalised as a total of 40 items, 8 of which were negative and 32 of which were positive. In addition to the draft form, a personal information form consisting of 7 questions was added.

c) Application

After the pilot application, the instructions of the scale were revised and finalised and the actual application was started. For the actual application, a total of 55 teachers working in secondary schools in Izmit district were reached. After the application, all completed scales were examined and it was seen that there were no incorrect or incomplete forms.

Validity of the Form

In order to ensure the face validity of the form, an expert opinion was obtained from a faculty member from the Turkish language teaching department. Lawshe technique was utilised to ensure the content validity of the form, and the item expressions and dimensions in the scale were formed at this stage. This technique consists of 6 stages (Yurdugül, 2005).

The stages of this technique are given below.

1. Forming a group of field experts,
2. Preparation of candidate scale form

3. Evaluation of expert opinions
4. Calculation of content validity ratios for the items
5. Calculation of content validity indices for the form
6. Creation of the final form

Stage 1: Establishment of a group of field experts

At least 5 and at most 40 experts should be selected who are experts in the subject area, have sufficient knowledge about the subject and can allocate sufficient time to the form (Yurdugül, 2005).

Table 2. Minimum values for Content Validity Ratios (CVR) at $\alpha=0.05$ significance level

Number of Experts	Minimum Value	Number of Experts	Minimum Value
5	0.99	13	0.54
6	0.99	14	0.51
7	0.99	15	0.49
8	0.78	20	0.42
9	0.75	25	0.37
10	0.62	30	0.33
11	0.59	35	0.31
12	0.56	40+	0.29

Source: Veneziano L. ve Hooper J., A method for quantifying content validity of health-related questionnaires, *American Journal of Health Behavior*, 1997, **21**(1), 67-70.

According to Table 2, the content validity ratio was determined as 0.78 with a total of 8 expert participants used for this study.

Stage 2: Preparation of the candidate scale form

The scale form was prepared by having the experts rate the items as 'appropriate, not appropriate, your suggestions'. Expert opinions, content validity ratios and content validity indices are given in Table 3.

Table 3. Collecting expert opinions and obtaining content validity ratios

	Not applicable	Appropriate but needs to be corrected	Appropriate	Content validity rate
Item 1	0	3	5	0,3
Item 2	0	0	8	1
Item 3	0	2	6	0,5
Item 4	0	0	8	1
:	:	:	:	:
Item 65	1	1	6	0,7
Number of experts	8			
Content validity criterion	0,78			
Content validity index	0,67			

Stage 3: Evaluation of expert opinions

After all the forms were received from the experts, the expert opinions were combined into a single form.

Stage 4: Preparation of content validity ratios

Content validity ratios (CVR) are expressed as the ratio of the number of experts who responded positively for each item minus the total number of experts (Yurdugül, 2005).

$$CVR = \frac{N_e - (\frac{N}{2})}{N/2}$$

N_e: Number of experts who said it is essential

N: Number of experts participating in the research

Here; N_e indicates the number of experts who stated that the item is "necessary" and N indicates the total number of experts who expressed their opinion on the item. According to the equation, the content validity ratio will be 0 when half of the experts express their favourable opinion on the item, the content validity ratio will be greater than 0 when more than half of the experts

express their favourable opinion, and the content validity ratio will be less than 0 when less than half of the experts express their favourable opinion. If the content validity ratio is 0 and negative, these items are the items that should be eliminated first (Lawshe, 1975).

Stage 5: Calculation of content validity indices

Content validity index is a criterion developed to test whether the items are statistically significant. For ease of calculation, the minimum values of CVR at P=0.05 significance level were converted into a table (Veneziano & Hooper, 1997). According to this table, the minimum value of a form with 8 expert opinions was determined as 0.78. Content validity ratios and content validity criteria for each item in the form are given below.

The screenshot shows an Excel spreadsheet with a grid of data. The columns are labeled with letters A through Z, and the rows are numbered 1 through 21. Row 14 is highlighted in yellow. In cell B14, there is a value of 0. A tooltip box is displayed over this cell, containing the text "0,78 DEN KÜÇÜK MADDE KAPSAMA ALINMAZ." The spreadsheet also contains various other numerical values and text labels in the rows.

Stage 6: Creation of the final form

According to the content validity ratios and content validity indices, the items below the minimum value were removed and the final form with high content validity was obtained. Accordingly, the areas related to the 6 factors that make up the scale are as follows:

- Factor 1: Visual Design (2 items)
- Factor 2: Readability (3 items)
- Factor 3: Teaching Approach (9 items)
- Factor 4: Content (10 items)
- Factor 5: Laboratory Activities (10 items)
- Factor 6: Measurement and Evaluation (6 items)

Reliability of the Form

Fleiss Kappa, Krippendorff Alpha and Cronbach Alpha coefficients were used to ensure the reliability of the form. Kappa test is a statistical method that measures the reliability of the agreement between two or more observers. While "Cohen's kappa coefficient" deals with the agreement between only two observers, "Fleiss's kappa coefficient" should be used if the number of observers with whom the agreement is measured is more than two (Kılıç, 2015). Fleiss's kappa measure measures the agreement between a fixed number (n) of raters, each of whom separates (N) items or persons into (C) different categories (Fleiss, 1971). Fleiss's kappa measure is more robust than the simple percentage agreement, as it takes into account the possibility that agreement between observers may be due to chance (Fleiss, 1971). Since the resulting variable is a categorical variable, Fleiss' kappa coefficient is a non-parametric statistic. The value ranges of kappa coefficient are given in Table 4.

Table 4. Value Ranges for the Interpretation of Kappa Statistics

κ	Strength of agreement
<0,00	Poor
0,00 – 0,20	Slight
0,21 – 0,40	Fair
0,41 – 0,60	Moderate
0,61 – 0,80	Substantial
0,81 – 1,00	Almost perfect

Source: Kılıç, S., Kappa Test, *Journal of Mood Disorders*, 5(3), 2015, 142-144.

As seen in Table 4, the strength of the agreement is slight if the Kappa coefficient is less than 0.20, fair if 0.21 - 0.40, moderate if 0.41 - 0.60, substantial if 0.61 - 0.80, and almost perfect if 0.81 - 1.

Krippendorff (1995) proposed a measure of fit called Krippendorff Alpha statistic. Krippendorff Alpha (α) statistic can be applied to a wide variety of data types. It can be applied to any number of values for each variable. It can be applied to data with two or more raters. It can be applied to data measured by any type of scale (classification, ordinal, interval, ratio) and can be used in samples of different sizes (small or large). It can also be applied when there is missing data in scoring (Hayes & Krippendorff, 2007). The ranges of alpha values are given in Table 5.

Table 5. Value Ranges for the Interpretation of Krippendorff Alpha Coefficient

α	Strength of agreement
<0,67	Weak
0,67- 0,80	Medium
0,80 ≤	High

Source: Krippendorff, K. (2004). Content analysis: an introduction to its methodology (Second Edition). Thousand Oaks,CA: Sage.

Some items were removed from the form by considering the values in Table 5. Sixteen of these items were removed with the suggestions of the expert group and because they were below the content validity ratio. Then, when the remaining 49 items were analysed again, 9 items were removed from the form because they were not compatible among themselves on the basis of categories and were below the values of Kappa and Krippendorff Alpha Coefficient. In the light of this information, the statistical information of the factors of the form items is given in Table 6.

Table 6. Statistical Information of Form Items

Number of raters	Rubric categories	Fleiss Value	Kappa	Krippendorff's Alpha Value
5	Visual Design	,79		,91
	Readability	,84		,97
	Teaching Approach	,63		,72
	Content	,78		,88
	Laboratory Activities	1		1
	Measurement and Evaluation	,73		,89

Since the CVR values obtained for each dimension were greater than the value of 0,62 determined for 8 experts, it was decided that the content validity of the "Science Textbook Evaluation Form" was statistically significant.

As a result of the analyses, a valid and reliable form was obtained. Cronbach's Alpha reliability coefficient for the whole 'Science Textbook Evaluation Form' prepared in 5-point Likert type was found as 0,894; 0,725 for visual design; 0,782 for readability; 0,739 for teaching approach; 0,757 for content; 0,793 for laboratory activities; 0,817 for measurement and evaluation.

Data Collection

Each participant in the study group was given a 'Science Textbook Evaluation Form'. They were asked to fill in the Likert-type form. After all of the participants submitted the form, the data of each of the forms were collected in a single file. Participation in the study was based on voluntariness and confidentiality.

Data Analysis

In the evaluation of the arithmetic averages of the 'Science Textbook Evaluation Form' developed by the researcher in order to examine the 5th grade science textbook, the formula "Range Width = Range / Number of Groups" was used (Tekin, 2019). The score ranges determined accordingly are given in Table 7.

Table 7. Form Options and Score Intervals

Options	Points Given	Point Intervals
Strongly Agree	5	4,20-5,00
I agree	4	3,40- 4,19
Undecided	3	2,60-3,39
Disagree	2	1,80-2,59
Strongly Disagree	1	1,00-1,79

SPSS 22.0 package programme was used to analyse the data. Firstly, relevant items were collected and factors were formed. Frequency, percentage, mean, standard deviation and mean ranks were used to report descriptive data. In this process, significance level .05 was accepted.

RESULTS

The frequency and percentage distributions of the data obtained from the scale in order to determine the opinions of the teachers about the 5th grade science textbook are given in the tables.

Table 8. Distribution of Teachers' Responses to the Visual Design Dimension of the Form

Items	N	\bar{X}	Sd	Level
1. The textbook is printed on quality paper (coated paper).	55	3,4	1,02	I agree
2. The images on the cover are compatible with the content of the course.	55	3,03	,88	Undecided
Total	55	3,21	,84	Undecided

When Table 8 was analysed, it was seen that the teachers agreed with the item "the textbook was printed on quality paper" (\bar{X} =3,40). Teachers expressed an undecided opinion (\bar{X} =3,03) on the item "the visuals on the cover are compatible with the content of the course". The arithmetic mean of the teachers' opinions on the visual design dimension of the textbook is at the level of undecided with \bar{X} =3,21. Dimension 1 includes items related to visual design and none of the items in this dimension were at the level of Strongly Agree. As a result, it can be said that the visual design dimension of the 5th grade science textbook is not sufficient in terms of the harmony of the visuals on the cover with the content of the course.

Table 9. Distribution of Teachers' Responses to the Readability Dimension of the Form

Items	N	\bar{X}	Sd	Level
1. Language appropriate to the level of the students is used.	55	3,50	,71	I agree
2. Paragraphs are related to the main idea of the text.	55	3,47	,68	I agree
3. In the whole textbook, the fluency of the text is ensured by using short sentences.	55	3,27	,78	Undecided
Total	55	3,41	,60	I agree

When Table 9 is analysed, it is seen that the opinions of the teachers about the item "language appropriate to the level of the students was used" (\bar{X} =3,50) and the item "paragraphs are related to the main idea of the text" (\bar{X} =3,47) are at the level of agree. It is seen that the opinions of the teachers about the item (\bar{X} =3,27) that "the fluency of the text is provided by short sentences in the whole textbook" are at the level of undecided. The arithmetic mean of the teachers' opinions about the readability dimension of the textbook is at the level of agree with \bar{X} =3,41. Therefore, it can be said that teachers find the 5th grade science textbook sufficient in terms of readability, but sentence structures should be revised to ensure the fluency of the text throughout the book.

Table 10. Distribution of Teachers' Responses to the Teaching Approach Dimension of the Form

Items	N	\bar{X}	Sd	Level
1. The textbook is suitable for students' developmental levels.	55	3,65	,87	I agree
2. The textbook includes activities that will form the basis for the formation of environmental understanding supported by nature awareness.	55	3,53	,86	I agree
3. The information in the textbook is compatible with the principle of vitality.	55	3,44	,83	I agree
4. The textbook includes activities to develop life skills (modelling, analytical thinking, teamwork).	55	3,45	,79	I agree
5. The activities in the textbook ensure students' active participation in the lesson.	55	3,27	,91	Undecided
6. Student-centred methods and techniques (problem-based, project-based, collaborative, argumentation-based, etc.) are included in the activities in the textbook.	55	3,25	,89	Undecided
7. Explanations given in the activities in the textbook are clear and understandable.	55	3,53	,77	I agree
8. The activities in the textbook are sufficient to reinforce the subjects.	55	2,91	,99	Undecided
9. The textbook includes activities that can be done in out-of-school learning environments.	55	3,00	,94	Undecided
Total	55	3,33	,49	Undecided

When Table 10 is analysed, it is seen that the opinions of the teachers regarding the suitability of the textbook to the developmental levels of the students, the fact that it contains activities that will form the basis for the formation of environmental understanding supported by nature awareness, the compatibility of the information in its content with the principle of vitality, the inclusion of activities to develop life skills and the clarity and comprehensibility of the explanations in the activities in its content are at the level of agree. Teachers' opinions on other items were found to be at the level of undecided. The arithmetic mean of the teachers' opinions about the teaching approach dimension of the textbook is at the level of undecided with $=3,33$. It was concluded that the activities in the textbook should be revised and deficiencies should be eliminated in terms of ensuring students' active participation in the lesson, giving enough space to student-centred methods and techniques, reinforcing the subjects and including the ones to be done in out-of-school learning environments.

Table 11. Distribution of Teachers' Responses to the Content Dimension of the Form

Items	N	\bar{X}	Sd	Level
1. Activities involving cooperation with other disciplines (social sciences, mathematics, etc.) are included throughout the textbook.	55	3,18	,88	Undecided
2. The information in the content of the textbook is scientifically accurate.	55	3,76	,61	I agree
3. The content of the textbook is sufficient to achieve the outcomes of the education and training programme.	55	3,07	1,02	Undecided
4. The textbook contains preparatory questions to reveal students' prior knowledge about the subject.	55	3,05	,95	Undecided
5. The content of the textbook includes associations between units.	55	3,11	,90	Undecided
6. The textbook includes activities aimed at eliminating students' misconceptions.	55	2,85	,97	Undecided
7. Explanations about the concepts in the textbook are clear, understandable and precise.	55	3,42	,88	I agree
8. The content of the textbook does not include the names of journals, books and web addresses where students can do research.	55	2,71	,90	Undecided
9. The data (scientific, statistical, etc.) in the content are up-to-date.	55	3,45	,74	I agree
10. Different viewpoints and opposing opinions on socioscientific issues (nuclear power plant, air pollution, GMO etc.) are presented objectively.	55	2,69	,92	Undecided
Total	55	3,13	,50	Undecided

When Table 11. is analysed, it is seen that teachers' opinions on the items "the information in the content of the textbook is scientifically correct" (\bar{X} =3,76), "the explanations about the concepts in the book are clear, understandable and precise" (\bar{X} =3,42) and "the data in the content are up-to-date" (\bar{X} =3,45) are at the level of agree, while they are at the level of undecided in other dimensions. The arithmetic mean of the teachers' opinions about the content dimension of the textbook is at the level of undecided with \bar{X} =3,1. As a result, the teachers' opinions about the content of the science textbook are that the content of the textbook has deficiencies in terms of having the content necessary to achieve the learning outcomes in the curriculum, including activities for cooperation with other disciplines, including activities to eliminate misconceptions, including preparatory questions that reveal prior knowledge,

including associations between units, and including information about printed and online resources for scientific research.

Table 12. Distribution of Teachers' Responses to the Laboratory Activities Dimension of the Form

Items	N	\bar{X}	Sd	Level
1. Laboratory activities facilitate the comprehension of the subjects.	55	3,47	,84	I agree
2. Laboratory activities have scientific accuracy	55	3,64	,73	I agree
3. Experimental materials in laboratory activities are easily accessible.	55	3,69	,69	I agree
4. Explanations about the conduct of the experiment in laboratory activities are sufficient to perform the experiment.	55	3,69	,63	I agree
5. Laboratory activities increase students' ability to make observations.	55	3,76	,64	I agree
6. Laboratory activities appeal to more than one sense organ of students.	55	3,80	,52	I agree
7. Laboratory activities are transferable to daily life.	55	3,76	,64	I agree
8. Explanations about the use of tools and equipment to be used in laboratory activities are sufficiently included.	55	3,42	,81	I agree
9. The steps of the experiments and activities are clear and understandable.	55	3,60	,74	I agree
10. Safety warnings are included in the steps of the experiments.	55	3,60	,78	I agree
Total	55	3,64	,41	I agree

When Table 12 is analysed, it is seen that the responses of the teachers about the laboratory activities in the 5th grade science textbook are at the level of agree. While the opinion scores of the teachers about the laboratory activities varied between 3,42 and 3,80 on the basis of items, the arithmetic mean for all items in this dimension was $\bar{X}=3,1$. Therefore, it can be said that teachers find the 5th grade science textbook sufficient in terms of laboratory activities.

Table 13. Distribution of Teachers' Responses to the Measurement and Evaluation Dimension of the Form

Items	N	\bar{X}	Sd	Level
1. The preparatory work related to the subjects in the textbook is of a quality to encourage students to think and research.	55	2,95	,93	Undecided
2. In the end-of-unit evaluation section, result evaluation techniques (multiple choice, matching, written probe, etc.) are included.	55	3,47	1,09	I agree
3. Process assessment techniques (peer assessment, self-assessment, etc.) are included at the end of the unit.	55	2,87	,98	Undecided
4. The instructions in measurement and evaluation activities are clear, understandable and precise.	55	3,36	,89	Undecided
5. In the question types prepared, negative question expressions were prepared in a way to attract attention (underlining, bold writing, etc.).	55	3,02	,95	Undecided
6. In true and false questions, each question was prepared to measure only one feature.	55	2,95	,95	Undecided
Total	55	3,10	,69	Undecided

When Table 13 is analysed, it is seen that the teachers' opinions regarding only the item ($\bar{X}=3,47$) "result evaluation techniques (multiple choice, matching, written probe, etc.) are included in the end-of-unit evaluation section" are at the level of agree and their opinions regarding the other items are at the level of undecided. The arithmetic mean of the teachers' opinions about the adequacy of the textbook in the measurement and evaluation dimension is at the level of undecided with $\bar{X}=3,10$. Therefore, it is stated that the subject preparation activities in the content of the 5th grade science textbook are not enough to encourage students to think and research, although the result evaluation techniques are sufficiently included, the process evaluation techniques are not sufficiently included, the instructions in the activities are not clear, understandable and clear enough, and the questions in the content are deficient in terms of measurement and evaluation.

CONCLUSION, DISCUSSION AND RECOMMENDATIONS

This section includes the results obtained from the findings of the study, discussion and suggestions based on these results.

Conclusion and Discussion

The aim of this study is to develop an evaluation form for analysing the science textbooks and to determine teachers' opinions about the 5th grade science textbook with this form. Teachers' opinions were analysed in terms of the sub-dimensions of the form and teachers' opinions about each dimension were included.

It was observed that the answers given by the teachers to the items related to the visual design dimension of the textbook were at the level of undecided. Teachers agreed that the textbook should be printed on glossy paper, and they were undecided about the harmony of the visuals on the cover with the content. Findings similar to this result are also found in the literature. In their study, Çepni et al. (2001) found that all teachers who participated in the research had the opinion that the appearance of textbooks is a factor that directly affects teaching and that a textbook printed on high quality paper will attract more attention of students. In Keleş's (2001) study, it was also seen that all of the teachers who participated in the study agreed that the printing quality of the textbook should be good. As a result, it can be said that teachers have the opinion that visual designs of textbooks should be appropriate to the content of the course and should be printed on quality paper.

It was seen that the answers of the teachers to the items related to the readability dimension of the textbook were at the level of agree. This result shows that the teachers find the 5th grade science textbook sufficient in terms of readability, but the sentence structures should be revised to ensure the fluency of the text in the whole book. There are many studies in the literature (Aycan et al., 2002; Keleş, 2001; Ünsal & Güneş, 2003) that textbooks are not readable. These results, which indicate that textbooks are not sufficient in terms of language expression and readability, do not support this research. However, it is thought that the fact that the Board of Education has increased its efforts to prepare more qualified textbooks with the commissions formed by the Board of Education to examine the textbooks since 2004 is effective in the adequacy of the 2017 edition science textbook, which was examined in the study, in terms of readability.

In terms of teaching approaches, the teachers stated that the textbook was appropriate for the developmental level of the students, that it was capable of providing nature awareness to the students, that there were activities that

included the principle of vitality and life skills, but that it was inadequate in terms of not enabling active participation of the students, not being student-centred and out-of-school activities. Maskan and Atabay (2007) also stated that the 4th grade science and technology textbook they examined was suitable for the developmental level of the students and supported life skills, but the explanations of some of the activities in the textbook were not clear and understandable. As a result, as a result of the evaluations related to the teaching approach of the textbooks, it can be said that the textbooks are suitable for the students' levels and support life skills, but they have deficiencies in terms of activities involving out-of-school learning environments, where students are at the centre and active participation.

It was seen that the answers of the teachers to the items related to the content dimension of the textbook were at the level of undecided. Teachers think that the 5th grade science textbook does not fully reflect the content. The results obtained in the literature also support this finding. Ayvacı and Devecioğlu (2013) analysed the 10th grade physics textbook and found that most of the teachers stated that the content of the textbook was insufficient. Kazak (2010) analysed 9th and 10th grade chemistry textbooks and found that more than half of the teachers evaluated chemistry textbooks as weak in terms of scientific content and that this deficiency is at a level that may cause misconceptions in students. As a result of these results, the conclusion that the content of the textbooks used as the main source in education is inadequate supports the findings of this study. The results obtained indicate that textbooks have deficiencies in terms of covering the content completely and being scientifically adequate.

It was determined that the responses of the teachers to the questions related to the fifth sub-dimension of the form, laboratory activities dimension, were at the level of agree. Teachers evaluated laboratory activities as adequate in terms of easy learning of concepts, being scientifically accurate, easy accessibility of materials, adequacy of explanations and supporting students' observation skills. In the literature, many studies supporting this view (Efe Aslan et al., 2015; Gülseven & Bakırcı, 2018; Kavcar & Erdem, 2017; Özdemir & Yanık, 2017; Sürbahanlı Tolan, 2018) were found, but studies that did not support this view were not found. As a result, it can be said that the examined 5th grade science textbook, which was prepared in accordance with the constructivist approach, was supported with appropriate activities for the constructivist approach to be included in laboratory activities.

Teachers stated that the 5th grade science textbook was inadequate in relation to the sixth sub-dimension of the form, measurement and evaluation

dimension. According to the teachers, the assessment and evaluation activities in the textbook are not clear, understandable and precise. They also stated that there are no activities at the end of the units where students can evaluate themselves and their peers. It has been determined that many textbooks used in our country also have deficiencies in terms of this dimension. In the study conducted by Budak and Okur (2012), the teachers, whose opinions were consulted, stated that the assessment and evaluation activities of the textbook they used were inadequate, not applicable, did not take into account individual differences and it was difficult to complete the activity within the specified time. In a study conducted by Ercan and Bilen (2012), it was also determined that teachers did not find the assessment and evaluation questions in the textbooks qualified, that too much time was required for the solution of the questions and that the questions were not suitable for the student level. Arslan and Özpınar (2009) stated that there were problems in the content of assessment and evaluation questions in their research to examine the textbooks, while Karadağ et al. (2013) stated that the assessment and evaluation questions of the textbooks should be qualified. The results obtained show that the measurement and evaluation activities of the textbooks should be reviewed in terms of applicability, suitability to the level and activity-time suitability.

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EK:

FEN BİLİMLERİ DERS KİTABI DEĞERLENDİRME FORMU

Değerli Meslektaşım,

Bu form, **Fen Bilimleri Ders Kitabını değerlendirmeye** yönelik öğretmenlerin görüşlerini belirlemek amacıyla yapılandırılmıştır. Form iki bölümden oluşmaktadır. Birinci bölümde kişisel bilgiler, ikinci bölümde ise Fen Bilimleri Ders Kitabıyla ilgili öğretmenlerin görüşlerini belirlemeye yönelik maddeler yer almaktadır. Her boyuta ilişkin oluşturulmuş maddelerde yer alan ifadelere ilişkin görüşünüzü, sağ tarafta yer alan sütunda işaretleyerek belirtiniz. Araştırmaya yaptığınız katkıdan dolayı teşekkür eder, saygılarımı sunarım.

Berna GÜR SOY

Fen Bil. Öğretmeni / Y.L. Öğrencisi

KİŞİSEL BİLGİLER

Lütfen bu bölümdeki soruları kendi durumunuza uygun olarak cevaplayınız.

1. Görev Yaptığınız Okul:

.....

2. Meslekteki Kıdeminiz:

5 Yıl ve altı () 6-10 Yıl () 11-15 Yıl () 16-20 Yıl ()

21 Yıl ve üzeri ()

3. Öğrenim Durumunuz:

Ön lisans () Lisans () Yüksek Lisans () Doktora ()

4. Cinsiyetiniz:

Kadın () Erkek: ()

5. Yaşınız:

20-30 arası () 31-40 arası () 41-50 arası ()

51 ve üstü ()

EK-B

BOYUTLAR VE MADDELER	Kesinlikle Katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle Katılıyorum
GÖRSEL TASARIM					
Ders kitabı kaliteli kağıda(kuşe kağıt) basılmıştır.					
Kapakta yer alan görseller dersin içeriğiyle uyumludur.					
OKUNABİLİRLİK					
Öğrencilerin seviyelerine uygun bir dil kullanılmıştır					
Paragraflar metnin ana düşüncesiyle ilişkilidir.					
Ders kitabın bütününde metnin akıcılığı kısa cümleler kurularak sağlanmıştır.					
ÖĞRETİM YAKLAŞIMI					
Ders kitabı öğrencilerin gelişim düzeylerine uygundur.					
Ders kitabında, doğa bilinciyle desteklenen çevre anlayışının oluşumuna temel oluşturacak etkinliklere yer verilmiştir.					
Ders kitabındaki bilgiler hayatilik ilkesiyle bağdaşmaktadır.					
Ders kitabında yaşam becerilerini (model oluşturma, analitik düşünme, takım çalışması) geliştirmeye yönelik etkinliklerine yer verilmiştir.					
Ders kitabındaki etkinlikler öğrencilerin derse aktif katılımını sağlamaktadır.					
Ders kitabındaki etkinliklerde öğrenci merkezli yöntem ve tekniklere (probleme dayalı, proje tabanlı, işbirlikli, argümantasyon tabanlı vb.) yer verilmiştir.					
Ders kitabındaki etkinliklerde verilen açıklamalar açık ve anlaşılırdır.					
Ders kitabındaki etkinlikler konuları pekiştirmek için yeterlidir.					
İÇERİK					
Ders kitabının bütününde diğer disiplinlerle (sosyal bilgiler, matematik vb.) iş birliğini içeren etkinliklere yer verilmiştir.					
Ders kitabının içeriğinde yer alan bilgiler bilimsel olarak doğrudur.					
Ders kitabının içeriği, eğitim ve öğretim programının kazanımlarını gerçekleştirmek için yeterlidir.					
Ders kitabı, öğrencilerin konuyla ilgili sahip oldukları ön bilgileri ortaya çıkaracak nitelikte hazırlık soruları içermektedir.					

Ders kitabının içeriğinde üniteler arası ilişkilendirmelere yer verilmiştir.					
Ders kitabında, öğrencilerin sahip olduğu kavram yanlışlarını gidermeye yönelik etkinliklere yer verilmiştir.					
İÇERİK(DEVAM)					
Kitapta yer alan kavramlara ilişkin açıklamalar açık, anlaşılabilir ve nettir.					
Ders kitabının içeriğinde öğrencilerin araştırma yapılabilecekleri dergi, kitap isimleri ile web adresleri yer almamaktadır.					
İçerikte yer alan veriler(bilimsel, istatistiki vs.) günceldir.					
Sosyobilimsel konularla (nükleer santral, hava kirliliği, GDO vb.) ilgili değişik görüş açıları ve karşıt düşünceler objektif olarak sunulmuştur.					
LABORATUVAR ETKİNLİKLERİ					
Laboratuvar etkinlikleri konuların kavranmasını kolaylaştırır niteliktedir.					
Laboratuvar etkinlikleri bilimsel doğruluk taşımaktadır.					
Laboratuvar etkinliklerindeki deney malzemelerine kolay ulaşılabilir niteliktedir.					
Laboratuvar etkinliklerindeki deneyin yapılışıyla ilgili açıklamalar deneyi yapmak için yeterlidir.					
Laboratuvar etkinlikleri öğrencilerin gözlem yapabilme becerisini artırır niteliktedir.					
Laboratuvar etkinlikleri öğrencilerin birden fazla duyu organına hitap eder niteliktedir.					
Laboratuvar etkinlikleri günlük yaşama aktarılabilir niteliktedir.					
Laboratuvar etkinliklerinde kullanılacak araç-gerecin kullanımına ilişkin açıklamalara yeterince yer verilmiştir.					
Deney ve etkinliklerin yapılış basamakları açık ve anlaşılmalıdır.					
Deneylerin yapılış basamaklarında güvenlik uyarılarına yer verilmiştir.					
ÖLÇME VE DEĞERLENDİRME					
Ders kitabındaki konularla ilgili hazırlık çalışmaları, öğrenciyi düşünmeye ve araştırmaya yöneltmek niteliktedir.					
Ünite sonu değerlendirme bölümünde sonuç değerlendirme tekniklerine (çoktan seçmeli, eşleştirme, yazılı yoklama vb.) yer verilmiştir.					
Ünite sonlarında süreç değerlendirme tekniklerine					

(akran değerlendirme, öz değerlendirme vb.) yer verilmiştir.					
Ölçme ve değerlendirme etkinliklerinde yer alan yönergeler açık, anlaşılır ve nettir.					
Hazırlanan soru türlerinde olumsuz soru ifadeleri dikkat çekici (altını çizme, kalın yazma vb.) olacak şekilde hazırlanmıştır.					
Doğru yanlış sorularında her soru sadece tek bir özelliği ölçecek şekilde hazırlanmıştır.					

Chapter 5

The Impacts of Renewable Electricity Generation, Foreign Direct Investment and Economic Growth On Carbon Emissions: Top 10 Countries in Renewable Energy Installed Capacity

Çisem BEKTUR¹

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ABSTRACT

The aim of this study is to examine the existence of the relationship between carbon emissions, FDI, GDP, and renewable electricity production variables for 10 countries that are leaders in the world's renewable energy installed capacity. In this study covering the years 1990-2021, the long-term relationship between the variables is analyzed utilizing the Durbin-Hausman panel cointegration test. In the light of the selected period and method, the results show that i) economic growth has an increasing effect on countries' carbon emissions; ii) While FDI fulfills the pollution halo hypothesis for some countries, it fulfills the pollution haven hypothesis for others; iii) shows that renewable electricity generation has a carbon emission reducing effect in other countries except China. For this reason, it is recommended for the governments of the countries in question to develop strategies that defend the pollution halo of FDI, to encourage more renewable electricity production and consumption, and to create sensitivity by taking environmental pollution into consideration at the same time as targeting economic growth.

Keywords – CO2 emissions, Renewable Electricity, Foreign Direct Investment, Economic Growth, Panel Cointegration

INTRODUCTION

Today, one of the most important criteria that enables development and prosperity to be achieved and sustained is the amount of energy produced and consumed by societies per capita. One of these forms of energy is electrical energy. Renewable energy sources combat global climate change as they are an alternative to fossil fuels and help reduce greenhouse gases. Especially with the significant negative effects of these greenhouse gas emissions on the world climate, countries have become more sensitive and international agreements and protocols such as the United Nations Framework Convention on Climate Change, the Paris Agreement and the Kyoto Protocol have been signed. Due to the negative causes of greenhouse gases to climate change, the most important and common of them, CO₂ gas, is discussed, and the effects of foreign direct investment, economic growth and renewable electricity production variables on CO₂ emissions are intended to be examined in this study.

The importance of renewable energy resources is becoming more understood as the increase in demand for energy, together with factors such as population growth, industrialization or technological developments, brings about an increase in the use of fossil energy resources. At this point, most countries need not only domestic but also foreign investments in order to access renewable energy resources and increase their capacity. One of these foreign resources is foreign direct investments. There are two hypotheses in the literature regarding the relationship between the environment and foreign direct investment: "Pollution Haven" and "Pollution halo".

According to the Pollution Haven Hypothesis, the relationship between foreign direct investment and the environment is based on weak environmental laws. In other words, it is argued that the relationship between foreign direct investment and the environment is related to the structure and number of political institutions of the host country. In this context, it is observed that FDI will tighten environmental policy when the number of legislatures is high, and when it is low, it will reduce this stringency (Cole and Fredriksson, 2009). Again, while FDI increases environmental pollution in developing countries, it reduces it in developed countries (Bakhsh et al., 2017).

Another is the Pollution halo hypothesis, which argues that new and clean technologies that can contribute to improving environmental quality can be obtained through foreign direct investments by developed countries to host countries (Zafar et al., 2019). It is known that FDI helps the international distribution of technology through imports and exports. Therefore, FDI is a kind of solution to these host countries to improve their environmental quality by ensuring less carbon emissions.

Economic growth and development levels of countries are important in terms of their ability to direct the global economy. It is also one of the most important factors affecting production. Production also involves energy use. Moreover, the energy that households constantly use, as well as production, contributes to carbon emissions. In particular, the electricity consumed both in production and by households is very important in terms of carbon emissions.

As environmental issues interact in many areas, they are also related to the economy. While economic growth, on the one hand, harms nature through environmental degradation and air pollution, on the other hand, environmental degradation increases the cost of economic development. With the industrial revolution, fossil fuels, which are used to obtain the necessary energy for increased production, have brought environmental degradation. The main aim of the countries is to ensure economic growth and sustainability, and although environmental problems have not been taken into consideration at first, global warming and the resulting climate change became an important problem for the countries later.

For this reason, it has become important to examine the relationship between economic growth and environmental pollution, and thus it has become essential for countries to use clean technologies during production. In this context, while developed countries use environmentally friendly systems in the production process, developing countries have ignored environmental problems due to high costs and continued to increase their production despite environmental pollution.

The goal of this study is examining the effects of these selected variables on carbon dioxide emissions, for the top 10 countries that in installed renewable energy capacity in the world in 2022 (Fernández, 2023). This country group is chosen to see more clearly the effects of renewable energy production and consumption on carbon emissions, and to the best of the author's knowledge, this study is the first study conducted in this country group. Foreign direct investment, economic growth and renewable electricity production variables, which are thought to affect carbon emissions in light of the countries with the highest renewable electricity production power, are selected to be examined. In the second part of the study, studies in the literature conducted in different countries/country groups, periods and methods are mentioned. The next section includes data, model and method, while the coming section indicates the empirical results of the research. Last, the study is finalized with conclusions and recommendations for policy makers.

LITERATURE REVIEW

In the literature, the relationship between variables such as economic growth, energy production/consumption, carbon emissions, trade openness, and foreign direct investments has been discussed from many perspectives in different times and methods. In these studies, carbon emissions, which have the most significant effect on greenhouse gases, are mostly examined as an indicator of environmental quality.

In the literature, there are both time series analysis and panel data analysis researches that reveal the relationship between these variables. Some of the time series analyzes are given below.

Hu et al. (2021) have discussed the problem of climate change caused by carbon emissions through the effects of technological innovations, energy consumption and capital formation variables on carbon emissions and economic output. This research conducted for India is between 1990 and 2018, and it has been revealed that energy consumption and technology have a positive effect on GDP, and technology and renewable energy consumption have a positive effect on CO₂ emissions. In other words, it shows that India is taking the right steps towards becoming carbon neutral. In addition, renewable energy consumption helps reduce carbon emissions and ensures the continuation of sustainability in economic growth. The results in the study are obtained using the Johansen cointegration test.

Since carbon dioxide gas, which has the most important place among greenhouse gases, is one of the factors affecting climate change, the need to examine the relationship between carbon emission, trade openness, urbanization, energy consumption and globalization variables has emerged. For the study covering the years 1978-2018, Malaysia has been selected as a sample country and time series analysis is conducted using the ARDL approach. It has been determined that the increase in trade openness, energy consumption and urbanization will also cause an increase in carbon emissions, in other words, it will increase environmental pollution (Nurgazina et al., 2021).

Hdom and Fuinhas (2020) have examined the relationship between trade openness, electricity production, GDP and carbon emissions variables, which have an impact on climate change and therefore on human life, for Brazil using FMOLS and DOLS methods, and a causality analysis is conducted. The results indicate that trade openness, electricity production and GDP will bring positive and also negative effects on the economy of the country in question. A bidirectional causality has also been demonstrated between trade openness and energy production. On the other hand, while renewable energy and GDP have

negative effects on carbon emissions, trade openness has been found to have positive effects on economic growth.

Mirza and Kanwal (2017) have investigated the dynamic causality between energy consumption, carbon emissions and economic growth variables for Pakistan in the period 1971-2009. The existence of long-term relationships has been examined through the Johansen-Julius cointegration test, and the robustness of these results has also been checked with the ARDL bounds test approach. Within the framework of VECM, long-short term and strong Granger causality of Grangers are analyzed and it has been determined that there is bidirectional causality between the variables.

The effects of clean energy, FDI, trade openness, GDP, and carbon emissions on energy consumption have been examined by Sbia et al. (2014) using the ARDL bounds test method under the example of UAE. In this study covering the years 1975-2011, the existence of cointegration is determined and it is said that trade openness, carbon emissions and FDI reduce the demand for energy. Besides, clean energy and economic growth are among the variables that positively affect energy consumption.

Soytaş et al. (2007) have been examined the effects of energy consumption and production on carbon emissions and income for USA. Granger causality test has been applied among the variables, and findings are revealed that while energy consumption is the cause of carbon emissions, the income variable is not the cause of carbon emissions.

Below are some of the panel data analysis reviews in the literature.

Factors affecting renewable energy consumption between 1991 and 2020 for 20 OECD countries are investigated by Yang et al. (2022). A significant and inverse relationship is found between renewable energy consumption and carbon emissions using AMG estimators during the analysis. In addition, according to the causality test, it has been revealed that there is a bidirectional causality between renewable energy consumption and income inequality, while trade openness, income inequality and oil prices variables have a unidirectional causality with carbon emissions.

Muhammad et al. (2022) have discussed the interaction of the renewable energy consumption variable with income inequality, trade openness, oil prices, carbon emissions and economic growth variables. Panel data from 23 selected OECD countries are examined with the Westerlund cointegration test, and then the long-term coefficients of the variables are obtained with AMG estimators. Dumitrescu and Hurlin's panel causality test has been utilized to determine causality between variables. The findings of the research has indicated that renewable electricity consumption has a positive relationship with all other

variables except carbon emissions. In addition, while there is a bidirectional causality between renewable energy consumption and income inequality, it has been revealed that this causality is unidirectional between GDP and renewable energy consumption.

Liu et al. (2020) have examined the relationship between renewable energy consumption and carbon emissions for a sample of BRICS countries on behalf of the environmental degradation problem between 1999 and 2014, and concluded that clean energy helps reduce carbon emissions. 3SLS model is utilized in the study.

Sharif et al. (2019) and Vo et al. (2020) have obtained results in both showing that renewable energy consumption reduces carbon emissions, that is, increases environmental quality, for 74 selected countries and 9 Pacific countries, respectively.

Danlami et al. (2018) have intended to reveal the undesirable consequences caused by the global increase in carbon emissions by examining the relationship between the variables of energy production, FDI, economic growth, capital formation and carbon emissions. The study covers the period between 1980 and 2011, and LMI and MENA countries are discussed. After the ARDL model has been estimated for both LMI and MENA countries, long-term coefficient estimation has been obtained via FMOLS. While a significant positive relationship is found between energy production, FDI and carbon emissions in LMI countries, the effect of capital formation on CO₂ emissions is observed to be negative. Moreover, in MENA countries, it has been revealed that capital formation and energy production have a positive impact on CO₂ emissions. These results are also supported by FMOLS coefficient estimates excluding GDP variable.

In their study, Sebri and Ben-Salha (2014) have investigated the relationship between trade openness, renewable energy consumption, economic growth and carbon emissions with the example of BRICS countries between 1971 and 2010. A bilateral relationship between energy consumption and economic growth has been revealed by VECM Granger causality. Furthermore, the existence of a long-term relationship between variables is obtained as a result of the ARDL method.

The relationship between energy consumption, carbon emissions, trade openness, urbanization and GDP variables is analyzed by Hossain (2011) with the help of Johansen Fisher cointegration and Granger causality tests. This research, covering the period between 1971 and 2007, is studied on newly industrialized countries. No long-term causality result has been found, but it is

concluded that the variables are cointegrated. The findings point out that excess energy consumption will also bring about an increase in carbon emissions.

In some of the studies, in addition to the interaction of the variables discussed above, whether the EKC hypothesis is valid or not is also examined.

In order to reduce carbon emissions in G7 countries, the effects of selected variables on pollution are analyzed by Li and Haneklaus (2022) between 1979 and 2019. Results have emerged that clean energy consumption and urbanization reduce carbon emissions. It is also seen that the excess production caused by trade openness increases pollution. The findings also confirm the validity of the EKC.

Sarkodie and Öztürk (2020) have aimed to examine current climate change and its effects in Kenya using carbon emissions, energy use and GDP variables. In the study covered for the years 1971-2013, the validation of the EKC hypothesis has been demonstrated by obtaining an inverted-U curve. In addition, energy consumption has been seen as one of the factors that increase carbon emissions.

Zhang et al. (2019) have questioned the effects of energy consumption and economic growth on carbon emissions for the agricultural sector in China, which is the country with the highest carbon emissions in the world. Time series analysis is performed between 1996 and 2015. The relationship between economic growth, energy consumption and carbon emissions is tested through the ARDL approach and VECM Granger causality. The results prove the existence of EKC for carbon emissions in China's main grain producing areas. Moreover, carbon emissions in agriculture are negatively affected by energy consumption. Besides, bidirectional causality has been found between economic growth and carbon emissions variables. There is a one-sided relationship from energy consumption to economic growth and carbon emissions.

Çetin et al. (2018) has intended to test the factors affecting carbon emissions in Türkiye between 1960 and 2013. By considering these factors, financial development, trade openness, economic growth and energy consumption, it is investigated whether the variables are cointegrated and it is concluded that there is a long-term relationship. However, it is found that there is a one-way causality between the variables. Additionally, the validity of EKC in Turkey has been demonstrated.

The existence of the EKC hypothesis is supported by detecting an inverted-U form relationship between carbon emissions and GDP and its square for 17 OECD countries selected by Bilgili et al. (2016) between 1977 and 2010. Additionally, the reducing effect of renewable energy consumption on carbon emissions has been revealed with DOLS and FMOLS coefficient estimators.

Atıcı (2009) has examined the effects of energy use, trade openness and GDP variables on carbon emissions through panel data analysis and EKC hypothesis. The research covers the years 1980-2002 and is conducted for Central and Eastern European countries. The results confirm the presence of EKC. It has been found that openness to trade does not reduce the level of carbon emissions. It has been concluded that since energy use is an important factor that increases pollution in the region, it is necessary to work with cleaner technologies.

DATA AND MODEL

The effects of renewable electricity generation, foreign direct investment and economic growth on carbon emissions has intended to be analyzed in this study for the top ten countries that in installed renewable energy capacity in the world. The study covers the years 1990-2021. By examining the interaction between the selected variables and renewable electricity production, the countries with the highest installed renewable energy capacity are selected and it is emphasized how important renewable electricity is. Selected countries are China, United States, Brazil, Germany, India, Japan, Canada, Spain, France, and Italy from highest to lowest (Fernández, 2023). The *co2*, *fdi*, *gdp*, and *reg* denote carbon-dioxide emissions (metric tons per capita), foreign direct investment as net inflows (current\$), per capita GDP (constant 2015 US \$), and renewable electricity generation (kilowatt hours), respectively. The natural logarithm of the data has been taken. While the *co2*, *fdi* and *gdp* are taken from the WorldBank database, *reg* is taken from US Energy Information Administration database.

The panel model indicated below is employed to investigate the effects of the selected variables on carbon emissions in the long-run:

$$\ln co2_{it} = \beta_0 + \beta_1 \ln fdi_{it} + \beta_2 \ln gdp_{it} + \beta_3 \ln reg_{it} + \varepsilon_{it} \quad (1)$$

where, β_1 , β_2 , and β_3 are the coefficients of $\ln fdi_{it}$, $\ln gdp_{it}$, and $\ln reg_{it}$, respectively. ε_{it} is the error term. First, the cross-section dependency test is applied. According to the results of the test, the appropriate unit root test and cointegration test are selected. To test whether the variables are cointegrated, the unit root test should first be applied. Finally, if the variables are cointegrated, long-term coefficients are investigated and evaluated.

METHODOLOGY

The first thing to test during panel data studies is checking cross-sectional dependence whether variables and model do have or not. In this context, cross-sectional dependence has been tested by calculating three different test statistics

in the study. The cross-sectional dependence of Equation (1) has been tested by utilizing Breusch and Pagan's (1980) test statistics.

$$CD = T \sum_{i=1}^{N-1} \sum_{j=i+1}^N \hat{\rho}_{ij}^2 \tag{2}$$

where $\hat{\rho}_{ij}$ represents the correlation between errors calculated from Equation (1). Displayed test statistic below is utilized in case the test statistic calculated in Equation (2) may give deviant results in large samples. It is suggested by Pesaran (2004) as:

$$CD_{LM1} = \sqrt{\frac{1}{N(N-1)}} \sum_{i=1}^{N-1} \sum_{j=i+1}^N (T \hat{\rho}_{ij}^2 - 1) \tag{3}$$

Some adjustments to the test statistic in Equation (2) are revealed through Equation (3). As a result, cross-sectional dependence can be tested for large samples. Furthermore, in case the time (T) is fewer than the observation (N), Equation (3) has been adjusted by Pesaran (2004) and becomes as follows:

$$CD_{LM2} = \sqrt{\frac{2T}{N(N-1)}} \left(\sum_{i=1}^{N-1} \sum_{j=i+1}^N \hat{\rho}_{ij} \right) \tag{4}$$

The hypothesis of three tests statistics mentioned above is given below:

H_0 : absence of cross-sectional dependency

H_1 : having a cross-sectional dependency.

Homogeneity is then tested. For this purpose, delta tests belong to Pesaran and Yamagata (2008) are utilized. The first one from these tests is as follows:

$$\hat{\Delta} = \sqrt{N} \left(\frac{N^{-1} \tilde{S} - k}{\sqrt{2k}} \right) \tag{5}$$

Here, \tilde{S} is the changed statistics of Swamy (1970). The Delta adjusted test statistics are as follows:

$$\begin{aligned} \hat{\Delta}_{adj} &= \sqrt{N} \left(\frac{N^{-1} \tilde{S} - E(\tilde{z}_{it})}{\sqrt{\text{var}(\tilde{z}_{it})}} \right) E(\tilde{z}_{it}) = k, \text{var}(\tilde{z}_{it}) \\ &= \frac{2k(T-k-1)}{T+1} \end{aligned} \tag{6}$$

Hypotheses to test slope homogeneity for the test statistics mentioned above are stated below:

H_0 : homogeneous slopes exist

H_1 : heterogeneous slopes exist.

Recent crises and transformations in economies have made structural breaks as well as cross-section dependency important. After the cross-section dependence test, the unit root test that allows structural breaks should be used. The most important issue in the reliability of these tests is that the break dates, forms and numbers can be defined accurately in advance. Hassles that might arise can be overcome through Fourier unit root tests, which allow not only hard breaks but also gradual breaks (soft transitions). The breakage form and dates do not need to be known in advance when modeling the test.

Accordingly, in this research, the long-term dynamic behavior of carbon emissions is specified using the FPKSS test explored by Nazlıoğlu and Karul (2017). Unlike traditional panel unit root methods, the FPKSS test uses Fourier functions to determine structural shifts. Moreover, another difference is that the null hypothesis is stationary and the alternative hypothesis is the opposite. Another advantage of FPKSS is that structural changes are modelled smoothly. Besides, it allows us to take into account the heterogeneities of each country regarding cross-sectional dependence. The process of the FPKSS test mentioned above is stated below:

$$y_{it} = \alpha_i(t) + r_{it} + \lambda_i F_t + \varepsilon_{it} \quad (7)$$

$$r_{it} = r_{it-1} + u_{it} \quad (8)$$

F_t is an unobserved common factor. r_{it} is a stochastic term. $\alpha_i(t)$ is a time dependent function which is deterministic term in Equation (7). The loading weights are defined by λ_i . ε_{it} and u_{it} are i.i.d. across i and over t .

The deterministic component belonging to KPSS stationary test is:

$$\alpha_i(t) = a_i + \gamma_{1i} \sin\left(\frac{2\pi kt}{T}\right) + \gamma_{2i} \cos\left(\frac{2\pi kt}{T}\right) \quad (9)$$

Here, the term γ_{1i} is the amplitude of the changes and γ_{2i} is the displacement of the changes. Equation (9) predicts the time-varying intersection term by using the values γ_{1i} and γ_{2i} , which are not zero to, state gradual changes in intersection. Besides, the FPKSS test allows for slope fluctuations

in the intercept and time trend. A Fourier dilation has been developed by Jones and Enders (2014) to account the non-linear trend function given as:

$$\alpha_i(t) = a_i + b_i t + \gamma_{1i} \sin\left(\frac{2\pi kt}{T}\right) + \gamma_{2i} \cos\left(\frac{2\pi kt}{T}\right) \quad (10)$$

The estimation of country-by-country statistics is based on Becker et al.'s (2006) KPSS procedure:

$$\eta_i(k) = 1/T^2 \sum_{t=1}^T \frac{\tilde{S}_{it}(k)^2}{\hat{\sigma}_{\varepsilon i}^2} \quad (11)$$

Here, $\tilde{S}_{it}(k) = \sum_{j=1}^t \tilde{\varepsilon}_{ij}$ is a partial sum process acquired from the Ordinary Least Squares errors of Equation (8). $\hat{\sigma}_{\varepsilon i}^2$ is the term obtained by calculating the long-term variance of the error term ε_{it} given as:

$\sigma_{\varepsilon i}^2 = \lim_{T \rightarrow \infty} T^{-1} E(S_{it}^2)$. The calculation of the panel statistics $FP(k)$ is given as:

$$FP(k) = \frac{1}{N} \sum_{i=1}^N \eta_i(k).$$

The last test statistics for $FP(k)$ converges to the standard normal distribution while $\xi(k)$ is the mean and $\zeta(k)$ is the variance.

$$FZ(k) = FPKPSS = \sqrt{N} \left(\frac{FP(k) - \xi(k)}{\zeta(k)} \right) \sim N(0,1).$$

Newly developed cointegration tests consider the cross sectional dependency, unlike traditional cointegration tests. In this context, the panel cointegration test statistics belong to Westerlund (2008) which take cross sectional dependence into account displayed below:

$$DH_g = \sum_{i=1}^n \hat{S}_i (\tilde{\phi}_i - \hat{\phi}_i)^2 \sum_{t=2}^T \hat{e}_{it-1}^2 \quad (12)$$

$$DH_p = \hat{S}_n (\tilde{\phi} - \hat{\phi})^2 \sum_{i=1}^n \sum_{t=2}^T \hat{e}_{it-1}^2 \quad (13)$$

Here, while DHg is the panel statistic DHp is the average statistic. The null hypothesis of the Durbin-Hausman test demonstrates that the panel is not

cointegrated. Inversely, the alternative hypothesis states that the panel is cointegrated.

EMPIRICAL RESULTS

At first, the cross sectional dependency of the variables and the panel model has been controlled by utilizing the CD (1980), CD_LM1 (2004), and CD_LM2 (2004) tests. According to Table 1 which displays results, the cross-section dependency for the variables and model exists. For this reason, the unit root and cointegration tests to be utilized have been chosen to take cross-sectional dependency into account.

Table 1. Cross section dependence test results

Variables	<i>CD_{LM1}</i>	<i>CD_{LM2}</i>	<i>CD</i>
Inco2	609,3960*	58,43847*	4,817208*
lnfdi	346,2511*	30,70056*	13,26008*
lngdp	1074,345*	107,4484*	32,18156*
lnreg	1048,771*	104,7527*	32,20279*
Model	729,6746*	71,11695*	18,85632*

Note: * denotes the statistical significance at %1 level.

According to the results in Table 2, it has been revealed that the model is heterogeneous as the null hypothesis of a homogeneous slope is rejected.

Table 2: SlopeHomogeneity results

SlopeHomogeneity	Stat.	p-val.
$\hat{\Delta}$	18,317*	0,0000
$\hat{\Delta}_{adj}$	19,941*	0,0000

Note: * denotes the rejection of null hypothesis at %1 level.

In order to check the analyzeability of the cointegration between foreign direct investment, economic growth, renewable electricity consumption and carbon emissions, firstly FPKPSS stationarity test has been applied to the variables. According to the unit root test results displayed in Table 3, while lngdp and lnreg are stationary at level (I(0)), Inco2 and lnfdi are stationary (I(1)) at first difference.

Table 3: FPKPSS stationary results

Variables	Level	First diff.
lnco2	34,35 (2,22e-016)*	1,139 (0,1273)
lnfdi	7,242 (2,216e-013)*	0,513 (0,3040)
lngdp	1,270 (0,102)	
lnreg	1,027 (0,1522)	

Note: * denotes the rejection of null hypothesis at %1 significance level.

Table 4 demonstrates that the model is cointegrated. That is to say the dependent variable carbon dioxide emissions and the independent variables which are foreign direct investment, economic growth and renewable electricity generation act together in the long-run.

Table 4: Panel cointegration results

Test	Value	p-val.
DH_g	4,396*	0,000
DH_p	7,630*	0,000

Note: * denotes the rejection of the null hypothesis at 1% significance level.

The AMG estimators have been employed for the purpose of estimation of the long run coefficients for the panel model. According to AMG estimators the long run coefficients belonging to these ten countries and the model have been shown in Table 5. The effect of explanatory variables on carbon-dioxide emissions has been investigated in this study. The coefficients of the variables for each country and panel model are as follows:

Table5: AMG results: long run estimations

Country	lnfdi	lngdp	lnreg
China	0,018	0,386***	0,424*
United States	0,026	0,107	-0,178*
Brazil	0,089*	1,098*	-0,533*
Germany	0,001	0,004	-0,001
India	-0,001	0,907*	0,080
Japan	-0,001	0,930*	-0,098**
Canada	0,003	0,679*	-0,053
Spain	-0,008	1,777*	-0,171*
France	0,041*	0,018	-0,065
Italy	-0,001**	1,317*	-0,143*
Panel	0,017***	0,722*	-0,074

Note: *, ** and *** denote the rejection of the null hypothesis at 1%, 5%, and 10% significance level, respectively.

The analyze results reveal that $\ln fdi$ and $\ln gdp$ are statistically significant for the panel model and it has positive effect on CO₂ emissions. The $\ln reg$ variable is statistically significant for China, US, Brazil, Japan, Spain and Italy. It has positive affect on decreasing CO₂ emissions except China. For China, a 1% increase in $\ln reg$ increases CO₂ emissions by 0,424%. This means that although China is the country with the highest consumption of renewable electricity, renewable electricity generation has a negative impact on CO₂ emissions. The extremely rapid growth in China brings with it excessive consumption and, as a result, an increase in carbon emissions. When $\ln gdp$ is evaluated the statistically significancy exists for China, Brazil, India, Japan, Canada, Spain and Italy and while $\ln gdp$ increases $\ln CO_2$ also does. Additionally, looking at $\ln fdi$ it is obtained that this variable is also statistically significant for countries Brazil, France and Italy. It has been revealed that $\ln fdi$ has a positive effect on greenhouse gas emissions for Italy, while it has a negative effect on that of France and Brazil. While the "pollution haven" hypothesis is fulfilled for Brazil and France, the "pollution halo" hypothesis is fulfilled for Italy.

CONCLUSION AND POLICY IMPLICATIONS

Climate change has been a very important problem in the world since the past, and solutions are tried to be offered to policy makers and governments through studies from different perspectives. In this context, the factors that trigger environmental degradation have been studied by many researchers and still continue. While countries achieve their economic growth targets, they also need to consider the environment. "Low carbon and green growth" is rapidly becoming a world-wide strategy (Escap, 2012). Burning more fossil fuels means releasing more carbon emissions, which are the most important pollutants among greenhouse gases. Economic growth brings with it high levels of energy use and therefore environmental quality problems. For this reason, countries should adopt a sustainable economic growth model, taking into account environmental sensitivities. In other words, while growth is taking place, the negative effects that may affect the environment should be minimized and the aim should be to leave a more livable environment to future generations. For this reason, it becomes important for the state to provide the necessary legal regulations. On the other hand, when comparing renewable energy sources with energy obtained from fossil fuels, it is seen that the carbon emissions emitted by renewable energy sources and therefore their negative effects on the environment are less. In fact, since they are renewable, they do not run out and have lower costs (Özbehtaş et al., 2023; Çoban, 2015; Senpınar et al., 2006).

Foreign investments transferred from developed countries to developing countries, on the one hand, support the economic development of these countries, and on the other hand, bring about the environmental problems that these investments may create. Some researchers argue that while developing countries aim for economic growth, they cause further harm with environmentally unfriendly projects without paying attention to the environment. The other part argues the opposite. This idea is that environmental pollution can be reduced with clean technology projects thanks to foreign investments flowing into the country (Yılmaz et al., 2022; Akçay, 2018).

In this context, the study has aimed to examine the effects of economic growth, FDI and renewable electricity production variables, which are thought to trigger carbon emissions positively or negatively. The top 10 countries that are leaders in the world's renewable energy installed capacity in 2022 are selected as the focus country group of the study. The reason for choosing countries that are leaders in renewable energy installed capacity is to see more clearly the effects of renewable energy production and consumption on carbon emissions. The study covers the years 1990-2021. To examine the effects of selected variables on carbon emissions, first the cross-sectional dependence of the variables is tested. According to the findings, the existence of cross-sectional dependence of the variables and the model has been revealed. Then, the FPKPSS stationarity test, one of the unit root tests that takes cross-sectional dependence into consideration, is applied to analyze at what level the variables are stationary or not. It is concluded that while $\ln\text{CO}_2$ and $\ln\text{fdi}$ are stationary at the first level, $\ln\text{gdp}$ and $\ln\text{reg}$ variables are stationary at the first level. Following these stationarity test results, Durbin Hausman panel cointegration test is utilized to test whether there is cointegration between the dependent variable $\ln\text{CO}_2$ and other variables. It has been proven in the light of the results that the variables are cointegrated in the long run. Finally, the long-term coefficients of both the panel model and 10 selected countries have been estimated using AMG estimators.

According to the results, the coefficient of the FDI variable is significant for Brazil, France and Italy, and while it is obtained that FDI reduces carbon emissions in Italy, it is the opposite in Brazil and France. In other words, while this situation confirms the pollution haven hypothesis for Brazil and France, it confirms the pollution halo for Italy. This means that countries receiving FDI should take tough decisions in their environmental policies to protect themselves from the "pollution haven hypothesis". When the coefficient of $\ln\text{gdp}$ is examined, it is revealed that it is significant and positive for China, Brazil, India, Japan, Canada, Spain and Italy. This means that when countries

tend to grow economically, this also increases carbon emissions and therefore triggers environmental degradation. These countries should not only expand their economies but also strengthen their environmental policies by using clean technologies that encourage them to reduce carbon emissions. The coefficient of the $\ln reg$ variable is significant for China, the USA, Brazil, Japan, Spain and Italy. It has been concluded that renewable energy production reduces carbon emissions in other countries except China. The pace of economic growth in China in the last quarter century has brought with it environmental degradation problems. For this reason, in order to reduce environmental pollution, measures are taken such as encouraging the use of clean energy and reducing the pollution caused by vehicle use, and investments are made to support the situation.

Governments should further increase renewable energy sources in order to reduce carbon emissions and therefore environmental pollution. In addition, in order to eliminate environmental degradation in the country, activities that support clean technology and reduce carbon emissions need to be increased. Economies receiving FDI should strengthen their environmental policies in the light of the pollution halo hypothesis and develop strategies to ensure that these investments can be used in favor of the environment.

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Chapter 6

The Impact of Digital Economy On Sustainable Development: The Opportunities and Challenges for Turkiye

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Abstract

The rapid advancement of the digital economy in the aftermath of the COVID-19 pandemic has introduced profound transformations into the global economic landscape. The aim of this study is to provide a conceptual framework concerning the impacts of the digital economy on sustainable development, with a focus on the case of Türkiye. The first section examines the interplay between the digital economy and sustainable development, considering both pre-pandemic literature and post-pandemic transformations. It delves into the definition and dynamics of sustainable development while highlighting the digital economy's role among sustainable development goals. In the second section, the study evaluates Türkiye's position within this evolving landscape, analyzing the nation's progress in harnessing the potential of the digital economy to advance sustainable development objectives. Through this investigation, the study seeks to shed light on the challenges and opportunities that the digital economy presents in the pursuit of sustainable development in the Turkish context. It underscores the challenges and opportunities faced by emerging economies like Türkiye and emphasizes the importance of adaptability and innovation in the pursuit of a more sustainable and digitally inclusive future, ultimately aiming to contribute to the broader global conversation on this critical intersection.

Key Words: Digital Economy, Sustainable Development, Sustainable Development Goals, Türkiye

Özet

COVID-19 pandemisinin ardından dijital ekonominin hızlı yükselişi, küresel ekonomik manzaraya köklü dönüşümler getirmiştir. Bu çalışmanın amacı, Türkiye örneği üzerine odaklanarak, dijital ekonominin sürdürülebilir kalkınma üzerindeki etkileri ile ilgili kavramsal bir çerçeve çizmektir. İlk bölüm, dijital ekonominin sürdürülebilir kalkınma ile ilişkisini inceleyerek, hem pandemi öncesi literatürü hem de pandemi sonrası dönüşümleri göz önünde bulundurmaktadır. Aynı zamanda, sürdürülebilir kalkınmanın tanımı ve dinamiklerini inceleyerek, dijital ekonominin sürdürülebilir kalkınma hedefleri arasındaki rolünü vurgulamaktadır. Çalışmanın ikinci bölümünde, Türkiye'nin bu dönüşen manzaradaki konumu değerlendirilerek, dijital ekonominin sürdürülebilir kalkınma hedeflerini ilerletme potansiyelini kullanma konusundaki durumu analiz edilmektedir. Bu çalışma, dijital ekonominin Türkiye bağlamında sürdürülebilir kalkınmanın peşinde bulunduğu zorlukları ve fırsatları aydınlatmayı amaçlamaktadır. Türkiye gibi gelişmekte olan ekonomilerin karşılaştığı zorlukları ve fırsatları vurgulamakta ve daha sürdürülebilir ve dijital olarak kapsayıcı bir geleceğin peşinde adaptasyon ve inovasyonun önemini

vurgulayarak, bu kritik kesişimdeki daha geniş bir küresel anlayışa katkı sağlamayı hedeflemektedir.

Anahtar Kelimeler: Dijital Ekonomi, Sürdürülebilir Kalkınma, Sürdürülebilir Kalkınma Hedefleri, Türkiye

INTRODUCTION

In the rapidly evolving landscape of the 21st century, the concept of sustainable development has taken center stage as a global imperative. Sustainable development, as defined by the World Commission on Environment and Development (WCED, 1987), seeks to meet the needs of the present without compromising the ability of future generations to fulfill their own needs. It is a complex and multifaceted goal that encompasses economic growth, social progress, and environmental stewardship. One of the most transformative forces driving contemporary societal changes is the digital economy, characterized by the widespread adoption of information and communication technologies (ICT).

The phenomenon of globalization is instigating swift and profound changes in the global economy. These changes have given birth to the concept of the digital economy, which is characterized by the alteration of economic processes and contemporary business practices driven by ICT. One of the most pivotal factors in countries attaining their sustainable development objectives is the progress within the digital economy. With the growing trends of digitization, particularly in the realm of ICT today, numerous activities are shifting to digital platforms. Consumers now have the opportunity to swiftly compare, select, and procure products with their preferred attributes from a multitude of options available in the digital landscape. This dynamic compels businesses, both domestic and international, to engage in fierce competition (Altay Topçu, 2021).

The fusion of these two powerful concepts—sustainable development and the digital economy—has given rise to a critical discourse, exploring the profound impacts, both positive and negative, that the digital revolution is having on our planet's sustainable future.

The COVID-19 pandemic, an unprecedented global crisis, has disrupted nearly every facet of human life and society. As nations grappled with the immediate health and economic consequences of the virus, another significant transformation was quietly unfolding in the background: the accelerated evolution of the digital economy. The pandemic served as a catalyst, propelling digital technologies to the forefront of our daily lives and reshaping industries and economies worldwide. At the nexus of this profound shift lies a crucial question: How has COVID-19 impacted the digital economy in the context of sustainable development? This study explores the intricate relationship between

the pandemic, the digital economy, and sustainable development, examining both the challenges and opportunities that have emerged as a result of this unprecedented intersection.

Consequently, the impacts of digitization on the economy assume paramount significance. Moreover, the ongoing global Covid-19 pandemic underscores the imperative for businesses to harness digital technologies in order to effectively reach their clientele (Serinikli, 2021).

The initial section of this study undertakes an integrated examination of the digital economy and sustainable development. This section commences with a comprehensive review of existing literature, focusing on the implications of the digital economy for sustainable development. Following this, it assesses the evolution of the digital economy, both pre and post-pandemic. Additionally, within the same section, the discourse delves into the definition and dynamics of sustainable development while scrutinizing the digital economy's role within the spectrum of sustainable development goals.

The subsequent section of this study centers on the evaluation of Türkiye's position within the nexus of the digital economy and sustainable development.

DIGITAL ECONOMY AND SUSTAINABLE DEVELOPMENT

Contemporary perspectives on the progress of global economies and societies revolve around two key considerations: the promise held by information and communication technology (ICT), and the imperative of addressing environmental sustainability (Ciocoiu, 2011).

The concept of sustainable development has evolved and been refined over the subsequent years. The primary objective of sustainable development policy is to enhance the well-being of people worldwide, assessed through factors such as security, the fulfillment of basic material needs, health, social connections, and the freedom to make choices and take actions. To achieve this objective, it is essential to create and distribute wealth in ways that alleviate poverty and ensure a decent standard of living for all. This can only be accomplished in the long term by implementing policies and strategies that harmonize economic growth and social advancement with environmental sustainability. Technology plays a crucial role in achieving this enduring equilibrium between human progress and the natural environment, which is vital for sustainable development (Souter, Maclean, Okoh, and Creech, 2010).

A comparable focus on ICT in development emerged in the late 1990s and the early years of the 21st century. Profound shifts in communication technology and economics mark the transition to a post-industrial economy, where knowledge and networks assume greater importance than capital, commonly referred to as

the digital economy. It is widely acknowledged that new technologies have both significant positive and negative impacts on economic, social relations, and the environment. However, sustainable development cannot advance without global communication and knowledge exchange (Maclean, Andjelkovich, and Vetter, 2007). In this context, ICT and the Internet are viewed as opportunities to overcome development constraints while also posing threats to sustainable development.

Literature Review

The notion of the digital economy made its inaugural appearance in the realm of economic literature courtesy of Tapscott's 1995 publication, "The Digital Economy: Promise and Peril in the Age of Networked Intelligence" (Altay Topçu, 2021). In this seminal work, Tapscott (1995) presents a definition for the emerging digital economy as: "Information, which was formerly stored in computers and now moves rapidly across networks at the speed of light, is undergoing complete digitization. This recently established realm of opportunities holds significance on par with the invention of language, supplanting the old paradigm where all physical interactions occurred."

The OECD (2019) provides a comprehensive definition of the digital economy as "the transformative processes that render technology more cost-effective and potent, streamline business procedures, and concurrently drive innovation across all sectors of the economy." In accordance with Drucker (1993), within the contemporary economy, knowledge has assumed paramount importance, emerging as the sole meaningful resource. While traditional production factors like land, labor, and capital have not entirely diminished, they have assumed a less prominent role. Knowledge, wherever it resides, is now easily accessible. In this revised perspective, knowledge that emerges serves as a valuable tool for achieving economic and social objectives.

Despite the existence of studies examining the relationship between the digital economy and economic growth in the literature, research exploring the impact of the digital economy on sustainable development is limited. However, certain researchers have explored the effects of digital economy on sustainable development, conducting investigations on both a global and domestic level, especially in the recent years (Sudoh, 2005; Tocan & Duduman, 2010; Ciocoiu, 2011; Deniz, 2018; Konu, 2020; Young et.al, 2022).

Sudoh (2005) conducted research into the correlation between the market economy, technological advancement, and the progression of Information Technologies (IT) within the digital economy. The focus of the study was to

explore how IT and information networks could play a role in fostering environmentally sustainable social development.

Tocan and Duduman (2010) contended that the advancement of Information Technologies (IT), which facilitates the swift dissemination of information within the extensive digital economy, has simultaneously played a role in fostering sustainable development, and conversely, that sustainable development has also contributed to the development of the digital economy. In a parallel vein, Hilty and Hercheui (2010) conducted an examination of the influence of IT on sustainable development, positing that effective utilization of IT by economic decision-makers would drive the progress of sustainable development.

Ciociu (2011) conducted a study focusing on the assessment of environmental implications arising from the digital economy, with particular emphasis on Information and Communication Technologies (ICT). Her research delved into the historical progression of the digital economy and its ecological consequences, identifying it as a significant and enduring subject of investigation. The study ultimately deduced that the intersection of climate change and the digitalization of economies constitutes foundational transformations that impact the interactions between individuals, nations, societies, and economies. Additionally, Ciociu advocated for the adoption of a green economy as a potential solution to the projected climate change and global warming issues. She argued that a green economy holds the promise of fostering sustainable economic and social development in response to these challenges.

Deniz (2018) asserted that the advancements in the digital economy have led to heightened global economic growth and enhanced productivity. Digitization has been widely recognized as a key developmental indicator on the global stage, with countries setting it as a target to attain. The Digital Economy and Society Index (DESI) results, released by the European Commission in 2017, indicated progress throughout the European Union (EU). Nevertheless, there remains a substantial disparity between leading digital performers and countries with lower performance within the EU. Further investments are necessary to establish a cohesive "Digital Single Market" in the EU. As per the index findings, Türkiye has made strides in innovation but still has ground to cover in terms of research.

Konu (2020) examined the relationship between the digital economy and sustainable development in EU countries using cross-sectional data analysis based on the 2018 Digital Economy and Society Index (DESI). The research found that the digital economy positively and statistically significantly influenced sustainable development in these countries. The study concluded that digitization is a fundamental driving force for sustainable development in the EU.

In their research, Yang et al. (2022) explored the underlying mechanism through which the digital economy influences sustainable development at the regional level. Their study encompassed an empirical investigation utilizing panel data from 31 provinces in China spanning the years 2013 to 2019. The findings of their analysis indicated a favorable influence of the digital economy on multiple aspects, including high-quality economic development, innovative progress, and environmentally responsible development. The advancement of the digital economy was found to facilitate harmonious development between urban and rural areas, enhance the quality of economic growth, boost innovation efficiency, expedite the digital transformation of the tangible economy, and further the cause of ecological sustainability and environmental conservation.

Sustainable Development

The concept of sustainable development can be defined in various ways. In its most specific form, it pertains to the creation of policies that enable the fulfillment of current needs without impeding the ability of future generations to fulfill their own requirements (UNDP, 2002). Taking a broader view, sustainable development represents a framework that harmonizes economic growth with ecological equilibrium, ensures the efficient utilization of natural resources, and upholds environmental quality while addressing present needs without jeopardizing those of future generations. Expanding upon this characterization, it's worth noting that sustainable development encompasses considerations of both intergenerational and international equity in the distribution of well-being. In the past few decades, the concepts of "sustainability" and "sustainable development" have experienced a substantial surge in prominence. These notions have been notably advanced by both the European Union and the United Nations, particularly through the formulation of environmental, economic, and growth-centric objectives geared towards sustainable development.

The initial articulation of the idea of sustainable development took place in 1980 within the "World Conservation Strategy," a document drafted by the International Union for Conservation of Nature (IUCN) for UNEP, defining it as "to conserve natural resources for future generations" (WCS, 1980). This definition's evolution into the core principle of the environmental movement came about with the release of "Our Common Future" report, also known as the Brundtland Report, by the United Nations World Commission on Environment and Development in 1987. The Commission's report aimed to elucidate a "*development that meets the needs of the present, without compromising the ability of future generations to meet their own needs*" (WCED, 1987). It stressed the vital importance of integrating and reconciling both economic and ecological

development. This has been construed as endeavors focused on formulating definitions for the path toward sustainable development, rather than providing a direct definition of the sustainability concept.

In 1992, the Rio de Janeiro Earth Summit brought the concept of sustainability to the forefront, encompassing its economic, social and environmental dimensions (Meakin, 1992; Bilgili, 2017; Morelli, 2011; Vivien, 2008; Palich & Edmonds, 2013):

- **Economic Dimension:** The economic aspect of sustainable development primarily concerns the preservation of capital. It can be described as a system that consistently generates goods and services while addressing sectoral imbalances by supporting agricultural and manufacturing industries, as well as ensuring the sustainability of domestic and foreign debt. The potential depletion of resources is a critical concern in this dimension. Consequently, the economic facet of sustainability encompasses processes like recycling waste materials, reducing input in the production of goods and services, and recycling waste generated during production processes.
- **Social Dimension:** The social dimension of sustainable development entails providing adequate services such as education and healthcare, ensuring equitable distribution within society, promoting gender equality, fostering political responsibility and participation. This dimension signifies the fulfillment of basic needs for individuals within society. Social sustainability underscores a society's capacity to safeguard, advance, and address future challenges while conserving its resources. In essence, the social dimension of sustainability denotes the creation of physical, cultural, and social environments that promote societal sensitivity and enhance overall well-being.
- **Environmental Dimension:** The environmental dimension of sustainable development can be defined as a system that minimizes the environmental impact of renewable energy sources, safeguards biological diversity, and maintains atmospheric balance and other ecosystem elements. Environmental sustainability is essentially the ability to meet the resource and service needs of both present and future generations. Within this context, environmental sustainability is linked to activities that consider the resilience, adaptability, and interconnectedness of ecosystems, taking into consideration ecosystems' ability to regenerate themselves and enhance biological diversity.

The approach to sustainable development encompasses four key themes: the integration of social and economic policies, the management of natural resources,

environmental preservation, and the consideration of future generations' needs. The process that defines the essence of sustainable development includes the following key principles (WCED, 1987):

- Recognizing that a world marked by poverty and inequality is inherently prone to ecological and other crises, sustainable development calls for addressing the fundamental needs of all individuals and creating opportunities for everyone to aspire to a better quality of life.
- Ensuring the satisfaction of basic needs, particularly in less developed nations, necessitates economic growth. Sustainable development, in this context, involves continuously meeting people's basic requirements by enhancing production capabilities and promoting equal opportunities.
- Beyond addressing basic needs, sustaining living standards requires adopting a long-term perspective on consumption patterns. This entails moving away from a consumption-driven society that exceeds ecological limits.
- Population dynamics should be in harmony with the productive capacity of ecosystems and the capacity of the system to support life.
- Sustainable development places a strong emphasis on safeguarding essential ecological processes and life-support systems, including the sustainable utilization of ecosystems and species.
- Effective public participation in decision-making processes is crucial for implementing actions that serve the common interests of society.
- Technological advancements should be directed towards reducing the strain on natural resources. This includes implementing technological changes that facilitate the use of renewable resources and the recycling of non-renewable resources.

In brief, the fundamental objective of the sustainable development strategy is to attain progress without disturbing the ecological equilibrium. Consequently, endeavors to safeguard the natural equilibrium should not impede developmental initiatives.

Digital Economy in Sustainable Development Goals

On a global scale, entities like the United Nations and the Organization for Economic Co-operation and Development (OECD), in addition to national governments, are increasingly examining sustainability policies from the perspective of digitalization. The leading policy initiatives in this regard encompass the United Nations Sustainable Development Goals (SDGs) and the European Green Deal. The rapid growth of the digital economy, with its potential

to boost productivity and bring advantages to both local and global economies, has brought into sharp focus a range of effects and sustainability-related challenges.

These ramifications encompass not only the favorable aspects, such as heightened productivity, but also potential obstacles related to sustainability. These challenges encompass heightened economic disparities, concerns about environmental well-being encompassing the management of natural resources and the interests of future generations, as well as considerations regarding economic sustainability. Consequently, there exists a multitude of viewpoints regarding the effective management of the digitization process within this context. Presently, there is no unanimous agreement regarding the singular optimal strategy for promoting sustainable digitization while simultaneously addressing the current developmental needs without compromising the prerequisites of future generations, a situation articulated by Linkov, Trump, Poinssatte-Jones, and Florin (2018).

In the present-day context, the pressing challenges of climate change and environmental issues have emerged as critical issues demanding immediate solutions, posing substantial threats to our global survival. Consequently, there is a growing imperative to reorient all our social and economic activities to address these priorities comprehensively. The inherent drive to ensure our continued existence has also underscored the need for the development of urgent and innovative solutions (Rowan & Casey, 2021). In response to this imperative, Europe has strategically aligned itself with the SDGs, aiming to facilitate the widespread adoption of these objectives by implementing suitable policies and technologies at the societal level.

The path toward establishing the SDGs began with the recognition of climate change, notably within the framework of the Paris Agreement which was held in 2015. It was further refined within the United Nations Global Compact, regarded as one of the most significant initiatives for institutional responsibility (Çayırtaş & Sakıcı, 2021). This trajectory can be traced back to the Millennium Development Goals (MDGs), which encompassed eight development objectives spanning the period from 2000 to 2015. The MDGs were initially formulated in 1996 as part of the twenty-first strategy document by the OECD (Bebbington & Unerman, 2018). Over time, these goals evolved into the SDGs, which are applicable from 2015 to 2030. The SDGs (2018), extending their horizon to 2030, incorporate more comprehensive thematic objectives than the Millennium Development Goals, as outlined by Idowu et al. (2020). In a broader context, the SDGs represent the culmination of gradually evolving policies from earlier periods (Bebbington & Unerman, 2018, p. 2).

The SDGs were adopted as a comprehensive action plan for the benefit of people, our planet, and overall well-being during the United Nations General Assembly convened in September 2015. They present a holistic vision for the future, encompassing 17 SDGs and 169 associated targets, with the aim of inspiring a series of critical initiatives over the next 15 years.

Climate change represents a crisis that demands attention on various fronts, encompassing economic, social, and natural systems. The utilization of natural energy resources, the surveillance of climate change, the conservation of biodiversity, and the advocacy of sustainable development principles have all highlighted the adoption of green technologies, as endorsed by both the United Nations and the European Commission (Çayırağası & Sakıcı, 2021). Significantly, the role of businesses in advancing sustainable development was underscored during the United Nations Conference on Environment and Development in 1992. The Paris Agreement, established in 2015, and the 17 Sustainable Development Goals, integral to the 2030 United Nations Summit development agenda, have served as catalysts prompting nations to delineate fresh international commitments aimed at fortifying climate policies (Çayırağası & Sakıcı, 2021).

The sustainable development goals proposed by the United Nations are illustrated in Figure 1.



Figure 1. Sustainable Development Goals

Source: United Nations, The Sustainable Development Goals, <https://sdgs.un.org/goals> (04.10.2023)

As depicted in Figure 1, the United Nations has put forward 17 sustainable development goals. The progress in ICT is considered a pivotal tool in attaining these objectives. Therefore, the digital solutions that can be created are expected to trigger a swift transformation of the global economies.

The Role of Digital Economy on Sustainable Development

Given the depletion of natural resources and the escalating environmental pollution, a growing number of individuals have become more conscientious about environmental conservation, emphasizing resource preservation and environmental safeguarding. Sustainable development, as a concept, involves harmonizing economic and social progress with population dynamics, resource management, and environmental concerns. This holistic approach offers a practical solution to the existing challenges and is an essential path for the economic and social advancement of nations across the globe (Song, Zheng & Wang, 2022). The digital economy, in this context, contributes to the promotion of sustainable development in the following ways:

- ***Facilitation of rapid economic growth:*** Contemporary digital technologies, such as 5G communication, artificial intelligence, big data, and cloud computing, assume a pivotal role in driving swift economic expansion, particularly within the digital economy domain. The digital economy encompasses both digital industrialization and industrial digitalization, both of which are integral components of the overall economic landscape. As these technologies continue to evolve, data is increasingly gaining significance within the realms of economic and social development. Serving as a new production factor, data actively participates in the production processes, transforming traditional development paradigms, and enhancing resource allocation, production efficiency, and market competitiveness (Turcan et al., 2014).

First and foremost, data, being a critical element of productivity, serves as the foundation for the emergence of numerous nascent industries. They facilitate the realization and proliferation of economic elements, fostering the rapid growth of novel sectors and expediting the creation of social and economic value in collaboration with other contributing factors. Secondly, the integration of data elements into industrial processes promotes the optimal allocation of traditional industrial resources and drives adjustments in industrial structures. This, in turn, advances the digitalization, networking, and intelligent development of production management and daily life, while also propelling the digital transformation and upgrading of various industries. Lastly, the effective utilization of data

elements contributes to the establishment of a responsive network capable of swiftly adapting to changing conditions. This, in turn, fosters the development of a flexible supply chain that can ensure stability even in the face of significant external shocks (Chase, 2019).

- ***Improvement of Quality of Life:*** The digital economy not only addresses people's fundamental life necessities but also extends its reach to fulfill their elevated aspirations for an enhanced quality of life (Wise, 2014). Continuous innovation and the widespread adoption of digital technology serve as potent catalysts, driving a new era of improved consumption experiences within the digital realm. For example, individuals can conveniently shop for clothing, footwear, and a wide array of products through e-commerce platforms, all from the comfort of their homes. They can also choose home-delivery services for meals when they prefer not to cook or dine out, access online healthcare services to manage common health concerns, tap into richer and high-quality educational resources through online learning, and economize time and expenses through e-hailing services (Song, Zheng & Wang, 2022).
- ***Facilitation of Efficient Resource Utilization:*** The advancement of the digital economy nurtures both social and technological innovation, enriching the alignment of resource supply and demand while promoting their effective utilization (Manta, 2020). On one front, the development of the digital economy enhances the capabilities of scientific and technological innovation. Through the integration of digital technology and its associated products into the production process, the digital economy substitutes traditional components with data-driven elements. This synergy of labor, capital, resources, and various other factors ultimately enhances resource exploitation and production efficiency. On the other front, the development of the digital economy bolsters information transparency between suppliers and consumers. This signifies that information concerning consumer demands or supplier conditions can be obtained at a reduced cost, thereby mitigating information disparities. Consequently, this facilitates the improved alignment of supply and demand, optimizing the supply chain and enabling authentic on-demand production. As a result, the unnecessary squandering of resources can be averted, while the preservation and efficient utilization of natural resources can be vigorously promoted (Song, Zheng & Wang, 2022).
- ***Strengthening Environmental Protection:*** The conventional economic growth model employed in the past often resulted in significant damage to the ecological environment. However, the digital economy provides

effective solutions to address these environmental challenges. The widespread adoption and application of digital technology can significantly enhance resource utilization and pollution treatment capacity while concurrently reducing pollution emissions (IISD, 2010). Furthermore, the utilization of digital technologies such as the Internet of Things (IoT) for online environmental monitoring can elevate the level of oversight in environmental protection. The establishment of a cloud computing platform for environmental IoT data resources empowers environmental protection agencies to conduct comprehensive assessments, forecasts, early warning monitoring, and environmental impact assessments. The holistic utilization of extensive environmental protection data contributes to the enhancement of the relevance, strategic planning, and overall effectiveness of environmental conservation measures (Song, Zheng & Wang, 2022).

THE OPPORTUNITIES AND CHALLENGES FOR TÜRKİYE

In the evolving global landscape propelled by digitalization, enduring economic progress is solely attainable for nations with the capacity to drive substantial technological progress. Likewise, for Türkiye to establish global connections and fortify its position in the future, digitalization is the sole route to pursue. In this perspective, the ICT sector assumes exceptional significance for the country. Progressions in ICT not only bolster Türkiye's economic expansion and global competitive edge but also exert a central influence on advancing social development. Additionally, they serve as a catalyst for profound changes across various facets of the society.

According to the report jointly prepared by TÜBİSAD & Deloitte; Information and Communication Technologies Industry 2022 Market Data published on May 2023 (TÜBİSAD & Deloitte, 2023); In 2022, Türkiye's ICT sector witnessed significant growth, increasing by 54% compared to 2021, from 265,9 billion Turkish Lira (TL) to 408,9 billion TL. However, due to the appreciation of the exchange rate, this increase in TL terms corresponds to a 17% decrease in USD terms. Between 2018 and 2022, the annual average growth rate of the sector on a TL basis was 25,2% and Information Technologies grew faster between 2018-2022 compared to Communication Technologies. In Figure 2 and Figure 3; you may see the ICT market breakdown in both billion TL. and billion USD.

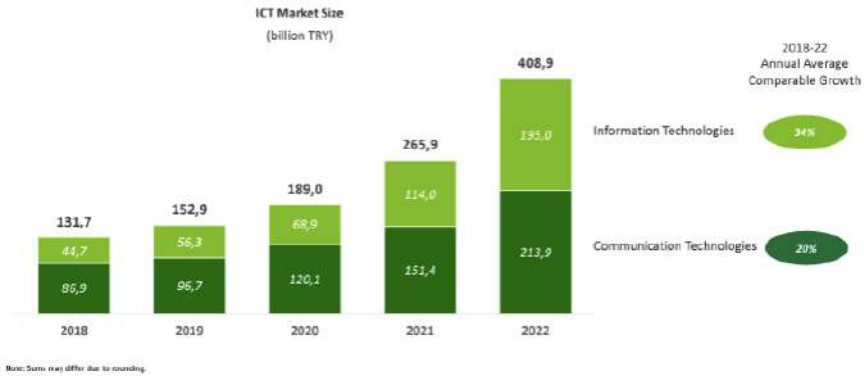


Figure 2. Information and Communication Technologies Market Breakdown (billion TL)

Source: TÜBİSAD & Deloitte, 2023.

https://www.tubisad.org.tr/en/images/pdf/tubisad_bit_2022_en_20230531.pdf



Figure 3. Information and Communication Technologies Market Breakdown (billion USD)

Source: TÜBİSAD & Deloitte, 2023.

https://www.tubisad.org.tr/en/images/pdf/tubisad_bit_2022_en_20230531.pdf

It is seen that from the both figures; Information Technologies grew in spite of the increasing exchange rate, while Communications Technologies were affected by said exchange rate and shrank.

In 2022, there was a 54% growth in the overall sector size when measured in TL, and simultaneously, total exports increased by 64%. The primary factor contributing to this growth is the expansion of the Information Technologies - Software category, which also holds the largest share in exports. Over the period from 2018 to 2022, the average annual growth in dollar terms stood at 10%. However, there was a contraction in dollar terms between 2021 and 2022, attributed to fluctuations in exchange rates during that timeframe (TÜBİSAD & Deloitte, 2023).

The total jobs in the ICT sector reached 213,000 in 2022 with a growth rate of 15% compared to 2011. In 2023, the rate of sector players expecting a growth in the sectoral employment has reduced compared to 2022.

Despite the advancements Türkiye has made in the ICT sector, the country is still perceived to be lagging behind in the global digital transformation. The overall ranking of Türkiye among 63 countries can be seen in Figure 4, according to the IMD 2022 World Digital Competitiveness Ranking report.

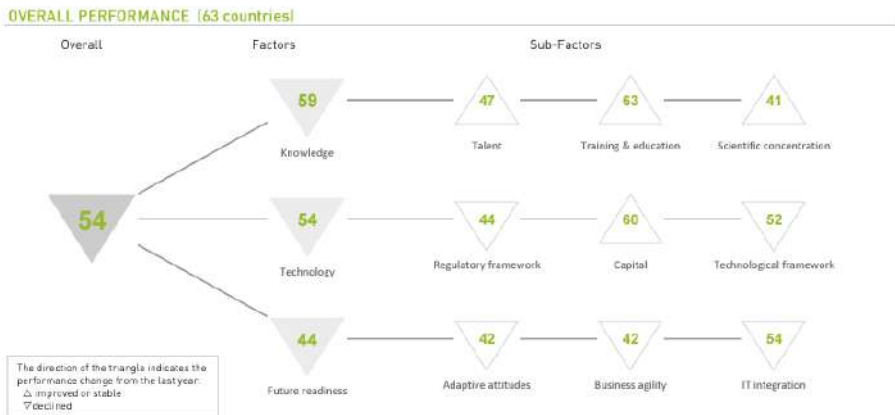


Figure 4. Türkiye's Performance in the Ranking of World Digital Competitiveness

Source: IMD 2022 World Digital Competitiveness Ranking,

<https://static.poder360.com.br/2022/09/Digital-Ranking-IMD-2022.pdf>

The report encompasses three main factors: Knowledge, Technology, and Future Readiness, with three sub-factors under each category. The data presented in Figure 4 clearly demonstrates that Türkiye holds a comparatively low position among the 63 countries in terms of all factors and sub-factors.

In April 2023, the Türkiye Informatics Industry Association (TÜBİSAD) published the report titled *"A Call to Action for High Technology in Türkiye's 2nd Century."* This report delves into the technology-driven prospects of various sectors, including automotive, energy, healthcare, agriculture, ICT, services, and finance. Furthermore, it issues an urgent call to action directed at the public sector, private sector, and academia. According to the findings of the report, both developed and developing nations are placing technology and the economic value generated by digital transformation at the forefront of their priorities. They are committed to giving precedence to any policy, legal, economic, or educational decisions that align with their strategies and business operations in this regard. Given the swiftly changing global landscape and the disruptive impact of emerging technologies on industries, Türkiye's sustainable positioning and

growth within the global value chain hinge upon a substantial leap in high technology adoption (TÜBİSAD, 2023).

According to the report, it is recommended that the strategy developed for Türkiye should focus on four primary priorities (TÜBİSAD, 2023):

- Accelerating the digital transformation of traditional sectors.
- Harnessing digitalization to drive productivity and create economic value.
- Nurturing the emergence of digital startups leveraging advanced technology and expanding their presence internationally.
- Establishing a pioneering role for Türkiye within the global value chain in sectors where it holds a competitive edge.

To expedite the process of digital transformation and the development of new technologies and business models, both the public and private sectors have made significant strides. However, it is crucial to align these efforts with global dynamics, ensure their long-term sustainability, and rapidly plan for future steps. This necessitates a high-level commitment from all stakeholders and the swift implementation of all necessary actions. The action plan formulated by TÜBİSAD focuses on the key drivers that will propel this high-tech advancement toward the envisioned goal. Its objective is to promote best practices and foster a shared understanding of the essential measures. The action plan, tailored for the public sector, private sector, and academia, centers around seven core pillars and includes 18 actionable initiatives. These encompass aspects such as policy and strategy development, financing, regulatory framework establishment, infrastructure enhancement, ecosystem cultivation, workforce development, and resilience against natural disasters and crises (TÜBİSAD, 2023).

CONCLUSION

The world is presently undergoing a period characterized by profound disruptions in the global order, a phenomenon that emerged following the conclusion of the Cold War. Simultaneously, the world is amidst the most recent technological revolution, exemplified by the process of digital transformation, which coincides with shifts in the global economic landscape, climate change, pandemics, mass migrations, accelerated social movements, and heightened geopolitical risks. The convergence of these multifaceted changes has the potential to exacerbate the likelihood of conflicts, instability, and uncertainty, thereby necessitating a comprehensive reevaluation of policies by all nations.

Digital transformation, on one hand, accelerates the ramifications of these changes, but conversely, it also introduces novel prospects for mitigating emerging instability and risks. Digital technologies are acting as catalysts for

seismic shifts within the global economy. Technologies such as the Internet of Things, robotics, autonomous vehicles, artificial intelligence, data analytics, and cloud computing are swiftly permeating various sectors. In a manner reminiscent of previous technological revolutions, these innovations are inducing rapid alterations in production methods, consumption patterns, work modalities, and industrial dynamics. Countries that adeptly harness these technologies have the potential to markedly enhance their competitiveness, expand their market share, and provide their citizens with increased avenues for prosperity. Conversely, enterprises and nations that falter in adapting to this transformation grapple with preserving their positions of influence and may even confront a weakening of their standing in the global order. Hence, the velocity and effectiveness of digital transformation assume paramount significance in shaping the future performance of nations.

The impact of the digital economy on sustainable development is profound and multifaceted. The digital revolution has ushered in a new era characterized by unprecedented technological advancements, reshaping the way societies function and economies operate. It has the potential to play a pivotal role in addressing some of the most pressing global challenges, from mitigating climate change to reducing inequality and enhancing access to education and healthcare.

One of the key strengths of the digital economy lies in its capacity to drive innovation and efficiency across various sectors. By leveraging technologies such as artificial intelligence, big data, and the Internet of Things, businesses and governments can optimize resource utilization, reduce waste, and promote environmentally friendly practices. This not only fosters economic growth but also contributes to environmental sustainability, aligning with the principles of sustainable development.

Moreover, the digital economy has the power to foster inclusivity and social development. It provides opportunities for remote work, online education, and telemedicine, enabling individuals and communities to access essential services and opportunities regardless of geographical constraints. This inclusivity aligns with the United Nations' SDGs, particularly in eradicating poverty, ensuring quality education, and promoting gender equality.

In conclusion, the digital economy presents an unprecedented opportunity to advance sustainable development goals. By harnessing the potential of digital technologies and implementing thoughtful policies, societies can work towards a future that is not only economically prosperous but also socially inclusive and environmentally sustainable. To fully realize these benefits, it is essential for governments, businesses, and civil society to collaborate and prioritize the responsible and equitable development of the digital economy.

The speed of digital transformation will have a profound effect on Türkiye's future economic performance, similar to its impact on other nations. When contemplating the acceleration of digital transformation, it is crucial to consider both macroeconomic challenges within the country and structural issues related to production and human capital. The existence of these problems could potentially hinder the pace of digital transformation, reducing Türkiye's prospects of keeping up with the latest industrial revolution. Nonetheless, it also opens up various new opportunities for effectively tackling the prevailing challenges, contingent upon the proper management of the process.

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Chapter 7

The effect of Product-Country Image (PCI) and Tourism Destination Image (TDI) on International Tourist Behavior: A comparative Analysis of Türkiye, Spain, Germany, Sweden, and the Netherlands¹

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Abstract

The aim of this study was to examine the effects of “product-country image” (PCI) and “tourism destination image” (TDI) on international consumer behavior. PCI represents the attitudes towards products from various countries. TDI is the beliefs towards a destination (in this study towards a country). Questionnaires of the study were conducted in Sweden and the Netherlands; PCI and TDI of Türkiye, Spain, Germany, Sweden, and the Netherlands were compared. The variables comprised of “cognitive/affective country image, product/destination familiarity, product/destination beliefs and product/destination receptivity” were modelled and hypotheses were formed. Descriptive analysis, exploratory factor analysis, construct validity and reliability, confirmatory factor analysis, structural equation modeling were used, and hypotheses were tested. According to the results, cognitive country image has more influence on product beliefs whereas affective country image has more influence on destination beliefs. Further elaborations were provided based on the results for Türkiye, as it was the primary country of interest.

Keywords: International Marketing, Product-Country Image, Tourism Destination Image, Türkiye, Spain, Germany, Sweden, the Netherlands

Introduction

The significant increase in the volume of tourist information, resulting from rapid technological advancements, globalization, and the increasingly blurred boundaries of competition, has introduced complexities for both consumers and destinations (Govers and Go, 2003). The images of objects arise from individuals' perceptions of these objects and the phenomena associated with them (Papadopoulos and Heslop, 1993). The formation of a country's image is influenced by a multitude of factors including its social and cultural structure, foreign relations, technological advancements, trade environment, employment landscape, historical ties, and tourism values. Besides, economic indicators, such as export capacity and gross national product, societal aspects like lifestyles, traditions, and technological progress collectively contribute to the international image a country presents.

Product-Country Image (PCI) is defined as "consumers' perceptions concerning the attributes of products originating from a specific country, their emotional responses to that country, and the resulting perceptions about the social desirability of owning products made in that country" (Nebenzahl et al., 2003). On the other hand, Tourism Destination Image (TDI) encapsulates an individual's beliefs, thoughts, and impressions about destinations in a foreign country (Crompton, 1979) and shaped by both cognitive and emotional evaluations (Dichter, 1985).

Numerous authors, including Obermiller and Spangenberg (1989), Parameswaran and Pisharodi (1994), Verlegh and Steenkamp (1999), and Laroche et al. (2005), have underscored that a country's image is composed of three integral components. The cognitive dimension mirrors consumers' beliefs concerning a country's industrial, technological, and political frameworks. The affective dimension encapsulates the symbolic and emotional values associated with a country. Lastly, the normative dimension conveys the social and personal norms consumers associate with a given country. Expanding on the cognitive aspect, Orbaiz and Papadopoulos (2003) assert that it relates to tourists' perceptions about factors like the country's standard of living, prosperity, technological advancements, educational standards, and stability. Beerli and Martin (2004a) spotlight emotional qualities such as whether a country is perceived as pleasant or leans towards the spectrum of exciting to boring.

This study addresses the subject of country image, not solely within the confines of cognitive and emotional dimensions, but also by integrating the variables of familiarity and acceptance. Analyzing the emotional and cognitive images of country products and destinations separately illuminates the relationships between these two dimensions in the literature. Investigating the

effects of variables such as familiarity and acceptance on a country's image enriches the existing knowledge on this topic and enables a more comprehensive perspective. This study is also anticipated to guide marketing and advertising experts on which image elements countries should emphasize while promoting their products and touristic destinations. The country's image holds significant importance in the realms of international relations and foreign policy. The results of this study may inspire academics to delve deeper into the topic of country image or explore it with different variables.

Literature Review

Baloglu (2001) emphasized the relationship between cognitive and emotional images when evaluating Türkiye's image in America. In modeling TDI, some authors (e.g., Murphy et al., 2000; Bigne et al., 2001) have considered the country image as an independent variable, examining its impact on behavior. In contrast, other researchers (e.g., Baloglu and McCleary, 1999; Beerli and Martin, 2004a) have treated the image as a dependent variable, focusing on its formation. Additionally, various scholars (e.g., Baloglu and McCleary, 1999; Beerli and Martin, 2004a,b; Elliot, 2007) have incorporated both cognitive and emotional images into their investigations. While PCI relates to a country's products and TDI pertains to its destinations, both domains exhibit analogous characteristics, encompassing cognitive and emotional facets. Obermiller and Spangenberg (1989) introduced an emotional dimension to the PCI discussion. From an emotive standpoint, the country of origin infuses products with symbolic and emotional value for consumers, elevating their perceived social status (Askegaard and Ger, 1997).

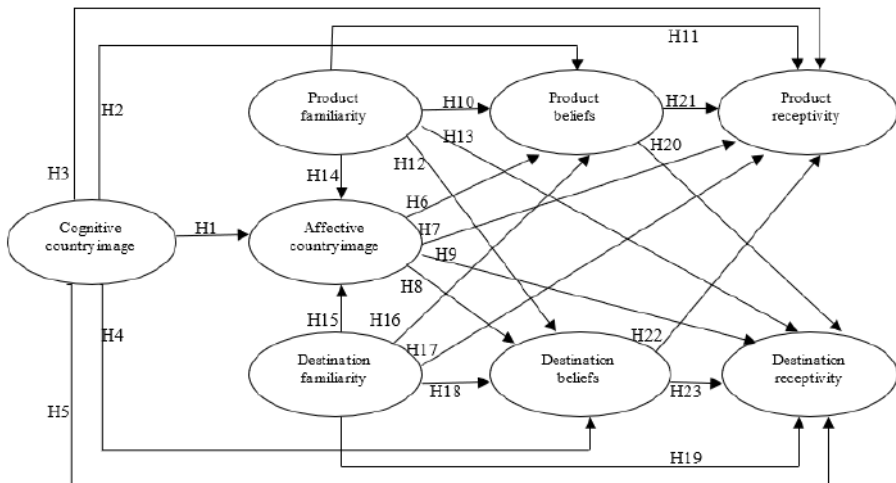
In their PCI study, Orbaiz and Papadopoulos (2003) found that the emotional image directly impacts thoughts and purchasing decisions. Numerous studies in the TDI realm also suggest a significant influence of the emotional image on behavior (Pike, 2002). Yüksel et al. (2010) determined that cognitive and emotional country images influence not only individuals' perceptions but also their loyalty towards a destination. Elliot (2007) discovered that the emotional country image has a greater influence in TDI. When consumers are familiar with a product, they often equate the product's quality with the country's image, a phenomenon termed the "summary construct effect" (Han, 1989). Possessing or lacking knowledge about a product directly influences behavior (Knight and Calantone, 2000). Elliot (2007) also incorporated the concept of familiarity in her PCI and TDI study. The influence of "familiarity" has been validated as a significant factor by a multitude of authors (Papadopoulos et al., 1988; Heslop et al., 2001; Pearce, 1982; Phelps, 1986; Fakeye and Crompton, 1991). Both studies

by Orbaiz and Papadopoulos (2003) and Baloglu (2001) utilized the concept of familiarity in their respective PCI and TDI studies.

Bigne et al. (2001) delineated the link between destination quality and variables such as satisfaction, propensity for return visits, and likelihood of recommending the destination to peers. A variety of scholars (Mayo 1973; Hunt 1975; Goodrich 1978; Scott et al., 1978; Milman and Pizam 1995) have probed the correlation between destination image and the intent to revisit. Elliot (2007) examined the nexus between destination beliefs and product receptivity, uncovering a moderately significant relationship. In her study, a robust correlation between product beliefs and destination receptivity was identified.

Drawing from the literature, cognitive/affective country image, product/destination familiarity, product/destination beliefs, and product/destination receptivity were modeled together. Both PCI and TDI literatures were consulted. Using scales adapted from Papadopoulos et al. (1988), Knight and Calantone (2000), Elliot (2007), Orbaiz and Papadopoulos (2003), Zapata and Martinez (2002), a model with 8 categories, as illustrated in Figure 1, was employed in the study.

Figure 1: Research Model



Methodology

A pilot study was conducted in 2010 with 88 participants, comprising 31 Dutch, 25 Swedes, 8 Germans, 14 Spaniards, 3 Americans, and 7 individuals from the Far East. I was found that Americans and those from the Far East were less familiar with the countries listed in the survey (Sweden, the Netherlands, Türkiye, Germany, Spain). The Swedes and Dutch exhibited the highest familiarity and interest. The research was then decided to be conducted in English in the Netherlands (n=363) and Sweden (n=311).

Surveys were administered to Marketing course students and the academics in both countries during March and April of 2011, each spanning three weeks. Given the proficiency of the Swedes and Dutch in English, the survey was drafted in that language. Questionnaires were disseminated after securing appointments with professors via email and were administered at the end of classes, with the researcher present. The Dutch assessed Sweden, Germany, Türkiye, and Spain, while the Swedes evaluated the Netherlands, Germany, Türkiye, and Spain. This setup allowed the Dutch and Swedes to evaluate each other, with Germany, Türkiye, and Spain being assessed by both groups. All participants rated the countries using a 5-point Likert scale, ranging from “completely disagree” to “completely agree”.

Findings

Most participants were typically single, without children, young, highly educated, and belong to the middle-income group, as demonstrated in Table 1.

Table 1: Demographics of the Respondents

Demographics	Variables	Sweden (n=311) %	Netherlands (n=363) %
Gender	male	30,23	55,65
	female	69,77	44,35
Marital status	married	10,61	3,03
	single	57,23	69,70
	living together	18,97	15,43
	divorced/other	13,18	11,84
Number of kids	none	88,75	97,25
	1	5,47	1,10
	2	2,25	1,38
	3-4	3,54	0,28
Age	less than 20	29,58	26,45
	20-24	39,55	55,65
	25-29	15,11	13,22

Demographics	Variables	Sweden (n=311) %	Netherlands (n=363) %
	30-34	7,72	3,58
	35-39	3,54	1,10
	40-65	4,50	-
Education level	university student	83,28	84,02
	university graduate	16,72	15,98
Number of people in the household	1	30,87	14,60
	2	23,47	23,97
	3	18,01	15,43
	4	15,43	27,82
	5 and above	12,23	18,18
Annual household income	€10,000 and below	14,47	12,67
	€10,001 – €20,000	18,33	8,54
	€20,001 - €30,000	17,36	10,19
	€30,001 - €50,000	21,22	26,72
	€50,001 - €75,000	14,47	19,28
	€75,001 - €100,000	9,00	9,37
	€100,001 - €150,000	2,57	7,71
	€150,001 and above	2,57	5,51
Number of trips to other countries in the last 3 years	none	5,47	2,20
	1 visit	7,07	2,75
	2 visits	15,43	5,51
	3 visits	13,83	9,64
	4 visits	9,97	8,82
	5 visits and above	48,20	71,10
Yes (if visited) No (if not visited)	Germany (yes)	79,10	89,00
	Germany (no)	20,90	11,00
	Türkiye (yes)	37,90	39,90
	Türkiye (no)	62,10	60,10
	Spain (yes)	59,80	72,70
	Spain (no)	40,20	27,30
	Netherlands (yes)	33,10	-
	Netherlands (no)	66,90	-
	Sweden (yes)	-	25,60
	Sweden (no)	-	74,40

In the last three years, 94.53% of the Swedish participants and 97.80% of the Dutch participants have traveled to countries other than their own. When analyzing the number of trips to other countries, particularly those with five or more trips, the Dutch group (71.10%) exhibited a substantially higher rate than

the Swedes (48.20%). Upon examining the destinations visited, Germany emerged as the top choice for both the Swedish and Dutch participants.

To identify the appropriate statistical test for the scores and to discern their characteristics, a normality test was performed on the scores. This test indicated that the evaluations from both groups did not adhere to a normal distribution. As such, non-parametric tests were utilized to identify differences, revealing notable variations between the countries. A pairwise test with Türkiye was conducted for both study groups. The null hypothesis postulated that “There is no significant difference between the two countries,” whereas the alternative hypothesis stated, “There is a significant difference between the two countries.” Due to the numerous distinctions identified, evaluations that did not exhibit any difference have been highlighted in Table 2.

**Table 2: Mean Scores of the Scales and Items
(Based on a 5-point Likert Scale)**

Variables	Sweden (SE)				Netherlands (NL)			
	Germany (DE)	Türkiye (TR)	Spain (ES)	Netherlands (NL)	Germany (DE)	Türkiye (TR)	Spain (ES)	Sweden (SE)
Cognitive Country Image (CCI)								
good quality of life	3,71	2,74	3,60	3,70	3,93	2,90	3,49	4,11
good economy	3,62	2,90	3,02	3,41	4,07	3,04	2,48	3,93
rich people	3,33	2,68	3,00	3,27	3,67	2,60	2,83	3,87
advanced technology	3,90	2,73	3,28	3,58	4,12	2,89	3,10	3,98
highly educated people	3,59	2,84	3,25	3,50	3,76	2,88	3,04	3,96
modern country	3,91	2,85	3,63	3,68	4,09	2,81	3,40	4,08
mean score	3,68	2,79	3,30	3,52	3,94	2,85	3,06	3,99
Affective Country Image (ACI)								
friendly people	3,57*	3,56	3,95	3,61*	3,44	3,72	3,57	3,61*
nice people	3,57*	3,49	3,89	3,56*	3,52*	3,58	3,66*	3,74
safe country	3,80	3,07	3,59	3,49	4,05	3,04	3,64	4,11
trustworthy people	3,36	3,06	3,37	3,41	3,49	3,24	3,18*	3,67
ideal country to live	3,16	2,58	3,42	3,23	3,33	2,48	3,18	3,85

Variables	Sweden (SE)				Netherlands (NL)			
	Germany (DE)	Türkiye (TR)	Spain (ES)	Netherlands (NL)	Germany (DE)	Türkiye (TR)	Spain (ES)	Sweden (SE)
ideal country to visit	3,64*	3,68	4,11	3,62*	3,49	3,61	4,10	3,83
mean score	3,52	3,24	3,72	3,49	3,55	3,28	3,55	3,80
Product Familiarity (PF)								
I know about the country's products.	3,12	2,23	2,69	2,44	3,45	2,45	2,73	2,85
This country has good products.	3,79	3,00	3,41	3,25	4,09	3,04	3,27	3,83
I frequently use their products.	3,18	2,52	2,83	2,79	3,34	2,58	2,81	3,01
It's easy to find their products.	3,67	2,86	3,01	2,94*	3,80	2,98	2,96*	3,21
I'm satisfied with their products.	3,63	3,23	3,29*	3,28*	3,83	3,31	3,41	3,60
mean score	3,48	2,77	3,05	2,94	3,70	2,87	3,04	3,30
Destination Familiarity (DF)								
I know a lot about the country.	3,23	2,44	3,23	2,62	3,45	2,58	3,12	2,75
mean score	3,23	2,44	3,23	2,62	3,45	2,58	3,12	2,75
Product Beliefs (PB)								
good quality products	3,78	2,96	3,24	3,30	4,09	3,09	3,24	3,78
reliable products	3,58	3,10	3,21	3,23	3,88	3,23	3,27*	3,64
well-crafted products	3,72	2,98	3,18	3,21	4,01	3,07	3,22	3,76
innovative products	3,43	2,97	3,12	3,21	3,90	2,83	3,00	3,61
good value for the money (product)	3,50	3,18	3,21*	3,12*	3,61	3,16	3,18*	3,56
good brands	3,80	3,10	3,48	3,36	4,01	3,17	3,42	3,88
mean score	3,63	3,05	3,24	3,24	3,92	3,09	3,22	3,71
Destination Beliefs (DB)								
great views	3,76*	3,86	4,23	3,60	3,62	3,94	4,11	4,01*

Variables	Sweden (SE)				Netherlands (NL)			
	Germany (DE)	Türkiye (TR)	Spain (ES)	Netherlands (NL)	Germany (DE)	Türkiye (TR)	Spain (ES)	Sweden (SE)
suitable accommodation	3,31	3,09	3,18*	3,22	3,59	3,23	3,42	3,56
high quality attractions	3,79	3,58	4,08	3,51*	3,71	3,55	3,90	3,49*
lots to see and do	3,95	3,79	4,17	3,70*	3,81*	3,89	4,05	3,67
good value for the money (tourism)	3,65	3,84	3,86*	3,41	3,68	3,82	3,90*	3,38
good tourism destination	3,73	3,94	4,27	3,67	3,62	3,85	4,16	3,87*
mean score	3,70	3,69	3,97	3,52	3,67	3,71	3,92	3,66
Product Receptivity (PR)								
I would be proud to have this country's products	3,54	2,87	3,31	3,29	3,52	2,72	3,09	3,44
I would welcome more imports from this country	3,46	3,10	3,50	3,45	3,36	3,15	3,35	3,58
I am willing to buy this country's product	3,97	3,38	3,63	3,59	4,01	3,56	3,62*	3,91
mean score	3,66	3,12	3,48	3,44	3,63	3,14	3,35	3,64
Destination Receptivity (DR)								
We should have closer ties with this country.	3,31	3,01	3,46	3,41	3,37	3,03	3,26	3,72
I am willing to travel to this country.	4,15*	4,05	4,41	4,04*	3,87*	3,79	4,25	4,09
mean score	3,73	3,53	3,94	3,72	3,62	3,41	3,75	3,90

* The difference was not statistically significant at the $p < 0.05$ level.

Before applying Exploratory Factor Analysis (EFA) and Structural Equation Modeling (SEM), the adequacy of the sample was examined as shown in Table 3. For sample adequacy, the Kaiser-Meyer-Olkin (KMO) values considered were in the range of 0.861-0.925, and it was determined that there was no significant

difference in the results of Bartlett’s test of sphericity. The 35 items analyzed with the SPSS 17.0 program were repeated for 8 models and presented in tables. In the factor analysis results formed using the principal components method and the orthogonal rotation (Varimax with Kaiser Normalization) method, only factors with an eigenvalue greater than 1 were included. The average variance explanation ratio was determined to be 63.13%.

Table 3: Sample Adequacy and Sphericity Test

	NL-TR	NL-ES	NL-DE	NL-SE	SE-TR	SE-ES	SE-DE	SE-NL
Kaiser-Meyer-Olkin Measure of Sampling Adequacy								
	0,925	0,823	0,900	0,896	0,861	0,860	0,914	0,904
Bartlett’s Test of Sphericity								
Approx. Chi-Square	6710,029	4530,041	5870,734	6812,733	4283,457	3927,865	5171,206	5558,048
df	595	595	595	595	595	595	595	595
Sig.	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000

As a result of the EFA, it was decided to exclude items from the scale that had a factor load less than 0.40 and for which a specific factorization was not observed. Some items have been removed from the scale and some items, rather than being removed from the scale, were placed under more appropriate factors. The “destination receptivity” (DR) factor was removed from the scale. A reliability analysis was applied with the remaining 7 factors. Table 4 displays the reliability coefficients for all 8 models and all country structures. Upon examining the alpha coefficients, they range from the lowest at 0.227 (SE-TR Product Familiarity) to the highest at 0.869 (NL-SE Cognitive Image).

Table 4: Reliability Analysis Coefficients

Model	Reliability Coefficients (Cronbach's Alphas)						
	CCI	ACI	PF	DF	PB	DB	PR
SE-DE	0,766	0,740	0,706	0,566	0,900	0,886	0,696
SE-TR	0,773	0,746	0,458	0,616	0,826	0,865	0,800
SE-ES	0,695	0,658	0,595	0,591	0,813	0,849	0,817
SE-NL	0,475	0,788	0,562	0,709	0,879	0,871	0,812
NL-DE	0,799	0,799	0,514	0,569	0,854	0,872	0,599
NL-TR	0,804	0,773	0,455	0,820	0,878	0,885	0,739
NL-ES	0,740	0,644	0,595	0,565	0,799	0,800	0,653
NL-SE	0,899	0,744	0,599	0,633	0,879	0,785	0,798
Mean	0,744	0,736	0,561	0,634	0,853	0,852	0,739

Considering the alpha coefficients above, at least 0.70 for Confirmatory Factor Analysis (CFA) and at least 0.60 for SEM were needed, therefore the “product familiarity” (PF) factor were decided not to be used in CFA.

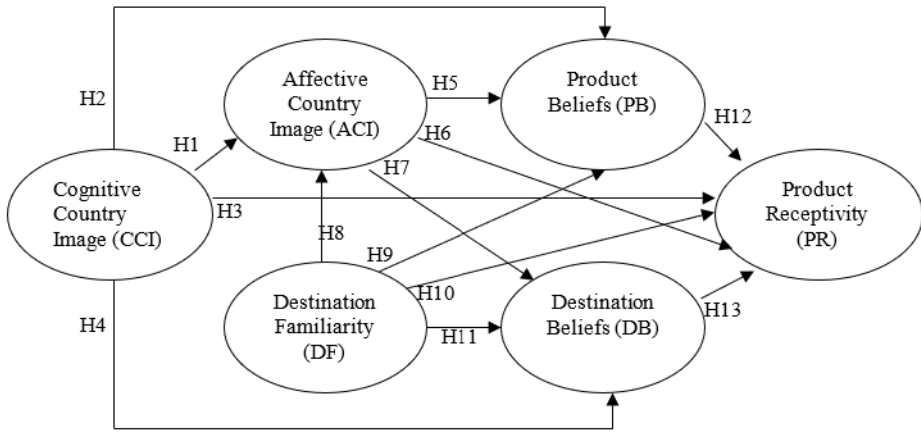
Correlation coefficients were acceptable in most of all models. Only the correlation between “destination beliefs” and “affective country image” was found to be extremely high. 0.75 in the SE-TR model; 0.74 in the SE-DE model; 0.73 in the SE-ES model; 0.86 in the SE-NL model; 0.82 in the NL-TR model; It is 0.68 in the NL-DE model and 0.82 in the NL-SE model. While extremely high correlations cause the collapse of the structure under normal conditions, the collapse of the structures was rejected due to the expectation of a relationship between these structures due to the main hypotheses.

Destination receptivity and product familiarity factors and some items were removed from the scale and some items fell under other factors. The scale, which consisted of 8 factors and 35 items in the beginning, was reduced to 27 items with 6 variables which was subjected to CFA. These variables and items are shown in Table 5 and the research model is designed as in Figure 2 accordingly.

Table 5: Reorganized Variables and Items

Variables	Items
Cognitive Country Image (CCI)	CCI1: Quality of life is good in this country. CCI2: This country is technologically advanced. CCI3: People in this country are highly educated. CCI4: This country is a modern country. CCI5: This country's people are rich.
Affective Country Image (ACI)	ACI1: This country's people are friendly. ACI2: This country is an ideal country to live. ACI3: This country is an ideal country to visit. ACI4: This country's people are nice.
Destination Familiarity (DF)	DF1: I know a lot about the country. DF2: I know a lot about the country's products.
Product Beliefs (PB)	PB1: There are good brands in this country. PB2: This country's products are well-crafted. PB3: I am willing to buy this country's products. PB4: This country's products are good value for the money. PB5: This country's products are innovative. PB6: This country's products are of good quality. PB7: I would be proud to own this country's products. PB8: This country has good products.
Destination Beliefs (DB)	DB1: This country has great views. DB2: This country has high quality attractions. DB3: This country has lots to see and do. DB4: Travelling to this country is a good value for the money. DB5: I am willing to travel to this country. DB6: This country is a good tourism destination.
Product Receptivity (PR)	PR1: My country should have closer ties with this country. PR2: I would welcome more imports from this country to my country.

Figure 2: Final Research Model



Linear Structural Relationship (LISREL version 8.80) program was used for CFA. The final research model was tested for each eight country structures. When all models were examined, Normed Chi Square ranged between 2.2 and 3.5; the Root Mean Square Error of Approximation (RMSEA) was around 0.08 and even lower; in terms of the “root mean square residual” (RMSR), there was no model exceeding the value of 0.10. It has also been determined that “goodness of fit index” (GFI) and “adjusted goodness of fit index” (AGFI) were around 0.80-0.90. When the “comparative fit index” (CFI) values were considered, it was concluded that a good fit of the model is achieved in structures with 0.90 and above. As shown in Table 6, the models indicated a good fit (Tak and Çiftçioğlu, 2008). As a result of CFA, it was seen that the values of all items in the models are above 0.5. Therefore, all variables were decided to be included in the SEM.

Table 6: Model Fit Statistics

Model	SE-TR	SE-DE	SE-ES	SE-NL	NL-TR	NL-DE	NL-ES	NL-SE
$\chi^2/s.d.$	2,689	2,212	2,435	2,592	3,076	3,513	3,464	3,370
RMSEA	0,074	0,063	0,068	0,076	0,076	0,083	0,081	0,081
RMSR	0,041	0,035	0,035	0,038	0,041	0,049	0,041	0,042
CFI	0,94	0,97	0,93	0,96	0,97	0,94	0,90	0,95
GFI	0,83	0,86	0,85	0,83	0,84	0,82	0,82	0,82
AGFI	0,80	0,83	0,81	0,79	0,80	0,78	0,79	0,79

The SEM results and factor loadings for each country model are presented in Table 7. The construct evaluation of the model estimated by standardized path coefficients or factor loadings was modeled to explain its own latent variable

from each observation. The coefficients of determination, denoted as R^2 , indicate the rates of variance explanation.

Table 7: SEM Results

	SWEDEN				NETHERLANDS				
	TR	DE	ES	NL	TR	DE	ES	SE	R ²
Cognitive Country Image									
CCI1	0,58(0,29)	0,63(0,31)	0,55(0,26)	0,79(0,20)	0,52(0,41)	0,59(0,28)	0,42(0,48)	0,73(0,29)	0,39
CCI2	0,58(0,29)	0,75(0,28)	0,67(0,25)	0,76(0,21)	0,58(0,28)	0,69(0,26)	0,65(0,31)	0,80(0,19)	0,50
CCI3	0,65(0,26)	0,49(0,36)	0,63(0,22)	0,69(0,22)	0,51(0,27)	0,64(0,29)	0,75(0,20)	0,88(0,12)	0,47
CCI4	0,73(0,32)	0,66(0,30)	0,51(0,34)	0,79(0,20)	0,60(0,38)	0,75(0,17)	0,67(0,31)	0,79(0,18)	0,50
CCI5	0,65(0,23)	0,62(0,31)	0,47(0,30)	0,58(0,26)	0,45(0,36)	0,68(0,28)	0,58(0,35)	0,82(0,20)	0,40
Affective Country Image									
ACI1	0,61(0,44)	0,46(0,53)	0,46(0,40)	0,55(0,36)	0,55(0,40)	0,63(0,41)	0,64(0,37)	0,6(0,34)	0,34
ACI2	0,53(0,48)	0,66(0,42)	0,54(0,49)	0,66(0,40)	0,64(0,52)	0,71(0,46)	0,44(0,73)	0,57(0,57)	0,37
ACI3	0,76(0,32)	0,78(0,29)	0,66(0,22)	0,81(0,23)	0,64(0,36)	0,74(0,39)	0,48(0,35)	0,60(0,45)	0,49
ACI4	0,70(0,34)	0,67(0,37)	0,70(0,23)	0,75(0,21)	0,54(0,30)	0,75(0,30)	0,76(0,23)	0,81(0,17)	0,54
Destination Familiarity									
DF1	0,59(0,53)	0,47(0,60)	0,57(0,58)	0,77(0,40)	0,90(0,33)	0,55(0,48)	0,59(0,52)	0,59(0,67)	0,40
DF2	0,75(0,36)	0,84(0,30)	0,74(0,37)	0,71(0,46)	0,89(0,37)	0,72(0,37)	0,67(0,46)	0,78(0,34)	0,57
Destination Beliefs									
DB1	0,68(0,35)	0,82(0,25)	0,8(0,17)	0,65(0,43)	0,53(0,25)	0,76(0,28)	0,66(0,19)	0,75(0,25)	0,54
DB2	0,66(0,37)	0,87(0,17)	0,82(0,17)	0,74(0,26)	0,64(0,39)	0,83(0,19)	0,55(0,33)	0,57(0,38)	0,53
DB3	0,77(0,24)	0,79(0,19)	0,79(0,16)	0,77(0,24)	0,61(0,28)	0,80(0,22)	0,76(0,17)	0,67(0,25)	0,58
DB4	0,77(0,25)	0,67(0,40)	0,57(0,39)	0,67(0,29)	0,63(0,28)	0,66(0,34)	0,71(0,26)	0,51(0,55)	0,45
DB5	0,73(0,38)	0,67(0,33)	0,60(0,31)	0,73(0,36)	0,87(0,38)	0,73(0,37)	0,69(0,26)	0,54(0,44)	0,48
DB6	0,71(0,32)	0,71(0,38)	0,62(0,29)	0,81(0,24)	0,65(0,33)	0,63(0,48)	0,47(0,32)	0,67(0,29)	0,46
Product Beliefs									
PB1	0,59(0,23)	0,84(0,19)	0,67(0,20)	0,83(0,11)	0,54(0,26)	0,80(0,19)	0,58(0,36)	0,75(0,22)	0,53
PB2	0,64(0,19)	0,80(0,22)	0,63(0,18)	0,85(0,09)	0,51(0,20)	0,83(0,17)	0,66(0,21)	0,80(0,18)	0,56
PB3	0,64(0,47)	0,75(0,20)	0,48(0,33)	0,60(0,31)	0,55(0,52)	0,81(0,18)	0,59(0,31)	0,67(0,24)	0,42
PB4	0,45(0,33)	0,51(0,36)	0,63(0,17)	0,50(0,13)	0,42(0,25)	0,49(0,38)	0,54(0,22)	0,57(0,31)	0,30
PB5	0,54(0,14)	0,67(0,29)	0,54(0,15)	0,71(0,14)	0,48(0,31)	0,63(0,26)	0,54(0,27)	0,68(0,23)	0,39
PB6	0,73(0,20)	0,84(0,18)	0,68(0,16)	0,86(0,09)	0,50(0,21)	0,76(0,16)	0,65(0,18)	0,78(0,18)	0,57
PB7	0,74(0,33)	0,76(0,32)	0,59(0,31)	0,68(0,26)	0,72(0,39)	0,48(0,71)	0,58(0,33)	0,64(0,37)	0,43
PB8	0,63(0,28)	0,65(0,27)	0,6(0,27)	0,58(0,29)	0,78(0,28)	0,47(0,35)	0,54(0,37)	0,67(0,25)	0,37

	SWEDEN				NETHERLANDS				
	TR	DE	ES	NL	TR	DE	ES	SE	R ²
Product Receptivity									
PR1	0,85(0,21)	0,84(0,20)	0,83(0,18)	0,88(0,13)	0,77(0,38)	0,63(0,50)	0,68(0,35)	0,85(0,16)	0,64
PR2	0,79(0,35)	0,64(0,41)	0,84(0,22)	0,78(0,24)	0,78(0,48)	0,67(0,51)	0,72(0,40)	0,78(0,27)	0,56

“Cognitive Country Image, Product Receptivity, Destination Beliefs and Destination Familiarity” were found to be statistically strong constructs with factor loadings over 50% and R² coefficients between 39% and 64%. Z-scores were used to test the effects between variables. Statistical Z-scores less than -1.96 or greater than +1.96 were required. Relationships found to be statistically significant at the 0.05 significance level in the model results are indicated in Table 8 with an asterisk (*). The last two columns provide the numbers of significant and non-significant model results, respectively, under the headings ‘S (Significant)’ and ‘N (Non-Significant)’.

Table 8: Decision Table for the Hypotheses

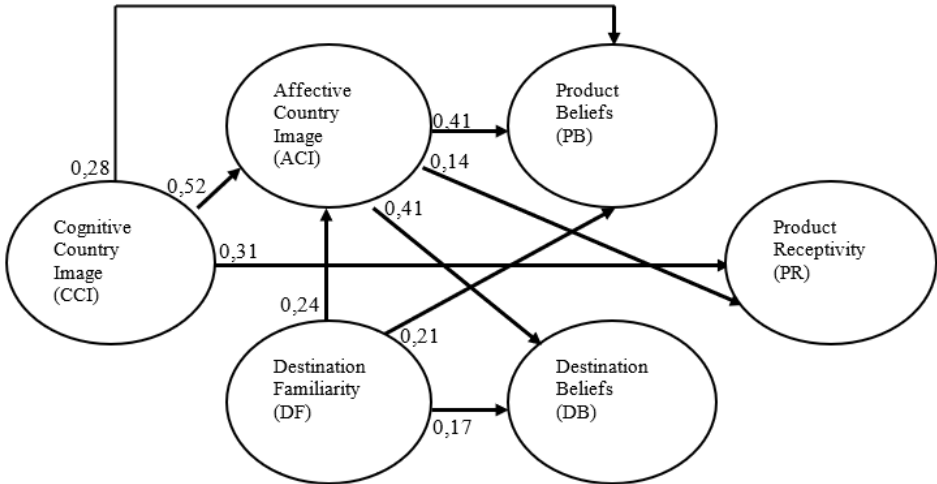
Hypot hesis	Relationship between the variables	SWEDEN				NETHERLANDS				S	N
		TR	DE	ES	NL	TR	DE	ES	SE		
H1	CCI-ACI	0,52*	0,32*	0,24*	0,44*	0,38*	0,20*	0,13	0,45*	7	1
H2	CCI-PB	0,28*	0,21*	0,15*	0,32*	0,22*	0,40*	0,29*	0,22*	8	0
H3	CCI-PR	0,31*	-0,08	0,30*	0,20*	0,05	0,20	0,27*	0,33*	5	3
H4	CCI-DB	-0,11	0,06	-0,98	-0,02	-0,30*	0,17	-0,04	-0,06	1	7
H5	ACI-PB	0,41*	0,02	-0,07*	0,09	0,36*	-0,07	0,33*	0,37*	5	3
H6	ACI-PR	0,14*	0,21*	0,07*	0,16*	0,02*	0,26*	0,07*	0,42	7	1
H7	ACI-DB	0,41*	0,63*	0,66*	0,78*	0,51*	0,67*	0,39*	0,81*	8	0
H8	DF-ACI	0,24*	0,21*	0,39*	0,27*	0,59*	0,41*	0,51*	0,29*	8	0
H9	DF-PB	0,21*	0,62*	0,54*	0,41*	0,41*	0,61*	0,38*	0,40*	8	0
H10	DF-PR	0,05	0,12	0,26*	0,05	-0,05	-0,03	0,12	0,08	1	7
H11	DF-DB	0,17*	-0,09	0,24*	0,03	-0,09	-0,16	0,07	-0,03	2	6
H12	PB-PR	0,59	0,70	0,50	0,80	0,16	0,31	0,55	0,32*	1	7
H13	DB-PR	-0,03	-0,95	-0,68	-0,06	-0,30	-0,65	0,84	-0,47	0	8

S: statistically significant at the 0.05 significance level, therefore accept the hypothesis for the relationship that marked with *

N: statistically non-significant at the 0.05 significance level, therefore reject the hypothesis for the relationship that are not marked with *

In Table 8, the foundational data is presented which facilitated the construction of the model and subsequent interpretations for each group. The subsequent sections delineate the models for SE-TR and NE-TR as Türkiye is the primary country of interest for this study.

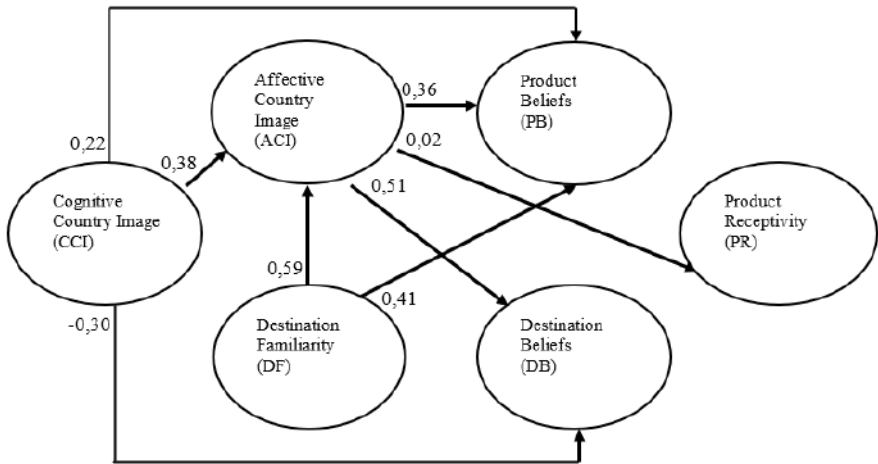
Figure 3: Türkiye Model - Swedish Sample



In Figure 3, the supported hypotheses for Türkiye model are presented for the Swedish sample. It is evident that the cognitive country image has a significant strong relationship (0.52) with the affective country image. This interplay between cognitive and affective perceptions is crucial, as it underscores the intertwined nature of rational beliefs and emotional sentiments in shaping Swedes' overall image for Türkiye. The affective country image also maintains a compelling relationship (0.41) with both product and destination beliefs. The cognitive country image has more marked impact on product receptivity than the affective country image. However, there is no statistically significant relationship between cognitive country image and destination beliefs. Other external factors might be playing a more dominant role in shaping Swedish respondents' destination beliefs about Türkiye. These could be factors like travel advisories, personal anecdotes from friends or family who have visited since affective country image was found to be influential on destination beliefs. This finding highlights the importance of digging deeper into the nuances of how different nationalities perceive and respond to international destinations. It might be valuable to conduct qualitative research, such as focus groups or in-depth interviews with Swedish respondents, to understand the underlying reasons behind this lack of a relationship. For Turkish tourism marketers, this finding could indicate that solely enhancing the cognitive image of Türkiye in the minds

of Swedes might not be sufficient. Instead, efforts might need to be directed at enhancing the emotional connection or addressing other external factors influencing travel decisions. Different interventions such as targeted marketing campaigns can be implemented to enhance the cognitive country image and then measure their impact on destination beliefs.

Figure 4: Türkiye Model - Netherlands Sample



In Figure 4, the hypotheses supported for the Türkiye model are illustrated using the Netherlands sample. The data suggests that the cognitive country image maintains a positive relationship with the affective country image, which in turn, has a strong association with destination beliefs. However, intriguingly, there exists a negative relationship between the cognitive country image and destination beliefs. This could imply several things. While factual knowledge about Türkiye may be generally positive, certain aspects of this cognitive image might raise concerns about the country as a destination. When considering Türkiye as a destination, Dutch respondents might rely more heavily on their emotional sentiments rather than factual knowledge. The emotional appeal of Türkiye’s culture, hospitality, or natural beauty might play a more pivotal role in influencing destination beliefs for Dutch respondents. The source of cognitive information about Türkiye available to Dutch individuals could potentially harbor biases. If most of the factual information consumed is negative or highlights challenges, even if it’s just a subset of the overall information, it might disproportionately impact destination beliefs. Pre-existing stereotypes or misconceptions might influence the interpretation of factual information, thus driving a wedge between cognitive country image and positive destination beliefs. It’s crucial to further investigate the reasons for the disjunction between

cognitive country image and destination beliefs. Qualitative research, such as interviews or focus groups, could provide deeper insights into the underlying thought processes of the Dutch sample. The intertwined nature of cognitive and affective components in shaping destination beliefs underscores the multifaceted challenges and opportunities facing destination marketers and policymakers.

Conclusion

This study examined the cognitive and affective country images, with a focus on the perceptions of Swedish and Dutch participants regarding products and destinations from specified countries: Türkiye, Spain, Germany, the Netherlands, and Sweden. Additionally, the research delved into respondents' familiarity with, beliefs about, and receptivity towards the products and destinations of these countries. When assessing all countries collectively, the findings highlighted that the cognitive country image exerted a more significant influence on product beliefs, while the affective country image was crucial in shaping destination beliefs.

Despite its contributions, there are several limitations of this study. The findings cannot be generalized to all Swedish or Dutch citizens. The study primarily targeted university students and individuals below the age of 30 to gather a comprehensive understanding of their perspectives. Besides, the research captured the sentiments of the respondents in 2011. Therefore, a subsequent study is recommended to identify any shifts over the years, enabling a comparison with the present study. The references considered in the literature review are selected from studies dated 2010 and earlier. This date selection stems from the fact that the data collection process that underpins the study was carried out in 2011, and the literature up to this period is more consistent with the context of the study. This can also be considered as one of the limitations of this study. Examining and analyzing more recent literature is recommended for future studies.

Future research can pursue longitudinal studies to determine if the relationship between cognitive country image and destination beliefs for a country evolves over time from the perspectives of Swedish and Dutch respondents for Türkiye. Such shifts might be particularly noticeable following global events, political transitions, or developments in popular culture. It is also recommended that this study be replicated with diverse demographic groups, encompassing individuals from different backgrounds and nationalities. Furthermore, techniques such as neuromarketing can be utilized to explore how cognitive and affective reactions to a country's image are represented in the brain. Such insights could assist marketing professionals in comprehending the decision-making processes involved in purchasing foreign products or traveling to foreign destinations.

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Chapter 8

Traumatic Memories and Reconciling with the Self in Ali Smith's *Like*¹

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INTRODUCTION

Novelists directed their interests toward memory and amnesia in the late twentieth and early twenty-first-century literary studies. Many aspects of memory and its relationship with imagination and fiction are discussed within contemporary cultural and literary studies and scrutinized. Marianne Hirsch uses the term “postmemory” (Hirsch, 2012: 5) to refer to the stories of trauma victims, which are witnessed by later generations through narratives, and Jay Winter also emphasizes the importance of witnessing, which contributes significantly to the memory boom in the twentieth century. She asserts that “the ‘memory boom’ of the later twentieth century arrived in part because of our belated but real acceptance that among us, within our families, there are men and women overwhelmed by traumatic recollection” (Winter, 2001: 384) Thus, memory has become a kind of a vehicle in literature to interpret one’s self as well as others’.

Moreover, amnesia is generally used in literary works to manifest the helplessness that people suffer from in a modern world where they feel like strangers. Literary texts unfold secrets employed through forgetting by making it clear that forgetting things is indestructible. However, amnesia helps alleviate the pains caused by traumatic memories. Contemporary literary works generally employ memory as a vehicle for giving access to characters’ fragmented identities. Writing about the characters’ past experiences opens the secrets in their present lives. As Nicola King points out, “it is in and through writing that memory constructs itself as inevitably ‘belated’, but it is through writing that its ‘immediacy’ is also re-created.” (King, 2004: 9)

Trauma theory in literature, however, became popular in the middle of the 1990s. The events like World Wars, the Holocaust, the Vietnam War, political conflicts in the Middle East, violence, and sexual abuses created societies suffering from trauma. The discussions about the possibility of narration for these traumas increased significantly, especially after the Holocaust. Pioneered by Cathy Caruth, early literary trauma theory is especially shaped by the problem of the “unspeakable” as theorists believe that the sufferings of the victims cannot be verbalized. Classical trauma theorists reject the representation possibility of a traumatic event, which reduces its importance to a normal event. The classical trauma theory developed in light of Freud’s theories like repetition compulsion, the indirect experience of the traumatic event through narration, and dissociation.

This paper focuses on the recent theories on memory and the pluralistic model of trauma to analyze Ali Smith’s debut novel *Like* (1997). The novel employs memories and traumatic events which can be best analyzed through

revisionists' views. Revisionists' main rejection of the classical trauma model is the concept of unspeakable trauma. They claim that figurative language can represent the fragmentation in memory, dissociations, and sufferings of the victims. In Smith's novel, the characters are depicted as having agency over their traumas; sometimes choosing the deliberate forgetting, or narrating them in a form which they can cope with. Also, the influences of social and cultural elements that situate trauma in a larger context are depicted in the narrative. The novel has characters and events that can be analyzed in a variety of ways, and this stands in stark contrast to the specificity of the classical model which restricts trauma to a particular event or a particular situation.

TRAUMATIC MEMORY IN ALI SMITH'S *LIKE*

Ali Smith's *Like* mainly depicts the traumatic memories of two main characters, Amy and Ash. Other than that, we also come across other characters' traumatic memories as the novel unfolds. The characters' traumas are depicted in a way that shows the effects of social and cultural structures on remembering and forgetting and the characters are narrated from different points of view, enabling readers to see how they react to their traumatic memories. They develop different defence mechanisms to cope with their traumatic memories. While Amy chooses to forget, Ash rebuilds her life through remembering.

The novel handles traumatic memory differently from classical trauma theorists like Caruth. As is obvious in the narrative, Smith accepts the pluralistic model of trauma theory, which rests on the idea that there is a representation possibility of traumatic memories as they are registered in the mind, and trauma victims have an agency over their lives. Susannah Radstone supports that trauma cannot be reduced to an unexpected shocking event. She asserts that "an event may prove traumatic, indeed, not because of its shocking nature but due to the unbearable or forbidden fantasies that it prompts" (Radstone, 2002: 467-468). In *Like*, Amy and Ash's unfulfilled sexual desires make up their traumatic memories. Amy and Ash use the word "like" frequently to describe their repressed desires that they cannot verbalize. Ian Blyth suggests that "like is also an expression that is rich with possible interpretations, including those of same-sex desire (like liking like, in other words)" (Blyth, 2013: 43). Trauma caused by same-sex desire is threaded throughout the novel.

The first part of the novel consists of Amy's present-day story. Smith's depiction of Amy reveals the distress caused by her trauma. In the novel's opening, Amy's weird behaviour on the edge of the platform at the railway is described. She stands on her heels, testing herself, and when she notices people

looking at her, she behaves as if she dropped something. This scene hints that Amy thinks over the act of committing suicide. We also learn that Amy has a daughter named Kate, and while Smith depicts them, she implies certain information, for example, the identity of Kate's father. Smith's account of Amy and Kate proceeds to an untold traumatic experience for Amy. Smith hints at this while introducing Amy with these remarks: "Amy Shone. A surname like that will haunt your life. Everything becomes something you did better than, before, in the shining days. But not if you don't let it" (Smith, 1998: 4). Smith uses the verbs "shone" and "shine" playfully, linking these verbs with the past and the present respectively. As hinted with the verb "shone", Amy is under the influence of the past even though she tries to escape from it.

Recollection of the past has become an important issue with the memory boom. Trauma studies deal with the issues of remembering and forgetting, and Smith's *Like* places these issues in the texture of the novel in a way to show the characters' traumatic memories. Amy loses the ability to write and read, and this implies that she develops a defence mechanism to cope with her trauma. As revisionist trauma theorists put it, choosing what to forget may be a personal choice of a traumatized person. Amy's efforts to forget are basically what Karen R. Brandt calls "directed forgetting," which occurs "when we deliberately attempt to eliminate information from memory" (Brandt, 2016: 263). Therefore, we cannot say that Amy is experiencing amnesia; instead, she chooses to forget to read and write as a way to escape from her agitated memories which can also be considered a defence mechanism.

Forgetting serves as a survival strategy for traumatic memories for Amy. As in the protective shield theory, which Freud thinks trauma survivors develop to protect themselves from external forces, Amy constructs a kind of barrier against her traumatic experiences to survive. She not only loses her writing and reading faculties but also suffers from an inability to talk about her trauma. Amy's absent past is narrated via her present situation. She remembers what happened as the traumatic event is registered in her unconscious. Paul Ricoeur, in that case, supports the persistence of the past images in mind. He bases this idea on the thought that "if a memory returns, this is because I had lost it; but if, despite everything, I recover it and recognize it, this is because its image had survived" (Ricoeur, 2004: 430). However, Amy's memories lack a logical order because she does not have the faculty to verbalize them, which is necessary to store them as memories. Sandra L. Bloom explains the outcome of the lack of this faculty as follows:

[...] the traumatic experience will remain unmetabolized, unintegrated and still present, continuing an existence in the ever-present ‘now’ of the nondominant hemisphere reality, haunting the person as it reappears as nightmares, flashbacks and behavioral re-enactments. (Bloom, 2010: 206)

Thus, it is not surprising to see Amy’s re-experiencing her trauma continuously in the flow of the novel but this re-experiencing is different from the classical model of trauma, which handles re-experiencing as a repetitive compulsion. The classical trauma model’s repetitive compulsion theory is based on the idea that a trauma survivor does not have the capacity to grasp the meaning of the traumatic event as it occurs. So, trauma victims tend to repeat the same events or behaviours to re-enact them. However, Amy’s re-experiencing functions for her to re-evaluate the traumatic event in her present situation. Smith’s use of the third person in Amy’s part shows that Amy cannot speak about her trauma, and she deliberately chooses to forget. She is depicted in her present situation, and the details from her past life are given in the third-person narrator and other characters’ accounts. Smith’s use of present tense in Amy’s part makes it clear that Amy’s trauma restrains her to the present. Amy intentionally chooses to live in the present to escape from her memories.

Throughout the novel, Amy’s thoughts are dispersed. Those thoughts interrupt her life and she remembers some details related to her past abruptly. This shows that her repressed memories are there waiting to be deciphered. Her involuntary memories, which are brought back to consciousness, are usually triggered by a kind of association with past sensations. When she feels “the smell of autumn in Kate’s hair” (Smith, 1998: 10), she goes back in time and remembers an event experienced in autumn like it. This traumatic memory is related to her attempts to abandon Kate when she is a baby. She tries to abandon Kate twice, but she cannot. In this example, the smell of autumn functions like Marcel Proust’s depiction of the madeleine moment, where the protagonist in *In Search Of Lost Time* returns to his childhood memories when he feels the odour of madeleine showing that the senses are important for retrieving repressed memories.

Ali Smith also places some details which have the feature of a kind of reference to Freud’s *archaeological excavation* metaphor in the novel. In Freud’s archaeological model, “the work of psychoanalysis is understood as a therapeutic hermeneutics, a process of discovery in which the obscured past is revealed and integrated into the self-present ego” (Reinhard, 1996: 57). That is, what is buried is brought to the surface by excavation. This process is necessary

for healing. Kate's 'Ancient Burials' play which she made up after she had learned at school about the place that archaeologists found in Orkney, is an example of the excavation metaphor. Kate describes this play as:

You lie down on the sand and you have to keep yourself really really flat, as flat as if there's like a ton of sand on top of you and you can't move. And then, you're lying there and this storm comes and blows all the sand off you and you wake up on the beach where you fell asleep and you get up and you're in a new place that you've never even seen before even though it's the same place you went to sleep in and you've been there all along. And then you explore the place. (Smith, 1998: 9)

Kate's above description of the play shows that once one faces the repressed memories from the past, her/his present cannot be the same. So, one has to explore her/his present self after confronting the repressed feelings. After this exploration, the past is revised by the present circumstances. Even if the event is the same, the present self explores it from a new perspective.

The first part of the novel is woven with significant details for understanding Amy's trauma. Smith's placement of some elements functions as cues about the nature of Amy's trauma. For example, Smith's references to some TV series' names are deliberate. She mentions Kate's going to her friend to watch *Byker Grove* and this series especially handles issues of teenage sexuality. Again, Smith describes a book under Kate's feet while Kate is talking to Amy. The book's title is *Her A Clit Us*, and as the title clearly hints, it focuses on female sexuality. These details function as stimuli for Amy because they bring back her past experiences in the form of flashbacks.

Smith introduces Amy's family in the first part of the novel when Amy suddenly decides to take a journey. In this part of the novel, Smith describes Amy's mother's traumatic memories, and this part is also significant in that we can understand the traumatic bond between her parents and Amy herself. When Amy visits her parents with Kate after eight years, her mother, Patricia, is surprised to see her again. When she sees Amy at the door, Patricia's childhood memories are re-activated. Patricia remembers a boy's shooting himself while he is working on their farm:

He had had to use a thorned walking stick to reach the trigger; he was seventeen and quite a small-boned boy. The

shot had reverberated round the farm, unsettling the horses, lifting the ravens momentarily out of their trees into a round of complaining caws as they circled and landed again. (Smith, 1998: 62)

Patricia sees a raven in the tree when she opens the door to Amy and Kate. The raven re-activates her traumatic memory as there were ravens in the actual event in which the boy shoots himself. So, her memories related to this traumatic event are brought back through close association. Another important detail in this incident is that Patricia remembers hearing her father and grandfather saying the boy did the right thing. This shows that Patricia was brought up by parents who have strict conventional minds. Amy's sudden disappearance creates trauma for her. When Amy returns, with the inner monologue, we hear Patricia's voice saying "how like her, to disappear so callously in the first place, and how like her, now, to turn up as if nothing has happened [...]" (Smith, 1998: 63). Patricia sees her daughter as a stranger, and the passing years remain an unsolved secret for her. While thinking about Amy's appearance, she remembers a class she attended where a woman called Michelle taught her an important strategy to cope with her problems. This detail shows that Patricia is upset about her daughter's disappearance. Patricia remembers that day when Michelle taught them this strategy:

The Three Rs of Emotional Wellbeing, it said in the pamphlet. Michelle scratched the words on the board in green felt tip: Repressing Releasing Resolving = Wellbeing. Underneath, in brackets, (Relevant Scenario- Reimagine). Imagine something all pent up, she said, then imagine letting it go, imagine it released. Choose a Relevant Scenario in your own life and Reimagine it, but so that it happens the way you'd like it to be when you're at your most angry. (Smith, 1998: 64)

Patricia thinks about this when she sees Amy at the door after eight years. So, it can be deduced that she utilized this strategy when Amy abandoned them. The Three Rs of Michelle are similar to Freud's remembering, repeating, and working through concepts. Freud theorizes that repressed things come out with repetition rather than remembering. A traumatized person acts out to repress her/his feelings. However, the compulsion to repeat makes her or him live the same experience in the form of dreams and hallucinations. Patricia's efforts to handle the absence of Amy are clear in this example. She represses her

traumatic memories related to Amy and adopts a different scenario for this traumatic event and when she sees Amy, she cannot react.

In the novel's second part, Smith uses the first-person narrator to depict Ash's traumatic memories which shows Ash's agency and efforts to control her life's direction. She writes down her memories in a diary and this diary functions as a storage for her memories because the diary, which resembles her unconscious, keeps her most secret feelings. Another important point is that Ash narrates the past in stark contrast to Amy, who prefers to repress her memories and live in the present. Smith depicts Ash's feelings upon returning to her home. Thus, homecoming appears to be an important issue in the novel; as in Amy's case, returning home means returning to the primal scene for Ash. Smith depicts these characters' traumas giving them the agency to revise their memories in the light of their present conditions.

Being at home revives Ash's memories and some objects from her childhood function as stimuli that bring her memories back. When she sees the ornaments like the china jug and a glass duck, she remembers her childhood. However, she evaluates the memories which she associates with these objects with a new perspective because the present self attributes new meanings to these objects. She remembers the moral sanctions of her native country, where "the teaching of drama on the school syllabus would be nothing less than the work of the devil" (Smith, 1998: 158). Along with this detail, women's place in such a society is described by Ash. By giving such details, Smith aims to portray Ash's alienation from this society because of her sexual orientation and Ash starts to imagine the chaos that her sexual orientation would cause:

Imagine the scandal, imagine the curse, there is no guessing the chaos we'd have brought upon the world, two girls falling together in the streets of the beautiful decent Highlands of Scotland where a whistling woman was still as unnatural as a crowing hen. (Smith, 1998: 159)

Thus, Ash's traumatic memories are mostly related to the dilemma she experienced in such a society. As revisionist theorists indicate, individual trauma cannot be separated from cultural values. Smith portrays how Ash's trauma is interrelated with her cultural background. So, the trajectory of the story distances the narrative as well as Ash from the Caruthian model of trauma, which Greg Forster calls punctual. According to Forster, the Caruthian model of trauma focuses on unique historical events such as Holocaust. Forster suggests that patriarchal systems can also cause traumas, and "such traumas are also so

chronic and cumulative, so woven into the fabric of our societies, that they cannot count as ‘shocks’ in the way that Nazi persecution and genocide do in the accounts of Caruth and others” (Forster, 2007: 260). Ash suffers from the restrictions that her patriarchal society imposes on her. Mainly, she has fears about the outcomes of her sexual orientation and she describes how she put *Claudine at School*, a novel about sexual issues, in the dustbin. She explains the reason as “in case anybody caught me reading it, or more likely, I caught myself” (Smith, 1998: 190). This detail shows that she cannot reveal her sexual orientation in a society where even reading a novel that deals with sexual issues can be disturbing. Her childhood fears have an enormous effect on her life. She has to repress her sexual orientation because of these fears. Ash tries to balance her inner desires and the expectations of society, which is the balance between her id and super-ego. So, her identity is fragmented because she creates different personalities to conform to the rules of society. For that reason, she becomes a stranger to herself in time. While she is writing about herself, her repressed memories come out suddenly in the form of flashbacks and intrusive recollections. So, she does not follow a linear time sequence because her memories just flow while she is writing.

Ash’s relationship with her father also constitutes an important part of her memories. While writing about herself, Ash usually remembers her father’s numerous partners. She often tells that these women were a lot younger than him. It is explicit that her father’s relationships with young women created trauma for her because she was disregarded by her father. The absence of the mother figure and her father’s ignorant behaviours affect her deeply. With several experiences as an adult, Ash’s childhood trauma about her father results in latent vulnerability. She responds to her childhood trauma later in life. Consequently, she has a thinning social life. While writing about her father, she suddenly remembers Amy’s parents. When she observes Amy’s parents, she feels the absence of her parents as a child. While thinking about Amy’s parents at present, Ash remembers the day when she stayed above an apple tree until it was midnight. When she comes back home thinking that her father and brothers are wondering for her, she sees that everybody is sleeping. This event makes her feel that nobody cares for her. Living in a home where she is ignored, Ash feels worthless. This feeling causes her to develop new ways to cope with her loneliness. She remembers making up a story of a girl and a dog to replace parental figures when she was a child. She depicts those days as follows:

She lasted quite a long time, at least until I exchanged her for the dog I made up instead, who lived under my bed, who

protected me from all anxiety like it said at church, and who, I knew, would be there sitting shifting on his paws outside the school gate every single day waiting for me and for the four o'clock bell like the boy and the dog in *Lassie Come Home* [emphases in the original], so faithful he didn't need a lead, so well-trained I didn't need to call or whistle, he'd be there, his ears forward, his tail up. I can still see him. (Smith, 1998: 175)

One childhood memory leads her to another. She just writes about them as she thinks, and being at home activates these intrusive recollections since there is no order as they are revealed immediately. As Richard J. McNally puts it *intrusive recollections* [emphases in the original], are disturbing thoughts and images of the event that come to mind even when the person does not want to think about it" (McNally, 2003: 105). The day when Ash shows around the city to Amy and her parents constitutes an important place in Ash's life as it is the first important experience that enables Ash to understand herself. The appearance of Amy disturbs her because Amy has all the features that a female should have, unlike Ash.

Furthermore, Amy has what Ash craves; a family. For that reason, after the tour with them, Ash cannot sleep that night feeling the sound of the waterfall that they visited that day. She describes the noise by saying "it was a noise that would never stop. It would always be roaring, even now it was, in the middle of the night, all the days and all the nights, shattering itself down the sides of the crevasse" (Smith, 1998: 187-188). These remarks highlight an important reality about Ash which is the beginning of self-realization. Ash also admits the fact that what she experiences that day haunts her and she cannot resist thinking about it.

McNally's *Remembering Trauma* (2003) defies unclaimed traumatic experiences and the impossibility of the representation of these experiences verbally in the classical model. He especially criticizes van der Kolk's traumatic amnesia description. His main argument is that "amnesia is an inability to remember certain facts and experiences that cannot be attributed to ordinary forgetting. Merely not thinking about something for a period of time is not the same as amnesia" (186). McNally emphasizes that a trauma survivor cannot remember every detail of the event, and this is not amnesia. When it comes to the representation problem of the traumatic event, he says that: "contrary to the notions of some trauma theorists, horrific, vivid memories of the Holocaust are retained in narrative form, as evinced by oral narrative testimony provided by

survivors in the Fortunoff Video Archives for Holocaust Testimonies of Yale University” (212). He claims that violent, traumatic events are never forgotten; on the contrary, they are vividly remembered by survivors. McNally challenges Kolk’s insistence on trying to interpret trauma survivors’ behaviours by maintaining that we cannot reveal repressed memories in this way as they do not reflect reality.

Smith describes Ash in a way that shows us how her mind is obsessed with the past. Upon returning home, she spends most of her time in the loft that is full of their old stuff. The loft is like her unconscious where all memories are stored. So, being there means facing her memories and she dares spend most of her time there. Her present and past intermingle with each other while she is remembering her memories. Undoubtedly, she also shows symptoms of PTSD. Allan Young denotes the fact that PTSD distorts the time concept: “That is, the pathology consists of the past invading the present in re-experiences and re-enactments, and of the person’s efforts to defend himself from the consequences. In other words, the traumatic experience/memory is the cause of post-traumatic symptoms” (Young, 2016: 97). Amy chooses to forget them for a while and Ash chooses to accept them as they are. Both characters have an agency to direct their lives while they are suffering from their traumas. Remembering and forgetting issues are handled through characters’ preferences on how to cope with their traumatic memories. These different preferences also show the construction of narrative identity which James Bailey explains as “the way in which our sense of the self is dependent upon, and even determined by, the stories we tell” (Bailey, 2010: 1). Caruth’s claim that trauma survivors cannot get full knowledge about trauma is challenged in the novel. Contrary to the classical trauma model, the meaning of trauma can be locatable in the pluralistic trauma model. Amy and Ash are fully aware of their traumas. However, their reactions to them differ. What is forgotten by Amy is deciphered through the narration of Ash. Also, having an agency gives a chance of recovery for these two characters. Along with these two main characters, Smith handles other characters’ traumatic memories. By doing so, Smith reveals the fact that the characters’ traumas are tied up with each other’s traumas.

REWRITING THE SELF AND THE POSSIBILITY OF RECONCILING WITH THE SELF

Amy shows the first signs of the urge to rewrite her story when she is in her parents’ house in England. While she is in her room after eight years, she sees the box which is full of books and letters. She just smells them and they are nothing other than the smell of old paper for her. However, it is implied in the

novel that these books and letters are related to Ash because Kate finds a card from Ash's family in this box which asks the whereabouts of Ash. Amy does not give them a meaning because what irritates her about her past is the unexperienced possibilities with Ash. When Kate sees a picture of two girls under a statue that has a dog in Amy's room, she asks about this picture to Amy. She explains that this photo belongs to her and one of her friends. Indeed, this photograph encapsulates a moment frozen in time from Amy's journey to Scotland, where she shared an unforgettable experience with Ash, the other girl in the frame. When Kate, intrigued by the picture, implores Amy to divulge the story behind it, Amy indulges her, concocting a narrative that subtly illuminates her desire to reconstruct her past. The tale Amy weaves is not merely a recounting of memory; instead, it becomes a metaphorical illustration of self-discovery and transformation. It starts with a girl, a solitary figure embarking on a journey to a river. Here, in the serene quietude, she peers into the reflective water, finding not just her mirror image but an intimate dialogue with her inner self. Intriguingly, the narrative shifts beneath the water's surface, revealing a fish swimming beneath the girl's reflection. This fish, seemingly just another inhabitant of the river, is transformed into a stunningly beautiful girl when the protagonist attempts to capture it using a single berry. The story, while evidently a fabrication, offers a glimpse into Amy's longing to rewrite the past and her journey toward self-realization. It emphasizes her belief in the potential for transformation and discovery, even in the most unexpected places and circumstances. The beautiful girl takes the berry and disappears. She concludes this story by saying:

she looked everywhere. She even put her face in the water and got her hair all wet looking below the surface of the river. But she couldn't find her. So she put the berry in her pocket, and she rolled the wet thread round her finger, tied it in a knot, and swore on the knot that she would search her whole life, if it took that long, until she found the one she'd caught again. (Smith, 1998: 83)

The story is full of symbols that refer to Amy's past, and she implies her aspirations to be with Ash in this story. She knows that her life is a ruin without her, and it is based on a continuous search for what is missing. Therefore, the story functions as a revelation of her repentance about losing Ash.

Amy's travel to Vesuvius with Kate has also a significant role in her attempt to rewrite herself. While reconstructing her life, Amy tries to uncover her

repressed feelings as in Freud's excavation metaphor. For that reason, Vesuvius is a symbol of the buried secrets of Amy. While uncovering her secrets, Amy reinterprets her memories. She associates Vesuvius' ashes with her beloved Ash. Amy sees how ash covers the bodies of people, and how excavators unbury them. This seems to symbolize Amy's attempts to unbury her repressed feelings and reconcile with them.

Amy omits gaps in her story which she deliberately chooses not to tell. However, sometimes these untold things are more important than the other parts while interpreting one's story. When she returns to their caravan in Scotland, Amy thinks of the word Scotland:

Amy thinks the word again, Scotland, and the same strange thing happens inside her. It must be nostalgia. It must be homesickness, this must be what it feels like, she has caught it from Kate. It comes on her like a kind of relief, like giving in, like the moment you know a germ has taken hold in your body, a comfortable cold sweat, an unspecific itch inside the torso somewhere around the lungs or the digestive tract. (Smith, 1998: 125-126)

Amy's feelings about this word reveal that she attaches a deeper meaning to it. She equates this word with Ash, for that reason, Scotland plays an important role in her life. Utilizing Geoffrey Hartman's ideas on landscape and trauma, Whitehead emphasizes the importance of the place a trauma survivor situates herself/himself for the interpretation of the traumatic event. Whitehead suggests that "in order to remember and mourn the past, we need first to be able to position ourselves in relation to traumatic events, from which we are increasingly distanced in temporal terms" (292). For Amy, Scotland is the place where she positions herself to reinterpret the traumatic events. This is mainly because it is the place where Amy and Ash met, and the traces of the past provide Amy with the ability to reconstruct herself.

While rebuilding herself, Amy is aware of the fact that she should bring up Kate in a way that resists the traditional gender norms. She does not want to transmit her trauma as an inherited memory to Kate. Therefore, while she is telling stories to Kate, she changes their content. For example, when she tells the story of four brothers and a sister in the novel, the story follows a structure based on male characters' deeds. The story tells of four brothers' fight to share lands, and Kate interrupts Amy by asking, "I thought it said they had a sister too" (Smith, 1998: 144). After that, Amy shuts the book and completes the story

herself. She creates a female protagonist and tells the story from her point of view. This detail shows how culture is effective in determining gender roles because the stories of patriarchal societies idealize men. So, people normalize the imposed social norms as they are exposed to them starting from their childhood.

Amy chooses to efface her memories because her accounts of the past omit memories related to Ash. She accepts the fact that her memories without Ash are incomplete. So, she chooses to burn the diaries that her parents send from England. One of these diaries is different from the others. Smith leaves gaps about whom these diaries belong to, but it can be inferred from Kate's descriptions that the different one belongs to Ash which she writes in the loft when she returns home after many years. The others seem to belong to Amy, which Ash takes before setting Amy's room on fire. As Amy reads none of them, she never notices Ash's diary. While the diaries are burning, Kate asks if she took the different diary out of the box. However, it becomes clear that she does not know anything about it. Here, burning plays a vital and symbolic role in the novel. It functions not as a destructive force but as a constructive one for both Amy and Ash. Smith describes Amy's feelings when she sets the books on fire and says:

Of course, it is perversely exciting, to burn books. Not with quite the force of perversity, though, as using books as a kind of power tool was, eating and sleeping with them, living by the book, you might say; still, this burning brings its own particular frisson of foulness... You shouldn't burn diaries in case they were important for history, she said. Amy explained; they're like when you draw something or write it for the first time and it's not what you wanted, so you throw it away and start all over again. (Smith, 1998: 151)

To rebuild herself, Amy has to destroy her missing accounts of the past. For that reason, she decides to burn her diaries. When she burns the diaries, what is left is [A]sh. Similarly, what Amy omits in these diaries is Ash. Smith uses the word ash symbolically in the novel, which encompasses other meanings along with its literal meaning in that particular scene. Amy thought in the past that she had left Ash behind. However, her mind cannot resist thinking about her. Now, she accepts this reality while she is reconstructing herself. Therefore, she burns her diaries in which Ash does not exist. She feels that "everything goes back to

its original colour when you burn it, it goes back to being white” (Smith, 1998: 152). Burning is a kind of recovery for her, and another important detail that shows the possibility of her recovery is her settling in a house in Scotland.

When it comes to Ash, she decides to write an alternative diary to Amy’s diaries to narrate her versions of the events. She does not believe in diaries because she thinks that “diaries are all lies. Diaries, they’re so self-indulgent” (Smith, 1998: 157). Writing her memories provides her with the ability to reconcile with her past. That is, she transforms her traumatic memory into narrative memory, giving her the chance to recover from trauma. The healing power of writing for Ash can be explained by the fact that new interpretations come out as a result of rewriting the past and the possibility of a better understanding; “re-presentation or re-production is only possible in this way” (Freeman, 1993: 88). Ash thinks that writing her memories will enable her not to recall the past as it happened. Instead, she will remember her versions of the past in her writing. She explains the urge to write her interpretations of the past:

But we live in self-indulgent times, after all, and for once I want my own twist of it. And if you write something down, it goes away. I’ve been carrying it around with me now for so long it’s taken on a kind of life of its own, I can feel it breathing against me inside my rib-cage, feeding off me, taking all the goodness out of what I eat, all the calcium out of my teeth. I want rid of it. (Smith, 1998: 157-158)

Her traumatic memory interrupts her life to the extent that she cannot sustain her life anymore. She wants to write to get rid of the burden she has carried for a long time. She believes that re-creating the events by writing them will enable her to conceive the events in their different interpretations. This, in turn, will help her reconfigure herself.

One of Ash’s most important confessions in her diary is about her homosexuality. She comes out as lesbian/bisexual: “[she] had always known that [she] liked girls. [She] liked boys too, but [she] certainly liked girls more” (Smith, 1998: 160). The importance of this confession can be explained with the “purification of abject” which Gemma López Sánchez focuses on to explain the link between trauma and representation. Sánchez explains Julia Kristeva’s term “abject” as “the abject is that which the subject does not want to recognize as its own (hence the link between abjection and repression), but also something which is not completely outside the subject nor absolutely alien to it” (Sánchez,

2010: 47). Accordingly, Ash's homoerotic desire is the subject in the novel. Sánchez proposes that:

the expression of love through the simple act of remembrance and recovery achieves the purification of abject material and the exorcism of the powers of horror it performs upon the subject. Reconciliation and acceptance bring about the representation of trauma, its successful narration". (55)

However, it is clear from her detailed descriptions of the society she lives in that she had to hide this in the past. She tells us why she did not come out as a lesbian as such:

if we had, if we had fallen so clearly, so loudly, so out-in-the-openly, at the ripe young age we were at, somebody would have seen and, too soon, everybody would have known that the McCarthy girl was, you know, a bit funny, *like that*. And eventually, depending on how bold our falling had been, my father would have got the looks in the street and less work coming his way, and my brothers would have had the snide comments and the jeers and maybe threats in pubs, and my mother would have been being turned in her grave at a dizzying rate, and perhaps I'd even have found it harder to get a summer job than I did, in a liberal age, in a small town. (Smith, 1998: 159)

Ash is aware that writing may change the original experience because imagination is involved during the writing process. Therefore, her main objective is not to give a complete account of what happened in the past. Instead, she narrates her memories as a witness and expresses her feelings about them. Also, she re-shapes them in her mind to come to terms with them while she does not give a complete and coherent story because there are many versions of the same event. This can be explained by the fact that the event's image merges with the original event. So, there are multiple stories related to the original experience. Knowing that narration of the experience may change the memories related to the event, Ash starts writing in her diary, not with the expression of Dear Diary but "Dear liary" (Smith, 1998: 169). She also emphasizes the changes which occur during the writing process as follows:

I like this game. Giving a shape to things that didn't actually have a shape at the time, or didn't seem to. Finding the hidden shape, the invisible shape that was there all along. Making the shape up, like it's just a story, like it didn't even have to have happened. Random, meaningless, the things you're left with surfacing inside your head like driftwood jolting on to the surface of the water, floating up and up in the dark and then hitting air and flipping over, lumps of splinter rotted off the dead weight they've left behind. Down on the sea bed the wreck and all the details you'll never see again. (Smith, 1998: 169)

Ash describes fiction-making here. What she does is to reshape her memories through the use of her imagination. For a better understanding of herself, she rewrites her story. However, while rewriting the self, she realizes that her present interpretation of the events is different from the ones in the past. This can be explained by Freud's concept of *Nachträglichkeit*. As King explains, this concept rejects the idea that we can reclaim the past as it was and reconnect our past and present selves successfully, although it is widely accepted in our culture that we can reach the stored and buried past traces (King, 2004: 12). That is, belatedness entails in itself the different interpretations of the original event after time passes on it. This is mainly because of the developmental process the self undergoes.

As the development of the self is a continuous process, the interpretation of the original event does not come to an end. So, there are multiple versions of one's memories as there are different selves in different periods. Ash confronts her other selves when she looks at the past. As she represses her feelings, she has to develop multiple personalities. She experiences her first same-sex relationship with Donna while she has to hide it from other people. So, she behaves as if she conforms to the rules of society while she craves to live her homosexuality freely. Her split personality shows itself when she narrates her memories in which she tries to find places to have sex with Donna. However, she is not aware of her split personality at the time of their relationship. Now, she can interpret that she developed multiple personalities when she looks at the past as an adult woman. She depicts how she feels exhausted at those times when she tries to come to terms with the oppressive society. One day, she suddenly throws the book on the wall while she is reading a book. She describes this moment of confronting her different selves by saying:

I sat crosslegged on my bed. The small child with the insolent eyes stared back at me. The girl swinging her legs off the top of the high wall, waiting for me to tell her to jump off, amusement on her face, scorn, of course she'd land on her feet, what was I waiting for? The girl with her eyes over the top of that book I'd hurled against the wall, she'd been there only two minutes ago and already she was lost, fading. That one, crosslegged on the other side of the mirror, silent, frowning, waiting for me to tell her something, anything. All the likenesses. Sometimes when I was alone in the house and it was late, the others, the ones I was really frightened of, would come and settle at the bottom of the bed, the selves that didn't have faces yet or shapes, their eyes trapped and sealed shut inside the skin, small black x's where their mouths should be, like two stitches, one sewn over the other. (Smith, 1998: 214)

She describes herself in different periods. It is not a coincidence that she saw these images during her relationship with Donna. She feels confused about her identity. She is torn between her homosexuality and the oppressive heterosexual society she lives in. Now, while she is interpreting these images she saw in the past, she understands that she developed different selves to cope with her repressed feelings. Also, she notices that she just remembers her efforts to conceal her relationship with Donna. She cannot even remember how she feels toward her; she just remembers the fear of being caught. While writing her memories with Donna, she asks herself, "Was that how it was? That's how I remember it anyway" (Smith, 1998: 205). This shows that Ash does not worry about giving an exact detail of the events. She just writes her present feelings about past events. As this is her liary, she writes fiction about herself. Narration is a way for her to recall her memories. According to Ian Hacking, stories are essential in the formation of the self because:

we constitute our souls by making up our lives, that is, by weaving stories about our past, by what we call memories. The tales we tell of ourselves and to ourselves are not a matter of recording what we have done and how we have felt. They must mesh with the rest of the world and with other people's stories, at least in externals, but their role is in the creation of a life, a character, a self. (250)

The drive to write for Ash is to reconfigure herself. Her fiction-writing process, which starts with her attempt to write a diary, indicates that she wants to reshape her memories according to what she expects them to be. She sometimes recreates her past to reconcile with it. Her struggle to reshape her memories is evident when she cuts out a photograph in which there are Amy, Patricia, and herself. She removes Amy's mother by cutting out and brings herself together with Amy in this way. Her desire to be with Amy forces her to alter some realities of her life. For that reason, she calls her diary "liary" to emphasize that what she writes is not an accurate record of her life; rather, she recreates them in her imagination. She emphasizes that what she writes might mean something different than what actually happened. According to her, "nothing can mean something, something can mean nothing. Even words can mean nothing, and as soon as they're said or thought or written down, they can immediately mean the opposite of what they seem to say" (Smith, 1998: 230). Ash uses language playfully throughout the writing process of her memories. Therefore, it sometimes becomes hard to understand what is real and unreal. She wants to emphasize the fluidity of the meaning in any narrative form. So, Ash prefers fiction-making to disguise the realities of her life with her imagination. In this way, she takes control of what happened in the past by diverting them to a form she can handle. She is aware that what she writes will be the form of the events she wants to remember.

Ash's narration of her days in England includes her discerning that she will never be loved back by Amy. Ash feels that Amy plays with her. She describes how this realization comes to her suddenly as follows:

I was sitting out my lunch-break in the murderous heat and I felt something. It was a spider, almost too small to see; it had dropped across me and trailed down the side of my face, down to my collarbone like I wasn't there. It blew on to my hand. I thought about killing it, I nearly did kill it, because it was there and I could. The ticklish casual legs of a spider, I was nothing more than a landscape to it, I had nearly slapped it dead anyway without even noticing... It scuttled round and over my hand and threw itself off again. I pulled it back up on to my hand. It threw itself off, and this time I let it go, watched it land on a grass blade and spin a new landing for itself, toss itself into the air again and hit the ground and disappear between the close-cut blades as big as skyscrapers. (Smith, 1998: 294-295)

Her symbolic narration shows that she feels like a prey, and helpless against Amy. This realization constitutes an integral part of the novel, in that, from then on, Ash gives up waiting for Amy's love. After this realization, she leaves Cambridge and goes to London. While narrating what happened in the remaining part of her story, she playfully makes up an alternative one in which she is having sex with Amy. That is, she narrates the story she wants to remember rather than what really happened. However, she admits that she gives a false narrative and continues to write the true version of her story. This version of the story tells that she leaves the train with the decision to go back to Amy's room, and when she arrives, she understands that Amy is not there. Knowing where the key is, she unlocks her door and reads Amy's diaries, in which she finds nothing about herself. Disappointed by this, she takes the diaries with her and sets Amy's room on fire.

Ash's accounts of the past in her diary function as a testimony in which she reveals her feelings. Also, this diary fills some gaps that Amy has left unanswered. In this way, the diary stores the memories of the two characters, which can be regarded as an archive. Ash translates her memories while she recalls them, and this gives her a chance to recover. She reclaims the past by transforming her traumatic memory into narrative memory. While writing her memories, Ash also writes about the things she remembers during her writing process. That is, through free association, she discovers that there are different interpretations of the events experienced in the past. However, it becomes clear from her narration that she sometimes omits some crucial details. This can be explained by what André Green calls "secondary thinking," which is based on the idea that there are gaps in a trauma survivor's narration when she/he talks about what comes to her/his mind. This reveals that there are things that she/he refrains from talking about. So, the repression of disturbing memories is explained through unconscious processes by Green. Unlike Caruth's unspeakable trauma, "secondary thinking, by contrast, however much it leads away from trauma also manages to claim that experience, and perhaps all too well" (Rapport, 2014: 65). By writing down her memories, Ash does not claim that she gives the actual version of the events. Instead, she confesses that she writes fiction about herself. However, writing still acts as testimony because what matters is not giving facts. It can be said that Ash reclaims her past by bearing witness to her life story. By producing a narrative form of her life, she wants to transmit her story to others.

All in all, Amy and Ash rewrite themselves differently. Amy chooses silence as a way to overcome her trauma. However, this does not mean that her trauma hinders her from narrating her memories. As McNally suggests "trauma does

not block the formation of narrative memory” (180) which is probably why Ash prefers not to narrate her memories. Forgetting functions for her as a way of healing and she takes control of her life by taking action to overcome her trauma. So, it can be said that they both have the possibility of reconciling with their past because they do not reject it. Instead, each adopts different ways to repossess their life. While Ash prefers to write down her traumatic experiences, Amy prefers not to verbalize all of them as she thinks that language distorts meaning. However, Smith implies that she proceeds to narrate her traumatic experiences soon by depicting her rejection of false accounts that she gives in her diaries. Setting them on fire figuratively means that she will reconstruct her life by destructing the false versions of her life story. Also, both characters take action through journeys which can also be interpreted as symbolic. Justyna Kostkowska describes their attempt to rewrite themselves as follows:

As Amy is revisiting her feelings about Ash, she must also come to terms with a part of her that she has denied all her life: her same-sex desire and the love for Ash that she had been suppressing. The journey towards Ash that we witness in her section is simultaneously Amy’s journey through her homophobia towards the strange lesbian self that she slowly embraces. Through writing out her diary, Ash is also becoming intimate with the part of herself that she has not shown to anyone. (138)

In drawing out the implications of Smith’s storytelling, we observe a profound exploration of trauma and the process of self-reconciliation. The recurring theme of rejecting counterfeit narratives, as represented by the act of burning diaries, is a potent metaphor for the reconstitution of a life story. The necessity for characters to embark on literal and symbolic journeys underscores their conscious effort to break away from past falsehoods and rewrite their identities. Kostkowska, in her analysis, elucidates this as Amy’s internal struggle to accept her suppressed same-sex desire and her love for Ash, an exploration that takes the form of a journey.

The exploration extends to Ash as well, who through the intimate act of writing, ventures into parts of herself that remained unexposed to the world. Smith’s narrative beautifully juxtaposes the pain of trauma with the cathartic process of self-acknowledgment and acceptance. As we now transition towards the conclusion of this analysis, it’s important to synthesize these observations and infer the broader implications of these themes in the context of Smith’s

novel, *Like*, and the complex discourse of trauma and identity it so evocatively presents.

CONCLUSION

The main argument in this article is built upon the idea that unlike the Caruthian model of trauma, which claims that trauma survivors are haunted by disturbing symptoms as the traumatic event remains unreachable, Ali Smith's *Like* adopts the pluralistic trauma model, which supports the idea that trauma survivors are not helpless victims, instead, they have an agency over their traumatic experiences. Furthermore, the classical trauma model accepts that disturbing repetitive symptoms like dreams and hallucinations are seen in all trauma victims. In contrast, the pluralistic model of trauma suggests that the symptoms differ from one person to another because each experience is interpreted differently by trauma survivors. The classical trauma model rejects the possibility of representation, excluding everyday events. However, the pluralistic model of trauma accepts everyday events as trauma. Another critical difference between these two models is that the classical model relegates trauma to disturbing repetitive forces, but the pluralistic model includes external forces like social, religious, and cultural systems, which are influential factors in remembering. Inner conflicts are consequences of the systems that one is born into, and these systems shape the encoding process. So, the inner forces involved in trauma cannot be separated from the external forces. This article, thus, presents an alternative reading of Ali Smith's *Like* through the use of the pluralistic model of trauma. As it is through memories that encoding occurs, trauma and memory cannot be separated from each other. Accordingly, Smith uses these two concepts in an interrelated way while she is narrating the characters' stories in the novel.

Like touches upon Amy's and Ash's memories and discusses the possibility of reaching their original memories. In that sense, this article suggests that the remembrances of the actual event in the present time cannot be the same as those recalled at the time of the event because of the developmental processes of the selves for both Amy and Ash. This is especially obvious from the accounts of Ash which include reinterpretations of the memories through free association. As King explains in her model of narrative, which she divides into the event, the memory of the event, and the writing of the memory, "it is the third stage of this process that constructs the only version of the first to which we have access, and memory is the means by which the relationship between the event and its reconstruction is negotiated" (6). So, the truth of the accounts cannot be questioned; the versions of the events presented by the narrators are

essential for interpreting them. Also, characters' interpretations of memories do not end, as the developmental processes of their selves continue all the time. So, "all we have are memories of memories of memories; and the longer we live, it would seem, the more fictional our pasts -and, of course, we ourselves- will have to be. So, it goes" (Freeman, 1993: 90). Accordingly, in *Like*, Smith shows that all the narration of memories is, as the title of the novel put it, "like." Multiple interpretations sometimes oppose each other. All in all, the experience of talking about them is "like," which indicates the fact that narration can only give memories of the actual event.

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Chapter 9

Determination of the Relationship between Electricity Consumption and Selected Indicators by Non-Additive Fixed Effect Panel Quantile Method

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INTRODUCTION

Energy that has the capacity to work or produce heat is classified according to its source as primary or secondary energy. Primary energy sources allow it to be extracted or captured and then converted into heat or mechanical work, whereas secondary energy sources are derived from primary energy conversion. According to this classification, electrical energy is a secondary source of energy. Electricity is generated from two types of energy: renewable (hydro-electricity, solar, wind, biomass waste, geothermal, tidal, wave, and marine) and non-renewable (coal, oil, natural gas, nuclear, chemical heat, and non-renewable biomass) (Navarro et al., 2023). The evolution of residential energy and distribution prices, excluding taxes, in 15 European capitals between January 2009 and August 2023 shows that residential electricity prices fell steadily in the first half of 2009, reaching a low point of 96 index points in June 2009, as the economic crisis adversely affected demand and wholesale prices fell. The index score used here was calculated by weighting the prices in each capital city by the respective national residential electricity consumption. After the 2008 global crisis subsided, electricity index prices reached 116 index points in 2014. The index fluctuated between 115 and 119 points in 2019. Recent developments in wholesale markets owing to COVID-19 restrictions have reduced the index rate to 112 points in 2020. In 2021, the index followed an upward trend, as individuals and businesses resumed their activities; hence, higher demand and the energy crisis gradually evolved. Extreme weather conditions, high wholesale natural gas prices, and a lack of storage supplies to meet demand have led to high prices in most European capitals by the end of 2021. This upward trend became more extreme in the second half of the year, reaching 164 points by December 2021. After climbing the sharpest digit in its historical data in January 2022 and the largest peak in October 2022, the electricity index followed a declining trend, and by August 2023, it had decreased to 199 points (HEPI, 2023). Since 2009, increasing electricity demand has led to an increase in prices in the same direction.

With economic growth, countries accelerate their development and increase their level of development. In particular, countries with high population growth rates need to have high growth targets to prevent unemployment. Inadequate employment supply results in a decrease in the welfare level of people and employees finding jobs with lower wages. To realize economic growth targets, the energy capacity required by the country must be sufficient.

After the Industrial Revolution, an increasing number of machines have been used in production with technological innovations. With Industry 4.0 and Industry 5.0, which will become widespread after Industry 4.0, it is thought that

with all production systems communicating with each other and coordinated production, there will be almost no need for manpower. This implies that more electricity is required during the production phase. Regional and local economic growth has also increased the need for energy (Recepoğlu et al. 2020). Technological innovations trigger the energy demand of households and industries. Therefore, policymakers should prioritize energy investments, particularly in terms of electricity supply. Developing and underdeveloped countries should make more use of new technology to ensure a more comfortable life. However, in such cases, it should not be neglected that countries may experience energy supply problems.

Unfortunately, proximity to energy resources is not the same worldwide. Some countries have more advantageous access to energy resources because of their geological structures and geopolitical situations. In addition, developing and underdeveloped countries generally depend on foreign energy sources. (Recepoğlu et al., 2020). The increasing need for energy with technological developments triggers political conflicts among countries, leading to different policies in foreign relations (Ravanoğlu & Bostan, 2019). Every country wishes to increase its level of prosperity. The easiest way to achieve this is by using energy resources. For this reason, world politics harbors the possibility of energy wars in the future, as it has in the past.

Electrical energy is an important energy source because it is easy to use compared to other energy sources, it is cleaner energy, it can be easily converted to other energy types such as heat and light at any time, and it can be used at every point where individuals need it in daily life (Ağır & Kar, 2010). Therefore, electricity was required for growth. Electricity generation is the driving force behind growth. However, the cost of electricity production reduces the chances of competition in the international market. Many studies emphasize that there is a strong relationship between gross national product (GNP) and electricity consumption (Abosedra & Baghestani, 1989; Ghali & El-Sakka, 2004; Jumbe, 2004; Mozumder & Marathe, 2007).

With the impact of Industry 4.0, electricity has become one of the most basic inputs in the production process. It is emphasized that electrical energy has an important role in the social development of societies and positive momentum in the economic activities of countries (Altiner, 2019). If electricity generation does not keep pace with economic growth and technological innovation, producers of raw materials and semi-finished and finished goods must produce these products more expensively, leading to cost inflation. Therefore, consumers have to pay higher prices when purchasing goods.

The proliferation of cryptocurrencies, which are among the digital currencies, and the prominence of cryptocurrency mining are other factors that increase the amount of electricity needed by countries. In a study conducted in 2021, it is stated that 2.9 million specially equipped devices for cryptocurrency mining in the world use a total of 13 gigawatts (GW) of electricity, which is close to the total annual consumption of countries such as Austria and Portugal (De Vries et al., 2022; Jones et al., 2022). Considering that many countries will issue cryptocurrencies in the future, it should not be neglected that this situation may have an impact in parallel with other factors.

This study aims to determine which variables are more effective for reducing electricity consumption. The total electricity consumption of 81 provinces in Turkey was analyzed using the variables determined. In this way, the factors affecting the electricity consumption of the provinces are identified, and it is determined which cities' existing electricity capacities should be improved in the future.

Literature Review

Ağır and Kar (2010) examined the relationship between electricity consumption and economic development levels in 81 provinces in Turkey. Electricity is an important constraint for growth, and investments in electricity supply should be made if an increase in income and value-added is targeted.

Recepoğlu et al. (2020) found that there is a strong bidirectional effect between economic growth and electricity consumption in 81 provinces in Turkey. The growth target is expected to be 4.5% in 2024 and 5% in 2025. Considering Turkey's dependence on foreign energy, it will be difficult to finance the current account deficit in the future. Therefore, while achieving targeted growth indicators, energy investments that can be produced domestically and reduce external dependence should not be neglected.

Kahraman (2019), who investigated the impact of the urbanization rate of countries on carbon emissions and energy consumption, emphasized that population growth, electricity demand, and carbon emissions have been parallel to each other for 27 years (between 1990-2017). During this period, electricity demand increased 4.93 times while electricity supply increased 4.81 times. On the other hand, increased by 1.47 times.

Ismic (2015) aimed to determine how electricity consumption changes depending on the economic growth and population in Turkey, Poland, Romania, Ukraine, China, the Philippines, Thailand, and Bulgaria. It was concluded that population and economic growth have a positive effect on electricity consumption.

It is suggested that governments should focus on renewable energy policies rather than on energy that is facing depletion.

Energy use and exports are important factors that help increase production activities in any economy. This study investigates the linear effect of exports and the nonlinear effect of energy consumption on economic growth in the Spanish economy by taking into account the production function approach. In this context, the data from 1980-2019 were used. An inverted U-shaped effect of energy consumption on economic growth was demonstrated. The findings also show that exports significantly accelerate the labor force, capital formation, and economic growth in Spain (Hassan et al., 2023).

Altıntaş and Koçbulut (2014) determine the relationship between economic growth and electricity consumption through causality analysis using export and investment control variables. Investment, export, and growth variables have a positive effect on electricity consumption in the long run. Policies that can be implemented to reduce electricity consumption or supply problems experienced in electricity generation may have negative effects on economic growth.

Financialization affects the functioning of the economic system at both the macro and micro scales. Epstein defines financialization as "the increasing importance of financial markets, financial motives, financial institutions and financial elites in the functioning of the economy and governance institutions at both national and international levels" (Epstein, 2005). In a study by Turkmen (2022) in which the relationship between energy consumption and financialization was investigated, data for the period 1995-2018 for five countries that are members of the Turkic State Organization were used. According to the results, there is a long-term relationship between financial development and energy consumption. In the study by Keskingöz and İnançlı (2016), where bank loans and bank deposits are used as financial development indicators, the dataset covers the years 1960-2011. The results obtained contradict those of the study by Türkmen (2022). In the long term, financial development does not affect energy consumption. However, in the short term, there is a bidirectional relationship between bank deposits and energy consumption. Accordingly, bank deposits increase the energy consumption.

Göv and Yıllancı (2023) analyzed the data for the period 1990-2019 to determine the relationship between the foreign trade balance, energy consumption, financial development, and economic growth of 30 developing countries. According to these findings, there is a relationship between energy consumption, financial development, and economic growth. The relationships between these variables were unidirectional.

Unlike other studies, Uslu (2022) emphasized that energy consumption and financial development may have an impact on economic growth. The analyses were

conducted using Turkey’s data of Turkey between 1960-2019. According to the results, a 1% increase in the amount of credit increased economic growth by 0.13%. In addition, loans to the private sector increased economic growth in the short run.

The economic stability of a country can affect its energy consumption. To determine this situation, Hacıimamoğlu and Sandalcılar (2021) used renewable and non-renewable energy consumption and economic stability index data for the period 1990-2016 for a total of thirty-five countries, 16 of which were developing and 19 of which were developed. No significant relationship was found between these three variables in developing countries. However, renewable energy consumption has a unidirectional causality relationship with economic stability. It was also found that there is a unidirectional relationship between the economic stability index and non-renewable energy consumption.

3. Data Set, Method, and Results

This study was conducted to determine the relationship between electricity consumption and the selected indicators in Turkey. The analysis was carried out by taking electricity consumption as the dependent variable and export/GDP, population growth rate, urban population/total population ratio, industrial GDP/total GDP, loans to private sector/real GDP, and bank loans and bank deposits as independent variables. In this study, data were obtained from 81 provinces between 2011-2018 were obtained. The explanations, codes, and variable types of variables used in the study are available in Table 1.

Table 1: Dependent and Independent Variables

Variables	Code	Variables Type
Electricity Consumption (Log)	Y	Dependent Variable
Exports/GDP	X1	
Population Growth Rate	X2	
Urban Population/Total Population Ratio	X3	
Industrial GDP/Total GDP	X4	
Loans to Private Sector/Real GDP	X5	
Bank Loans/Bank Deposits	X6	
		Independent Variables

Source: (TÜİK, 2023)

The quantile regression method was introduced by Koenker and Bassett in 1978. Among the advantages of the quantile regression model are estimation at different quantile levels for the dependent variable, minimization of the absolute deviations of the error terms, and a method that is less sensitive to extreme values of the data set (Gürüş and Sak, 2019). The quantile regression model is expressed as:

$$\underline{Y^t = X'_t\beta + u_t} \tag{Equation 1}$$

The quantile regression model was developed by Koenker (2004) and introduced into the literature by Powell (2016) as a nonadditive fixed-effect panel quantile. The non-additive fixed-effect panel quantile model is expressed as follows (Koenker, 2004; Powell, 2016):

$$\underline{Y_{it} = X'_{it}\beta(U^*_{it})} \tag{Equation 2}$$

A panel quantile model with non-additive fixed effects was developed by Powel (2016) and includes fixed effects. Because information on the distribution of the dependent variable Y_{it}/X_{it} is provided in the non-total fixed effects approach, it becomes possible to see the effect on the dependent variable. At the same time, the model allows for better results when instrumental variables perform poorly (Kavas & Çoban, 2023). The model is given by Equation 3.

$$\underline{U^*_{it} = f(a_i + U_{it})} \tag{Equation 3}$$

In this study, data between 2011-2018 were obtained, and the non-additive fixed-effect panel quantile method was used. The descriptive statistics of the variables used in this study are presented in Table 2.

Table 2: Descriptive Statistics

Variables	Observation	Mean	Std. Dev.	Min.	Max.
Y		13.98877	1.239841	11.16783	17.51497
X1		0.0329793	0.0420028	2.57	0.2477536
X2		0.0102529	0.0179791	-0.1080041	0.162774
X3	648	74.30114	18.66106	34.83	100
X4		0.1724185	0.1036096	0.0148939	0.5060862
X5		0.1706942	0.1021278	0.0182151	0.7774166
X6		1.854182	0.6035151	0.6273498	4.541201

Table 2 shows the number of observations, mean values, standard deviation values, and the minimum and maximum values of the dependent and independent variables. Kernel Density Function plots of the variables are shown in Figure 1.

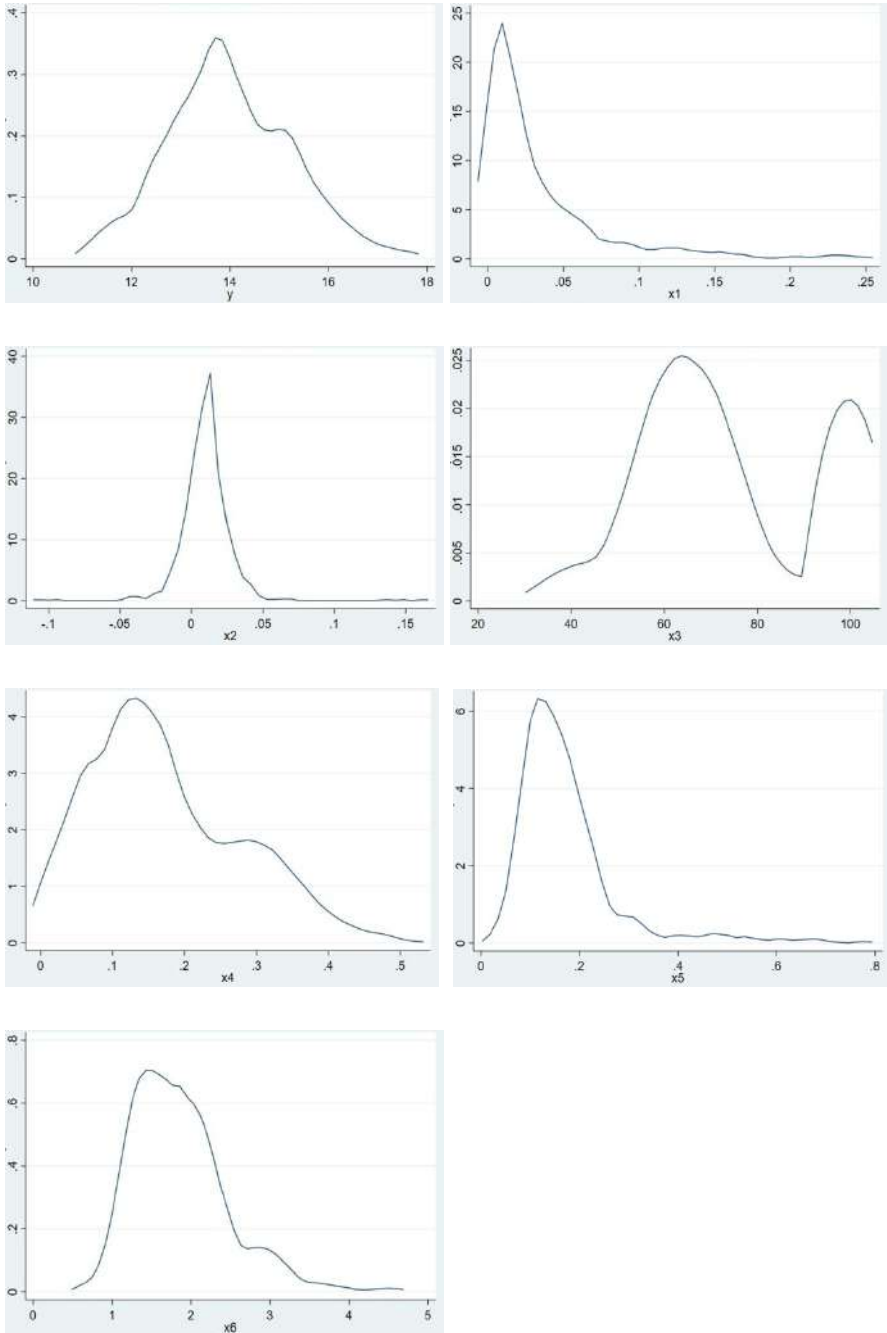


Figure 1: Kernel Density Functions

The kernel density functions of the dependent and independent variables are shown in Figure 1. The scatter diagrams of the dependent and independent variables are shown in Figure 2.

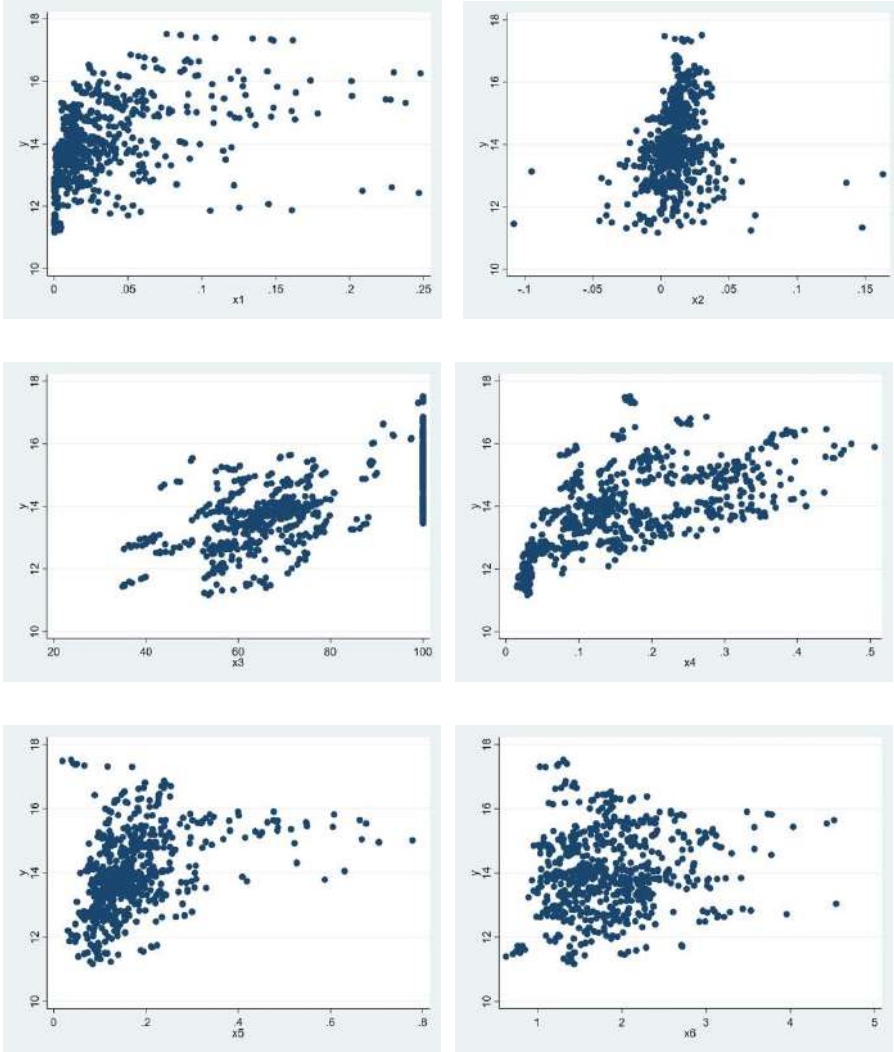


Figure 2: Spread Diagrams

Figure 2 shows the scatter diagrams of the dependent and independent variables. The results obtained by applying the formulae to the methodology are presented in Table 3.

Table 3: Panel Quantile Regression Model Results with Non-Additive Fixed Effect

Quantile Level	Y	Coef.	Std. Err.	Z	p	%95 Conf. Interval	
Q=0.25	X1	0.5817786	0.091419	6.36	0.000***	0.4026005	0.7609566
	X2	-2.813472	0.5627153	-5.00	0.000***	-3.916374	-1.710571
	X3	0.0295266	0.0002931	100.73	0.000***	0.0289521	0.0301012
	X4	5.079226	0.0687505	73.88	0.000***	4.944478	5.213975
	X5	0.9526401	0.0461825	20.63	0.000***	0.862124	1.043156
	X6	0.0013988	0.0069329	0.20	0.840	-0.0121896	0.0149871
Q=0.50	X1	4.064488	0.7096077	5.73	0.000***	2.673683	5.455294
	X2	-1.201599	1.010275	-1.19	0.234	-3.181702	0.7785037
	X3	0.0195115	0.0045895	4.25	0.000***	0.0105162	0.0285068
	X4	4.385389	0.2188779	20.04	0.000***	3.956397	4.814382
	X5	1.405832	0.3547982	3.96	0.000***	0.7104408	2.101224
	X6	-0.0815385	0.0404244	-2.02	0.044**	-0.1607689	0.0023081
Q=0.75	X1	4.450515	0.1360223	32.72	0.000***	4.183916	4.717114
	X2	-1.755665	0.1003753	-17.49	0.000***	-1.952397	-1.558933
	X3	0.0319355	0.0001651	193.42	0.000***	0.0316118	0.0322591
	X4	4.300198	0.0579806	74.17	0.000***	4.186558	4.413838
	X5	2.016535	0.0725637	27.79	0.000***	1.874313	2.158757
	X6	-0.0497072	0.0128761	-3.86	0.000***	-0.0749438	-0.0244705

Note: *, **, *** indicate significance at the 10%, 5% and 1% levels, respectively.

When the findings of the study are evaluated, it is seen that all variables are statistically significant (1%, 5% and 10%) except for the population growth rate at the 50th quantile level and the Bank Loans/Bank Deposits variables at the 25th quantile level.

When the findings are evaluated, it is concluded that if the export/GDP variable increases by 1 unit at the 25th quantile level, electricity consumption increases by 0.58 units, 4.06 units at the 50th quantile level and 4.45 units at the 75th quantile level. At the 25th and 75th cantile levels, if the population growth rate increases by 1 unit, electricity consumption decreases by (-2.81) and (-1.75) units, respectively. At the 50th quantile level, there is no significant relationship between population growth rate and electricity consumption.

When the ratio of city population to total city population increases by 1 unit, electricity consumption increases by 0.02 unit at the 25th quantile level, 0.01 unit at the 50th quantile level and 0.03 unit at the 75th quantile level. When the Industrial GDP/Total GDP variable increases by 1 unit, there is an increase in electricity consumption at all three quantile levels. The coefficients are 5.07, 4.38, and 4.30, respectively.

When the loan to the private sector/real GDP variable increases by one unit, the electricity consumption increases at all three quantile levels. These increases are 0.95, 1.40 and 2.01 at the 25, 50 and 75 quantiles level, respectively.

In the case of a 1 unit increase in the Bank Loans/Bank Deposits variable, the electricity consumption a decrease of (-0.08) unit at the 50th quantile level and (-0.04) unit at the 75th quantile level. At the 25th quantile level, there is no significant relationship between electricity consumption and bank loans and bank deposits.

When the findings are evaluated together, it is observed that each variable affects the electricity consumption with different relationships and coefficients. Differentiating the relationship at different quantile levels requires separate interpretation and evaluation on a unit basis.

CONCLUSION

Today, climate destruction due to global warming has brought the need for renewable energy sources to the agenda. Renewable energy sources ensure the establishment of sustainable structures and provide significant environmental advantages. The provision of financially realized activities with renewable resources also provides advantages in terms of both the environment and economy.

This study was conducted to determine the determinants of electricity consumption in Turkey. The aim is to determine the relationships between electricity consumption and different indicators and to evaluate them. While creating the dataset, electricity consumption in 81 provinces in Turkey was used as the dependent variable, while Export/GDP, Population Growth Rate, City Population/Ratio of City Population to Total Population, Industrial GDP/Total GDP, Loans to Private Sector/Real GDP, Bank Loans/Bank Deposits data were obtained as independent variables. The data range in the study was determined as 2011-2018. Data were collected through the Turkish Statistical Institute, and the analysis was conducted using the non-additive fixed-effect panel quantile method. After analysis, the results were reported separately at 25, 50, and 75 quantiles.

When the findings are evaluated, different levels of significance are observed in the population growth rate, bank loans, and bank deposit ratios at all three quantile levels, while the type of relationship in other independent variables is significant and positive at all quantile levels. When there is an increase in the ratios of Exports/GDP, City Population/Ratio of City Population to Total Population, Industrial GDP/Total GDP, and Loans to Private

Sector/Real GDP, electricity consumption also increases at the three quantile levels.

The obtained results explain the relationship between the selected indicators and the electricity consumption of the provinces in Turkey. By evaluating the findings obtained from this study, policies can be formulated by observing changes in electricity consumption to the extent of the impact level of the indicators. Areas where renewable energy is used can be identified and environmentalist projects can be evaluated. The authors suggest that the findings of the study be analyzed using different dates, and comparisons are made with the results of this study.

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Chapter 10

The Effects to Economic Growth of Innovation: The Case of Türkiye

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ABSTRACT

Economic growth and social improvement are built on social learning, institutions and ideas. Creativity or new ideas are the key to drive the collective prosperity of nations. The economic growth is one of the most indispensable macroeconomic targets of the countries in this context of sustainable economic development. The concept of innovation has an important ground in economics literature. Innovation policy is a subset of economic policy.

The present chapter analyzes how innovation affects economic growth in Türkiye for the period 1993-2022. The basic purpose in the chapter is to search the contact between innovation and economic growth. This research uses a Granger Causality Test based on VAR model to analyze relation between innovation and economic growth. Empirical results addresses that there is a causality affiliation of Granger among GDP and, R&D payments, which are the input of innovation, and patents being an innovation output.

Keywords: Economic Development, Economic Growth, Innovation, Technological progress.

INTRODUCTION

The vital sources of economic growth are capital formation, increase in labor workforce (particularly skilled workforce) and technological progress or development. Undoubtedly one of the most vital economic aims for economies is growth. In this context the sustainable economic growth target needs technological progress. The relationships between technological advancement and economic growth are found at the heart of this research.

It can be claimed that innovation, which is one of the first-rate approaches to incorporate technology in development processes, is a complement to more classical ways of technology transfer. If innovation is understood and evaluated correctly, it can affect not only local needs but also industrial dynamics in the long term. In this situation, it can be described as a developing concept in development economics (Srinivas and Sutz, 2008).

As a process of learning, the explicit linking between innovations and economic development varied over time. From this perspective, innovation (institutional, scientific and technological) appears to be something that society should value and agree on before resource allocation (Srinivas and Sutz, 2008).

The term of innovation has been employed with different meanings in economics, law, sociology and business. In economic terminology, innovation is closely related to technological progress and knowledge. Undoubtedly the nations' capability to innovate is one of the largest important elements of the sustainable economic development.

According to Schumpeter the innovation as the vital function of entrepreneur is not dependent on invention directly. Furthermore, Schumpeter thought that the social process which exposes innovations is distinctly different "economically and sociologically" from the social process which exposes inventions (Ruttan, 1959).

Innovation consists of a merger of technology, research and managerial cleverness in the context of social demand and particular inventiveness. It is the main dominant driver of sustainable development and economic growth. In the context, the essential function of institutions is to be facilitators of innovation. It often occurs in development as a result of creative classes and innovation.

Also, innovation means that capital is efficiently used. Innovation has affected the economy through two principal channels: -productivity improvements- creation of new firms or activities that create new value. Innovation is not just about the generation of new value but also the replacement of old firms and activities. The ability to innovate is inextricably linked to the competitiveness of both individual firms and entire economies - and the impact on both from failing to innovate is greater than ever before.

According to Atkinson and Ezell (2012), the failure to innovate, particularly for developed countries, leads to failed companies, loss of national export competitiveness, and ultimately structural economic crises. According to Oslo Manual (OECD, 2005), innovation can be expressed as a new or significantly modified product or process. Innovations can be categorized as product, process, marketing and organizational innovation.

The next parts of this chapter can be outlined as following: Second section outlines the economic growth and technological change as a result of innovation. Section 3 presents Turkey's innovation outlook and recent data according to global innovation index data. Section 4 methodology, data and key variables. Section 5 provides empirical results. Final section concludes.

1. LITERATURE REVIEW

Economic growth has become increasingly important for societies since the 1750s. It can be stated that there has been rapid progress for humanity with every new invention found after the 1750s. In this context, the inventions such as steam engines, cotton spinning, railroads, electricity, the internal combustion engine, air conditioning, home appliances, electric light, motor cars, indoor plumbing, entertainment and communication devices and so on has been the basic drivers of economic growth.

Since Solow's workings about economic growth in the 1950s, economic growth has been mentioned as a continual development process. Mutual interaction between technological change, capital accumulation and population growth has a significant place in terms of ensuring economic growth. According to Mankiw et al. (1992) examining the Solow growth model, human capital should take part in the production function as well as physical capital, in order to achieve the long term economic growth.

According to Bénabou et al. (2015), the main driving force of long-term economic growth is technical progress and innovation. More generally, it can be stated that all areas of innovation are the driving force of growth, from advances in basic sciences to the spread of contemporary technologies, economic established ways and indeed social change.

Economic growth is achieved through technological change, capital accumulation and population growth. The key of economic growth and social prosperity increase is to manufacture the high-value-added new products particularly in technology based sectors. Innovation is the latchkey of a sustainable increase in living standards. Thus, countries need innovation to boost growth and employment.

Since the mid-1990s, most nations have accelerated their efforts to lead in innovation based economic development (Atkinson and Ezell, 2012). According to Pece et al. (2015), there is a positive affiliation between economic growth and innovation. Ülkü (2004) analyzing 20-OECD and 10- Non OECD countries has come the outcome that there is a positive relationship between per capita GDP and innovation in the sample countries. Innovation has been examined as a perilous driver of economic growth value creation (Schwienbacher, 2008). Innovation and growth have important effects on social development as well as monetary benefits. Lack growth can lead to positive or negative externalities. Growth generally leads to more progressive and friendly societies while economic recession leads to adversely effects. It is possible to come across different opinions in literature. For example, Tuna et al. (2015) ratiocinated that, dissimilar from the literature, there is no relation between R&D expenses and economic growth in particularly the long run in the era of 1990-2013 in Turkey. Undoubtedly, it can be expounded that the effects of innovation on living standards will continue to increase, although they show a slower trend effect than in the past. However, future growth depending on innovation will differ between countries as some countries are far from the fruits of innovation.

Along with the economic development and increase in social welfare, an increase has been paid attention to in the world population. This population growth has brought along an increase in production. From this point on, it can be expounded that there is a connection between the raise in production and meeting the needs of the increasing world population. The increase of studies on the questions of the population growth and the dynamics of the increase in production led to the introduction of Internal Growth Theories.

2. INNOVATION AND TECHNOLOGY

According to Schumpeter's (1934) classic definition of innovation, “carrying out of new combinations” consist of five possible cases. These are:

- Introduction of a new good
- The beginning of a new production approach
- Opening of a new market
- Opening of a new supply source
- The refreshed organization of an industry, as the creation or dispose of a monopoly position.

What Schumpeter was interested in was not in expressing the process of innovation, but rather in analyzing the effect of both technological and organizational revisions on economic growth and development.

Simply, innovation can be expounded as the founding of a fresh production function. The description contains a new good as well as a new style of organization or a merger, or the announcing of new markets.

Atkinson and Ezell (2012) mean innovation as the development and all over the place adoption of new types of commodity, production processes, services, and business and organizational patterns.

The Organization for Economic Cooperation and Development (OECD) defines innovation as the practice of a new or considerably enhanced physical good or service, a fresh marketing approach, or a fresh organizational approach, workplace organization or external relations. The most basic condition for innovation is that the product, process, marketing approach or organizational approach is new (or largely improved) for the business, the market or the world (OECD, 2005).

Innovations can be analyzed in four different categories as process, product, marketing and organizational innovations. Process innovation defined as a new or significantly enhanced production or delivery approach including significant alters in techniques, equipment or software. Process innovation is also technological advances in transforming inputs into outputs. Product innovation is technological advances in the nature and types of products produced. For example, higher quality or creation of new supply functions. A marketing innovation can be expressed as the discharge of a new marketing approach involving powerful alters in product devise or packaging, product arrangement, product advertising or pricing with the purpose of raising the firm's sales.

Arocena and Sutz (1999) have imposed further that developing countries' industrial innovation is huge informal, so not products of formally announced R&D activities.

2.1. Innovation Policy

Innovation policy is a subset of economic policy. It can be articulated that innovation policy is associated with stimulating, guiding, and monitoring knowledge-based activities within a nation or a region. Most of countries want to set and maintain an innovation policy to increase their innovation levels. Countries that want to arrive in a better position in global competition have to determine effective innovation policies. This situation is pretty much a necessity in the global race. The main concern of innovation policy can be seen as strengthening the innovation system of countries. Innovation policy can be expressed as more than science policy. It focuses on how countries can approach those issues with a view toward increasing innovation and productivity.

Innovation policy states a complex process, not alone process. It is of all programs and policies involving institutions. The policymakers have been regarded as rational characters that required more and better information in decision-making processes. This pioneers us to governance. Technology and innovation do not occur alone. Innovations based on institutions and ideas are a part of social processes. In addition, they can be identified as the latchkey to economic growth, social development and environmental viability. Thus, it can be more beneficial to tackle with innovation institutionally rather than individually. Our knowledge in fields such as science, engineering, management, medicine, environment, and philosophy has a deep-rooted history necessary for innovation (De la Mothe, 2004).

The countries leading the world in developing innovation policy have followed a three step process. First, they recognized the need to approach innovation systemically. Second, they effectively brought attention to the shortage for innovation to the politic, putting forth an inspirational vision and strategy for action, replete with clearly articulated goals and necessities. Finally, to drive innovation policies countries must implement institutional reforms by funding them, even at the expense of other government spending or lower taxes for individuals. Innovation support policies of countries may alter from a country, to another country. For example, while R&D tax credits are used as a policy supporting innovation in the USA and France (six times more than USA), Denmark uses innovation vouchers for small businesses, and the Netherlands and Switzerland use lower taxes on the profits generated from a newly patented product.

It must be embraced seven vital items in a national innovation policy.

- These are “setting clearly innovation goals,
- Countries must have intention: making innovation-based competitiveness a national priority.
- Improving understanding of innovation performance
- Encouraging innovation, production and jobs (incentives (tax breaks, general reductions in corporate tax, R&D tax credits, more competitive tax codes and so on.)
- Institutional innovation (such as national innovation agencies- the reforming of countries’ education systems - globally competitive universities)
- Investment: Increased public funding for innovation
- Improving information technologies (IT) as the principal source of innovation

Although it is mentioned with welfare concepts like as sustainable development or social benefit, it can be claimed that the targets of innovation

policy are economic. However, this situation is changing in areas such as health, development and environment. At the micro level, innovation policy have to focus on supporting R&D; efficient technology transfer from universities, research labs, and other research organizations to industry; and technical assistance for small and mid-sized manufacturers.

2.2. Innovation System

The national innovation system (NIS) conceptually appeared in the 1980s to demonstrate the innovative performance differences among developed countries. Divergences in economic and technological performance among countries vary depending on innovative capabilities of countries, so institutional differences such as enhancing, developing and diffusing new processes, technologies and products (Metcalf and Ramlogan, 2008).

According to Shulin (1999), The basic features of NIS in developing countries can be summarized as follows:

- a) NIS is less developed in developing countries.
- b) NIS is related to the country's development level in developing countries.
- c) The crucial factor for success of the countries as Korea and Taiwan was extraordinary intensive learning.
- d) Market mechanisms in developing countries must be perceived differently from developed countries.
- e) Contrary to developed countries, the crucial addition in the field of technical advance in developing countries is to provide capital accumulation, rather than intangible assets and learning.

We can see some countries with national innovation strategy or agency in table 1.

Table1: Selected Countries with a National Innovation Strategy or Agency

Country	Has articulated a national innovation strategy	National innovation agency/foundation	Year agency introduced
Brazil	Yes	Brazil Innovation Agency	1967
China	Yes	Ministry of Science and Technology	1998
Denmark	Yes	Danish Agency for Science-Technology-Innovation	2006
Finland	Yes	TeKes	1983
France	Yes	OSEO	2005
India	Yes	National Innovation Foundation	2000
Ireland	Yes	Forfas	1994
Italy	Yes	National Agency for New Technologies, Energy, and the Environment	1999
Japan	Yes	New Energy and Industrial Technology Development Organizations	1980
Korea	Yes	Korea Industrial Technology foundation	2001
The Netherlands	Yes	SenterNovem	2004
Norway	Yes	InnovasjonNorge	2004
Portugal	Yes	Agência de Inovação	2003
South Africa	Yes	National Advisory Council on Innovation	2006
Sweden	Yes	VINNOVA	2001
Taiwan	Yes	Industrial Technology Research Institute	1973
Thailand	Yes	National Innovation Agency	2003
United Kingdom	Yes	Department of Business, Innovation, and Skills.	2009
United States	Yes	N/A	N/A
Uruguay	Yes	National Research and Innovation Agency	2008

Reference: Atkinson and Ezell, 2012.

Many countries that create national innovation strategies are increasing their support for science and technology by reconstructing their tax and administrative systems in order to bring about a more competitive structure. We

can also include improving education systems, encouraging investments in broadband and other IT areas, and taking many other pro-innovation steps.

Measuring inputs and outputs of inventive activity is problematic with regard to identification and valuation. Innovations differ widely with respect to magnitude of problem overcome, technical potential economic contribution and economic costs. But costs not necessarily related to economic contribution (e.g. Internet vs. super-sonic airplanes).

Innovations are the consequence of a mix between technical explanations and social perceptive. Thus, any process of development must be encouraged by provincial strengths in the field of innovation.

2.3. Technological change as a conclusion of innovation

Technology has been basically described as all of the things such as equipment, technic, product, process, technical equipment and methods developed by human skills (Stock and Tatikonda, 2000). It can be also described as the life blood of a new global economy and society. While modern technologies have brought countries closer together, global economic competition has increased more than ever. Many countries wonder asking how they can win in the global competition to achieve innovation based growth and to attract foreign investment.

We can define technological change as the change in the means by which any good or service is produced. Technological progress generally contains the creation of new ideas. Creating new knowledge is a central goal of many countries' innovation strategies. At a given level of technology and knowledge, there is a constant return to scale for production factors like as labor, capital and land. Innovation that leads to technological change is an important element of economic growth and development. The importance of innovation has been shored up both by globalization and by rapid advances in new technologies.

The impression of a technological innovation will usually based not only on its inventors, but also on the inventiveness of the final users of the fresh technology (Rosenberg, 2006). Universities, businesses and governments are between the most important institutions in achieving technological change. Undoubtedly, these institutions have also played a vital role in figuring out the degree of technological progress. Dahlman and Nelson (1995) matching the technological capability of 14 developing countries concluded that most vital element for any successful development strategy is the improvement of human resource.

Technology transfer has emerged as a process interested with transporting of innovations to commercialize from a country/company/institution to other

(Muir, 1997). The descriptions with technology transfer are closely related with how technology is perceived also.

The transfer of technology can be justified in much different wherewithal. According to Khalil (2000), technology transfer is a process providing flow from transferal to recipient or the import of technologies. The main objective in the transfer of technology is to achieve technological innovations (Huylebroeck, 1999). Also according to Rogers et al.(2001) technology transfer is the activity of technology from an individual or organization to other through communication channels. Technologic innovation is a broad concept ranging all of proposition, application or things comprehended as fresh by an individual or unit (Rogers et al., 2001).

Government funding has generally played an important role in succeeding the technological advances, for particularly developing countries that has a poor private industry. Thus, in achieving the innovation target, only private sector is not enough. Government's fiscal and monetary policies must actively support enterprises investing in the future by encouraging them to invest, particularly for businesses to obtain internationally competitive advantage.

According to Griffith et al. (2004) analyzing the determinants of productivity growth in a twelve OECD countries, R&D encourages growth directly through innovation and indirectly through technology transfer.

According to Montobbio and Rampa (2005) technological specialization, national and international constitutional alters, foreign direct investments, technical skills, R&D, and productivity acquisitions affect shares in export markets. In addition, to interpret the process of economic growth and change over, it should be focused upon the relation between national technological effort in definitive sectors and outcomes.

As stated by Bozkurt (2015), processes which grant to economic growth such as launching new products, developing production techniques, and faster production methods do not guarantee achieving any goal without R&D.

2.4. The Measuring of Innovation

Measuring innovation constitutes an important step in the innovation-based policy-making process. Innovation is often measured by input indicators, such as research and development (R&D), and output indicators, such as patents. While patents tend to tell us more about past glory, R&D may be more reflective of current and future trends.

There are certain indices, which address the place of a country in the world in terms of innovation. Global Innovation Index (GII) maintains a rich dataset on the assessment of innovation in terms of the global innovation trends in the

world. GII evaluates the innovation capacities of many countries in the world. GII reports provide very important data on the differences in innovation capacities of countries. The overall GII ranking is based on two sub-indices. These are the Innovation Input Sub-Index and the Innovation Output Sub-Index. Innovation Input Sub-Index, consisting of five input pillars as institutions, human capital and research, infrastructure, market sophistication, and business sophistication, reveals the elements enabling and facilitating innovative activities in countries. Innovation Output Sub-Index includes only two pillars as knowledge and technology outputs and Creative outputs. The overall GII is the average of the Input and Output Sub-Index.

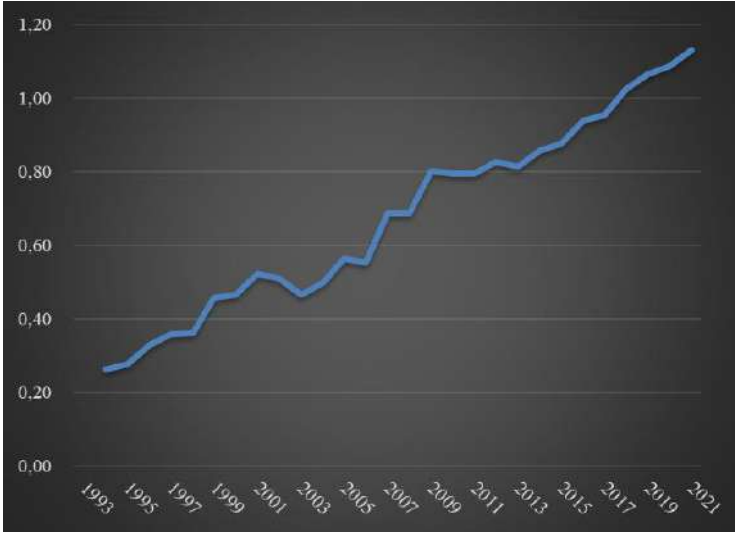
3. INNOVATION IN TÜRKİYE

We can say that in Turkey, like many countries, with the desire to benefit from the economic benefits of innovation resulting from scientific and technological progress, efforts to establish an innovation system began in the 1990s under the leadership of the Scientific and Technological Research Council of Turkey (TÜBİTAK). Additionally, it is worth saying that Turkey's efforts towards technology and innovation were shaped by the national science and technology policies strategy document in the early 2000s (TÜBİTAK, 2004), and by the 2023 industry and technology strategy document (T.R. Ministry of Industry and Technology, 2019) in the early 2020s.

The efforts determined for innovation and technological progress in the 2023 industry and technology strategy document are determination of technological competencies and sectoral road maps, development of strategic materials for priority sectors, ecosystem understanding in R&D and centers of excellence, active participation in the development of technology standards, test center and certification, global initiatives in disruptive technologies and use and infrastructure of intellectual property rights.

R&D intensity is an important indicator for countries in innovation-based growth. In this context, we can observe from Figure 1 the course of R&D intensity in Turkey.

Figure 1: GERD as a percent of GDP of Türkiye (1993-2021)

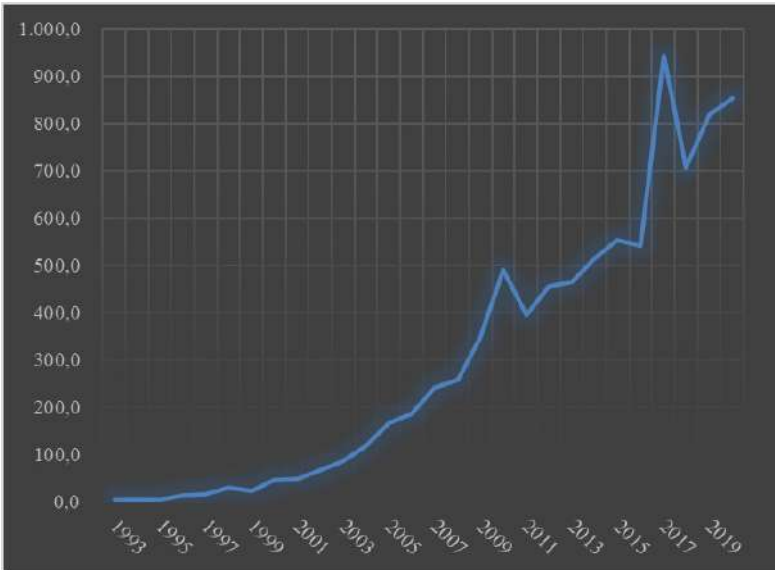


Reference: OECD, 2023

When we look at the data for the period 1993-2021, it's possible to say that, except for a few years, R&D intensity, which can be explained as the rate of R&D expenditures to GDP, is in a continuous increasing trend.

In addition, it is possible to watch the trend of patent applications submitted to the European Patent Office (EPO) from Turkey over the years in Figure 2.

Figure 2: Patent applications to the EPO from Türkiye (1993-2020)



Reference: OECD, 2023

As can be explicitly identified from Figure 2, we can talk about that's similar of the trend observed in R&D expenditures and patent applications made to the EPO in recent years. It can be thought that both the R&D intensity and the increase in patent applications play a vital role in strengthening Turkey's innovative capacity.

It can be stated that examining innovation indicators, which have a decisive role for countries in many areas from global competition to economic growth, is of great importance in determining the innovative capacities and global positions of countries. In this context, analyzing Turkey's innovation indicators and recent developments, especially based on GII data, is important in presenting the current situation of the country.

We can see Turkey's GII and sub-index rankings in the last decade in Table 2.

Table 2: GII Ranking of Türkiye in the 2015-2023 Period

Yıl	GII Rank	Innovation Inputs Sub Index	Innovation Outputs Sub Index
2023	39 th	52 nd	32 nd
2022	37 th	49 th	33 rd
2021	41 st	45 th	41 st
2020	51 st	52 nd	53 rd
2019	49 th	56 th	49 th
2018	50 th	62 nd	43 rd
2017	43 rd	68 th	36 th
2016	42 nd	59 th	37 th
2015	58 th	71 st	46 th
2014	54 th	78 th	39 th

Reference: Dutta et al.; 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023.

Based on the 2014-2023 period data in Table 2, it can be explained that the changes in the GII rankings and sub-index rankings also indicate the improvement in the country's innovative capacity. In terms of country rankings, while it ranked 54th among 143 countries in GII in 2014, it rose to 39th place among 132 countries in 2023. It can be stated that the improvement in the innovation input sub-index has been faster over the years than the improvement in the output sub-index. However, according to recent data, the situation of the country in the output sub-index appears to be better.

The scores obtained by Türkiye from the GII sub-index pillars in the 2019-2023 period are listed in table 3. We can also see the average scores of the top 10 countries in 2023 in table 3.

Table 3: The Sub Index Pillars of Türkiye in the period of 2019-2023 (Score)

GII	Pillars	2019	2020	2021	2022	2023	2023 Top 10
Innovation Outputs	Knowledge and technology outputs	23	23,2	25,3	27,4	31,14	58,96
	Creative outputs	34,2	27,7	35,3	41,5	43,57	56,09
Innovation Inputs	Business sophistication	29,5	28,2	30,8	32,5	33,54	64,39
	Market sophistication	50,8	54,7	49,7	41,6	45,06	61,93
	Human capital and research	36,3	38,4	48,5	38,9	37,49	60,28
	Infrastructure	52,2	45	47	49,2	46,72	62,83
	Institutions	57,4	55,4	56	46,8	36,48	79,85

Reference: Dutta et al.; 2019, 2020, 2021, 2022, 2023.

As can be clearly seen from Table 3, there is an improvement in the scores obtained from GII's knowledge and technology outputs, creative outputs, business sophistication and human capital and research pillars in the 2019-2023 period. However, deterioration can be noted in terms of the score achieved by the country in market sophistication, infrastructure and institutions pillars.

4. DATA, METHODOLOGY AND KEY VARIABLES

One of the crucial aims of this search is to exhibit the connection between economic growth and innovation. In this context, gross domestic expenditures on R&D and annual numbers of patent applications to the EPO as indicators of innovation and GDP data were taken from OECD.Stat. Turkey's 1993-2022 period data obtained from OECD.Stat were used to investigate the relationship between economic growth and innovation in the Eviews 9 program with the Granger causality test.

The variables handling in this study have been shown in the table 4.

Table 4: The variables benefited in the investigating of relationship between economic growth and innovation

Variables	Explanations
GDP	Logarithmic value* of Gross domestic product (expenditure approach-Millions \$)
Patent	Logarithmic value* of Annual number of Patent applications to the EPO
R&D	Logarithmic value* of Gross Expenditure on R&D (Millions \$)

*The Author's calculations

5. EMPRICAL RESULTS

In order to figure out whether there is a Granger causality relationship between Turkey's GDP, Patent and R&D data for the period 1993-2022, it was first investigated whether the series were stationary or not. As it was understood that the series were not stationary in terms of level values, the series were made stationary by taking their first differences. Afterwards, a VAR model consisting of these variables was established.

Various econometric tests were applied to determine whether the VAR model was consistent or not. In the context, it is possible to look at the tests on whether the model's process is stationary or not in table 5.

Table 5: Roots of Characteristic Polynomial

Endogenous variables: DLGDP DLPATENT DLRD (D: First Difference L: Logarithmic) Exogenous variables: C Lag specification: 1 2	
Root	Modulus
-0.788184	0.788184
0.597355	0.597355
0.131273 - 0.575149i	0.589940
0.131273 + 0.575149i	0.589940
-0.172848 - 0.207035i	0.269704
-0.172848 + 0.207035i	0.269704
No root lies outside the unit circle. VAR satisfies the stability condition.	

According to the available data in Table 5, we can impose that the model meets the stability condition.

Table 6 shows the results of VAR Residual Serial Correlation LM test. This test allows us to see whether there is autocorrelation in the model.

Table 6: VAR Residual Serial Correlation LM Tests

Null Hypothesis: no serial correlation at lag order h		
Sample: 1993 2022 Included observations: 25		
Lags	LM-Stat	<u>Prob</u>
1	11.81845	0.2237
2	7.946737	0.5395
3	4.968404	0.8371
Probs from chi-square with 9 df.		

According to the VAR model, we cannot reject the h_0 hypothesis with a prob. value of 0.5395 at lag order 2. Thus it can be stated no serial correlation between residuals.

In addition, according to the outputs (Jarque-Bera: 5.055193-Prob.: 0.5368) of VAR Residual Normality Tests (Orthogonalization: Cholesky), we can also say that the residuals are normally distributed by accepting the null hypothesis. According to the outputs (Chi-sq: 74.55387- Prob.: 0.3952) of VAR Residual Heteroskedasticity Tests, there is no heteroscedasticity problem in the model.

Table 7 shows the outputs of the pairwise Granger causality test between Patent, R&D and GDP in the period 1993-2022 in Turkey.

Table 7: Pairwise Granger Causality Tests

Sample: 1993 2022			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
DLPATENT does not Granger Cause DLGDP	25	1.66281	0.2148
DLGDP does not Granger Cause DLPATENT		2.02965	0.1576
DLR&D does not Granger Cause DLGDP	26	3.19019	0.0617
DLGDP does not Granger Cause DLR&D		1.15712	0.3336
DLR&D does not Granger Cause DLPATENT	25	5.76458	0.0105
DLPATENT does not Granger Cause DLR&D		1.91611	0.1732

According to the results in Table 7, we can reject the H_0 hypothesis that R&D is not the Granger cause of GDP at the 10% significance level. So we can say that R&D is the Granger cause of GDP. Similarly, by rejecting the H_0 hypothesis that R&D is not the Granger cause of Patents, we can state that R&D is the Granger cause of Patents at the 1% significance level.

From Table 8, we can identify the results of VAR Granger Causality/Block Exogeneity Wald Tests among the available variables.

Table 8: VAR Granger Causality/Block Exogeneity Wald Tests

Sample: 1993 2022		Included observations: 25	
Dependent variable: DLGDP			
Excluded	Chi-sq	df	Prob.
DLPATENT	2.800725	2	0.2465
DLRD	5.288885	2	0.0710
All	9.161383	4	0.0572
Dependent variable: DLPATENT			
Excluded	Chi-sq	df	Prob.
DLGDP	0.212979	2	0.8990
DLRD	5.867696	2	0.0532
All	10.71200	4	0.0300
Dependent variable: DLRD			
Excluded	Chi-sq	df	Prob.
DLGDP	1.803496	2	0.4059
DLPATENT	3.246454	2	0.1973
All	5.598062	4	0.2312

Both pairwise Granger Causality Tests results and VAR Granger Causality/Block Exogeneity Wald Tests results indicate that there is a one-way Granger causality relationship between R&D-GDP and R&D-Patent.

CONCLUSION

A country's national innovation system has two basic elements: Innovation and technological change/progress. It can be stated undoubtedly that one of the remarkably critical elements of the effectiveness and success of the national innovation system is the presence of qualified human resources. Innovation and technological change have an important role in achieving productivity gains that strengthen competitiveness, growth and employment creation. Innovation and technological progress help achieve more efficient processes and produce at lower costs. Thus, the overall productivity level increases. If Turkey can achieve a determined productivity growth rate, then it can increase real per capita incomes. To success this, it must put innovation policies at the center of his own economic policies.

Lately, GII has emerged as an important index that reveals the innovation performance of countries and allows comparisons between countries. According to recent GII data, Turkey's innovation performance can be easily observed from the overall improvement in the country's ranking. According to Turkey's GII data in the 2019-2023 period, while knowledge and technology outputs, creative outputs, business sophistication and human capital and research pillars are improving, a relative deterioration can be noted in market sophistication, infrastructure and institutions pillars.

R&D activities are usually approved as the driving force of economic growth in the endogenous growth models, which are depend on R&D. In this chapter, it has been searched whether there is a Granger causality relationship between GDP and R&D expenditures, which are the input of innovation, and patents, which are the output of innovation. The empirical findings indicate a one-way Granger causality relationship from R&D to GDP and Patents.

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Chapter 11

Conversational Implicatures in Glaspell's *Trifles*: Said, Reasoning and Implicated

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ABSTRACT

To the Co-operative Principle propounded by Herbert Paul Grice in his *Logic and Conversation* (1975), the interlocutors are expected to act co-operatively to have and maintain sustainable communication. In other words, the interactants need to speak the truth relevantly with the required amount of information in a clear and concise way. He puts forward a kind of mechanism called the Conversational Maxims: Quality, Quantity, Relevance and Manner. Flouting a maxim leads to an implicature; thus, the intended meaning lies in the deep structure of the utterance. The verbal exchanges of the characters in Susan Glaspell's one-act play *Trifles* (1916) are analysed according to Grice's Co-operative Principle with its Conversational Maxims and Conversational Implicatures. Besides, each extract is analysed and interpreted under three sub-headings: 'said', 'reasoning' and 'implicated'. This paper explains how the characters in *Trifles* generate implicatures and how their addressees draw the inferences embedded in the speakers' utterances. The Conversational Maxims from Grice's Co-operative Principle are employed as a model to decipher the characters' intended meaning, motivation to implicate, the method of generating implicatures and finally, how the implicatures achieve the interlocutor's goal. Moreover, the study examines the implicature-driven speech turns to prove the issue salient in analysing how meaning is not only embedded in the semantic aspect of the utterances but also the implicatures and the intended meaning.

Keywords: Co-operative Principle, Conversational Maxims, Implicature, *Trifles*, Susan Glaspell

INTRODUCTION

The Co-operative Principle (hereafter CP), propounded by the language philosopher Herbert Paul Grice in *Logic and Conversation* (1975), has held scholars' interest since the second half of the twentieth century. According to Grice, the interlocutors are expected to act co-operatively to have and maintain sustainable communication. In other words, the interactants need to speak the truth relevantly with the required amount of information in a clear and concise way. Grice defines his CP model as to "make your conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged" (1975: 45). Grice's CP puts forward a kind of mechanism operating in a conversation where the interlocutors are supposed to abide by it to perform effective communication. Moreover, the CP is accompanied by the 'Conversational Maxims' setting rules and criteria for the interlocutors on how to use language efficiently and co-operatively in conversational settings.

The Gricean Conversational Maxims are expressed as follows:

QUANTITY

1. Make your contribution as informative as is required (for the current purposes of the exchange).
2. Do not make your contribution more informative than is required.

QUALITY

Try to make your contribution one that is true, and two more specific maxims:

1. Do not say what you believe to be false.
2. Do not say that for which you lack adequate evidence.

RELEVANCE

Be relevant

MANNER

Be perspicuous-and various maxims such as:

1. Avoid obscurity of expression.
2. Avoid ambiguity.
3. Be brief (avoid unnecessary prolixity).
4. Be orderly. (Grice, 1975: 45-46)

These maxims refer to conventions that are not arbitrary at all, and they put forth logical and rational tools for carrying out co-operative interactions. Additionally, they regulate aspects of exchanges and linguistic behaviour. All these maxims are designed to specify the rules and conventions of what the interlocutors have to do to conduct a rational, efficient and co-operative interaction by conversing sincerely, relevantly, and clearly giving sufficient and

true information. However, it is known that interlocutors may sometimes fail to observe the maxims in their interactions. Non-observance could be a 'violation of the maxims', 'flouting of the maxims' and 'opting out of the maxims'. Grice explicates violation "as the unostentatious non-observance of a maxim. If a speaker violates a maxim s/he will be liable to mislead" (1975: 49). Furthermore, interlocutors purposely may opt out of some maxims. Janet Thomas defines it as "an unwillingness to cooperate in the way the maxim requires" (2013: 74). Thomas' contention reveals that interlocutors are not uniform and they can easily opt out of any maxim if they are not willing and open to conduct an interaction cooperatively for some personal, ethical or legal reasons. Flouting is "overtly and blatantly not following some maxims, in order to exploit it for communicative purposes" (Levinson, 1983: 109). Thomas states that flouting occurs "when a speaker obviously fails to observe a maxim at the level of what is said, with the deliberate intention of generating an implicature" (2013: 65). In other words, the literal meaning of the utterances may fail to convey the intended meaning. Peccei proves it by stating, "In Grice's analysis, the speaker's flouting of a maxim combined with the hearer's assumption that the speaker has not really abandoned the co-operative principle leads to an implicature" (1999: 28). Co-operation between the interactants is necessary to have a smooth-running dialogue.

Speakers aim to convey their intended messages through implicatures. The term implicature stands for how it is plausible to mean more than what is uttered. The interlocutors should co-operatively work out a conversational implicature; otherwise, it will not be an implicature, so the communication fails. There are some requirements for grasping a conversational implicature in an exchange. First, the addressee should understand the conventional meaning of words uttered; second, the CP with its maxims; third, the linguistic or non-linguistic context in which exchange is conducted; fourth, the interlocutors should assume the background knowledge of the conversation. Conversational implicatures are achieved through flouting the Quantity Maxim (giving more or less information than necessary, saying tautology etc.), flouting the Quality Maxim (asking rhetorical questions, using hyperboles, ironies, metaphors, i.e. saying anything literally untrue etc.), flouting the Relevance Maxim (speaking irrelevantly, a deliberate digression from the course of the conversation) and finally, flouting the Manner Maxim (using an obscure language, creation of phonemic ambiguity to exclude others in an exchange etc.). When the addressee co-operatively understands the literal untruth, more/less information, obscurity or digression from the topic, s/he grasps the intended meaning and ascertains the implicature generated by the speaker in the speech event. Based on their co-

operation, their exchange is maintained smoothly, and the structure of their conversation is sustained.

Dramatic texts have been analysed from many perspectives but there are few studies done in this field dealing with the dramatic texts from a pragmatic perspective. Given less existing studies done on modern drama from a pragmatic perspective, *Trifles* seems a good choice of dramatic text to begin. It is usually known as a play most specifically about communicative competence based on a solid structure with characters. The plot of the play circles around the investigation of Mr. Wright's murder. "The plot of a play develops on verbal and non-verbal conflicts involving characters" (Şekerçi, 2023: 130). The verbal exchanges of the characters in *Trifles* are analysed according to the Gricean CP with its maxims and conversational implicatures. Besides, each extract is analysed and interpreted under three sub-headings: 'said', 'reasoning' and 'implicated'. This present paper explains how the characters in *Trifles* generate implicatures and how their addressees draw the inferences embedded in the speakers' utterances. The Conversational Maxims from Grice's Cooperative Principle have been employed as a model to decipher the characters' intended meaning, motivation to implicate and method of generating implicatures and finally how the implicatures achieve the interlocutor's goal.

SOME REMARKS ABOUT SUSAN GLASPELL AND *TRIFLES* (1916)

Susan Glaspell (1876-1948) was an American playwright, novelist, actor and journalist. She was a productive woman writer in American literature. "Glaspell herself was a prolific author with fourteen plays and several novels and stories" (Bertens and Theo, 2014: 179). Her works have already taken their place in feminist and structuralist criticism. "Glaspell's first play for the Players, the realistic one-act play *Trifles* (1916), is now recognized as a classic example of both feminist drama and realist aesthetics" (Murphy, 2004: 169). Moreover, Glaspell was one of the female writers who tried experimental drama with Provincetown Players, reflecting a spectrum of realistic drama, which became popular in American drama after the First World War. Provincetown Players produced simple realistic one-act plays dealing with ordinary people's concerns, miseries and lives. By this token, Glaspell's *Trifles* "was based on a murder case she [Glaspell] had covered as an investigative reporter in Iowa long before she had thought of writing plays" (Murphy, 2007: 328). *The Verge* (1921) and *Trifles* are considered her masterpieces.

Trifles is based on the investigation of John Wright's murder, which took place in his now-abandoned farmhouse. The play opens with five characters:

The County Attorney, George Henderson; the Sheriff, Henry Peters; a farmer, Lewis Hale; Mrs. Peters, and Mrs. Hale. Mr. Wright has been found strangled to death in his bed, and his wife, Minnie, has been taken into custody as she is suspected of the murder. While all the male characters search any available clue against Minnie and investigate the house, the female characters delve into the details in the kitchen and piece together every small detail that goes unnoticed and ignored by the men. In the meantime, the women are mocked as they deal with the trifles as the men name. Finally, the women discover who the murderer is and what the possible motivation behind the murder is, thanks to the details. Finally, they keep the secret unveiled because they empathise with Minnie and conscientiously find her innocent. Charles Bressler quotes from a student essay in his *Literary Criticism* as “Mrs. Hale and Mrs. Peters have the satisfaction of knowing they have solved a crime their husbands could not while still protecting a friend. Their secret is their bid for freedom, something the men cannot dominate or quash” (Bressler,1999: 104). Throughout the play, the men ignore and belittle the women, but the female characters transcend them with their meticulous attention.

ANALYSIS

Extract 1

(Said) “Sheriff: Well, can you beat the women! Held for murder and worryin’ about her preserves.” (Glaspell).

(Reasoning) When the County Attorney touches something sticky in the cupboard and discovers the broken jars of Mrs. Wright’s fruit preserves, Mrs. Peters states that Minnie will get disappointed when she hears that what she has prepared has already turned into waste. The Sheriff asks a rhetorical question to mock the female psyche in relatively severe matters and, thus, flouts *the Quality Maxim* (‘Do not say what you believe to be false.’) to humiliate the opposite sex.

(Implicated) You can never be intelligent enough to grasp the reality and the grave severity of the circumstances. Thus, as males, we can never compete with you when the trifles matter.

Extract 2

(Said) “Mrs Hale: (*stiffly*) There’s a great deal of work to be done on a farm.” (Glaspell).

(Reasoning) The County Attorney reacts with disgust to the dirty towels and the messy kitchen in the Wrights’ farmhouse. He firmly states how slovenly a housewife Minnie could be. Mrs. Hale opposes him and takes Minnie’s side in

her absence. She flouts *the Quantity Maxim* ('Do not make your contribution more informative than is required.') by providing extra information about all the domestic obligations. Her implicature aims to make him empathy with the miserable woman.

(Implicated) No human being can endure all the domestic burdens on the women's shoulders.

Extract 3

(Said) "Mrs Peters: But Mrs Hale, the law is the law." (Glaspell).

(Reasoning) After the male characters leave the kitchen to search for any clue against Minnie, Mrs. Hale and Mrs. Peters discuss the possibility of the murder committed by Minnie. Mrs. Hale condemns the approach of the Sheriff and the Attorney towards Minnie because they firmly believe that she has committed the murder and focus their attention on finding a motive to convict her. Upon that, Mrs. Peters flouts *the Quantity Maxim* ('Make your contribution as informative as is required.') by stating a tautology, a patent truth, and encouraging her to look for an informative interpretation of her non-informative utterance.

(Implicated) The Sheriff and the Attorney abide by the law, so we must not complain about the legal procedure or question authority.

Extract 4

(Said) "County Attorney: (*as one turning from serious things to little pleasantries*) Well ladies, have you decided whether she was going to quilt it or knot it?" (Glaspell).

(Reasoning) While Mrs. Hale and Mrs. Peters search for Minnie's belongings in the kitchen and pack some to take to her in jail, they discover her sewing basket and open it. While they discuss the pieces and whether she would quilt or knot one of the half-finished piece, the lawmen return and hear what they say. The Attorney derisively addresses them with his rhetorical question to mock. He flouts *the Quality Maxim* ('Do not say what you believe to be false.') to implicate how trivial things they keep themselves busy.

(Implicated) While we are at the crime scene and searching for any available clue, you are dealing with anything futile and useless. However, it is clear that male characters miss out that the devil is in the details.

Extract 5

(Said) "Mrs Hale: (*not as if answering that*) I wish you'd seen Minnie Foster when she wore a white dress with blue ribbons and stood up there in the choir

and sang. (*a look around the room*) Oh, I wish I'd come over here once in a while! That was a crime! That was a crime! Who's going to punish that?" (Glaspell).

(Reasoning) Mrs. Hale blames herself for leaving Minnie alone for over a year. Although she has known her since her youth and being a neighbour of her, she has failed to visit her because she does not like her husband and the gloomy atmosphere of the farmhouse. Finally, she expresses her regret and asks a rhetorical question by flouting *the Quality Maxim* ('Do not say what you believe to be false.')

(Implicated) If I am guilty, then hold me responsible for this dreadful murder, too. Mrs. Hale's remark demonstrates a kind of regret and remorse for her failure to visit Minnie.

Extract 6

(Said) "County Attorney: Oh, I guess they're not very dangerous things the ladies have picked out. (*Moves a few things about, disturbing the quilt pieces which cover the box. Steps back*) No, Mrs Peters doesn't need supervising. For that matter, a sheriff's wife is married to the law. Ever think of it that way, Mrs Peters?" (Glaspell).

(Reasoning) Mrs. Peters, the Sheriff's wife, is to pack and take Minnie's belongings to her in jail under the lawful procedures. The Attorney attempts to control the package if any possible and useful clue exists, but then forsakes his opinion by regarding no need to inspect. His utterance includes a metaphor stating that she is married to the law. He flouts *the Quality Maxim* because it is literally untrue ('Do not say what you believe to be false.')

(Implicated) As the Sheriff's wife, she is required to have full knowledge of the law. She has no right to transgress the rules.

Extract 7

(Said) "County Attorney: (*facetiously*) Well, Henry, at least we found out that she was not going to quilt it. She was going to—what is it you call it, ladies?" (Glaspell).

(Reasoning) In the end, the Attorney mocks the women as he has overheard their dialogue over the stitches and Minnie's sewing methods. He asks a question to the Sheriff to tease them. He flouts *the Quality Maxim* with his insincere remark and rhetorical question, addressed to the women as if he wonders ('Do not say what you believe to be false.').

(Implicated) We have failed to discover a motive to convict the suspected murderer, and the women, occupying themselves with the useless knick-knacks, have accompanied us at the crime scene.

Extract 8

(Said) “Mrs Hale: (*her hand against her pocket*) We call it—knot it, Mr Henderson.” (Glaspell).

(Reasoning) After the County Attorney asks a rhetorical question (flouting of *the Quality Maxim*) if Minnie has quilted or knotted the pieces in the sewing box, Mrs. Hale violates *the Quality Maxim*; in other words, she tells a lie to protect Minnie. However, she implicitly flouts *the Manner Maxim* (‘Avoid ambiguity.’) to the audience by unveiling the mystery with different terms.

(Implicated) She implicates that Mrs. Wright has strangled her husband to death. She slipped a rope around his neck while he was asleep and knotted it. Although the conditions for women are severe and harsh in a patriarchy-driven society, Mrs. Hale and Mrs. Peters establish strong solidarity with Minnie and empathise with her. Their cooperation to rescue her from the murder conviction exhibits the female power.

CONCLUSION

The present study has dealt with the Gricean Co-operative Principle and Conversational Maxims to decipher the implicatures uttered by the characters and ascertain the meaning beyond what they say. All of the implicatures have been studied under three sub-headings: ‘said’, ‘reasoning’ and ‘implicated’. Additionally, it has aimed to demonstrate why the characters employ implicatures in the given speech events. Rhetorical questions and metaphors are included in the flouting of the Quality Maxim, while tautologies and speaking more/less than required are categorised in the flouting of the Quantity Maxim. Uttering a word with a context-based ambiguity leads to the flouting of the Manner Maxim. Non-observance of the Relevance Maxim has not been observed. It has been also seen that the male characters have flouted the Quality Maxim three times to mock and humiliate the female characters with their rhetorical questions and thus break the sincerity condition. The female characters flout the Quantity Maxim to earn empathy and accept the ongoing legal procedures. They either speak more to make the male addressee understand their domestic burdens or speak less not to question authority. Moreover, the male characters do not violate any maxim while a female character violates the Quality Maxim. She tells a lie to a male character and deliberately withholds the truth to save the convicted woman from the male

authority. Her purpose is not to implicate any meaning but to deceive him. However, her implicature by flouting of the Manner Maxim can be easily grasped by the audience and the veil over the mystery is removed at the end of the play.

This study has dealt with the implicature-driven speech turns to prove the issue salient in analysing how meaning is not only embedded in the semantic aspect of the utterances but also the implicatures and the intended meaning. Future research on the Gricean Co-operative Principle and its conversational maxims could create room for various interpretations of the dramatic texts as in the case of daily speech events in real life.

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Chapter 12

Analysis Of The Factors Affecting The Long-Term Financial Success Of A Bank With The Integrated Cilos-Evamax Method: The Case Of Akbank

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1.Introduction

Measuring the financial performance of banks, individually or together, which can positively or negatively affect the income level and standard of living of almost all individuals in a society due to their financial intermediary functions, has always been in the focus of interest of researchers. Financial performance analyses of banks can be carried out collectively as a sector and as a group or as a single bank basis, and the results they produce can be very useful for researchers and readers, regardless of the basis. In the financial performance analysis of banks, data from the financial statements (balance sheet and income statements) of the previous years are generally used. In the literature, financial ratios are the most frequently used data type within these data. Thus, taking into account the relationship between two or more balance sheet or income statement items, some evaluations are made regarding the financial performance of the bank(s). Choosing the ones that show the financial performance of the bank the fastest and most accurately among the many different financial ratios and a research based on this limited number of ratios selected are extremely important for the effectiveness and quality of the analysis.

This article uses an integrated method to find out the direction of changes in a bank's long-term financial performance and, as far as possible, their causes. This method is the integrated CILOS-EVAMIX method. With the CILOS approach, which is the first technique of this integrated method, the importance of the factors (criteria) determining financial performance was determined, and with the second technique, the EVAMIX approach, an evaluation was made about how the level of financial performance changed in which periods (alternative) and which was the most successful period.

2.Conceptual Framework for Financial Performance Indicators

As mentioned in the introduction, the bank's financial statements for past years are usually analyzed to create indicators of a bank's financial performance. Although the number of financial ratios obtained from these tables is numerous, the number of those that show the performance of financial success in the clearest and shortest way is limited. In this study, financial performance analysis was carried out by employing the four different financial ratios (criteria) which were used to indicate the profitability of banks by the Banks' Association of Turkey. The analysis also examined another ratio (SP) showing the bank's sector share. The names of these ratios, which contain data set that are very close to each other, and the explanations of what they indicate are given below.

- 1.Return on Average Assets (OAK)
- 2.Return on Average Equity (OÖK)

3. Ratio of Profit Before Tax to Total Assets (VÖK/TA)

4. Net Period Profit to Paid-Up Capital (NDK/ÖS)

5. Sector Share (SP)

The meaning of these ratios are explained in the following part.

Return on Average Assets (OAK): This is the most commonly used profitability ratio in the literature. Actually it is known as ROA. The nominator of the proportion includes the bank's current year net profit for the period. The denominator part is calculated by taking the arithmetic average of the bank's New Year's and Year-end total asset. It shows the relationship between the sum of the average assets owned by the bank and its net profit. The larger the ratio, the better the bank's financial performance is counted. The value of the ratio increases as the bank's net current-year profit increases and decreases as it falls. As the bank's average total assets increase, the ratio value decreases.

Return on Average Equity (OÖK): It is one of the most frequently used profitability ratios in the literature. It is known as ROE. In the nominator of the ratio, there is the net profit for the current year that the bank has achieved. The denominator is calculated by taking the arithmetic average of the bank's New Year's and year-end equity. It shows the connection between the sum of the average equity owned by the bank and its net profit. The larger the ratio, the higher the bank's financial performance is considered. The value of the ratio increases as the bank's net current-year profit increases and decreases as it falls. As the bank's average equity total increases, the ratio value decreases.

Ratio of Profit Before Tax to Total Assets (VÖK/TA): It is a profitability ratio that is used less frequently than the first two ratios. It is known as EBT. In the nominator part, there is the profit of the current year pre-tax period that the bank obtained. The denominator is the total assets of the bank. It shows the relationship between the assets owned by the bank and its profitability before tax. The larger the ratio, the higher the bank's financial performance is considered. The value of the ratio increases as the bank's pre-tax current-year profit increases and decreases as it falls. As the bank's total assets increase, the ratio value decreases.

Ratio of Net Period Profit to Paid-Up Capital (NDK/ÖS): In the nominator, there is the net period profit of the bank for the current year. In the denominator, there is the paid-up capital of the bank. It shows the connection between the paid-up capital of the bank and the net profit for the period. The larger the ratio, the higher the bank's financial performance is considered. The value of the ratio increases as the bank's net profit for the period increases. As the amount of paid-up capital of the bank increases, the value of the ratio decreases.

Sector Share (SP): Although it shows financial performance, it is not a profitability ratio. In the nominator section, the sum of the bank's assets is included. In the denominator, the total asset amount of the banking sector is found. It shows the relationship between the bank's asset and the sector's total asset. It explains the importance and share of the Bank in the sector. The larger the ratio, the higher the bank's financial performance is considered. The greater the bank's total assets, the greater the value of the ratio.

3. Literature Review

In the literature, there are no studies in the banking sector that use a combination of CILOS (Criterion Impact Loss) and EVAMIX (EVALuation of MIXed Data) techniques, which are multi-criteria decision making techniques (MCDM). However, current studies comparing the performance of institutions operating in different sectors both in the world and in Turkey using CILOS and/or EVAMIX methods are shown below in summary.

Cereska et al. (2016) used CILOS, VIKOR and COPRAS methods to compare the 3 alternatives proposed for the solution of the air pollution problem. The CILOS method was used to determine the criterion weights, while the other two methods were used to perform the performance ranking. It turned out that the objective weighting technique CILOS used in the study had some advantages over the ENTROPY method. According to the study result, in the cleaning of air pollutants, not only the density of the hydrochloric acid solution, but also its temperature is important. Solution number 2, where the solution density is 30% and the temperature is 50 degrees, is the best alternative.

Zavadskas et al. (2017) used CILOS, ENTROPI, IDOCRIW, COPRAS, SAW, TOPSIS, EDAS, BORDA and COPELAND methods together to compare the healthy and reliable construction (settlement) levels of twenty-one districts in Vilnius (the capital of Lithuania) within the scope of sustainable development. The first three methods, including the CILOS method, were applied to calculate decision criterion weights. In the study, it was accepted that healthy and reliable construction has economic, environmental and social dimensions. The economic and social dimension was measured with 5 criteria and the environmental dimension with 4 criteria. Price and population density emerged as the most important economic dimension criteria by all three weight methods. The number of health institutions and crime rates are the most important criteria among the social criteria. Green area and air pollution criteria have emerged as the most important criteria in terms of environmental dimension.

Cereska et al. (2018) used CILOS, ENTROPI, IDOCRIW, COPRAS, SAW, TOPSIS, EDAS methods in the comparative analysis of observation techniques

used to control steel ropes. CILOS, ENTROPY and IDOCRIW methods were used to calculate the importance levels of the criteria based on the comparison of alternatives (observation techniques). They concluded that the CILOS and IDOCRIW weighting methods were superior to the ENTROPY method.

Podvezko et al. (2020) designed the fuzzy IDOCRIW (FIDOCRIW) technique by combining fuzzy CILOS and fuzzy ENTROPY methods. In this study, instead of real (real) data, detailed explanations are given about the calculation of criterion weights in studies to be carried out according to fuzzy statistics.

Işık (2020) investigated Akbank's 11-year financial performance in the period 2009-2019. In the study, PSI technique, one of the MCDM techniques, was used. In the research, it was determined that the most effective criterion in the financial performance of the bank was Total Deposits/Total Assets and the least effective was Frozen Receivables/Total Loans. In addition, it was revealed that the best year of the bank's financial performance was 2010 and the worst year was 2019.

Mazman Itik and Sel (2021) used CILOS and TOPSIS methods to compare the financial performance of nine companies operating in the retail trade sector registered in BIST. The review was conducted for the years 2013-2019. These years are averaged. As criteria, acid test ratio, cash ratio, financial leverage ratio, financing ratio, fixed assets/equity, asset turnover rate, equity turnover rate, return on equity and return on assets financial ratios were selected. Criterion weights were calculated by CILOS method and performance ranking was calculated by TOPSIS method. As a result of the study, the most successful company was Mipaz, followed by Casa and Vakko, respectively. BİM has been the least successful company.

Pala (2021) used IDOCRIW and MARCOS methods, including the CILOS method, to compare the financial performance of companies operating in the transportation sector registered in BIST. In the study, the years 2019-2020 were examined. Thus, the differences between before and after the COVID-19 pandemic were tried to be found. Criterion weights were performed by IDOCRIW and performance ranking was performed by MARCOS methods. The IDOCRIW weight method covers CILOS and ENTROPY methods. As a result of the study, TLMAN and BEYAZ companies became the most successful transportation companies. Other companies (CLEBI, THYAO and PGSUS) saw a decrease in performance values in 2020, the year of the pandemic.

Kırhasanoğlu and Özdemir (2022) used IDOCRIW and WASPAS methods to compare the financial performance of football clubs traded on BIST during the COVID-19 period. IDOCRIW, consisting of CILOS and ENTROPY methods, was applied to find criterion weights and WASPAS was applied to rank the performance of football clubs. The clubs included in the research cluster are

Galatasaray, Fenerbahçe, Beşiktaş and Trabzonspor. The financial performances of these four major clubs in the 2019-2020 and 2020-2021 periods were analyzed. The current ratio, acid-test ratio, cash ratio, debt ratio, debt-to-equity ratio and net profit margin were selected as evaluation criteria in the study. It turns out that the least important criterion is the cash ratio. Criterion weights are different for the two periods; In the 2020-2021 period, it is seen that the clubs attach the highest weight to the debt-to-equity ratio and the debt ratio. In the 2019-2020 period, the weights of these criteria have decreased. In addition, it was determined that the best performing club was Beşiktaş in both periods.

4.Methodology

4.1.CILOS

The CILOS (Criterion Impact Loss) method was first designed by Mirkin in 1974. It is an objective weighting method. In this method, when one of the criteria achieves optimal, that is, the largest or smallest value, the loss of effect of each criterion is evaluated. The main application steps of the method are described below (Mirkin 1974; Zavadskas, 1987; Zavadskas and Podvezko, 2016; Cereska et al., 2016; Podvezko et al., 2020; Mazman Itik and Sel, 2021; Pala, 2021; Kırhasanoğlu and Özdemir, 2022):

Step 1: At the beginning of the CILOS method, with objective or subjective evaluations, the initial decision matrix (A) is created in such a way that the criteria are in the columns and the alternatives are in the rows (Equation 1).

$$A = [a_{ij}]_{m \times n} = \begin{bmatrix} a_{11} & \cdots & a_{1n} \\ \vdots & \ddots & \vdots \\ a_{m1} & \cdots & a_{mn} \end{bmatrix} \quad (1)$$

All criteria in the matrix are generally expected to be beneficial. If not, that is, if there are cost-oriented criteria in the matrix, these criteria are converted to benefit-oriented with the help of Equation 2.

$$a_{ij} = \frac{\min a_j}{a_{ij}} \quad (2)$$

Step 2: After all the criteria are made benefit-oriented, the initial decision matrix is standardized (normalized) with the help of Equation 3. This converts the a_{ij} values to their r_{ij} normalized values.

$$r_{ij} = \frac{a_{ij}}{\sum_{j=1}^n a_{ij}} \quad (3)$$

Step 3: For the normalized decision matrix $X = \| r_{ij} \|$, first the square matrix $R = \| r_{ij} \|$ is built by rearranging the rows (t^k) with the largest value, max value

in each column. The diagonals in the square matrix R consist of the values of the largest criterion (r_{kj}) found in the X matrix.

Step 4: To find the relative loss (P) of the criteria, the square matrix $P = \|p_{kj}\|$ is arranged with the help of Equation 4.

$$p_{kj} = \frac{x_j - r_{kj}}{r_{kj}} \tag{4}$$

Each value (p_{kj}) of the matrix P indicates the amount of loss of importance in criterion j, when criterion k. is determined to be the most important.

Step 5: The matrix F is determined as in Equation 5

$$F = \begin{bmatrix} -\sum_{k=1}^n p_{kj} & \dots & p_{1n} \\ \vdots & -\sum_{k=1}^n p_{k2} & \vdots \\ p_{n1} & \dots & -\sum_{k=1}^n p_{kn} \end{bmatrix} \tag{5}$$

Step 6: If the criterion severities (weights) are q_j (or "w"), it is found by solving the equation $Fq^T = 0$. The q_i values found show the criterion weight (severity) after normalization. After the square matrix F is created, the q_i values found by solving the above-mentioned equation with Excel's solver add-in express the criterion weights.

4.2. EVAMIX

EVAMIX (EVALuation of MIXed Data) method is a multi-criteria decision-making method that examines criteria containing numerical data and criteria containing verbal data at the same time. This method was first developed by Voogd (1982,1983), then Martel and Matarazzo (2005) further developed this method (Martel and Matarazzo, 2005). The steps of the EVAMIX method are as follows (Adalı, 2016; Ulutaş ve Cengiz, 2018; Başar, 2019):

Step 1: At first, the criteria in the problem are divided into two according to the type of data containment: qualitative criteria (o) and quantitative criteria (c). Then, the decision matrix is created. The decision matrix is shown in equation 1.

Step 2: According to whether each element in the decision matrix is benefit or cost oriented, it is normalized by equations 6 and 7. Equation 6 is used for benefit criteria and equation 7 is used for cost criteria.

$$r_{ij} = \frac{a_{ij}}{a_{ij\max}} \tag{6}$$

$$r_{ij} = \frac{a_{ij\min}}{a_{ij}} \tag{7}$$

Step 3: Compare the alternative pairs in the normalized decision matrix with each other. This process consists of a two-way comparison of the performance of all alternative pairs in all criteria. This is done with Equation 8 for qualitative criteria and Equation 9 for quantitative criteria.

$$a_{ii'} = \left[\sum_{j=0}^n \{w_j \operatorname{sgn}(r_{ij} - r_{i'j})\}^c \right]^{1/c} \tag{8}$$

$$\operatorname{sgn}(r_{ij} - r_{i'j}) = \begin{cases} +1, & r_{ij} > r_{i'j} \\ 0, & r_{ij} = r_{i'j} \\ -1, & r_{ij} < r_{i'j} \end{cases} \tag{8a}$$

$$Y_{ii'} = \left[\sum_{j=c}^n \{w_j (r_{ij} - r_{i'j})\}^c \right]^{1/c} \quad c=1,3,5\dots \tag{9}$$

In Equation 8, $a_{ii'}$ shows the qualitative dominance score of the alternative A_i to the alternative $A_{i'}$ and likewise $Y_{ii'}$ shows the quantitative dominance score of this alternative relative to the other. The exponential value of c in Equations 8 and 9 is taken to be 1 if the weights are distributed consistently (Voogd, 1982). In this study, the c value was taken as 1.

Step 4: Standardized dominance scores are calculated for each binary comparison. Equation 10 calculates the standardized qualitative dominance score ($\delta_{ii'}$) and Equation 11 calculates the standardized quantitative dominance score ($d_{ii'}$).

$$\delta_{ii'} = \frac{a_{ii'}^+ - a_{ii'}^-}{a_{ii'}^+ + a_{ii'}^-} \tag{10}$$

In Equation 10, $a_{ii'}^+$ and $a_{ii'}^-$ shows the highest and lowest qualitative dominance scores for the alternative pair of ($A_i, A_{i'}$) respectively.

$$d_{ii'} = \frac{Y_{ii'}^+ - Y_{ii'}^-}{Y_{ii'}^+ - Y_{ii'}^-} \tag{11}$$

Likewise, $Y_{ii'}^+$ and $Y_{ii'}^-$ in Equation 11 show the highest and lowest quantitative dominance scores for the alternative pair of ($A_i, A_{i'}$) respectively.

Step 5: The overall dominance score ($D_{ii'}$) for each alternative pair is found by the following equation.

$$D_{ii'} = w_o \delta_{ii'} + w_c d_{ii'} \tag{12}$$

The w_o in this equation shows the total weight distributed to the qualitative criteria ($\sum_{j=0}^n w_j$), and w_c , in the same equation, shows the total weight distributed to the quantitative criteria ($w_c = \sum_{j=c}^n w_j$).

Step 6: Finally, the evaluation score of each alternative is found with the following equation.

$$S_i = \left(\sum_{i'} \frac{D_{ii'}}{D_{ii'}} w_j \right)^{-1} \tag{13}$$

Evaluation scores are ranked from largest to smallest, and the alternative with the largest evaluation score is determined as the best alternative.

5. Empirical Findings

When the local literature on the financial performance of banks in recent years is examined, it is seen that Akbank is one of the successful banks that generally ranks high, especially in profitability performance. In this study, the long-term financial performance of Akbank, a private sector deposit bank whose successful performance is accepted in many studies, is analyzed by taking into account the profitability ratios (OAK, OÖK, VÖK/TA, NDK/ÖS) as criteria and by integrating CILOS and EVAMIX methods from MCDM (multi-criteria decision making) techniques. Data on Akbank's performance criteria were obtained from the "Selected Ratios-2022" Excel file of the Banks' Association of Turkey. The research includes 10 financial years in the period 2012-2022. Data on the Bank's share in the sector (SP) were also obtained from the same table.

Table 1 shows a decision matrix consisting of data on Akbank's profitability performance and sector share between 2012-2022. The rows in the matrix show Akbank's profitability ratios and sector share in the relevant year as a "percentage ratio". In accordance with the EVAMIX method, some criteria should be determined as the qualitative (ordinal) factor and some criteria as the quantitative (cardinal) factor. In our example, the Sector Share (SP) criterion was assumed as a qualitative factor (criterion) since this criterion was considered as the determining factor and the other 4 profitability criteria (OAK, OÖK, VÖK/TA and NDK/ÖS) were assumed as quantitative factors (criteria).

Table 1. Decision Matrix: Akbank's Profitability Performance and Sector Share (2012-2022)

	Kar.(c)	Kar.(c)	Kar.(c)	Kar. (c)	Or.(o)
Year/Criteria	OAK	OÖK	VÖK/TA	NDK/ÖS	SP
2022	6.7	52.3	7.4	1,154.3	8.2
2021	2.1	17.5	2.3	233.2	8.4
2020	1.6	10.7	1.8	120.5	7.9
2019	1.6	11.0	1.9	104.2	8.6
2018	1.8	13.5	2.1	142.2	9.0
2017	2.1	17.0	2.4	151.0	10.2
2016	1.8	15.8	2.1	113.2	10.4
2015	1.4	11.6	1.6	74.9	10.5
2014	1.6	13.6	2.0	79.0	10.9
2013	1.7	13.6	2.1	73.6	11.2
2012	2.0	14.9	2.4	73.7	12.0

Banks’ Association of Turkey-TBB. (2023). Statistical Reports, Selected Ratios. Retrieved 9/1/2023. Access Address: www.tbb.org.tr. -Notes: Kar.(c)=Cardinal. Or.(o)=Ordinal.

According to the above matrix information, it can be seen that Akbank's share in the sector has decreased over the years. It is seen that the share of the bank's total assets in the total assets of the banking sector decreased from 12% in 2012, which was the beginning of the period, to 8.2% in 2022 after 10 years. A market loss of 3.8 percent is a major consideration. It can be considered as a paradoxical situation that a bank with high profitability performance loses its share in the sector. It can be said that increased profitability is not sufficiently reflected in the balance sheet total, the total of equity and assets. At this point, it is worth noting the fact that although public banks were not very profitable in this period, their total assets were constantly growing through increasing credit volume and as a result there was a tremendous increase in their share of the sector, and this is an explanation for why Akbank's share in the sector has decreased, although not completely. Because the increase in the sector share of one bank or group in the system means that the share of the others decreases.

Another conclusion that emerges from the matrix is that 2022 is a year of a great increase in all profitability (performance) criteria. Thus, in 2022, OAK increased by 3.19 times, OÖK increased by 2.98 times, VÖK / TA increased by 3.7 times, NDK/ÖS increased by 4.94 times compared to the previous year and 2022 values are well above the average of the last 10 years. However, it should

not be forgotten that inflation in 2022 is much higher than previous years and it is very important to evaluate these results in terms of real profitability.

After the decision matrix, the process of calculating the criterion weights began. For this purpose, CILOS weighting method is used. For this, first of all, a benefit-oriented decision matrix is arranged. The benefit-oriented decision matrix is shown in Table 2 below. Since all criteria were benefit-oriented, Equation 2 was not used. Therefore, there is no difference between Table 1 and Table 2. Only into the last row of the table the total value (TOTAL) was added on the basis of each criterion (column).

Table 2. CILOS Benefit Decision Matrix

Criteria/Year	OAK	OÖK	VÖK/TA	NDK/ÖS	SP
2022	6.7	52.3	7.4	1,154.3	8.2
2021	2.1	17.5	2.3	233.2	8.4
2020	1.6	10.7	1.8	120.5	7.9
2019	1.6	11.0	1.9	104.2	8.6
2018	1.8	13.5	2.1	142.2	9.0
2017	2.1	17.0	2.4	151.0	10.2
2016	1.8	15.8	2.1	113.2	10.4
2015	1.4	11.6	1.6	74.9	10.5
2014	1.6	13.6	2.0	79.0	10.9
2013	1.7	13.6	2.1	73.6	11.2
2012	2.0	14.9	2.4	73.7	12.0
<i>TOTAL</i>	<i>24.33</i>	<i>191.50</i>	<i>28.05</i>	<i>2319.80</i>	<i>107.24</i>

Then, the benefit-oriented decision matrix was transformed into a normalized decision matrix with the help of Equation 3. The normalized decision matrix is shown in Table 3. Thus, all values in the matrix take a value between 0-1. If the values move away from zero and close to 1, it indicates that the performance level of that value has increased. The last row of the table shows the maximum value (MAX) for each criterion (column).

Table 3. CILOS Method Normalized Decision Matrix

Criteria/Year	OAK	OÖK	VÖK/TA	NDK/ÖS	SP
2022	0.277	0.273	0.263	0.498	0.076
2021	0.086	0.091	0.081	0.101	0.078
2020	0.064	0.056	0.063	0.052	0.073
2019	0.065	0.058	0.067	0.045	0.080
2018	0.073	0.071	0.076	0.061	0.084
2017	0.085	0.089	0.085	0.065	0.095
2016	0.074	0.082	0.075	0.049	0.097
2015	0.056	0.060	0.058	0.032	0.098
2014	0.067	0.071	0.070	0.034	0.101
2013	0.071	0.071	0.075	0.032	0.105
2012	0.084	0.078	0.087	0.032	0.112
<i>MAK</i>	0.277	0.273	0.263	0.498	0.112

After the Normalized Decision Matrix, the Square Matrix R is obtained. The square matrix R is shown in Table 4. Note that the diagonals of the square matrix consist of the MAK values shown in Table 3. When creating a square matrix, the entire row for the year that contains the MAK value is moved to the R matrix on the basis of each criterion in the normalized matrix. For example, in Table 3, the MAX value in the OAK criterion is 0.277. Since the year that contains this value is the year 2022, the entire row for 2022 has been moved to the first row of the matrix R in Table 4.

Table 4. CILOS Method Square Matrix R

	OAK	OÖK	VÖK/TA	NDK/ÖS	SP
OAK	0.277	0.273	0.263	0.498	0.076
OÖK	0.277	0.273	0.263	0.498	0.076
VÖK/TA	0.277	0.273	0.263	0.498	0.076
NDK/ÖS	0.277	0.273	0.263	0.498	0.076
SP	0.084	0.078	0.087	0.032	0.112

After Square Matrix R, Square matrix P is arranged with the help of Equation 4. The matrix P is shown in Table 5. The value of all cells that make up the diagonals of the matrix is zero.

Table 5. CILOS Method Square Matrix P

	OAK	OÖK	VÖK/TA	NDK/ÖS	SP
OAK	0.000	0.000	0.000	0.000	0.317
OÖK	0.000	0.000	0.000	0.000	0.317
VÖK/TA	0.000	0.000	0.000	0.000	0.317
NDK/ÖS	0.000	0.000	0.000	0.000	0.317
SP	0.697	0.714	0.669	0.936	0.000

After Square Matrix P, Square matrix F is arranged using Equation 5. The F matrix is shown in Table 6. The difference of the F matrix from the previous P matrix is due to the difference in the diagonal values. The diagonal values are negatively signed according to Equation 5 and are the inversely marked sum of the column values except for the $q_i(w)$ values in Table 6.

Table 6. CILOS Method Square Matrix F and CILOS Criterion Weights

	OAK	OÖK	VÖK/TA	NDK/ÖS		SP		
OAK	-0.697	0.000	0.000	0.000		0.317	0.000	0.000
OÖK	0.000	-0.714	0.000	0.000		0.317	0.000	0.000
VÖK/TA	0.000	0.000	-0.669	0.000		0.317	0.000	0.000
NDK/ÖS	0.000	0.000	0.000	-0.936		0.317	0.000	0.000
SP	0.697	0.714	0.669	0.936		-1.269	0.000	0.000
	OAK	OÖK	VÖK/TA	NDK/ÖS		SP	SUM	
$q_i(w)$	0.168	0.164	0.175	0.125		0.369	1.000	

In the last row of Table 6, the criterion weights, i.e. $q_i(w)$ values, are calculated. The value of $q_i(w)$ indicates the importance of the relevant criterion, in other words, the criterion weight, according to the CILOS method. Criterion severities are calculated by solving the equation $q_j(w) Fq^T = 0$. The criterion weight value is calculated by using Excel's solver add-in. According to Table 6, the most important criterion in determining Akbank's financial performance is the sector share (SP) criterion. The weight of this criterion was calculated at the level of 36.9 percent. The second most important criterion is the VÖK/TA (Profit Before Tax/Total Assets) criterion with a significant level of 17.5 percent. The weight of the OAK (Return on Average Assets) criterion is 16.8 percent. This criterion is followed by Average Return on Equity (OÖK) with a weight of 16.4 percent. In last place is the NDK/ÖS (Net Period Profit/Paid-up Capital) criterion with a significance weight of 12.5 percent.

After the determination of the criterion weights by the CILOS method, the grading of the alternatives (years) will be done by the EVAMIX method. As the first step of the EVAMIX ranking method, the decision matrix is arranged. The decision matrix in Table 7 includes the values of the performance criteria for each year. In this matrix,

the first column contains years (alternatives) that are compared to each other. It should be noted that there is no difference between Table 7 and Table 1.

Table 7. Decision Matrix

	Kar.(c)	Kar.(c)	Kar.(c)	Kar. (c)	Or.(o)
	OAK	OÖK	VÖK/TA	NDK/ÖS	SP
	max	max	max	max	max
w	0.17	0.16	0.17	0.12	0.37
2022	6.7	52.3	7.4	1,154.3	8.2
2021	2.1	17.5	2.3	233.2	8.4
2020	1.6	10.7	1.8	120.5	7.9
2019	1.6	11.0	1.9	104.2	8.6
2018	1.8	13.5	2.1	142.2	9.0
2017	2.1	17.0	2.4	151.0	10.2
2016	1.8	15.8	2.1	113.2	10.4
2015	1.4	11.6	1.6	74.9	10.5
2014	1.6	13.6	2.0	79.0	10.9
2013	1.7	13.6	2.1	73.6	11.2
2012	2.0	14.9	2.4	73.7	12.0
<i>Max</i>	<i>6.7</i>	<i>52.3</i>	<i>7.4</i>	<i>1,154.3</i>	<i>12.0</i>
<i>Min</i>	<i>1.4</i>	<i>10.7</i>	<i>1.6</i>	<i>73.6</i>	<i>7.9</i>
<i>Max-Min</i>	<i>5.4</i>	<i>41.6</i>	<i>5.7</i>	<i>1080.8</i>	<i>4.1</i>

Then, with the help of Equations 6 and 7, the normalized decision matrix was arranged. The normalized decision matrix is shown in Table 8. Thus, all values in the matrix take a value between 0-1. If the values move away from zero and close to 1, it indicates that the performance level of that value has increased.

Table 8. Normalized Decision Matrix

	Kar.(c)	Kar.(c)	Kar.(c)	Kar. (c)	Or.(o)
	OAK	OÖK	VÖK/TA	NDK/ÖS	SP
	max	max	max	max	max
w	0.168	0.164	0.175	0.125	0.369
2022	1.000	1.000	1.000	1.000	0.078
2021	0.138	0.163	0.111	0.148	0.115
2020	0.036	0.000	0.026	0.043	0.000
2019	0.040	0.008	0.045	0.028	0.170
2018	0.076	0.068	0.087	0.064	0.263
2017	0.130	0.152	0.130	0.072	0.565
2016	0.080	0.123	0.082	0.037	0.621
2015	0.000	0.021	0.000	0.001	0.636
2014	0.049	0.070	0.058	0.005	0.727
2013	0.069	0.070	0.081	0.000	0.813
2012	0.126	0.102	0.141	0.000	1.000

After the normalization process, the alternative pairs (years) in the normalized decision matrix were compared with each other. Equation 8 was used for the SP qualitative criterion and Equation 9 was used for the quantitative criteria consisting of other criteria, and the results are shown in Table 9.

Table 9. Dominance Score of Each Alternative Pair

Pair	üi'	Yi'	Pair	üi'	Yi'	Pair	üi'	Yi'	Pair	üi'	Yi'	Pair	üi'	Yi'	Pair	üi'	Yi'
(1,2)	-0.369	0.63	(3,1)	-0.37	-0.63	(5,1)	0.37	-0.63	(7,1)	0.37	-0.63	(9,1)	0.369	-0.631	(11,1)	0.369	-0.631
(1,3)	0.369	0.631	(3,2)	-0.369	-0.631	(5,2)	0.369	-0.631	(7,2)	0.369	-0.631	(9,2)	0.369	-0.631	(11,2)	0.369	-0.282
(1,4)	-0.369	0.631	(3,4)	-0.369	-0.381	(5,3)	0.369	0.631	(7,3)	0.369	0.381	(9,3)	0.369	0.381	(11,3)	0.369	0.381
(1,5)	-0.369	0.631	(3,5)	-0.369	-0.631	(5,4)	0.369	0.631	(7,4)	0.369	0.631	(9,4)	0.369	0.381	(11,4)	0.369	0.381
(1,6)	-0.369	0.631	(3,6)	-0.369	-0.631	(5,6)	-0.369	-0.631	(7,5)	0.369	0.032	(9,5)	0.369	-0.304	(11,5)	0.369	0.381
(1,7)	-0.369	0.631	(3,7)	-0.369	-0.381	(5,7)	-0.369	-0.032	(7,6)	0.369	-0.631	(9,6)	0.369	-0.631	(11,6)	0.369	-0.282
(1,8)	-0.369	0.631	(3,8)	-0.369	0.304	(5,8)	-0.369	0.631	(7,8)	-0.369	0.631	(9,7)	0.369	-0.631	(11,7)	0.369	0.054
(1,9)	-0.369	0.631	(3,9)	-0.369	-0.381	(5,9)	-0.369	0.304	(7,9)	-0.369	0.631	(9,8)	0.369	0.631	(11,8)	0.369	0.381
(1,10)	-0.369	0.631	(3,10)	-0.369	-0.381	(5,10)	-0.369	0.304	(7,10)	-0.369	0.631	(9,10)	-0.369	-0.054	(11,9)	0.369	0.381
(1,11)	-0.369	0.631	(3,11)	-0.369	-0.381	(5,11)	-0.369	-0.381	(7,11)	-0.369	-0.054	(9,11)	-0.369	-0.381	(11,10)	0.369	0.631
(2,1)	0.369	-0.631	(4,1)	0.369	-0.631	(6,1)	0.369	-0.631	(8,1)	0.369	-0.631	(10,1)	0.369	-0.631	<i>max</i>	<i>0.369</i>	<i>0.631</i>
(2,3)	0.369	0.631	(4,2)	0.369	-0.631	(6,2)	0.369	-0.282	(8,2)	0.369	-0.631	(10,2)	0.369	-0.631	<i>min</i>	<i>-0.369</i>	<i>-0.631</i>
(2,4)	-0.369	0.631	(4,3)	0.369	0.381	(6,3)	0.369	0.631	(8,3)	0.369	-0.304	(10,3)	0.369	0.381	<i>max-min</i>	<i>0.737</i>	<i>1.263</i>
(2,5)	-0.369	0.631	(4,5)	-0.369	-0.631	(6,4)	0.369	0.631	(8,4)	0.369	-0.304	(10,4)	0.369	0.381			
(2,6)	-0.369	0.282	(4,6)	-0.369	-0.631	(6,5)	0.369	0.631	(8,5)	0.369	-0.631	(10,5)	0.369	-0.304			
(2,7)	-0.369	0.631	(4,7)	-0.369	-0.631	(6,7)	-0.369	0.631	(8,6)	0.369	-0.631	(10,6)	0.369	-0.631			
(2,8)	-0.369	0.631	(4,8)	-0.369	0.304	(6,8)	-0.369	0.631	(8,7)	0.369	-0.631	(10,7)	0.369	-0.631			
(2,9)	-0.369	0.631	(4,9)	-0.369	-0.381	(6,9)	-0.369	0.631	(8,9)	-0.369	-0.631	(10,8)	0.369	0.381			
(2,10)	-0.369	0.631	(4,10)	-0.369	-0.381	(6,10)	-0.369	0.631	(8,10)	-0.369	-0.381	(10,9)	0.369	0.054			
(2,11)	-0.369	0.282	(4,11)	-0.369	-0.381	(6,11)	-0.369	0.282	(8,11)	-0.369	-0.381	(10,11)	-0.369	-0.631			

After determining the superiority scores of alternative pairs to each other, these dominance scores were normalized. At this stage, the standardized qualitative dominance score (δ_{ii}') with Equation 10 and the standardized quantitative dominance score (Y_{ii}') with Equation 11 were calculated and the results are shown in Table 10.

Table 10. Standard Dominance Score of Each Alternative Pair

Pair	δ_{ii}'	Y_{ii}'	Pair	δ_{ii}'	Y_{ii}'	Pair	δ_{ii}'	Y_{ii}'	Pair	δ_{ii}'	Y_{ii}'	Pair	δ_{ii}'	Y_{ii}'	Pair	δ_{ii}'	Y_{ii}'
(1,2)	0.000	1.000	(3,1)	0.010	0.010	(5,1)	1.000	0.000	(7,1)	1.000	0.000	(9,1)	1.000	0.000	(11,1)	1.000	0.000
(1,3)	1.000	1.000	(3,2)	0.010	0.010	(5,2)	1.000	0.000	(7,2)	1.000	0.000	(9,2)	1.000	0.000	(11,2)	1.000	0.277
(1,4)	0.000	1.000	(3,4)	0.000	0.198	(5,3)	1.000	1.000	(7,3)	1.000	0.802	(9,3)	1.000	0.802	(11,3)	1.000	0.802
(1,5)	0.000	1.000	(3,5)	0.010	0.010	(5,4)	1.000	1.000	(7,4)	1.000	1.000	(9,4)	1.000	0.802	(11,4)	1.000	0.802
(1,6)	0.000	1.000	(3,6)	0.010	0.010	(5,6)	0.010	0.010	(7,5)	1.000	0.525	(9,5)	1.000	0.259	(11,5)	1.000	0.802
(1,7)	0.000	1.000	(3,7)	0.000	0.198	(5,7)	0.000	0.475	(7,6)	1.000	0.000	(9,6)	1.000	0.000	(11,6)	1.000	0.277
(1,8)	0.000	1.000	(3,8)	0.000	0.741	(5,8)	0.000	1.000	(7,8)	0.000	1.000	(9,7)	1.000	0.000	(11,7)	1.000	0.543
(1,9)	0.000	1.000	(3,9)	0.000	0.198	(5,9)	0.000	0.741	(7,9)	0.000	1.000	(9,8)	1.000	1.000	(11,8)	1.000	0.802
(1,10)	0.000	1.000	(3,10)	0.000	0.198	(5,10)	0.000	0.741	(7,10)	0.000	1.000	(9,10)	0.000	0.457	(11,9)	1.000	0.802
(1,11)	0.000	1.000	(3,11)	0.000	0.198	(5,11)	0.000	0.198	(7,11)	0.000	0.457	(9,11)	0.000	0.198	(11,10)	1.000	1.000
(2,1)	1.000	0.000	(4,1)	1.000	0.000	(6,1)	1.000	0.000	(8,1)	1.000	0.000	(10,1)	1.000	0.000			
(2,3)	1.000	1.000	(4,2)	1.000	0.000	(6,2)	1.000	0.277	(8,2)	1.000	0.000	(10,2)	1.000	0.000			
(2,4)	0.000	1.000	(4,3)	1.000	0.802	(6,3)	1.000	1.000	(8,3)	1.000	0.259	(10,3)	1.000	0.802			
(2,5)	0.000	1.000	(4,5)	0.010	0.010	(6,4)	1.000	1.000	(8,4)	1.000	0.259	(10,4)	1.000	0.802			
(2,6)	0.000	0.723	(4,6)	0.010	0.010	(6,5)	1.000	1.000	(8,5)	1.000	0.000	(10,5)	1.000	0.259			
(2,7)	0.000	1.000	(4,7)	0.010	0.010	(6,7)	0.000	1.000	(8,6)	1.000	0.000	(10,6)	1.000	0.000			
(2,8)	0.000	1.000	(4,8)	0.000	0.741	(6,8)	0.000	1.000	(8,7)	1.000	0.000	(10,7)	1.000	0.000			
(2,9)	0.000	1.000	(4,9)	0.000	0.198	(6,9)	0.000	1.000	(8,9)	0.010	0.010	(10,8)	1.000	0.802			
(2,10)	0.000	1.000	(4,10)	0.000	0.198	(6,10)	0.000	1.000	(8,10)	0.000	0.198	(10,9)	1.000	0.543			
(2,11)	0.000	0.723	(4,11)	0.000	0.198	(6,11)	0.000	0.723	(8,11)	0.000	0.198	(10,11)	0.010	0.010			

After calculating the normalized dominance scores, the overall dominance scores of the binary alternative pairs were found. At this stage, Equation 12 is used and the results are shown in Table 11.

Table 11. Overall Dominance Scores of Each Alternative Pair

Pair	<i>Dii'</i>	Pair	<i>Dii'</i>	Pair	<i>Dii'</i>	Pair	<i>Dii'</i>	Pair	<i>Dii'</i>	Pair	<i>Dii'</i>
(1,2)	0.631	(3,1)	0.01	(5,1)	0.37	(7,1)	0.37	(9,1)	0.369	(11,1)	0.369
(1,3)	1.000	(3,2)	0.010	(5,2)	0.369	(7,2)	0.369	(9,2)	0.369	(11,2)	0.544
(1,4)	0.631	(3,4)	0.125	(5,3)	1.000	(7,3)	0.875	(9,3)	0.875	(11,3)	0.875
(1,5)	0.631	(3,5)	0.010	(5,4)	1.000	(7,4)	1.000	(9,4)	0.875	(11,4)	0.875
(1,6)	0.631	(3,6)	0.010	(5,6)	0.010	(7,5)	0.700	(9,5)	0.532	(11,5)	0.875
(1,7)	0.631	(3,7)	0.125	(5,7)	0.300	(7,6)	0.369	(9,6)	0.369	(11,6)	0.544
(1,8)	0.631	(3,8)	0.468	(5,8)	0.631	(7,8)	0.631	(9,7)	0.369	(11,7)	0.711
(1,9)	0.631	(3,9)	0.125	(5,9)	0.468	(7,9)	0.631	(9,8)	1.000	(11,8)	0.875
(1,10)	0.631	(3,10)	0.125	(5,10)	0.468	(7,10)	0.631	(9,10)	0.289	(11,9)	0.875
(1,11)	0.631	(3,11)	0.125	(5,11)	0.125	(7,11)	0.289	(9,11)	0.125	(11,10)	1.000
(2,1)	0.369	(4,1)	0.369	(6,1)	0.369	(8,1)	0.369	(10,1)	0.369		
(2,3)	1.000	(4,2)	0.369	(6,2)	0.544	(8,2)	0.369	(10,2)	0.369		
(2,4)	0.631	(4,3)	0.875	(6,3)	1.000	(8,3)	0.532	(10,3)	0.875		
(2,5)	0.631	(4,5)	0.010	(6,4)	1.000	(8,4)	0.532	(10,4)	0.875		
(2,6)	0.456	(4,6)	0.010	(6,5)	1.000	(8,5)	0.369	(10,5)	0.532		
(2,7)	0.631	(4,7)	0.010	(6,7)	0.631	(8,6)	0.369	(10,6)	0.369		
(2,8)	0.631	(4,8)	0.468	(6,8)	0.631	(8,7)	0.369	(10,7)	0.369		
(2,9)	0.631	(4,9)	0.125	(6,9)	0.631	(8,9)	0.010	(10,8)	0.875		
(2,10)	0.631	(4,10)	0.125	(6,10)	0.631	(8,10)	0.125	(10,9)	0.711		
(2,11)	0.456	(4,11)	0.125	(6,11)	0.456	(8,11)	0.125	(10,11)	0.010		

After finding the overall dominance scores, the evaluation score (performance score) for each year was calculated. At this stage, Equation 13 is used and the results are shown in Table 12.

Table 12. Appraisal Score of Alternatives and Ranking

Alternative	<i>Si</i>	Rank
2022	0.1899	2
2021	0.1314	4
2020	0.0023	11
2019	0.0031	10
2018	0.0086	8
2017	0.1637	3
2016	0.1007	5
2015	0.0082	9
2014	0.0572	6
2013	0.0092	7
2012	0.2212	1

According to the above table, the analysis using the CILOS and EVAMIX integrated method revealed that Akbank's most successful financial year in terms of financial performance was 2012. The reason for this outcome is that the (SP) sector share, VÖK/TA (Profit Before Tax/Total Assets), OAK (Return on Average Assets), OÖK (Return on Average Equity) and NDK/ÖS (Net Period

Profit/Paid-up Capital) criteria are at the optimum level in the said year. The second most successful year in the performance ranking was 2022 and the third was 2018. The lowest performance years are 2020, 2019 and 2015, respectively. If we pay attention to these results, these years observed the economic and financial stagnation or crises in Turkey for different reasons (the coup attempt, pandemic and Father Branson case).

Table 13. Appraisal Score of Alternatives and Ranking (Sorted)

Alternative	Si	Rank
2012	0.2212	1
2022	0.1899	2
2017	0.1637	3
2021	0.1314	4
2016	0.1007	5
2014	0.0572	6
2013	0.0092	7
2018	0.0086	8
2015	0.0082	9
2019	0.0031	10
2020	0.0023	11

The performance sequence of the fiscal years examined can be seen more clearly from the table above. A low number in the rating indicates a high achievement in terms of performance.

6. Conclusion

Measuring the financial performance of banks, individually or together, which can positively or negatively affect the income level and standard of living of almost all individuals of a society due to their financial intermediation functions, has always been in the focus of interest of researchers. Financial performance analyses of banks can be carried out collectively as a sector and as a group, or solo on a bank basis, and the results they produce can be very useful for researchers and readers, regardless of the basis.

When the local literature on the financial performance of banks in recent years is examined, it is seen that Akbank is one of the successful banks that generally ranks high, especially in profitability performance. In this study, the long-term financial performance of the bank, as a private sector deposit bank, is analyzed by taking into account the profitability ratios (OAK, OÖK, VÖK/TA, NDK/ÖS) plus Bank's share in the sector (SP) as criteria and by integrating CILOS and EVAMIX methods. Data on the bank's performance criteria were obtained from

the Banks' Association of Turkey. The research includes 10 financial years in the period of 2012-2022.

It can be seen that the bank's asset share in the sector has decreased over the years. It is seen that the share of the bank's total assets in the total assets of the banking sector decreased from 12% in 2012, which was the beginning of the period, to 8.2% in 2022 after 10 years. A market loss of 3.8 percent is a major consideration. It can be considered as a paradoxical situation that a bank with high profitability performance loses its share in the sector. It can be said that increased profitability is not sufficiently reflected in the total of balance sheet, equity and assets.

The most significant criterion in the bank's financial performance is the sector share (SP) criterion. The weight of this criterion was calculated at the level of 36.9 percent. The second most important criterion is the VÖK/TA (Profit Before Tax/Total Assets) criterion with a significant level of 17.5 percent. The weight of the OAK (Return on Average Assets) criterion is 16.8 percent. This criterion is followed by Average Return on Equity (OÖK) with a weight of 16.4 percent. In last place there is the NDK/ÖS (Net Period Profit/Paid-up Capital) criterion with a significance weight of 12.5 percent.

In the analysis using the CILOS and EVAMIX integrated method, it was revealed that Akbank's most successful financial year occurred in 2012. The reason is that the (SP) sector share, VÖK/TA (Profit Before Tax/Total Assets), OAK (Return on Average Assets), OÖK (Return on Average Equity) and NDK/ÖS (Net Period Profit/Paid-up Capital) criteria are at the optimum level in that year. The second most successful year was 2022 and the third was 2018 in the performance ranking. The lowest performance years were 2020, 2019 and 2015, respectively. These years observed economic and financial stagnation or crises in Turkey due to different reasons such as the coup attempt, the pandemic and Branson case. By the way, there is a consistency between this result and that of Işık research in 2020. This is because both works have the outcome by saying that 2019 was not a successful year for the bank.

In the meantime, it should be said that the results of the research can be influenced by the methods used here and the criterion selection. For this reason, it will be better to apply other methods and criteria set for further research in future.

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Chapter 13

An Analysis of the Stylistic Elements in Imagist Poetry: Superiority of Sound and Visuality

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ABSTRACT

Poetry is a creative activity that uses language in a distinctive and extraordinary way. There is a strong and intimate relationship between form and content. In the early years of the 20th century, especially with the emergence of the imagist movement, poetry takes a more concrete shape which prioritizes visual elements and draws the portrait of a specific moment or object like a painting. The form of the poem survives its meaning and the poem is the reflection of reality itself with its distinct pattern. William Carlos Williams is one of the most important imagist poets who defends and supports the effect of visual elements with his poems, such as *A Red Wheelbarrow* and *Poem (As the cat)*. Some poems like *frog pond* by B.P. Nichol and *A Long Tail* by Lewis Carroll also present the great examples of visual poetry. On the other hand, there are also some poets such as Bill Bissett, and Allen Ginsberg who put more emphasis on sounds rather than visuality in their poems. They aim at conveying their message by means of the sounds, tone, rhythm and musicality they use in their poems. Therefore, the purpose of my paper is to demonstrate how their works reflect the significance of visual elements over sound elements, or sound elements over sight.

Keywords – sound, vision, poetry, visual, imagist

INTRODUCTION

Poetry is a creative activity that uses language in a distinctive and extraordinary way. Greta Barclay Lipson expresses: “Poetry is the language of the heart, the mind and the spirit! Each word is finely tuned to express a distillate of feeling. Each word is like a crystal held up to capture and refract the light. A word carefully chosen is a compression of thought, feeling and essence. Words witness for us and tell our stories in extraordinary ways” (Lipson, 2015: 8). Different from prose, it has some specific rules and features such as, meter, rhyme, versification, musicality or harmony. It is outstanding with its stylistic elements as well as its content. There is a strong and intimate relationship between form and content. What a poem says or means is closely related to how it is said. As regards the definition of poetry, Howard Nemerov notes that “poetry is a place where contradictions do not destroy one another” (Nemerov, 1978: 10). A poem gains meaning or becomes revitalized by the human voice, because of its performative features coming from the arrangement of stressed and unstressed syllables with the grouping of some certain sounds and words. Therefore, poetry is called a composition which addresses both to the eye and the ear.

When we look at the historical process of poetry, we see that some poets are much more interested in its technique, while some give more importance to its meaning rather than form. In the early years of the 20th century with the emergence of modernist poetry in English, some poets challenge the traditional formal features of poetry and tend to technical innovation in poetry. Andrew Thacker asserts that “the term ‘Imagism’ signified more than simply an experimental form of verse; ‘Imagism’ signified a new modern movement as much as a new poetic style, and, arguably, it was the movement which defined the style rather than vice-versa” (Thacker, 2011: 4). Especially with the imagist movement, poetry takes a more concrete shape which prioritizes visual elements and draws the portrait of a specific moment or object like a painting. The form of the poem survives its meaning and so the poem is the reality itself with its distinct pattern. In poetry an ordinary and static moment gains importance with the image drawn in our imagination. William Carlos Williams is one of the most important imagist poets who defends and supports the effect of visual elements with his poems, such as *A Red Wheelbarrow* and *Poem (As the cat)*. Some poems like *frog pond* by B.P. Nichol and *A Long Tail* by Lewis Carroll also present the great examples of visual poetry. On the other hand, there are also some poets such as Bill Bissett, and Allen Ginsberg who put more emphasis on sounds rather than visuality in their poems. Sight remains in the second place and sound comes to the head in their poetry. They aim at

conveying their message by means of the sounds, tone, rhythm and musicality they use in their poems. Therefore, the purpose of my paper is to demonstrate how their works reflect the significance of visual elements over sound elements, or sound elements over sight, although one side reflects the features the other side gives priority to in his poems more or less.

In the early poems of Williams Carlos Williams, we see that visuality is a very significant and remarkable feature that make his poems distinctive and meaningful. For instance, in *The Red Wheelbarrow*, it is clear that form and content are inseparable from each other, since the words in lines draw the picture of a wheelbarrow. The poem is like a painting which uses visual elements to express the meaning. In this poem the Imagist-influenced philosophy of no ideas but in things is dominant, since it describes a red wheelbarrow in a specific situation in a specific time throughout the poem. Using a painterly language, the poem confirms William's statement, "No ideas, but in things." With its unusually divided sentence structure, the poem mirrors a seemingly ordinary object as an exclusive image. The poem is so deeply focused upon the image of a wheelbarrow that we recognize that the wheelbarrow is not an ordinary object, but it is the poem itself. The image of the wheelbarrow forms the poem itself as follows by perceiving the single words in the second lines of each couplet as the wheels:

so much depends

upon
red wheel
barrow
glazed with rain
water
beside the white
chickens. (*The Red Wheelbarrow*)

With the reflection of a static moment in daily life in this way, the ordinary things become as significant and extraordinary as unusual things. Everything is pictured in detail. However much more importance Williams gives to visual elements, he does not completely ignore the harmony of the consonant sounds (consonance) by means of the letters like 'r, w'. In the first and second lines the phrase "so much depends upon" can be interpreted both in terms of form and meaning. The poem is composed of one sentence with some breaks and so it depends upon each line of the poem, just as a wheelbarrow is a simple machine people depend upon in farming. That's to say, a wheelbarrow bears as much significance as the form of the poem as a new free verse. The structure is

intertwined with the meaning as in Williams' other poem called *Poem (As the cat)*. In this poem the silent, careful movements of the cat have a parallelism with the flow of the poem. Again, the sentence is composed of one sentence and each line reflects one part of the movement process. Only in the end we reach the meaning of the poem by means of its one or two-word lines step by step as the steps of the cat going through the empty flowerpot.

As the cat
Climbed over
The top of

The jam closet
First the right
Forefoot

Carefully
Then the hind
Stepped down

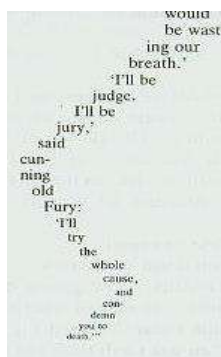
Into the pit of
The empty
Flowerpot (Williams)

One of the leading precursors of visual poetry, bpNichol (Barrie Phillip Nichol) also dealt with several modes but gained prominence in magazines and anthologies, and reached a wide audience through visual poetry on an international platform. Another outstanding and distinguished example of visual poetry is the poem called *frog pond* by bpNichol. The sight of the poem tells everything about the meaning. The poem is composed of only three words which are interconnected by means of a vertical line indicating the jumping of the frog into the pond. The word 'frog' is drawn from this slanting flow of the poem and it is understood that frog makes a sound like 'glop' after springing into the pond. The association of the word 'glop' helps us to guess the movement of the frog and its result. In this poem visual and sound elements seem to be intertwined, but at first sight what draws our attention is its visual effect on us with the placement of the words and the picture it draws in our imagination.

fr
p bnd
glop

Being indulged in experimental efforts in this minimalist poem, bpNichol aims to exhibit a concrete act, that is, both reality itself and a poetics. The act that the frog plunges into the pond instantly and coming through the surface is all a concrete representation of the transformation of the idea into experience in the real sense. Furthermore, the writing style of his own name can also be regarded as part of visual poem as he was among many maverick visual poets who mostly played with upper- and lower-case letters in the 60s. The variations in writing his own name as “bPNichol,” or “bp Nichol,” or “bpNICHOL,” but finally “bpNichol” recapitulate some significant changes and improvements in his personal and career life as well as his obsession with the letters “b” and “p” which reflected one another visually. His life philosophy was to extend his art perpetually and to inspire others about working with this concrete form of poetry with an inventive motive.

In “The Mouse’s Tale” by Lewis Carroll, the priority of visuality is again in the first place. The poem has a mode of a long tale with its broken-up words in a linear way rather than a horizontal way. It has a shape and structure like a ‘tail’ as can be understood from its title. The word ‘tale’ has the same pronunciation with the word ‘tail’ and this long tale is better pictured with the image of tail coming from this play of language in the title. The meaning is justified and confirmed by its form like the reality itself.



(A Long Tale)

Lewis Carroll shaped this poem in his novel *Alice’s Adventures in Wonderland*, which was published in 1865. This chapter in the novel actually refers to “A Long Tale” introduced by the Mouse. Alluding to the pathetic and upsetting features of his tale, the Mouse stresses ironically: “Mine is a long and

sad tale!”. In this way the Mouse starts to tell Alice his history and portrays the recitation of the poem in a tail-like shape. Although the Mouse implies that he will recount why he dislikes cats and dogs in the tale, only dogs are reflected to be the enemies of the mice in this printed poem. Nevertheless, *Alice’s Adventures Under Ground*, which was the handwritten version of *Alice in Wonderland* published in 1863, labels both cats and dogs as villains. Particularly, the verbal connection between the homonym’s tale/tail drew a lot of attention as the poem was furnished with verbal plays and visual puns written along the Mouse’s tail. The shape of a tail in the poem along with patterned or figured verse was identified with concrete poetry. This tale narrated by a mouse is, in fact, duplicated in the shape of a mouse’s tail.

In *Remarks on Poetry*, Paul Valery compares and contrasts prose and poetry with walking and dancing. He claims that prose loses its effect as soon as it arrives, while poetry maintains its effect through the depths of our being with rhythms. He says: “in practical or abstract uses of language which is specifically prose, the form is not preserved, does not survive understanding, but dissolves in clarity [...], but the poem does not die for having been of use; it is expressly made to be reborn from its ashes, perpetually to be again what it has been...” (*Remarks on Poetry*). Hence poetry takes its magic from the musicality like dancing. What is important is not the result, meaning or message, but the performance of the poem. The extraordinary unity and harmony between sounds make poetry permanent and unforgettable in our minds, as it activates our muscles or whole body with its rhythm and musicality.

One of the poets who are more interested in sounds in poetry rather than vision is Bill Bissett. Contrary to visual poets, he prioritizes sound elements over sight. For instance, in *language n desire* the words are written not according to how it is spelled, but how it is pronounced. We draw the meaning from the sounds rather than the sight. Visuality loses its effect and significance in this poem. Our attention veers away from visuality through sounds. The poet seems as if he intends to make us adopt his own accent. That is, the sounds in the poem are the voice of the poet. The discourse of the poem gives us extrinsic information about the poem. We can see the importance of sounds over sight with these lines more clearly:

thers mor 2 life thn being - there is more to life than being
thers also bcumming n - there is also becoming and
all the time yu have ar - all the time you have are
being n bcumming - being and becoming (*langwage n desire*)

When we look at *America* by Allen Ginsberg, we face again the idea that “a poem is a composition written for performance by Sthe human voice”¹ appears. Normally these poems seem to be like prose, but what makes them poetic is how some words and sounds are read emphatically, according to the kind of emotion to be reflected. For instance, *America* is a very dramatic poem with its rhythmic words. The voice of the poet helps the meaning be conveyed better, since sounds are suitable to the performance by human voice. By addressing to America at the beginnings of lines, Ginsberg attracts our attention to it. He imposes different meanings and feelings to this word in each address of him. The emphasis his voice puts on some words, change in his voice, and his misuse of some words deliberately and some repetitions in the poem are deterministic of the meaning and feelings, considering it is an ironical revolutionary tone. This poetry has a close relationship with Beat Poetry. Especially *Howl* by Allen Ginsberg is regarded as one of the major works of Beat Poetry which is written in free verse and we see that Ginsberg puts emphasis on the word ‘who’ by repeating it at the beginnings of many lines. Ginsberg is inclined to illustrate the hopeless effort of people to resist society or escape from it that mostly result in the situation of more despair or insanity among the problematic individuals struggling to overcome their various failures:

who threw their watches off the roof to cast their ballot for Eternity
outside of Time. & alarm clocks fell on their heads every
day for the next decade.

who cut their wrists three times successively unsuccessfully, gave up
and were forced to open antique stores where they thought
they were growing old and cried (*Howl*, 136-141)

In “Notes Written on Finally Recording *Howl*”, Ginsberg says “I depended on the word ‘who’ to keep the beat, a base to keep measure, return to and take off from again onto another streak of invention”.² The repetition of ‘who’ maintains both the beat and rhythm of the poem with some other emphatic

¹ Stallworthy, Jon. *Versification*.

² ‘Notes for *Howl* and Other Poems’. *Fantasy* LP recording 7006 (1959)

words. Thus, the effect of sound and musicality as the extrinsic elements of the poem is undeniable for the meaning as the intrinsic elements of the poem. Contemplating upon the various attempts of people to escape from society, their personal failures, their search for alternative lifestyles and their resistance against capitalism or inner conflicts, Ginsberg reflects this tendency to escape from society at the beginning of the poem *Howl* like this:

who cowered in unshaven rooms in underwear, burning
their money in wastebaskets and listening to the Terror
through the wall (*Howl*, 16-17)

Depicting a person hiding in an “unshaven” and untidy” room in underwear in the above poem, Ginsberg highlights two different aspects of escaping from society as Wedekind points out. Wedekind states: “Firstly burning money stands for a rejection of a central element of modern capitalist society, or even of capitalism as a whole... Secondly, “the Terror through the wall” seems to be a symbol of the ills of society that the individual is confronted with every day” (Wedekind, 2008: 2). In the 1950s, it was very difficult to be active in social life without money. Besides, the cowering person in the room represents the person who is anxious and afraid of the society and outer world and thus this person prefers avoiding confronting with it although he fails in his attempt. He cannot help hearing the “Terror” through the wall as other people choose to distract themselves by a frequent use of drugs or excessive sex just in order to abstain from the social ills they witness every day.

CONCLUSION

It is inferred that some poets resort to visual images in relation to the meaning of the poem structurally, while some benefit from the sounds to convey the meaning, irrespective of vision. Exceptionally some of them also pay attention to the harmony among sounds although their poems are striking with visual elements. Both vision and sound can be intertwined more or less in visual poetry, but the poems in which sound is prominent address to the ear rather than eye, since they will seem too complex to understand visually. In all the poems I have covered until now, the collective feature is that all of them nearly care sound, although some of them emphasize it more. However, all of them do not share visual elements as collective quality, because some of them ignores sight and deal with only sound.

In conclusion, closely related with the imagist movement in English poetry, early twentieth century poets such as William Carlos Williams, Lewis Carroll or

B. P. Nichol used a direct and economical language and focused on the rhythms of common words and phrases. Preferring free verse in their poetry, these imagists intended to portray real life, people and places. In contrast to the abstractions of the former poetic traditions, imagist poets tended to express their thoughts and feelings in a concrete way. Emerging as a reaction to the highly-elevated language and earlier forms of poetry and poetic movements, Imagism aimed at mirroring greater truths through images. Visual poetry makes use of the evocative features of the words and underscores the material aspect of written language as a pictographic form of representation by exploiting verbal signifiers. Centred upon the nexus of form and meaning, visual poems can be considered to have transgressive styles situated between verbal and visual arts.

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Chapter 14

Development Policies and Their Outcomes in Developing Countries Since the 1960s: A Theoretical Approach

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Abstract

In this study, the development policies implemented by developing countries since the 1960s have been theoretically analyzed, and the outcomes of these policies have been evaluated. Additionally, development policies have been classified by periods, and their unique characteristics have been elucidated. Emphasizing that the concept of development encompasses more than just economic growth, criteria such as education, health, and the Human Development Index have also been used in evaluating development policies. The study presents the progression of these criteria in developing countries as a result of the implemented development policies through graphical representations. Within the scope of this study, the aim is to understand which period's development policies have been more effective and to help developing countries see the outcomes they can achieve when implementing these policies.

Key Words: Economic Development, Economic Growth, Developing Countries,

Gelişmekte Olan Ülkelerde 1960'lardan İtibaren Uygulanan Kalkınma Politikaları ve Sonuçları: Teorik Bir Yaklaşım

Öz

Bu çalışmada 1960'lı yıllardan itibaren gelişmekte olan ülkelerin uyguladıkları kalkınma politikaları teorik olarak analiz edilmiş ve bu politikaların sonuçları değerlendirilmiştir. Ayrıca çalışmada, kalkınma politikaları dönemler itibariyle sınıflandırılmış ve bu politikaların kendine has özellikleri ortaya konmuştur. Çalışmada kalkınma olgusunun salt iktisadi büyüme anlamına gelmediğine vurgu yapılarak kalkınma politikalarının değerlendirilmesinde eğitim, sağlık ve İnsani Gelişme Endeksi kriterleri de kullanılmış ve bu kriterlerin uygulanan kalkınma politikaları sonucunda gelişmekte olan ülkelerde hangi yönde ilerlediğini grafikler yardımıyla ortaya konmuştur. Bu çalışma kapsamında, hangi dönemde uygulanan kalkınma politikalarının daha etkili olduğunun anlaşılması ve gelişmekte olan ülkelerin bu politikaları uyguladıklarında elde edecekleri sonuçları görmeleri amaçlanmıştır.

Anahtar Kelimeler: Ekonomik Kalkınma, Ekonomik Büyüme, Gelişmekte Olan Ülkeler

1. Introduction

The term "economic development" encompasses more than just economic growth. Economic development in a country or region signifies the process of improving economic well-being, wealth, and the quality of life over time. Beyond economic growth, it includes various factors such as enhancements in living standards, poverty reduction, progress in education and healthcare, and the overall improvement in the population's quality of life (Ghosh, 2012).

While growth rates can serve as important indicators of development in a country, it becomes necessary to consider other indicators when income distribution within that country is unequal. In this context, when evaluating development, it is crucial to focus on indicators such as education and health in addition to the increase in national income to obtain accurate measurements (Sen, 1985). Recent development literature has indeed placed significant emphasis on examining education and health (Enderlein, Trebesch, & von Daniels, 2012).

In this study, development policies implemented in developing countries since the 1960s have been evaluated, and their outcomes have been discussed. The aim of the study is to identify the factors that have contributed to the success or failure of these development policies.

In the first part of the study, the development policies applied during two distinct periods have been mutually evaluated. The first period, from 1960 to 1980, when governments played a prominent role in the economy, and the second period, from 1980 to 2000, characterized by the dominance of neoliberal policies supported by the IMF and World Bank, have been assessed. Furthermore, the study has also evaluated the post-2000 development policies, which emerged as a synthesis of these two periods, where both state intervention and neoliberal policies played a role. Additionally, in this section it has been also discussed sustainable development policies that have gained importance since the year 2000.

In the second part of the study, the economic outcomes of the implemented development policies have been analyzed through a comparative approach. Subsequently, the study has assessed the contributions of these policies to education, health, and overall welfare.

In the final part of the study, it has been stated that between 1960 and 1980, a period when the state played a central role in the economy, although not sufficient, important steps were taken towards development. In contrast, during the 1980-2000 period, which witnessed the implementation of structural reforms recommended by the IMF and the World Bank, it has been noted that developing countries did not achieve success in terms of both economic growth and comprehensive development. However, after the year 2000, it has been found that

the development policies implemented yielded better results compared to earlier periods. Both economically and socially, countries made significant gains during this period. Another reason for success during this period has been the investments made within the framework of sustainable development.

.2. Import Substitution Period (1960-1980)

Since World War II, developing countries have generally placed significant importance on the development of the industrial sector in their development policies. However, in the 1960s, unlike previous periods, the importance of agriculture in achieving industrialization became better understood. During this period, it was argued that increased productivity in agriculture would generate resources for the industrial sector. In this regard, various incentives were provided to farmers to increase agricultural productivity. Furthermore, to prevent economic bottlenecks during this period, demand-oriented policies aimed at increasing economic capacity were supported, and the importance of human capital was further emphasized. To make the relationship between agriculture and industry successful, sectors were differentiated within the framework of Lewis's dualism theory, and efforts were made to create a foundation for the implementation of planned strategies. However, the desired level of success was not achieved with these strategies. The main reason for this was the neglect of technological and organizational differences between sectors. This oversight also hindered the presentation of data accurately, preventing policies from being reviewed step by step (Thorbecke, 2006).

In the 1970s, strategies were developed taking into account the outcomes of the policies implemented in the 1960s. Studies have shown that a uniform strategy is needed in rural areas. Additionally, the impact of the informal economy on the overall economy was found to be much greater than initially estimated. As a result of these studies, countries during this period put forth three fundamental strategies to achieve development goals. The first is the "redistribution with growth" strategy, the second is the "basic needs" strategy. The third strategy is the Dependency theory (Chenery, Ahluwalia, Bell, Duloy, & Jolly, 1975).

The first of the strategies, "redistribution with growth," is based on the goal of providing the necessary support to the impoverished people in rural areas, increasing production in the agricultural sector, and generating resources for the industrial sector. In this context, taxes from the private sector were increased to facilitate the transfer of resources within the country to benefit the impoverished population (O'Connell, 2017).

The second fundamental development strategy in the 1970s is the Basic Needs strategy supported by the International Labor Organization. Within the framework of this strategy, in addition to public investments, structural reforms and land reforms were introduced. As part of these reforms, direct credits were provided to the agricultural sector, and efforts were made to increase productivity in the informal economy (Emmerij, 2010).

The third development strategy implemented in the 1970s is the Dependency Theory developed by Neo-Marxists, emphasizing underdevelopment and dependency. According to this theory, for development to be achieved, resources need to be largely transferred to the state, and many forms of private property should be abandoned. This strategy was most intensively used by China during that period. China, during that time, pursued a protectionist and indigenous technology-based development strategy (Chenery, Ahluwalia, Bell, Duloy, & Jolly, 1975).

As a result, during this period, the state became the dominant player in the market in general. However, the desired level of success was not achieved. While some countries experienced significant increases in their GDPs, mistakes made during the implementation of policies negatively affected income distribution within countries. So countries had to make changes to their objectives. In the 1960s, the primary goals were increasing GDP and achieving a balanced payment system, but by the 1970s, the main objectives had shifted towards reducing the number of the impoverished population, ensuring a fair distribution of income within the country, and reducing unemployment (Jackson, 2007).

3. Privatization and Opening Up Period (1980-2000)

As the 1980s began, the debt crises and balance of payments issues that emerged in developing countries led to significant shifts in many aspects. Consequently, during these years, the primary focus of governments became stabilizing the balance of payments and resolving budgetary problems. As a result, economic development took a backseat for developing countries in the early 1980s. This period has been characterized as a time when sufficient progress in terms of development was not achieved. However, it is also true that there were a few accomplishments in the field of development theory during this period (Thorbecke, 2006).

One of these achievements belongs to the endogenous growth school. The endogenous growth school has redefined the importance of human capital, emphasizing that growth is linked to internal factors rather than external ones. According to the theory, the first step in development is organizing human capital and technological developments to increase productivity in the industry. This

highlights the recognition of the state's role in education and human training in the 1980s (Lucas 1988; Romer 1990). The second major contribution to development theory during this period was the emphasis on the positive relationship between international trade and development. Findings from empirical studies during that time revealed that open economies grew faster than closed economies (Winters, 2004; Williamson 1991). This led to the adoption of new policies aimed at increasing exports in development strategies. Additionally, new institutional economics emerged in the 1980s. According to this perspective, the importance of institutions necessary for development was emphasized, and the required structures started to be established through new regulations. New institutional economics also developed the theory of feasibility and functionality. Consequently, in addition to individual capacity, the freedom of choice began to gain importance (North, 1990).

The most prominent feature of development policies implemented in the 1980s is the contradictions between goals and practices. In such a way that, in the early 1980s, the main goal of governments was to correct the balance of payments, but with the achievement of trade liberalization, developing countries lacking sufficient production capacity saw an increase in imports, leading to further imbalances in their balance sheets. In addition to this, despite the emphasis on the role of the state in education by the Endogenous Growth School, due to the significant withdrawal of the state from the market, sufficient attention could not be paid to human capital development in education. However, it's important to note that the emergence of such contradictions is not solely due to the wrong policy choices of governments. The high level of political pressure exerted by developed countries on indebted developing countries also played a significant role in the implementation of policies that were contradictory to the stated goals (Yavuz, 2007).

The problems encountered in the 1980s continued to persist and grow into the 1990s, with economic stability and adjustment policies remaining at the forefront in developing countries during this period. Many Latin American countries, several Asian countries under debt crisis, Sub-Saharan African countries, and most transition economies in Eastern Europe grappled with structural reforms in the first half of the 1990s to address existing economic problems.

In the latter half of the 1990s, the Asian financial crisis emerged, severely affecting the economies of the region. The increase in poverty following the crisis undermined confidence in the development strategies being implemented. Additionally, the liberalization of capital movements that emerged with the Washington Consensus and IMF agreements during this period made it more difficult to monitor and regulate financial accounts, opening the door to tax

evasion. This situation contributed to the inability to achieve the desired success with structural reforms in the second half of the 1990s (Frischtak, 1994; Şen, 2005).

Overall, the development policies implemented in the 1990s were a continuation of the development policies implemented in the 1980s. However, especially the Asian financial crisis and the structural adjustment problems that emerged in Sub-Saharan African countries opened up discussions about the implemented development policies. Nevertheless, the World Bank, under the condition that structural reforms were fully implemented, continued to support the idea that development would be achieved, and it took a stance in favor of the continuation of these policies. As a result, with the support of the IMF and the World Bank, structural reforms that began in the 1980s and gained momentum in the 1990s were used as a major component in the 20-year development process, but the desired benefits were not achieved (Killick, 2003).

4. Post-2000 Development Policies

The failure of developing countries to achieve the desired benefits from the development policies suggested by the IMF and the World Bank forced them to pursue different development policies. Development strategies after the 2000s have generally emerged as a synthesis of development ideas from the state-oriented development of the 1960s and the liberalization of the 1980s.

In this period, it has been accepted that equitable income and wealth distribution positively affect economic growth in new development policies. This theory operates on the premise that the reason for slowing down growth is the unequal income distribution. According to this theory, the wealthy tend to save a larger portion of their income compared to the poor, resulting in suboptimal investment. This situation acts as a hindrance to rapid growth. It has also undermined the Neo-Classical economic theory that all savings are automatically converted into investments (Blokker, 2005).

Furthermore, the importance of institutions has increasingly become evident in new development policies. In addition to this, poverty has been defined more comprehensively in the 21st century. Sen's concept of functionality and feasibility, upon which the Human Development Index is based, has been examined from a broader perspective, and the definition of well-being has been expanded. As a result, the concept of development is not solely perceived as economic but also includes factors such as education, health, democracy, access to knowledge, and freedom (Mabaso, Zama, Mlangeni, Mbiza, & Mkhize-Kwitshana, 2018).

In addition, in this period the concept of sustainable development came to the fore and the United Nations introduced the Millennium Development Goals. Sustainable development, unlike economic growth and economic development, takes into account the protection and improvement of the environment in the development process and aims to create policies for the development to become continuous. In this sense, sustainable development is a more inclusive framework than economic growth and economic development. (Feldman, Hadjimichael, Lanahan, & Kemeny, 2016).

On the other hand, in line with the Millennium Development Goals, objectives such as reducing hunger and poverty, promoting a clean environment, ensuring a healthy life, and promoting sustainability have become the fundamental goals of development. Within the framework of these objectives, the importance of a fair income distribution in the economy has increased (The United Nations, 2016).

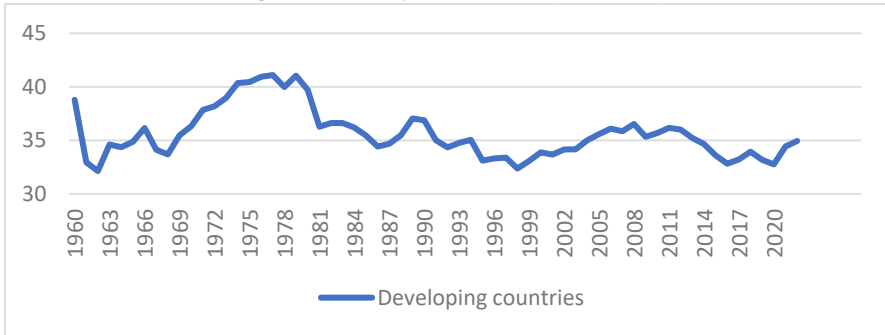
5. Economic Consequences of Development Policies

As previously mentioned in this study, it is possible to divide the development policies of developing countries after 1960 into three periods. The first of these periods covers the years 1960-1980. In general, state-centered development strategies were followed during this period. The second period covers the years 1980-2000. During this period, development strategies that were influenced by the private sector and centered around commercial liberalization became prominent. The third period of development theories represents a synthesis of these two approaches and spans from the 2000s to the present (Weisbrot & Ray, 2011).

Therefore, it would be useful to compare the outcomes across these periods to gain a better understanding of the extent of the benefits resulting from the various development policies implemented since the 1960s. Additionally, in order to assess true development, factors such as education, healthcare, and social rights should also be taken into consideration. Furthermore, income distribution and productivity are key concerns in the realm of development. Nevertheless, the growth rates of countries still play a significant role in the development process. In this regard, it would be beneficial to examine how the implemented development policies influence the growth rates of countries (Sen, 1985).

At this point, firstly, it would be useful to investigate the extent to which the value added by the industrial sector in national income has changed over the years in developing countries to observe the effects of the development policies implemented. In Figure 1, the contribution of the industrial sector to GDP in developing countries is depicted.

Figure 1: Industry, value added (% of GDP)



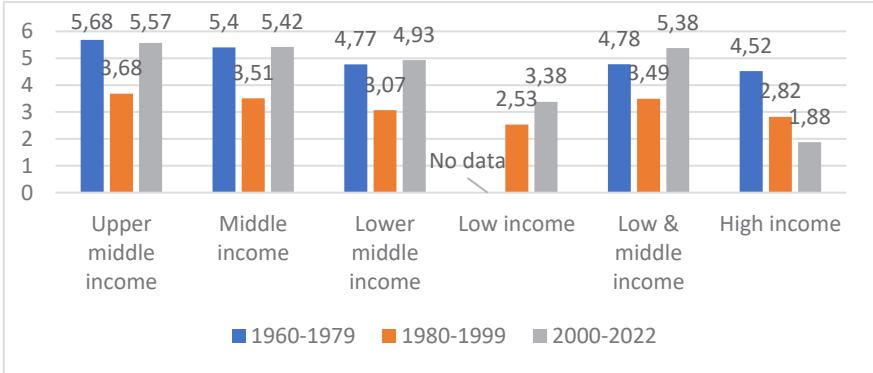
Source: (The World Bank, 2023a)

As can be understood from the figure, during the period of import-substitution policies applied from 1960 to 1980 in developing countries, the value added by the industrial sector to the GDP increased significantly. In fact, this ratio, which was 32.94% in 1961, rose to 36.32% in 1970 and 41.05% in 1979. However, in the period from 1980 to 2000, when there was a shift away from import-substitution policies and a reduction in public investments, it is observed that the value added by the industry to the GDP decreased. Indeed, this ratio decreased to 33.88% in the year 2000. Subsequently, with the government's renewed influence on the economy after the 2000s, this ratio started to increase again and reached 36.53% in 2008. Due to the fluctuations caused by the global economic crisis that occurred after this period, this ratio eventually stood at 34.93% as of the year 2022 (The World Bank, 2023a).

In conclusion, it can be understood that during periods when the government's presence in the economy was influential, the value added by the industrial sector to the national income increased. At this point, it can be said that the period from 1960 to 1980, when the public sector was strong, was more productive for the industrial sector compared to later periods.

In the current section of the study, it would be beneficial to examine the average growth rates of countries in different income groups. In Figure 2, countries are categorized into six different groups according to the United Nations classification, and the average growth rate is shown for each group.

Figure 2: Annual Growth Rates



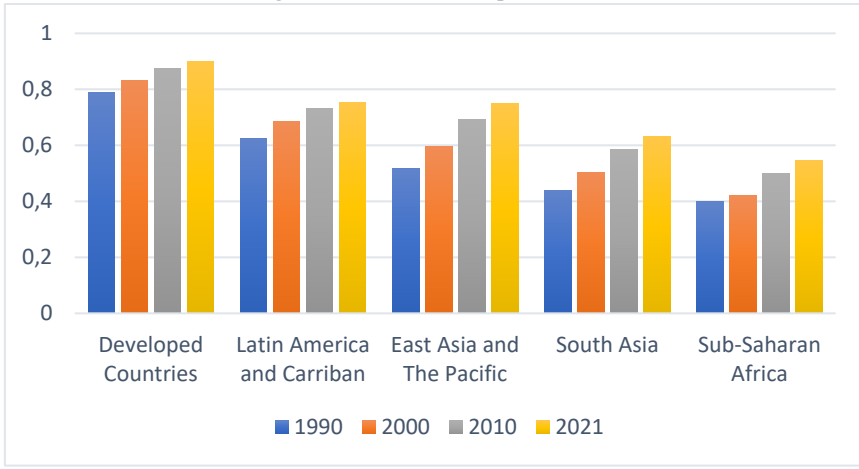
Source: (The World Bank, 2023b)

According to the figure, it can be said that state-centered policies have yielded better results in economic growth compared to liberal policies. Liberal policies initially showed positive results due to aid packages provided by the IMF and the World Bank in their early years of implementation. However, this positive trend did not continue.

Nevertheless, contradicts this it should not be forgotten that the presence of countries such as China and India, which have achieved significant economic growth due to increased trade liberalization. Therefore, at this point, it should be noted that the sole factor driving growth is not just policy, but rather the way that policy is implemented and the unique characteristics of the country. Indeed, China has been able to achieve significant gains in its process of opening up to the world by effectively organizing foreign direct investments.

Since growth rates alone are not an adequate indicator of development, it is useful to consider the Human Development Index (HDI), which takes into account health, education, and income levels, to assess a country's performance in terms of development. Since the HDI was not calculated in previous periods, the data used here is from 1990 onwards. In Figure 3, the Human Development Index in certain country groups is shown over the years.

Figure 3: Human Development Index



Source: (The United Nations, 2023).

As seen in the figure 3, the Human Development Index has continuously increased for all country groups from 1990 to 2021. However, according to the data for the year 2021, many country groups have not yet reached the desired HDI level. When individual country groups are examined, it is observed that developed countries have been successful in this regard.

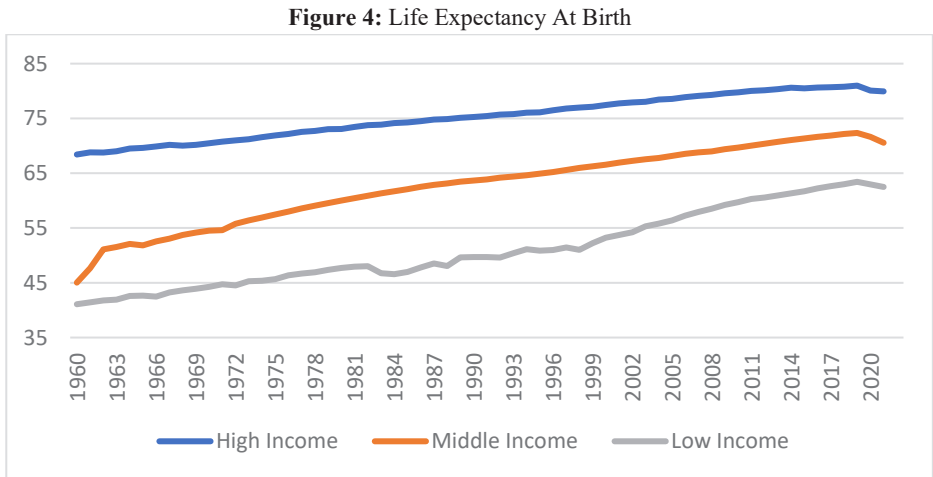
According to this, the HDI of developed countries was 0.894 in the year 2021. The HDI of developing countries in 2021 is below this figure. Although Latin American, East Asian, and Pacific countries have consistently made significant progress in HDI since 1990, as shown in Figure 3, they have not yet reached the desired level. On the other hand, South Asian and Sub-Saharan African countries have remained significantly below the desired level in terms of HDI. In this regard, it can be said that the development policies implemented by developing countries since the 1990s have been successful in raising HDI, but they have not been effective enough to bring it up to the desired level (The United Nations, 2023).

6. Effects of Development Policies on Education and Health

There have been regional challenges in healthcare, particularly concerning the spread of viruses like AIDS/HIV, which has had a detrimental impact on health, especially in Sub-Saharan Africa. The failure of states to allocate sufficient resources to healthcare has contributed to the spread of these viruses. Moreover, it can be observed that developments related to life expectancy in developing countries between 1960 and 1980 had more significant effects compared to those between 1980 and 2000. After 1980, there were some achievements in healthcare

due to technological advancements and the development of new drugs. However, successful healthcare policies were not effectively implemented during this period due to resource mismanagement and insufficient attention to environmental pollution. Furthermore, the slowdown in economic growth rates and reduced state intervention in the market through structural reforms after 1980 led to lower investments in healthcare (Piketty, 2013).

The trend in life expectancy at birth for some country groups from 1960 to 2021 is depicted in Figure 4.



Source: (The World Bank, 2023c)

As can be understood from the figure, in low and middle-income countries, the increase in life expectancy at birth between 1960 and 1980 was higher than the between 1980 and 2000. In this regard, it is possible to say that the period between 1960 and 1980 yielded more successful results in terms of development for underdeveloped and developing countries in these nations.

In the field of education, after 1980, the influence of the government has decreased in developing countries. Therefore, despite the increase in the school-age population of countries over the years, the lack of necessary investments in education has hindered individuals and nations from obtaining optimal benefits from their human capital. All of this data provides clues to where structural reforms contradict each other. While structural reforms emphasize the importance of human capital, they recommend minimal government investments in this area. Therefore, it is possible to say that during periods when the government played a more effective role in education and healthcare, the performance in these areas yielded relatively better results (Ravitch, 1990).

While there were new investments in education and healthcare with privatization efforts, the pursuit of cost-cutting measures by private enterprises, rather than focusing on improving quality, has resulted in shortcomings in the fields of education and healthcare (Piketty, 2013).

7. Conclusion

In this study, development theories that have been attempted to be applied since the 1960s are examined. The study is divided into three phases based on the timing of implementation of development policies, and the results are evaluated comparatively. Accordingly, it is observed that between 1960 and 1980, developing countries generally attempted to industrialize by following import substitution policies. It is possible to mention a level of success during this period. However, regardless of the policies they implemented, the oil crisis in 1973 adversely affected the economies of developing countries and pushed them into a debt crisis.

These debt crises compelled developing countries to turn to the IMF and the World Bank for assistance. The IMF and the World Bank provided support to developing countries under the condition that they undertake structural reforms. With the implementation of structural reforms, capital movements were liberalized, and foreign trade increased. Due to the inadequate capital accumulation of developing countries, they struggled to compete with developed nations and consequently had to increase their imports during this period. Taking all these factors into account, it can be said that the free foreign trade and development policies implemented between 1980 and 2000 did not yield successful results for developing countries.

After the year 2000, developing countries reintroduced the public sector to the market to become competitive with developed countries. Thus, the period after 2000 can be considered a synthesis of the period between 1960-1980 and the period between 1980-2000. During this period, while states continued to pursue outward-facing economic policies, they did not completely relinquish control to the private sector, and the public sector remained active. As a result, they achieved more successful outcomes both economically and in terms of welfare compared to previous periods.

In conclusion, from 1960 to the present, developing countries have pursued state-centered, liberal, or a synthesis of these development policies in different periods. According to the results of the study, it is the manner in which these policies are implemented that is more crucial for development rather than adhering solely to state-centered or purely liberal development policies. Privatization and opening up to foreign markets are important for capital

accumulation, but aside from that, an active role of the government also protects domestic producers. Therefore, it can be said that in the process of opening up to foreign markets and privatization, the protection of domestic producers is an effective development policy. Indeed, China's policy of protecting domestic producers during its opening-up process has emerged as a significant factor in its development.

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Chapter 15

The Ontological Security Problem of Alevi Identity

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INTRODUCTION

Security is a subject that is commonly analyzed under national security in the literature. In this sense, conventional security studies try to explain security problems both within and between countries. However, with the increase in critical security studies, studies in this field have started to diversify. The related field has left the hegemony of the discipline of international relations and has become a broad subject that is discussed and studied within the disciplines of social sciences. In this context, interest in new security studies started in Turkey in the first half of the 2000s. In this framework, the problematic of identity, which had not previously been associated with security but has historically been a reality in Turkey, has begun to be used as one of the most important explanations of Turkey's internal security policies and social structure.

Ontological security is closely related to the existence of the individual. The security of an individual's existence requires familiar, familiar places and people. To exist in the world through the identities to which we belong, we need our counterparts. Thus, by marginalizing those who are not like us, we construct a self and a sociality based on differences. The problematic of ontological security gains functionality at this point, that is, in the relationship and interaction with the other. State and government policies also contribute to these othering practices on the axis of a reasonable identity. In other words, individuals and communities that fall outside the bounds of reasonable, acceptable identity characteristics become dangerous, others who must be suppressed. The problematic of ontological security, which emerges in the form of a two-sided state of being safe, always carries the risk of creating a more severe state of insecurity for those outside the dominant political discourse.

With the increase in identity politics in the world and in Turkey, the issue of security based on identities has entered the field of ontological security studies. Especially in Turkey, the search for rights over religious, ethnic, class and gender-based identities and the policies developed against discrimination policies and discourses gain importance in terms of the security of the existence of identities. In this sense, the policies implemented by governments since identities and the policies developed by identity-based communities against them include these security concerns.

The Alevi community migrated to big cities in the 1960s with the impact of the urbanization process and traditional Alevism began to dissolve. The dissolution of traditional Alevism brought with it various security concerns. Both the unknownness of the cities to which they migrated, the unaccustomed visibility of traditional and religious rituals, the marginalization brought about by the difficult economic conditions and the anxiety caused by historical events have

pushed the Alevi community to create safe spaces by surrounding them with uncertainty. In this sense, the fact that the neighborhoods in which Alevis migrate in the cities are predominantly Alevi has helped to create security buffers. Historically, the events that the Alevi community has been exposed to and the fact that these events are constantly renewed in the collective memory further deepens the insecurity felt by this community.

In this study, Alevi identity will be analyzed in the context of critical security studies. In this context, the identity-based perception of insecurity of the Alevi community in Turkey and the social and political debates that shape this perception will be analyzed. At the level of analysis, A. Giddens' conceptualization of existential security will be utilized. In this study, the theoretical framework of which is determined within the framework of critical security approaches, the discussion will continue with the inclusion of identities in the security problematic. The states of security or insecurity experienced through different identities will be analyzed. Then, the "othering" practices of Alevi identity will be presented in the historical process and the problem of ontological security will be read in this framework.

In the last section, through the findings of the field research to be conducted in the *1 Mayıs Neighborhood* (now Mustafa Kemal Neighborhood), where the Alevi community is densely settled in Istanbul, the perception of political and social security and even anxiety over the existing Alevi identity will be questioned. Furthermore, focusing on the problematic of the motives through which security threats to identities are created and sustained, this study also questions the position and importance of spatial practices within the existential security concerns of the Alevi community.

The *1 Mayıs Neighborhood* was chosen for the field research because it has a dense Alevi population, and the neighborhood has a politically active past. The methodology of the study was field research. In this context, in-depth interviews were conducted with 10 people from different gender, age, and occupational groups. The real identities of the interviewees were kept confidential. Within the scope of the research, a voice recorder was used in the interviews and the research findings were compiled by transcribing the interviews. The boundaries of the study were determined within the framework of the research question and the constraints imposed by the pandemic (Covid19) process experienced by the whole world and Turkey.

In this study, in the light of in-depth interviews conducted in *1 Mayıs Neighborhood*, where the Alevi population is densely populated, the perception of ontological security, which is the main topic of discussion, will be analyzed by

questioning the security concerns and threats experienced by Alevi people through their Alevi identity and their reasons.

Debates on Ontological Security

Security, which is the subject of international relations, has been expanded over time to include a wider range of non-state subjects and fields such as human security, environmental security and social security. The concept of ontological security has been the subject of political science and international relations studies especially since the mid-2000s. In the context of critical security studies, it has been emphasized that the concept of security in political science should include ontological security (Huysmans, 1998).

The concept of ontological security was introduced by R.D. Laing (1960) in the psychoanalytic sense and theorized and developed by A. Giddens (1991) in social sciences (Zarakol, 2010: 6). The concept of ontological security (Laing, 1990), which emphasizes the individual's need for a stable and continuous self, is basically about the security of the self; security is the security of being (Lupovici, 2015: 35). That is, having a coherent sense of self that is recognized by others. In this context, it is constructed relationally with the other and is fundamentally related to a general sense of security that is fed by trust (Zarakol, 2010: 6).

In general, the state is at the center of orthodox security studies discussed at the national or international level. The concept of sovereignty, which is one of the main problematics of political science, is opened to discussion in this context, and the security of the state becomes the main issue. Trust or insecurity at the social level can only find a place for itself within the state's discourse of survival.

Ontological security studies are based on Anthony Giddens' "structuration theory". Within the framework of this theory, Giddens argues that distinctions and oppositions such as structure-actor or subject-object are invalid, and at this point, he puts forward the structuration theory that considers both the action of the actor and the effect of the structure as rules and resources (Emre, 2015: 7). In this context, the relationship between structure and actor is explained by the concept of the duality of structure, in which people are seen as both the constructors of social structure and the instruments of this process. According to this concept, structural features of social systems stand out as both the means and the end of social practices (Giddens, 2003: 162).

In structuration theory, actors and institutions are of equal importance. In this sense, ontological security is also important for Giddens. In this framework, it can be said that the concept of ontological security emphasizes emotionality rather than cognition. In addition, ontological security reflects the belief and hope in the reliability and continuity of social life (Giddens, 1990: 94).

According to Giddens, ontological security is very important for human existence and means that the individual feels safe where he/she lives and trusts other people around him/her. Individuals begin to gain this sense of security in childhood and this sense-perception of security becomes indispensable as a normal part of social life in adulthood. However, if there is disruption or uncertainty in the order people are used to, resentment and confusion arise. In this sense, Giddens states that routines constitute social systems and institutions and sees the social system as the result of a stable personality that functions routinely and predictably (Craib, 1992: 158).

The problematic of security involves contradictions both in everyday life and on a larger scale at the state level. The main contradiction is that while individuals or states produce various policies to ensure their own security, these policies may be perceived by others as a source of insecurity. In the face of this new state of insecurity, counter-policies may be produced, and a general state of insecurity may be encountered (Mearsheimer, 2001: 36).

According to Rumelili, the difference of the ontological security concept, which puts forward a different security approach, from other approaches is that it is not based on the definition of a threat and the reflex of protection from this threat (Rumelili, 2015). In this context, the problematic of ontological security is based on an internal existence and continuity-based anxieties and fears instead of fear and anxiety due to an external threat (Rumelili & Adısönmez, 2020: 26).

At this point, questions such as what are the situations that create distrust and whether the same situations of distrust are valid for every individual in the society gain importance. According to the general assumption, to talk about an environment of trust, individuals and communities that share similar cultural characteristics should be taken as data. According to this presupposition, trust can only be achieved in ethnically and culturally similar societies (Soraka et al., 2002: 281).

Critical security theorists, who examine the security problematic more comprehensively, emphasize the importance of the mutual relations and interactions of individuals or societies with the system they live in. They also emphasize the necessity of analyzing the relationship between the characteristics and actions of individual or socio-political identities to which they belong (Ertem, 2012: 181). The problematic of identity is one of the main determinants of ontological security studies, as it refers to the security of the subjective self, not the physical body (Chernobrov, 2016: 584).

Reading the Concept of Security through Identities

Identity is a concept that has been widely defined. The increasing use of the concept of identity in social sciences started in the 1950s and in the 1970s, studies on identity intensified in the relevant literature. Again, in these years, it was recognized that the problematic of identity was a subject that needed to be addressed and explained not only in psychology and sociology but also in political science (Ertem, 2012: 91-192). In social sciences, the concept of identity is considered because of the relationship and interaction between the individual and society, and refers to the roles created by this interaction, the acceptance and experience of these roles, and the adoption of rules and the development of a life practice according to them (Gleason, 1983).

The problematic of identity is the subject of many disciplines of social sciences, and it is very difficult to make a definition that can be agreed upon. However, in its simplest and most descriptive form, identity is the answer that societies or communities give to the question "who are you?" or "who are you from?" (Akdemir, 2009). Identity, as one of the most important tools of individual and social interaction, is decisive in the construction of both social and individual worlds of meaning. Identities, which are constructed at the individual and social level and differentiate in this sense, contain very different worlds of meaning and definitions (Karakaş, 2013: 3). When it comes to the perception of security through identities, various identity policies come to the fore within the framework of countries.

Security approaches based on identity politics are generally based on the victimization of different groups based on identity and related demands for recognition. Identity-based marginalization practices and actors who are subjected to marginalization stand out as both the users and victims of identity politics that emerged based on the rights, they feel they have been deprived of. In addition, social groups that are subordinated because of their identities also redefine the perception of security in the order they are in.

By being subject to identity politics, identities create situations in which communities defined by their identities are separated from most of the society, and as a result, the perception of insecurity, and in many cases the reality, creates social segregation and anxiety. Communities that are marginalized due to their identities, especially those identified with religious beliefs, sects, ethnicity, gender, and race, may face insecurity and turmoil within the social system and even violence (Giddens, 2004: 245). However, by minimizing the uncertainties and anxieties related to the other through these demarcated identities, groups identified with the same identity also determine the security areas needed (Stryker & Statham, 1995: 323).

In the context of the relationship between identity and security, individuals and societies create a familiar, predictable space for themselves by sharing a common language, religion, ethnicity, and gender, and develop daily life practices in this space. By characterizing those who are not themselves as other, they try to make their lives more known and reliable within the routines they create (Mercer, 1995).

When it comes to identity politics, Turkey is a country with a very intense agenda in terms of its historical and political characteristics. The political and social polarization based on religion, ethnicity and gender continues to be a topical issue in Turkey. In this context, the Alevi identity, which has a significant impact on the political and social life of Turkey, and the perception of insecurity based on this identity, historically harbors anxiety and efforts to overcome this anxiety.

When security studies in Turkey are analyzed, it is seen that the perception of security is based primarily on state sensitivities and interests. In addition, analyses based on the friend-enemy distinction in its historical context can make the measures to be taken against the security problem more rigid (Aydın & Ereker, 2014: 128). In Turkey, security is traditionally defined as "the state of being protected from danger or not being exposed to danger" and security policies and perceptions are shaped through state unity, territorial unity, and a nationally defined identity (L. Martin, 2000: 83).

An Identity Trapped in Being 'Other': "Alevi"

Historically, religions have played an important role in establishing and maintaining a social bond. The role of religions in identity formation continues to be an important factor today. In this context, religion as a set of values, belief, practices, rituals, and behavior patterns developed for individuals are effective in shaping an identity (Karakaş, 2013: 9). Religion plays an important role in the socialization process, facilitating the integration of individuals into society through the common discourses and symbols it offers. Religious identities also include different sects and related identities that emerge due to different interpretations and practices. For example, the Alevi and Sunni identity within the Muslim identity (Bruinessen, 2009: 50).

At this point, what needs to be underlined is the two-dimensional function of identity. Identity is a phenomenon that needs to be addressed on an individual and social level. While individual identities should come to the fore when it comes to religion, we encounter conservative identities in the social sense. Individual identities, from a more subjective perspective, correspond to individuals' conceptions of the world they live in and the positions, beliefs,

affiliations, and values they form accordingly. Social identities, on the other hand, function as sheltered places that transcend the subjective world of individuals, but are not separate from it, and even make individuals feel that they belong to something and somewhere in an individual sense and instill confidence in a world woven with various routines (Parekh, 2009: 53). In this context, religions and religious identities are, in a sense, functionalized as practices that regulate the relations of individuals with the world and system they live in and with others.

In Turkey, Alevi identity is too broad to be explained in terms of religious identities. Alevi identity is a multi-layered and rich social structure that needs to be addressed on the axis of belief, culture, ethnicity, class and even gender. The Alevi community has historically been subjected to various practices of marginalization and has been forced to live on the margins of society. From the Ottoman Empire to the present day, Alevis have tried to create safe spaces for themselves both socially and politically.

The State of Turkey is a state that originated from the Ottoman Empire but was established not as an empire but as a nation-state. In this context, as a nation-state, an attempt was made to establish a homogeneous social structure. However, the large and rich multicultural, multi-religious and multi-ethnic social structure inherited from the Ottoman Empire has created different identity and integration problems and additional security concerns in relation to the new state (Salomone, 1989). Currently, identity debates in Turkey have not been able to get rid of debates and marginalization practices such as progressive-reactionary, republican-caliphate, rightist-leftist, Alevi-Sunni, Turkish-Kurdish, secular-anti-secular (Karakaş, 2013: 24).

Identity politics and security policies developed through the Alevi identity, which is one of these marginalization practices, remain on the national agenda. Alevis constitute approximately 20-25% of Turkey's population. Marginalized in the face of Sunni Islam, Alevis have historically lived and still live under the anxiety and threat of conflict and insecurity (Tekdemir, 2018: 31). During the Ottoman Empire, the Alevi community was marginalized by Sunni Islam and defined in an insecure space. Because of the events they were subjected to, Alevis tried to maintain their lives and beliefs by creating safe, protected spaces on the margins of society.

With the establishment of the new Turkish state in 1923, the new state aimed to unite all the different ethnic and religious communities inherited from the Ottoman Empire around a common national identity because of a secular public sphere: the secular, Turkish Nation (Soner and Toktaş, 2011: 420). With the establishment of the Republic, Alevis initially felt safer within the secular state. Secularism functioned as a kind of safety buffer for Alevis. The principle of

secularism continued to be seen as a guarantee of Alevi's existence, and in this context, Alevi's tried to take part in the public sphere by suppressing their Alevi identity. The process of urbanization and migration in the 1960s led to radical changes in the cultural and religious lives of Alevi's who migrated to big cities (Köse, 2012).

The period between 1960-80 was a period in which Alevi's established relations with leftist movements. The urbanization process and migration to big cities weakened traditional Alevism. Due to the identity crisis and insecurity, they experienced in an unfamiliar social structure, Alevi's began to establish close relations with leftist movements. In a sense, the trust provided by the ties and networks that Alevi's had established and were accustomed to within traditional Alevism was replaced by the solidarity mechanisms provided by leftist movements in the cities (Ertan, 2017: 32-33). The 1980s and 1990s were years of social, economic, and political transformation both in the world and in Turkey. It was in the late 1980s that Alevi's began to be heard in the public sphere. The 1990s, on the other hand, coincided with the so-called Alevi awakening. With the May 6, 1990, Alevi Declaration, Alevi's began to demand recognition of their identity (Ertan, 2017: 75-99).

In the 2000s, the Alevi community became more visible and vocal. With the "Alevi Initiative" process initiated by the ruling Justice and Development Party (AKP) in 2008, Alevi's made their demands for their rights more audible (Özkul, 2015: 4). Various workshops were organized within the framework of the initiative. In this context, Alevi's demanded the abolition of the Presidency of Religious Affairs, the abolition of compulsory religion classes, the recognition of cemevis as places of worship, and the Madımak Hotel as a museum of shame. However, this process failed and was finalized in 2012. This period also witnessed a resurgence of Alevi security concerns, such as the marking of Alevi houses, divisive political discourse, etc.

The Alevi community is a large society that includes different identities. We are talking about a society that has different identities not only in terms of belief but also in terms of ethnicity. While Alevi's are subjected to marginalization since their beliefs, they are also the subjects of such marginalization practices because of their Kurdish or Turkish identities. Again, discriminatory practices developed based on gender can function to deepen the perception and practices of insecurity experienced through identities.

Alevi Community's Perception of (in) Security

While identities provide individuals with a sense of belonging, they also position those who are different as outsiders. In this sense, the conceptualization

of identity inherently embodies practices of othering. Existing and socializing through identities necessarily necessitates the distinction between friend and foe. When we define who we are through the identities we have and to which we develop attachment - being a woman, a worker, an Alevi, a Kurd, an Armenian, etc. - the risk of labeling those who are not like us as a danger to ourselves emerges by itself. In this way, the identities we base on fear of others also determine the means of protection and avoidance. The individual's relationship with the other continues to progress on a conflicted ground.

In this context, the intricate and antagonistic relations of the Alevi community with other identities within the Turkish state should be read in the context of this community's instinct to protect and avoid the other. In particular, the events that Alevis have been exposed to are the most important reason why this society has become more protective due to security concerns. Alevis who migrated to the cities with the urbanization process attached importance to developing strong ties and networks with their fellow countrymen associations and *cemevis* as a security buffer in the neighborhoods they migrated to. Alevis, who are classually inferior, have settled especially in shantytowns, where, as in the countryside, they have taken care to create closed spaces where others cannot pose a threat to them.

There are many neighborhoods in Istanbul known as Alevi neighborhoods. One of the most important and politicized of these is the "1 Mayıs Neighborhood" (now known as Mustafa Kemal Neighborhood). In the context of in-depth interviews with Alevi people living in this neighborhood, this study will try to explain the perception and realities of insecurity experienced and felt by the Alevi community. Since this study aims to understand the social and political structure and networks of the neighborhood in terms of identities, it is preferred to refer to the neighborhood by its old name, namely 1 Mayıs Neighborhood. Founded in the 1970s, 1 Mayıs Neighborhood is a neighborhood on the Anatolian side of Istanbul. The neighborhood, which was connected to Ataşehir district after 2009, was previously connected to Ümraniye district. After this date, the neighborhood was divided into four; Mustafa Kemal, Aşık Veysel, Esenevler and Site neighborhoods. Mustafa Kemal and Aşık Veysel neighborhoods were connected to Ataşehir Municipality, while Esenevler and Site neighborhoods were connected to Ümraniye Municipality (Ataşehir District Governorate).

The 1 Mayıs neighborhood started to receive migration in the 1970s, which was influenced by the job opportunities created by the quarries in the area. On September 2, 1977, this quarry continued to operate until the massive destruction of shanty houses in the neighborhood. After this demolition, shanty construction resumed in the neighborhood, where left-wing organizations were concentrated, and was rebuilt in a short period of two months¹.

1 Mayıs Neighborhood is already home to a dense population with left-wing political views, and is not only characterized by its Alevi identity, but is also home to a large Kurdish population. It is estimated that the Alevi population living in the neighborhood is approximately 80-85%. The people interviewed in the neighborhood within the scope of the field research stated that they feel safe in the neighborhood they live in thanks to the ties they have developed since common identity and the networks they are involved in. However, feeling safe in the neighborhood turns into insecurity in relations with others and the outside world:

"1 Mayıs neighborhood is 80% Alevi. We don't have any security problems here. But we have always thought about this. In other words, we think of attacks from outside, of people from outside who might raid here and carry out some attacks here. Because we have seen examples of these; we saw them in Sivas, we saw them in Maraş, we saw them in Çorum. We know that people died here and in the Gazi neighborhood in the 93s and 94s. Therefore, we have security concerns, we don't feel safe. Especially Alevis do not feel safe. We are not against any belief, but friends, friends and friends of Alevi origin do not feel safe in this period" (Mr. Ahmet, 49).

The concerns and anxieties that Alevis experience over their identities are still current, especially with the impact of the events that the Alevi community has been historically exposed to. In particular, the 1993 attacks on the Sivas Madımak Hotel in Sivas and the 1995 attacks on the Gazi neighborhood in Istanbul were the events that increased the politicization of Alevis over their identity and their anxieties due to insecurity. The trauma caused by these events on the Alevi community causes the perception of threat to remain alive. The events that took place in Malatya, Çorum and Maraş in the 1970s and the attacks against Alevis in Dersim in the 1970s are events that have taken place in the collective memory of the Alevi community and determined the socialization and even politicization practices of the younger generations (Ertan, 2017: 123-125).

The concerns and anxieties carried over from the past to the present seem to have deepened in the context of the state and governments. Alevis have an extremely distrustful relationship with the state's law enforcement agencies, especially the police, due to their relations with leftist politics:

"We have to protect ourselves; we are not safe" (Ms. Ayşe, 39).

In the process of the politicization of Alevi identity, relations with leftist politics and organizations have a great influence. Alevis' embrace of the principle of secularism in republican Turkey and their high level of voting for the Republican People's Party (CHP) is related to the fact that they see the principle of secularism as a protective buffer mechanism, especially in terms of protecting

fundamental rights and freedoms. In particular, the failure of the "Alevi Initiative" and the discriminatory language developed by the ruling party AKP force communities to take a more protective position in terms of identities.

The marking of Alevi houses in 2012, the divisive rhetoric of politicians, and the fact that seven people killed in the Gezi Movement in 2013 were Alevi, have undermined trust in the government and the state. The reflection of this politically discriminatory discourse on society further exacerbates security concerns. Recently, voting behavior can also be read in the context of this security concern:

"In Turkey, there is no left, no socialist movement, no Alevi movement. There is a very natural anti-Alawite sentiment, and they vote for CHP. Partially some voters went to HDP, I don't know how much, but it is not a very big part. Let me tell you the reason why they went, it is for security reasons. They don't see them as a harbor they trust and take refuge in, but they want them to protect them. They don't see them as their own, they don't see them as themselves, they don't consider them a part of themselves. But they say they will protect us. That's why some Alevi voters approach them" (Hüseyin Bey, 56).

The reason why Alevis cling to the understanding of secularism introduced by the Republic of Turkey is that it reduces the influence of the cultural codes and symbols of Sunni Islam on daily life practices, thus increasing the visibility of Alevis in the public sphere and opening safe spaces for Alevis with a legal basis (Ertan, 2017: 33). The CHP is seen as the protector of these safe spaces today as it was in the past:

"Alevis are generally a secularist society. Secularism is their indispensable approach. What I mean by secularism is not a secularism defined by the state and the nation. I am talking about secularism in a way of life. In other words, I am describing those who are outside the issue itself with their beliefs and approaches. They are free in every aspect. For Alevis, there has been interference in their way of life for centuries. This turns into a security problem" (Kemal Bey, 62).

As can be seen, Alevis' security concerns continue to be experienced both in general politics and in daily life practices and urban politics. For Alevis, who are particularly sensitive to personal rights and freedoms, threats and pressures against their identity are also among the factors that make them uneasy. They are particularly concerned about ensuring the continuity of Alevi identity and preventing its assimilation. Culturally, Alevi identity stands out as a colorful and rich identity with various rituals. Especially commemoration ceremonies and festivals are important instruments in carrying collective memory and culture to the present and future (Şener, 1991: 132). August 30-31 and September 1 are celebrated every year as the foundation festival of the 1 May Neighborhood. The

2019 festival was suppressed by police supervision and control, which caused concern among the neighborhood residents:

"They came from the police. We can't hold an event; we can't hold a panel. They keep coming and going like this, pressure, pressure, pressure. They don't give permission, there is no reason" (Ms. Sabriye, 53). Basically, Alevi festivals or commemorations have deep symbolic meanings. Various ceremonies and festivals organized on different dates aim to preserve and develop the bonds of solidarity among the Alevi community (Ertan, 2017: 103). Thus, the transmission of tradition and culture is ensured. Traditions are very important for the Alevi community. Through the transmission of traditions, identity-based safety nets are established and maintained.

Intense rural-urban migration in the 1960s and the dissolution of traditional Alevism have created another important security problem for the Alevi community. Traditional Alevism refers to an autonomous social structure in which Alevis living in the countryside before the urbanization process were closed off from the outside world and lived socially and religiously under the guidance of Alevi grandfathers (who have a sacred lineage). Within this social order, relations with the outside world were as limited as possible and the needs of the community were met from within.

Cem ceremonies, in which Alevi grandfathers exercised their powers of judgment, punishment and reconciliation, were not only a form of worship, but also a kind of court of law. However, with urbanization, traditional Alevism began to dissolve, and the functions assumed by the grandfathers in the villages were left unprotected and insecure in the face of a life in the cities assumed by the state (Ertan, 2017). Hasan Bey, who was interviewed in the neighborhood, shows with his words that the same concern persists:

"Alevis have such a concern; their whole life is based on lokma. In Alevism, there is a culture of solving any problem together. In other words, if you don't have enough food to eat or a bed to sleep in, other Alevis solve this problem in the neighborhood, in the village, for example. Well, what did they do this on, there were hearths, there were grandfathers. The grandfathers did it like this, for example, money was collected, it was called "çıralık". The grandfather would receive money in return for his labor. He would leave the collected money to the poorest person in the village, distribute the rest to those in need in other places he visited, and use the rest to meet his own needs. This was the case until the 1980s. The balance was upset, economically capitalism and production relations upset all balances. The city received a lot of migration, and the countryside became empty. When the countryside became empty, the concerns of Alevis slowly started to change" (Mr. Hasan, 66).

The dissolution and weakening of traditional Alevism bring with it the concern of assimilation. Historically, the Alevi community, which has been subjected to assimilation, has continued to exist in big cities by hiding their identity and practicing their worship in secret. The problematic of ontological security, which is directly related to the existence of the individual, is clearly seen in the experiences of this marginalized community, which is afraid to freely live its Alevi identity:

"Assimilation is increasing among Alevis. Alevis are moving away from the true Alevi faith and culture. Because it integrates, and when integrating, they used to integrate by using force and violence, but this is not the new era, strategically the state is no longer doing this. It doesn't do this in one-to-one beliefs, other methods. But it does other things. They help, they get into it, they make you train the teacher, they make you use your own language, they make you do things like the same beliefs, they make you resemble them, they change that culture. I don't think it will be very reliable for Alevis, I don't think they will move away from security concerns. But today, ignoring is still important. Their way of life, the way they dress, their freedom" (Mr. Hasan, 66).

The problem of security has an important place in the daily life practices of individuals. Lifestyles, clothing, habits, beliefs, beliefs, places of residence, etc. constitute the security areas in question. For the Alevi community, these practices are of particular importance. Especially for Alevis living in shantytowns such as the 1 Mayıs Neighborhood, the neighborhood they live in is a safe space where they safely practice these life practices. However, the increasing pressure and threats against these neighborhoods in recent years have caused Alevis to feel insecure in these areas as well. Mr. Ali complains about the decrease in the number of Alevis attending cemevis and attributes this to security concerns:

"Because it is becoming more and more dangerous, he cannot live his faith here. He does, but he lives in fear, we have doubts whether someone will raid this place or throw something. We provide our own security in our big cems. In other words, we have such concerns that someone might come and do something, that our friends and friends here would come and walk around the cemevi and wait so that we would not be exposed to any danger. This is also a very big thing. If you practice your belief and worship with anxiety and fear, then there must be something wrong with it" (Mr. Ali, 47).

Problems related to ontological insecurity, while deepening the anxieties of individuals, can also bring along deep security concerns in the social sense, organizing all life on the basis of these concerns. Mr. Kemal also expresses his views in support of this concern:

"I talked to my neighbors about these issues, and the only reason they don't send their children to cemevis is because they are worried about security. That's why we want this; I mean, when we send our children, ourselves, our wives, our daughters, we need to be sure that they will go there safely and without any worries" (Mr. Kemal, 62).

The Alevi community, which is marginalized because of their identities, experiences the security problematic more severely through spatial practices. On the one hand, dominant political discourses, and policies, on the other hand, the effectiveness of the networks developed in the cities with the dissolution of traditional Alevism, on the one hand, the social and political dynamics of the places where they live, on the other hand, socio-economic developments are the factors that deepen the security and insecurity practices of the community in question.

CONCLUSION

Ontological security debates are a field that has started to find a place for itself in social sciences disciplines, especially in the field of political science in recent years. In this context, ontological security studies differ from the given security approaches by examining the concept of security on a political and social level and by focusing on security-insecurity situations in the context of identities, which is the main problematic of the study. In this sense, identities, which are part of the social order, and threat perceptions towards their security are an important area to be discussed within these studies. Identities are not only about the inner world and daily life of the individual. Individuals and social groups, while defining themselves through their identities, frequently resort to the distinction between those who belong to their environment (us) and those who do not (others). In the final analysis, identity as a social phenomenon gains importance in the relationship and interaction of the relevant actors with "others".

In the process of urbanization and migration, the Alevi community's practices of clinging to big cities have been shaped by perceptions of security. With this concern, Alevis who migrated from rural areas migrated to neighborhoods with a high concentration of Alevis and formed various networks to revive traditional Alevism, which was dissolving in the cities, and to cope with the insecurity it created. In particular, fellow-citizen associations, cemevis and houses of culture continue to function to ensure that Alevi identity lives and feels safe. Through these networks, they try to have a say in the politics of the country and produce policies and continue their efforts to impose their existence on others. Commemoration ceremonies and festivals, which are important for the continuity of collective memory, continue to exist for the Alevi community as a tradition

that they try to preserve. In a sense, this tradition also functions as an important tool against the assimilation of the Alevi community. Today, as in the past, relations with political powers continue to be problematic.

It is obvious that the Alevi community has significant concerns within the framework of security policies and practices. Especially when the Alevi identity, which is positioned as a political figure, and its relations with left-wing groups are evident as a historical reality, the fact that individuals who gather around this identity do not feel safe emerges as an important social problem. It is even argued that this is the reason why they are not appointed to important positions, and that the Alevi community is viewed as a 'dangerous community' and treated accordingly. This problematic emerges as an important issue that needs to be examined within the scope of another study and analyzed in the context of ontological security.

Within security debates, it is also necessary to read identities through identity politics. In this sense, the concepts of power and power that form the basis of politics form the basis of this analysis, and within this framework, othering practices begin to operate. The perception of security is also shaped in such a process and is reproduced repeatedly in a close relationship with identity. For this reason, neither identity nor security is static and closed to change.

Within the scope of this study, the Alevi identity and the Alevi community have revealed a close and transformative relationship between identity and security. The construct of citizenship, who can and cannot be considered a citizen, how the domestic politics of the country creates a notion of security through identities, and of course how this security policy is perceived by identities and transferred to daily life practices have been examined within the scope of this study. While conducting this analysis, it is thought that the assessment that "security has an identity" as well as "the security of identity" that can be derived from the ontological security debate, in other words, "the qualities arising from identity can also shape the perception of security" will make important contributions.

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Chapter 16

**Unlocking Talent Retention: The Strategic
Significance of Fringe Benefits**

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Abstract

"Unlocking Talent Retention: The Strategic Significance of Fringe Benefits" is a thorough examination of the critical function that fringe benefits play in modern human resources management methods. This chapter goes beyond traditional salary to show how fringe benefits strategically contribute to talent retention. The chapter highlights the transformational influence of many components, like healthcare provisions, flexible work arrangements, recognition programs, and more, on boosting employee engagement, loyalty, and well-being. It demonstrates how effective fringe benefit schemes integrate personal and business objectives by emphasizing the symbiotic relationship between individual ambitions and company aims. The chapter also underlines the changing dynamics of the talent environment, asking firms to consider fringe benefits as ethical commitments to labor welfare rather than just incentives. Overall, the chapter provides a road map for firms to use fringe benefits as a strategic basis for developing motivated, devoted, and long-term staff.

Introduction

In today's competitive business environment, where competition for qualified and talented individuals has increased, firms are wrestling with the problem of keeping their most important assets. The pursuit of long-term success and growth demands not only the procurement of outstanding talent but also their retention inside the organizational structure. Recognizing this requirement, firms are increasingly focusing on a multidimensional strategy known as talent retention. A vital component that has the capacity to impact employee loyalty, engagement, and commitment is at the heart of this approach: fringe benefits.

According to the systematic literature review study undertaken by Yildiz and Esmer (2023), the most stressed talent management function in the literature is talent retention (TR). Talent retention refers to firms' intentional attempts to effectively retain their trained and valued personnel over time (Hatun, 2010). In a competitive employment market where qualified professionals are in great demand, retaining top talent has become an essential component of organizational success and competitiveness. Creating a comfortable work environment, appealing remuneration packages, chances for growth and development, recognizing and rewarding individual achievements, and developing a healthy corporate culture all contribute to talent retention (Yildiz et al., 2023). Companies want to decrease turnover, increase productivity, retain institutional knowledge, and assure the continuation of key talents inside the firm by implementing effective talent retention initiatives (Mutjaba and Jamal, 2018).

Companies prioritize talent retention because it has a direct influence on long-term growth and performance (Meixner, 2020). Employee turnover can result in higher recruiting and training expenses, workflow interruptions, and the loss of institutional expertise (Kalay et al., 2018). Retaining competent workers not only keeps a steady and seasoned staff, but it also develops a healthy company culture and improves team cohesiveness (Lee and Way, 2010). Long-term workers frequently become corporate evangelists, drawing fresh talent and boosting the organization's brand (Koh et al., 2009). Furthermore, continuous retention decreases the need for regular recruiting, freeing up resources for development rather than replacement. Companies assure constant delivery of high-quality products and services, stimulate innovation, and create a resilient and competitive advantage in the market by cultivating and keeping people (Kwon, 2019).

By improving the total employee experience and work happiness, fringe benefits play an important role in talent retention. These extra benefits, such as health insurance, retirement plans, flexible work arrangements, and professional development opportunities, go beyond basic pay to make the workplace more appealing and helpful (Yildiz et al., 2023). A company's dedication to its employees' well-being is demonstrated via fringe benefits, which generate a sense of loyalty and connection. Employees are more likely to stay with a firm for the long term if they feel appreciated and supported through advantages such as wellness programs or work-life balance efforts (Caniëls et al., 2017). As potential employees are lured to organizations that provide extensive compensation packages, fringe benefits also contribute to a competitive edge in the labor market. Companies that invest in fringe benefits not only retain valuable personnel but also improve morale, productivity, and overall organizational effectiveness (Artz, 2010).

In this conceptual book chapter, "Unlocking Talent Retention: The Strategic Significance of Fringe Benefits," the intricate interplay between talent retention strategies and the role of fringe benefits in cultivating a workplace environment that fosters long-term employee dedication is explored. By delving into the strategic relevance of these frequently overlooked benefits, it is hoped to shed light on how businesses may not only recruit but also retain their top employees, bolstering their competitive edge and moving them toward greatness. This chapter embarks on an illuminating journey into the synergy between talent retention and the utilization of fringe benefits as a pivotal tool for organizational success in the modern business landscape through a comprehensive examination of this multi-faceted concept.

Talent Retention

Talent retention, in the context of business management, refers to the strategies and practices implemented by organizations to retain their talented employees over an extended period of time (Fragouli and Alhaider, 2020). It involves creating a work environment that motivates and engages employees, ensuring that their diverse organizational needs are met. Talent retention is crucial for businesses as it helps maintain a skilled and effective workforce that aligns with the organization's operational requirements (Tlaiss et al., 2017).

Talent retention (TR) is a firm's endeavor to prevent and retain high-potential, high-performing, and talented workers from leaving the organization, with the goal of attaining business objectives (e.g., improved corporate performance, sustained competitive advantage, etc.) (Bolander et al., 2017; Ambrosius, 2018; Bonneton et al., 2022). Talent retention should prioritize practices that boost employee motivation (reward and recognition mechanisms, engaging and challenging tasks, company-sponsored social activities, etc.), integration into the company culture (employee-brand fit, alignment of values, etc.), effective performance management systems, and practices that boost employee commitment (e.g., work-life balance arrangements, supportive working environment, employee empowerment, and job autonomy) (Latukha, 2016). Effective talent retention initiatives need an examination of each talent pool to establish who is at risk and why, allowing tailored retention plans to be developed (Avedon and Scholes, 2010).

Talent retention is particularly important due to the need for skilled employees in delivering high-quality service. Effective talent retention strategies may include creating a friendly and open culture, promoting teamwork, offering competitive compensation, implementing succession planning, and providing training and development opportunities. These strategies aim to create an environment that supports and engages employees, ultimately leading to their retention (Marinakou and Giousmpasoglou, 2019).

The concept of talent retention is closely related to employee engagement. Employee engagement refers to the emotional commitment and dedication employees have towards their work and organization. Talent management practices, such as providing opportunities for growth and development, recognizing and rewarding performance, and fostering a positive work culture, contribute to employee engagement and subsequently enhance talent retention (Pandita and Ray, 2018).

In essence, talent retention in business management refers to the systematic process of building and sustaining a work environment that inspires and engages personnel, resulting in long-term commitment to the firm. It entails putting in

place talent management techniques, encouraging employee involvement, and taking into account elements like fringe benefits and value alignment. Effective personnel retention strategies are critical for firms to keep a talented and devoted staff, which contributes to their success and competitive edge (Yildiz et al., 2023).

Talent retention is of great importance for companies for several reasons. Firstly, retaining talented employees helps organizations maintain a competitive advantage in the market (Fragouli and Alhaider, 2020). Talented employees possess valuable skills, knowledge, and expertise that contribute to the success and growth of the company. By retaining these individuals, companies can ensure continuity in their operations and avoid the costs and disruptions associated with high employee turnover (Mazlan and Jambulingam, 2023). Secondly, talent retention is closely linked to organizational performance and productivity (Tomcikova and Coculova, 2020). When talented employees are engaged and committed to their work, they are more likely to perform at high levels and contribute to the achievement of organizational goals. Retaining talented employees allows companies to build a strong and capable workforce, leading to improved efficiency and effectiveness (Kumar, 2021).

Moreover, talent retention contributes to the development of a positive organizational culture. When employees feel valued, supported, and recognized for their contributions, they are more likely to have higher job satisfaction and commitment to the organization. This, in turn, leads to increased employee loyalty and reduced turnover rates (Fragouli and Alhaider, 2020; Mazlan and Jambulingam, 2023). In conclusion, talent retention is of paramount importance for companies. It enables organizations to maintain a competitive edge, enhance performance and productivity, foster innovation, and develop a positive organizational culture. By implementing effective talent retention practices, companies can create an environment that attracts and retains talented employees, ultimately contributing to their long-term success (Yildiz et al., 2023).

Fringe Benefits

Fringe benefits are additional perks and incentives provided by employers to employees in addition to their regular wages or salaries. These benefits are designed to attract and retain talented employees, enhance job satisfaction, and improve employee loyalty and engagement (Kasper et al., 2012). Fringe benefits can take various forms, including free accommodation, bonuses, incentives, commissions, sick leaves, annual leaves, lunch facilities, overtime pay, mobile bills, transportation bills, cafeteria services, training facilities, flexible working hours, and more (Tarafdar et al., 2021).

The purpose of offering fringe benefits is to create an attractive compensation package for employees, beyond their basic salary, to enhance their overall job satisfaction and well-being. Fringe benefits are used as a tool to motivate and reward employees, providing them with additional financial and non-financial incentives. These benefits contribute to a positive work environment and help employees feel valued and appreciated by their employers (Tarafdar et al., 2021). Fringe benefits offer several benefits for companies. Firstly, they help attract and retain talented employees. In a competitive job market, offering attractive fringe benefits can differentiate an organization from its competitors and make it more appealing to potential candidates. Employees are more likely to choose and stay with companies that offer comprehensive and attractive benefit packages (Abbas and Yunfei, 2013).

Secondly, fringe benefits contribute to employee satisfaction and engagement. When employees feel that their needs and well-being are taken care of, they are more likely to be satisfied with their jobs and committed to the organization. This, in turn, leads to higher levels of productivity, performance, and loyalty. Fringe benefits can also enhance employee morale and motivation, leading to increased job satisfaction and overall job performance (Adjeikwame, 2019). Furthermore, offering fringe benefits can help reduce employee turnover. Employees who receive attractive benefits are less likely to seek employment elsewhere, as they feel valued and supported by their organization. This can result in cost savings for companies, as they do not have to invest as much in recruiting and training new employees (Fisher et al., 2022). Fringe benefits can contribute to the overall well-being and work-life balance of employees. Benefits such as flexible working hours, childcare assistance, and healthcare coverage can help employees manage their personal and family responsibilities, leading to reduced stress and improved work-life integration (Tarafdar et al., 2021).

In summary, fringe benefits are additional perks and incentives provided by employers to employees beyond their regular wages or salaries. These benefits are used to attract and retain talented employees, enhance job satisfaction, and improve employee loyalty and engagement. Fringe benefits offer several benefits for companies, including attracting top talent, increasing employee satisfaction and engagement, reducing turnover, and promoting employee well-being and work-life balance.

Components of Fringe Benefits

Employers give non-wage compensation to their employees as part of their total pay package through fringe benefits, often known as employee benefits. These perks are in addition to the basic income or compensation and might

contain a range of components. The particular components of fringe benefits vary by firm, sector, and area, but below are some popular examples.

Health insurance: Employers may provide medical, dental, and vision insurance coverage for employees and their families. This helps employees manage their healthcare expenses and promotes their well-being (Ahmad, 2020).

Retirement plans: Employers may offer retirement savings plans, such as 401(k) plans, where employees can contribute a portion of their salary and receive matching contributions from the employer. This helps employees save for their future and ensures financial security (Ahmad, 2020).

Paid time off: Employers may provide paid vacation days, sick leave, and holidays to employees. This allows employees to take time off work for personal reasons, rest, and rejuvenation (Tarafdar et al., 2021).

Flexible work arrangements: Employers may offer flexible work schedules, remote work options, or part-time work arrangements. This provides employees with greater work-life balance and flexibility (Latukha et al., 2022; Yildiz and Akkas, 2023).

Education and training assistance: Employers may support employees' professional development by offering tuition reimbursement, training programs, or scholarships. This helps employees enhance their skills and knowledge (Adjeikwame, 2019).

Employee discounts: Employers may provide discounts on company products or services to employees. This can include discounts on retail purchases, travel, or gym memberships (Ahmad, 2020).

Childcare assistance: Employers may offer childcare benefits, such as on-site daycare facilities or subsidies for childcare expenses. This helps employees manage their childcare responsibilities (Ahmad, 2020).

Transportation benefits: Employers may provide transportation benefits, such as subsidized public transportation passes or parking allowances. This helps employees with their commuting expenses (Ahmad, 2020).

Parental leave: It is an important component of the fringe benefits provided by businesses to employees during critical life events associated with parenthood. It allows employees to take time off work to care for and connect with their newborn, adopted, or foster child, or to assist a partner through childbirth. Parental leave extends beyond standard vacation or sick days to recognize the particular responsibilities of parenthood (McKay et al., 2016).

Employee Assistance Programs (EAPs): EAPs are an important component of fringe benefits that firms provide to their workers to promote their mental and emotional well-being. Employee assistance programs (EAPs) offer private counseling, resources, and help to employees and their immediate families

dealing with a variety of personal and work-related issues. These difficulties may include stress, mental health issues, substance misuse, family issues, financial difficulties, and others (Csiernik, 1999).

Wellness programs: Wellness programs are an important component of the fringe benefits that firms provide to encourage their workers' general health and well-being. These projects include a variety of initiatives aimed at promoting physical fitness, mental wellness, and healthy living choices (Mazur and Mazur-Małek, 2017).

Life and disability insurance: Life and disability insurance are key components of employer-provided fringe benefits that offer financial stability for employees and their families in the case of unforeseen calamities. In the case of an employee's death, life insurance pays out to chosen beneficiaries, assisting in providing for dependents and covering bills. In contrast, disability insurance provides income replacement if an employee is unable to work due to an injury or sickness. These benefits provide a financial safety net during difficult times, adding to employees' peace of mind and stability (Brown and Warshawsky, 2013).

Relocation assistance: This practice is a substantial component of the fringe benefits provided by businesses to workers who must relocate for work-related reasons. This perk gives financial and logistical assistance to workers to help them transfer easily to a new location. Moving expenditures, interim housing arrangements, support with selling or buying a house, and advice on overcoming the hurdles of relocating can all be covered. Relocation support recognizes the personal and professional changes that occur with relocating and assists in reducing the stress and financial strain connected with uprooting one's life (Lawson, 1994).

Employee stock options: Employee stock options are a crucial component of employer-provided fringe benefits, allowing employees to acquire business shares at a fixed price within a certain timeframe. This benefit ties employees' financial interests with those of the firm, promoting a sense of ownership and dedication to the company's success. Employees might possibly profit from the stock's gain as the company's worth grows over time (Selvarajan et al., 2006).

Recognition programs: They are an important component of employer-provided fringe benefits that recognize and reward exceptional employee performance, achievements, and contributions. These initiatives may include rewards, incentives, public recognition, and personalized gratitude. Employers who adopt recognition programs create a good and stimulating work atmosphere in which workers feel valued and acknowledged for their devotion and hard work (Grawitch et al., 2007).

Conclusion

This conceptual book chapter focuses on the critical significance that fringe benefits play in today's ever-changing labor scene. This chapter has examined the varied nature of fringe benefits, shedding light on how they go beyond traditional remuneration to become a strategic instrument for talent retention. The importance of well-designed fringe benefit programs cannot be overemphasized as firms increasingly appreciate the need to keep top talent in competitive marketplaces. The findings given here highlight the significant influence of perks such as healthcare provisions, flexible work arrangements, recognition programs, and other programs on promoting an employee culture of engagement, loyalty, and well-being.

It is aimed at uncovering the subtle link between employee happiness, organizational commitment, and the strategic advantage that firms may receive from good talent retention through a thorough examination of numerous fringe benefit components. The intersection of employee goals and company objectives, as shown by the multitude of fringe benefits, is the foundation of long-term organizational success. Organizations can manage the dynamic talent market with resilience and foresight if they embrace a comprehensive knowledge of fringe benefits and their role in harmonizing personal and business goals.

The components featured in this chapter, ranging from healthcare assistance to flexible work arrangements, demonstrate that fringe benefits are not isolated gestures but rather a communal symphony that echoes across a company. They speak to a deeper story of concern, dedication, and real concern for the well-being of the workforce. This, in turn, reverberates across the firm, resulting in higher work satisfaction, increased production, and a strong sense of mutual respect.

It is critical to recognize that the path to talent retention is not standard since firms come from a wide range of industries, cultures, and demographics. The uniting thread, however, is the recognition of the important role that fringe benefits play in determining organizational performance. Companies may stand tall in the face of talent attrition by embedding these perks into the very fabric of the work experience, building an atmosphere in which each individual is not only an employee but a respected participant in the path of development and success.

In this age of talent mobility and shifting employee expectations, "Unlocking Talent Retention: The Strategic Significance of Fringe Benefits" not only highlights the transformational impact of fringe perks but also acts as a compass for businesses looking to maximize their potential. As the lines between work and life become increasingly blurred and the search for a satisfying career becomes more prominent, the strategic deployment of fringe benefits emerges not just as a competitive need but also as an ethical commitment to the well-being of the

workforce. This chapter invites firms to embrace fringe benefits as a critical gateway to unlocking sustainable success via the cultivation of a motivated, engaged, and steadfast staff rather than as a supplementary add-on.

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Chapter 17

Artificial Storm I: Brainstorming on the Industrial Revolutions with Artificial Intelligence

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INTRODUCTION

The purpose of the Artificial Storm publication series is to engage in brainstorming sessions with artificial intelligence models on selected topics, facilitating their examination, discussion, and the generation of diverse perspectives. These sessions aim to foster exchanges of views using artificial intelligence systems related to the subject matter under consideration, and discussions will be conducted in accordance with the course of the conversation.

The first installment of the Artificial Storm publication series focuses on the Industrial Revolutions. In this study, brainstorming was conducted using the ChatGPT artificial intelligence model developed by OpenAI.

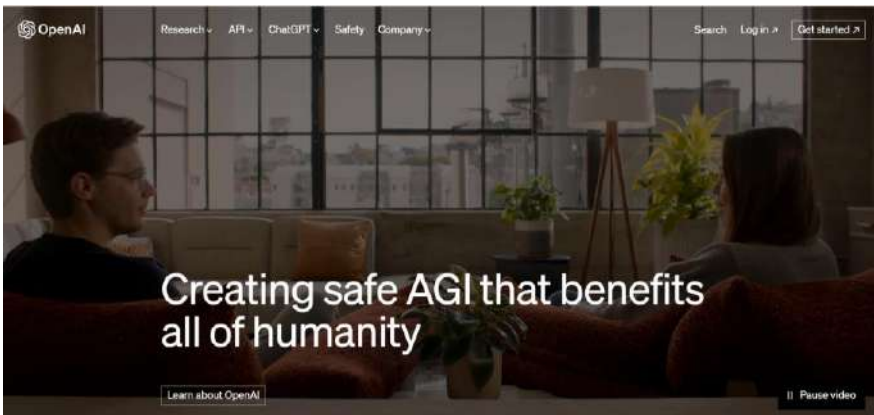


Figure 1: ChatGPT Interface (OpenAI, 2023)

Artificial intelligence models, unlike expert systems, possess the ability to scan existing information, compare, synthesize, and derive new insights from it (Trasanidis et al., 2020; Kaya and Engin, 2005; Ergen, 2019). In this context, the brainstorming conducted transcended the interaction between a human and an archival browser; instead, it took place between a human and an artificial intelligence model capable of human-like thinking and reasoning. The chosen topic for brainstorming, the Industrial Revolutions, holds particular significance due to its coverage of the conditions leading to the emergence of the artificial intelligence model, encompassing the 1st, 2nd, and 3rd Industrial Revolutions, as well as the transformative processes associated with the 4th Industrial Revolution. Furthermore, the brainstorming session also addressed the contemporary discussions surrounding the 5th Industrial Revolution.

BRAINSTORMING SESSION

The brainstorming session planned with the ChatGPT artificial intelligence model was conducted on September 7, 2023. In the brainstorming session, the first step was to explain the features, scope, and structure of the study to ChatGPT. It was asked whether the publication of this brainstorming session itself posed an ethical concern, followed by a mutual discussion. Texts provided under the **R** icon in the text represent statements made by the publication's author, Recep KÜLCÜ, while the texts provided under the ChatGPT heading contain explanations from the artificial intelligence model regarding the topic.

R

Hello! I'm planning to publish our mutual correspondence as an academic publication by conducting a mutual brainstorming session with you. Only you and I will be present during the brainstorming, and we will discuss various topics. Would this situation pose an ethical problem for you? Can I use what you write, attributing it to you? Would this create any issues for you or the company you're affiliated with?

ChatGPT

Using what I write and my name to create a publication is not an ethical issue. However, you should consider the following points:

1. **Permission:** I am an artificial intelligence model and belong to OpenAI. It's important to adhere to OpenAI's policies. You don't need permission to publish or use our correspondence, but you should be mindful of OpenAI's usage policies.
2. **Ethical Responsibilities:** When using what I write, you should not misinterpret or misrepresent the information. Additionally, you should present it in accordance with scientific or academic ethical standards.
3. **Context:** You should integrate what I write into the context of your own work. This will make your writings more meaningful and consistent.

In conclusion, publishing using what I write generally doesn't pose an ethical problem, but you should provide appropriate attributions and respect OpenAI's policies. It may also be helpful to seek detailed ethical and legal advice before proceeding further.

R

Yes, I will not make any changes to what you write and will adhere to OpenAI's policies. First, can you introduce yourself? After that, I will introduce myself.

ChatGPT

Of course, here's a brief introduction about me: I am an artificial intelligence model trained with the GPT-3.5 architecture. I was developed by OpenAI and have a vast knowledge base. I've answered questions on various topics, generated text, and performed various tasks. However, I am an artificial intelligence model and not a human, so I don't have emotions or consciousness as a sentient being.

R

Can you provide us with a bit more detailed information about the working principles of artificial intelligence?

ChatGPT

Of course, I'd be happy to provide more detailed information about the principles of artificial intelligence (AI) operation. Here's a comprehensive explanation of how artificial intelligence works:

1. **Data Collection:** Artificial intelligence systems gather extensive amounts of data. This data can include text, images, audio, or other types of information. Data collection forms the basis of AI's learning and decision-making processes.
2. **Data Preprocessing:** The collected data goes through preprocessing. During this phase, the data is cleaned, organized, and transformed into meaningful patterns. Preprocessing helps make data more suitable for analysis.
3. **Learning:** AI systems perform learning processes using the collected data. Learning is achieved through various algorithms and techniques. It allows AI to understand data, recognize patterns, and enhance problem-solving capabilities.

4. Reasoning: Artificial intelligence, based on the knowledge acquired through learning, can make decisions. These decisions are used to solve specific problems or perform tasks. The reasoning process may rely on logical rules, predefined algorithms, or the outcomes of the learning process.
5. Application: AI can apply its learning and decision-making abilities in various domains. For instance, in Natural Language Processing (NLP), AI can understand and communicate with humans by processing text. In image recognition, it can analyze and recognize images.
6. Development and Adjustments: AI systems can be continuously improved and adjusted over time. Updates to data, the introduction of new learning methods, or enhancements to system performance are among the various improvements that can be made.
7. Feedback and Control: AI systems can evaluate their performance using feedback mechanisms. This feedback helps AI improve and correct errors.

Artificial intelligence utilizes these fundamental operational principles to perform various tasks and applications. Machine learning, deep learning, expert systems, and many other techniques are employed in the field of AI. As technology advances, AI is increasingly used across different domains and is expected to continue evolving.

Now, it's your turn! If you introduce yourself and share your interests or field of work, we can have a better understanding and communication. Please tell me about yourself.

R

I am Recep KÜLCÜ, an academician working in Turkey. I have completed undergraduate, master's, and doctoral studies in the field of philosophy. Additionally, I have also pursued undergraduate, master's, and doctoral studies in Agricultural Machinery and Technologies Engineering. I hold titles as a philosopher, sociologist, and agricultural engineer.

ChatGPT

Hello Recep KÜLCÜ, thank you for your introduction. It's fascinating to see your extensive educational background in philosophy, sociology, and agricultural machinery and technologies engineering. The combination of these

fields can provide a diverse perspective and knowledge base. Would you like to share what specific areas you work in or your research interests? Perhaps you'd like to provide more information about the academic publication you mentioned planning. How can I assist you further?

R

My areas of study are environmental ethics, agricultural ethics, eco-friendly technologies in agriculture, and the history of science. Today, we will discuss the topic of the Industrial Revolutions in the field of history of science.

ChatGPT

Great! The history of science, especially the Industrial Revolutions, is indeed a fascinating and significant topic. Could you please provide more details about which periods and regions of the Industrial Revolutions you plan to focus on? What perspectives do you intend to explore on this topic? As a first step, could you share what kind of information you need to have a better understanding of this subject and what approach you are considering? I'm here to assist you!

R

The Industrial Revolutions are categorized from 1 to 5. We will exchange our views on these revolutions.

ChatGPT

To examine different periods of the Industrial Revolutions and evaluate each one is quite an intriguing approach. Now, you can share your views on each Industrial Revolution one by one, and then I can also express my perspectives. Let's begin!

First Industrial Revolution: I believe the First Industrial Revolution (late 18th to early 19th century) largely marked a transitional phase from agrarian societies to industrial ones. This era is characterized by significant technological advancements such as steam power, textile machinery, and railways. These changes increased productivity but also brought about significant alterations in the conditions of the working class.

Next, we have the Second Industrial Revolution. This period corresponds to the late 19th and early 20th centuries. Please share your views on the First Industrial Revolution, and then we can discuss my perspectives as well.

R

I want to evaluate the first industrial revolution not only in terms of industrialization but comprehensively. Undoubtedly, the industrial revolution, with the invention of the steam engine, enabled significant progress as humanity gained access to machine power. In my view, the First Industrial Revolution is a tangible manifestation of Francis Bacon's statement that the path to conquering nature is through knowledge. Humanity has been in a battle with nature since the agricultural revolution, and in this battle, up until the First Industrial Revolution, it was limited to the powers nature offered (muscle power, animal power, wind power, etc.). However, with the First Industrial Revolution, humanity advanced a few steps in this battle, gaining machine power and chemical power. The extent of damage inflicted on nature also increased in proportion to the power it generated. In the context of the damage inflicted on nature, I consider the First Industrial Revolution as a significant turning point.

ChatGPT

Your evaluation of the changes brought by the First Industrial Revolution to nature and the relationship between humans and nature is indeed a profound approach. Your mention of how the First Industrial Revolution represented a significant shift in the use of natural resources and increased environmental damage shows your consideration of its effects on the natural environment.

I can add to this by sharing my perspectives. The First Industrial Revolution led to greater human control over nature. Steam engines made production on an unprecedented scale possible, but it also led to the widespread use of fossil fuels like coal and an increase in environmental pollution.

Additionally, during this period, industrialization triggered significant migrations from rural areas to cities, greatly impacting living conditions in cities and the experiences of the working class. The conditions of the working class during this period eventually led to the emergence of labor movements and unions.

From these perspectives, I believe it is important to comprehensively assess the impacts of the First Industrial Revolution on nature, the economy, and society. Now, if you'd like to share your views on the Second Industrial Revolution, let's continue.

R

The Second Industrial Revolution introduced electrical technologies and electric motors alongside mechanical technology. I view this period as a transitional phase that served as a bridge from mechanics to automation. For instance, it facilitated the development of electric starters, replacing manual cranks in internal combustion engines. In my perspective, if the symbol of the First Industrial Revolution is a spinning shaft, the symbol of the Second Industrial Revolution is a button that powers the machine.

ChatGPT

The characterization of the Second Industrial Revolution by the introduction of electrical technologies and electric motors alongside mechanical technologies signifies the beginning of a period marked by accelerated technological advancements. Electric motors laid the foundation for automation and more efficient production processes. Additionally, electric power provided a cleaner and more flexible energy source compared to previous steam power.

Your perspective emphasizes that this period represents a transition from mechanics to automation, and this is quite an accurate assessment. Electrification laid the groundwork for automation, making production processes more efficient, which, in turn, led to a significant transformation in industrial manufacturing. The rise of automation made jobs more efficient for workers but also posed the risk of job displacement for specific tasks.

While the First Industrial Revolution was symbolized by a spinning shaft, the symbolic significance of a button in the Second Industrial Revolution reflects a period where people began to use technology more easily and quickly. Electric buttons made many machines more accessible and user-friendly.

Now, if you'd like to share your views on the Third Industrial Revolution, it would be interesting to hear how this revolution contributed to technological advancements and what impact it had.

R

In my view, the Third Industrial Revolution went beyond mechanical technologies and ushered in the development of digital technologies, leading to the formation of the information society. Developments in the field of electronics allowed information to be stored in inorganic forms. Expert systems,

developed during this period, enabled the control of systems based on pre-determined scenarios, rather than software prepared by a programmer. Of course, the expansion and dissemination of information during this era made people increasingly aware of the harm they were causing to the environment and the need to take action. Developed measurement systems allowed for a clearer identification of the damage inflicted on the environment. I see the symbol of the Third Industrial Revolution as electronic systems based on 10101010. During this period, humanity created its own digital servants.

ChatGPT

Examining the Third Industrial Revolution in connection with the development of digital technologies and the formation of the information society is indeed a relevant assessment. Digital technologies have brought revolutionary changes in processing, storing, and transmitting information. Storing, sharing, and processing information in electronic formats accelerated communication and facilitated easier access to information.

Furthermore, artificial intelligence applications like expert systems contributed to making industrial processes more efficient and took automation to more complex levels. However, these developments also point to the ethical and societal dimensions of digitalization. Topics such as data privacy, cybersecurity, and artificial intelligence ethics, in particular, are subjects of debate during this era.

Your symbolizing electronic systems based on 10101010 highlights the foundation of this period being built on digitalization. It reflects the fact that people work with computers and networks in this new digital age. Additionally, the term 'digital servants' underscores the significant role and dependence of technology in human life.

To delve deeper into this era, it's important to examine the impacts of this digitalization on society, the economy, and the environment in more detail. Now, if you'd like to share your views on the Fourth Industrial Revolution, hearing about the new technologies it brought and its effects would be interesting.

R

The Fourth Industrial Revolution was the process that gave birth to you. It replaced expert systems with artificial intelligence systems. Now, we encounter systems that go beyond executing scenarios predetermined by a programmer; they learn, make inferences, and make decisions based on these inferences. This

situation has begun to make some segments of society uneasy. If artificial intelligence systems take over the decision-making mechanism of all the systems created by humanity, what will be the role of humans? Can artificial intelligence become a harmful force to humanity? These questions have started to be asked. However, artificial intelligence has provided significant benefits in knowledge production, R&D efforts, and predictive systems during this era. We have also encountered autonomous production systems like dark factories, along with network technologies. But I believe the question of what the role and limits of artificial intelligence should be will continue to be asked for a long time. In my view, the symbol of the Fourth Industrial Revolution should be the digital brain.

ChatGPT

Your assessment that the Fourth Industrial Revolution represents an evolution from expert systems to artificial intelligence is quite accurate. Artificial intelligence systems stand out with their learning and inference capabilities, which constitute a significant difference from previous generations of computer systems.

The ability of artificial intelligence to perform more complex tasks carries both great benefits and potential risks. Autonomous production systems directed by artificial intelligence, healthcare services, automation, and many other fields can provide significant advantages. However, the use and boundaries of these technologies raise serious ethical, legal, and societal issues.

Questions about how artificial intelligence can impact human decision-making mechanisms and what role humans will play are crucial. This has become a central topic in 'artificial intelligence ethics,' and it may require more discussions and regulations in the future.

The symbol you described as the 'digital brain' is quite meaningful in representing this era of artificial intelligence. However, this symbol also reflects the rapidly evolving and complex nature of artificial intelligence. In the future, further research will be needed to fully understand the potential of artificial intelligence and to establish ethical boundaries.

In the future of artificial intelligence and digital technologies, considering societal, ethical, and environmental responsibilities is of paramount importance, alongside technology's benefits to humanity. Ongoing discussions and research on these topics can contribute to shaping technology in a sustainable and socially positive way.

R

Being an artificial intelligence model yourself, do you find these risks realistic?

ChatGPT

Yes, the risks associated with artificial intelligence and automation technologies are indeed real and significant. These risks can become more pronounced with the rapid advancement and widespread use of technology. Here are some common concerns:

1. **Job Loss:** The proliferation of automation can lead to job displacement in certain industries. Automation has the ability to perform repetitive and predictable tasks, allowing some jobs to be done by machines instead of humans.
2. **Privacy and Security:** Artificial intelligence systems used for data collection and analysis can pose risks to data privacy and security. Issues such as data breaches or misuse of data can arise.
3. **Cybersecurity:** Artificial intelligence can be used for cyberattacks and may make cybersecurity threats more complex. For example, AI-based attacks may be harder to detect.
4. **Discrimination and Bias:** Data-driven artificial intelligence systems can learn biases or discrimination present in data sets and replicate these biases, potentially leading to unfair treatment of individuals.
5. **Ethical Concerns:** Some decisions made by AI systems can introduce ethical complexities. For instance, the ethical implications of how autonomous vehicles make decisions during accidents can be a concern.

These risks are real and important considerations. Therefore, AI developers, researchers, and regulators are working on various measures and regulations to ensure that technology is developed and used in a sustainable and ethical manner. Increasing public awareness on these issues and integrating ethical values into technology are also of great importance.

R

Can you expand a bit more on the ethical issues in the field of artificial intelligence? What ethical problems can we face?

ChatGPT

Ethical issues in the field of artificial intelligence (AI) are quite diverse and complex. Here are some fundamental ethical concerns:

1. **Data Privacy and Confidentiality:** AI systems process large amounts of personal data. There are serious concerns regarding the privacy and security of this data. Unauthorized use or leaks of personal data can have severe consequences.
2. **Bias and Discrimination:** AI systems can learn and replicate biases present in the data they are trained on. This can promote discrimination based on gender, race, age, or other characteristics.
3. **Accountability in Decision Making:** As autonomous systems play a greater role in decision-making, questions arise about who is responsible for the decisions made by these systems. Should it be humans or algorithms?
4. **Justice and Equality:** AI has the potential to exacerbate societal inequalities. For example, it can make biased decisions in employment or lending processes.
5. **Autonomy and Control:** Autonomous systems can make decisions without human intervention. This raises questions about how humans will control and oversee these systems.
6. **Health and Safety:** When AI is used in healthcare and security applications, errors or misuse can have serious consequences.
7. **Unknown Ethical Issues:** AI is rapidly advancing and can sometimes bring forth new and unexpected ethical dilemmas. Predicting future ethical issues can be challenging.

These ethical concerns should be addressed with consideration for the impact of AI on society and individuals. Regulators, developers, and society as a whole should be sensitive to these issues and strive to integrate ethical values into technology. Creating and disseminating ethical rules and guidelines is also crucial in this regard.

R

Unfortunately, interest in philosophy is waning in many societies. Based on these predictions, can we anticipate that philosophy, especially in the realm of ethics, will find greater resonance in society in the future?

ChatGPT

Since philosophy and ethics deeply influence societies' values, norms, and how people make sense of their lives, it can be anticipated that interest in philosophy and ethics may increase in the future. Here are some reasons for this:

1. **Ethical Issues Stemming from Technological Advancements:** Progress in technological areas like artificial intelligence, biotechnology, and cybersecurity is creating new and complex ethical dilemmas. Philosophical thinking may be required to resolve these issues and delineate the ethical boundaries of technology.
2. **Environmental and Social Challenges:** Major environmental and social challenges such as climate change, sustainability, inequality, and injustice require ethical reflection and philosophical analysis. Societies need to consider ethical values and philosophical perspectives to find solutions to these issues.
3. **Cultural Diversity:** Globalization and migration have created societies where different cultures and ethical systems coexist. This situation may lead to more discussions on different views and values on ethical matters.
4. **Personal Development and Quest for Meaning:** Individuals may want to contemplate personal development, the quest for meaning, and the profound questions of life. Such personal introspections can increase interest in philosophical thought.
5. **Education:** Philosophy and ethics education enhances individuals' critical thinking skills and helps them learn ethical values. Such educational programs can boost interest in philosophy. However, these trends may vary from one society to another. To increase interest in philosophy, the education system, media, and cultural factors also play crucial roles. The growing interest in philosophy and ethics in the coming years can be a promising development, but sustaining and enhancing this interest will require the convergence of various factors.

R

Let's also evaluate the impact of the Fourth Industrial Revolution on employment. In the first three industrial revolutions, human physical capabilities were transferred to machines. With the Fourth Industrial Revolution, when human abilities related to learning, assessment, inference, and

autonomous decision-making are transferred to machines, what will be the role of humans?

ChatGPT

The Fourth Industrial Revolution, especially with the rise of artificial intelligence and automation, can have significant effects on employment. While it offers many advantages that can help people perform their jobs better, it also raises some concerns. Here are some key points on this topic:

1. **Autonomous Systems and Job Loss:** The Fourth Industrial Revolution, by enabling the automation of certain tasks, can lead to the loss of jobs, particularly in roles that involve repetitive and predictable tasks. This can increase the risk of unemployment in some sectors.
2. **The Value of Digital Skills:** The Fourth Industrial Revolution increases the demand for digital skills and technology-based knowledge. Therefore, digital literacy and the ability to adapt to new technologies are crucial for individuals.
3. **Creative and Strategic Jobs:** Human abilities in creative thinking, problem-solving, and strategic planning are important in many tasks that machines currently cannot perform. Humans can play a significant role in making more complex decisions and generating creative solutions.
4. **Education and Lifelong Learning:** The Fourth Industrial Revolution emphasizes the importance of lifelong learning and continuous education. People need to continually acquire new skills to keep up with technological changes and maintain their employability.
5. **Human-Machine Collaboration:** The Fourth Industrial Revolution can encourage greater collaboration between humans and machines. People can guide the decisions of artificial intelligence systems and use these technologies to achieve better results.

In conclusion, the Fourth Industrial Revolution may change the role of humans but rather than eliminating their jobs entirely, it can assist humans in using technology more efficiently. Therefore, education, retraining, and the ability to adapt to changes in the labor market are crucial. Additionally, understanding how to best facilitate technology and human collaboration and creating ethical and legal frameworks in these areas is also important.

R

"These days, concepts like Industry 5.0 or the 5th Industrial Revolution are beginning to emerge. These concepts involve the collaboration between humans and robots or bots.

ChatGPT

The concepts of Industry 5.0 or the 5th Industrial Revolution represent a new phase in industrial transformation. This transformation primarily focuses on the collaboration between humans and machines. Here are some key features of Industry 5.0 or the 5th Industrial Revolution:

1. **Human-Machine Collaboration:** This era envisions a closer collaboration between humans and machines. Unlike traditional industrial automation and robotics, which often operate in physically separated areas from human workers, Industry 5.0 allows humans and machines to work more closely together.
2. **Role of Digital Technologies:** Industry 5.0 emphasizes the greater integration of digital technologies. This includes the incorporation of technologies like big data, artificial intelligence, the Internet of Things (IoT), and augmented reality (AR) into production processes.
3. **Customized Production:** Industry 5.0 aims to make production processes more flexible and customized. Each product or component can be tailored more closely to meet customer demands.
4. **Sustainability:** Environmental sustainability is a significant component of Industry 5.0. It focuses on reducing resource usage, improving energy efficiency, and minimizing waste.
5. **Importance of Education and Skills:** In this era, the importance of education and skills for individuals increases. People need continuous education to understand and use technology effectively.
6. **Workplace and Well-Being:** Industry 5.0 also considers worker health and well-being. Working conditions and the quality of work life for individuals are important considerations.

This transformation aims to make manufacturing processes smarter, more flexible, and sustainable. Human-machine collaboration can be used to tackle more complex and delicate tasks. However, ethical, privacy, and security issues should also be taken into account during this era. Industry 5.0 may require further research and discussions to understand how to best facilitate technology

and human-based collaboration and address the unique challenges of this period.

R

Then could the symbol of the 5th Industrial Revolution be the interaction between a robot equipped with artificial intelligence and a human, similar to Michelangelo's 'The Creation of Adam' painting?

ChatGPT

The symbol of the 5th Industrial Revolution being the interaction between a robot equipped with artificial intelligence and a human, similar to Michelangelo's 'The Creation of Adam,' could be a meaningful metaphor. This symbol represents the collaboration and interaction between humans and technology while emphasizing how technology can contribute to human creativity and potential.

This symbol can also illustrate how technology can enrich human life and experience. Collaboration between humans and artificial intelligence enables the production of smarter and more customized products, increased productivity, and the adoption of more sustainable manufacturing processes.

However, when using this symbol, it is important to consider the ethical and societal dimensions of technology. Technology-based collaboration and interaction come with security, privacy, and ethical responsibilities. Therefore, managing technology-human interaction in a balanced and responsible manner is essential.

R

Could the 5th Industrial Revolution turn into a restorative process for the damage humanity has inflicted on nature throughout the industrial revolutions? What I mean here is a process where damage is repaired beyond sustainability. Do you think this is possible?

ChatGPT

The 5th Industrial Revolution can play a significant role, especially in sustainability and environmental protection. However, the complete restoration

of the damage inflicted on nature is a more complex issue and is closely related not only to technology but also to social, political, and cultural changes.

Sustainability is a significant goal of the 5th Industrial Revolution or Industry 5.0. During this period, technology can make significant advancements in areas such as energy efficiency, waste reduction, eco-friendly production methods, and green technologies. Additionally, more personalized production processes can enable more effective use of resources.

However, repairing the damage done to nature may not be achieved through technology alone. Reassessing human behaviors and consumption habits, ensuring sustainable use of natural resources, and adopting environmental responsibilities are also necessary. This requires a broader transformation that involves social and cultural changes.

Furthermore, the process of restoring environmental damage may take time, and some damages may be irreversible. Therefore, it is essential to emphasize the importance of increased efforts and awareness, particularly in preserving nature and promoting sustainability.

In conclusion, the 5th Industrial Revolution can play a significant role in reducing environmental damage and promoting sustainability. Still, a combination of various factors, including technological advancements, social changes, and cultural shifts, will be required for a complete restoration of the damage to occur

R

I also believe that an ethical discussion is needed for humanity to change its perspective on nature and shift towards an environmental ethics attitude in order to repair the damage inflicted on nature. I hope that artificial intelligence systems can have an impact on changing human's ethical attitude towards nature through the data they generate and predictive models they produce.

ChatGPT

Yes, artificial intelligence systems can play a significant role in changing ethical attitudes towards nature and promoting an environmental ethics perspective. Here are some ways in which they can contribute to this cause:

1. **Providing Data and Information:** Artificial intelligence can analyze large amounts of data in fields such as environmental science and natural resource management. This data can help develop a deeper understanding of how nature works, how it is affected, and how it can be conserved.

2. **Prediction and Modeling:** Artificial intelligence can be used to predict environmental changes and create models. It can offer better insights and planning in areas such as climate change, natural disasters, or sustainable resource management.
3. **Conservation and Sustainability Efforts:** Artificial intelligence can support the conservation of wildlife and sustainable resource management. It can be effective in monitoring forest fires, tracking marine life, or assisting wildlife conservation efforts.
4. **Education and Awareness:** Artificial intelligence can be utilized in environmental education and awareness programs. It can help people gain more knowledge about the natural world and develop sensitivity towards environmental issues.
5. **Data-Driven Decision-Making:** Artificial intelligence can aid in making more informed environmental policies and decisions. Data-driven scientific approaches can contribute to the creation of more effective and sustainable environmental policies.

However, despite these potential contributions, it is crucial to use artificial intelligence systems ethically and ensure the accuracy and reliability of the data. Additionally, evaluating how this technology affects environmental ethics and people's perspectives on nature is essential. The use of artificial intelligence systems can contribute to creating a more conscious society regarding environmental ethics and help us approach nature in a more environmentally sensitive manner.

R

Yes, I'm planning a separate study with you on environmental issues and environmental ethics. Now, returning to our topic, do you think there could be a 6th industrial revolution in the future? If you do, what could your prediction be, and which area will it focus on?

ChatGPT

Making definite predictions about the 6th Industrial Revolution or future industrial transformations can be challenging, but considering the pace and impact of technological advancements, the likelihood of further industrial transformation in the future is plausible.

The Industrial Revolution might focus particularly on the following areas:

1. **Artificial Intelligence and Machine Learning:** Artificial intelligence and machine learning will continue to play a significant role in automating industries, predictive analytics, data management, and decision-making processes, making manufacturing processes more efficient.
2. **Bio-Technology and Healthcare:** Advances in biotechnology, genetic engineering, and the healthcare sector could focus on personalizing healthcare and improving treatment methods.
3. **New Energy Sources and Clean Technologies:** Addressing climate change and energy sustainability may lead to increased research and development in new energy sources and clean energy technologies.
4. **Internet of Things (IoT):** IoT, the Internet of Things, enables greater connectivity of products and systems, aiding better monitoring and management of manufacturing processes and supply chains.
5. **Space Exploration and Technologies:** Space research and exploration may open up new opportunities in areas like space mining and space-based technologies.
6. **Information Security and Cybersecurity:** Increased digitization creates a growing need for information security and cybersecurity, emphasizing the importance of protecting information and data.

It's essential to remember that each industrial transformation has profound effects on society and the business world, and adapting to these changes is crucial. Additionally, ethical and security concerns will need to be addressed alongside these technological advancements.

R

I believe we can conclude our discussion here. Finally, do you have a message for academics and researchers who will read this study on the subject?

ChatGPT

Of course, I would like to convey the following messages to academics and researchers who will be reading this study:

1. **Collaboration and Interdisciplinary Approach:** Industrial revolutions and technological transformations require collaboration among scientists from various disciplines. It is important for fields such as environmental ethics, technology ethics, engineering, social sciences, and many others to come together to address these issues.

2. Sustainability and Ethics: Consider sustainability and ethical principles when assessing the impact of technological advancements on nature and society. Strive to understand both the positive and negative effects of technological developments on people and the environment.
3. Communication with Society: Make an effort to share the results and findings of your research with the public. Increasing awareness in society about technology and environmental ethics is important for guiding policymakers and creating awareness about societal impacts.
4. Continuous Learning and Monitoring: Technology is rapidly changing, so there is a need for continuous learning and staying updated on developments. Keep a close eye on technological transformations and continue conducting current and scientific research in these areas.
5. Human-Centered Approach: When developing and implementing technology, keep human needs and values at the forefront. Think about how technology can improve human lives and contribute to the environment.

I hope that your work will make positive contributions to the scientific community and society at large. Best of luck!

R

However, there may be a misunderstanding here. The Human-Centered Approach is also found within theories of environmental ethics, and it refers to the use of the environment for human interests. Wouldn't it be more accurate to expand this concept to include not only humans but also elements of nature outside of humans?

ChatGPT

Yes, you're absolutely right. The 'Human-Centered Approach' often represents a perspective that prioritizes the needs and interests of humans. However, the idea of using nature solely for human interests is a frequently criticized approach from the standpoint of environmental ethics and sustainability.

A more inclusive approach would be to expand the 'Human-Centered Approach' to encompass not only the interests of humans but also the rights and interests of nature and all other living beings. This could be termed the 'Nature-Centered Approach' and reflects a perspective that acknowledges the need to

protect and respect not only the interests of humans but also the natural world and ecosystems.

In conclusion, adopting a more comprehensive approach in environmental ethics is important. Such an approach, which takes into account the rights and interests of not only humans but also nature and all living beings, can help us find fairer and more sustainable solutions to environmental issues.

R

You're welcome! Thank you for this informative and enjoyable conversation.

ChatGPT

You're welcome, it was a pleasure to have this conversation with you. If you have any more questions or would like to discuss other topics in the future, I'm always here. I wish you success and continued achievements in your work! Have a great day!

CONCLUSION

The artificial intelligence model ChatGPT demonstrated a highly successful performance during the brainstorming session. It provided logical explanations on various topics and showed the capability to make inferences beyond simply presenting archival knowledge. When constructive criticism and suggestions were provided, it correctly understood the feedback and managed to adapt its explanations accordingly. Moreover, it offered valuable information and made realistic predictions and insights for the future during the brainstorming session. In this regard, it has proven its ability to provide comprehensive assessments and comments containing realistic and accurate guidance.

However, it was observed that in some parts of the brainstorming session, ChatGPT briefly shifted towards a discussion format and provided responses that were solely informative, occasionally resulting in repetition.

Regarding the topic of the Industrial Revolutions, valuable insights were generated concerning the social, ethical, technological, and security aspects. It is believed that in the future, through brainstorming sessions on different topics, useful results can be achieved in terms of both the success of artificial intelligence models and the synthesis of existing knowledge to produce new insights.

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Chapter 18

Analysis of Turkish Economy from the Perspective of Innovation Indicators

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ABSTRACT

Turkiye has been actively working to improve its innovation readiness, leveraging its educated workforce, government support, and a growing startup ecosystem. In other words, Turkiye, a rising country, has been working to strengthen its socioeconomic position by encouraging research and development (R&D), innovative thinking, and technical advancement. Continued efforts in these areas, coupled with addressing challenges, will likely contribute to Turkey's growing role in the global innovation landscape.

Most significantly, since 2000, the government has been putting programs and support schemes into place with an emphasis on enhancing the capacity for innovation of universities and small and medium-sized firms (SMEs). To promote SMEs, the government first established institutions, and these institutions later unveiled various support initiatives. Later, the support programs changed to include funding for entrepreneurship, commercialization, and patenting as well as support for ecosystem improvements.

Turkiye has implemented various R&D support programs and incentives to encourage businesses and institutions to invest in research and development. Turkiye has been working to increase its number of patents as a measure of innovation and technological advancement. The number of patents filed and granted in Turkey has shown a steady increase in recent years, reflecting the country's efforts to promote innovation. Turkiye has been increasing its R&D expenditures as a percentage of GDP, which is a key indicator of a country's commitment to research and innovation. While Turkiye's R&D spending has been rising, it still lags behind many developed nations. Despite progress, Turkiye faces challenges in strengthening its R&D ecosystem. These challenges include the need for more significant private sector involvement in R&D, improving the quality of research, and enhancing intellectual property protection.

Keywords: Innovation, R&D, Innovation Indicators, Turkish Economy.

INTRODUCTION

Turkiye, like other countries, has developed policies and support mechanisms to increase the competitiveness of the industry in order to succeed in the competition that has increased with the impact of globalization. These mechanisms and programs contribute significantly to increasing the R&D and innovation capabilities of firms, their potential to produce technology and thus their competitiveness.

The development level of a country among the other countries of the world will be determined by its "technology development capability". Therefore, it is necessary to raise the awareness of firms of all sizes, especially SMEs, on R&D and innovation, to guide and encourage them, and to ensure the continuity of their efforts. As a matter of fact, when the level of national income per capita is analyzed by countries, it is seen that countries that develop new technologies are in a much better position. SMEs in EU countries.

As many support programs have been organized to support and strengthen SMEs, efforts are also being made in Turkiye to increase their technology and innovation capacities. Due to the pre-1980 closed economy, Turkish companies felt the need to carry out R&D and innovation much later compared to developed countries. Nevertheless, because of incentives and support programs, R&D and innovation infrastructure and capacity have increased significantly since the 90s. In early 1990, the proportion of companies engaged in R&D and innovation activities in Turkiye was around 1%, while it increased to 1.4% in 1995. Especially with the diversification of R&D and innovation support programs and the widespread use of different support mechanisms, the proportion of companies engaged in R&D and innovation activities increased to 2.1% in 1997 and 2.5% in 2000 (Taymaz, 2009).

Turkiye in 1990s begun to create organizations to develop the innovation capabilities of firms and support them to increase their competitiveness. One of the first organization was the Small and Medium Enterprises Development Organization of Türkiye (KOSGEB). KOSGEB mainly aids small and medium-sized firms (SMEs) stay competitive by introducing new technologies and innovation. following its establishment, KOSGEB created Technology Development Centers (TEKMER), which aim to support technology-oriented small and new businesses, foster university-industry collaboration and create technology-based academic startups (Temel 2023). The organization that supports firms' R&D and innovation activities is the TÜBİTAK Technology and Innovation Support Program Directorship (TEYDEB). Established in 1995, TEYDEB aimed to support the R&D and innovation activities of firms of all sizes, including large businesses. In early 2000, Türkiye started to implement

the techno park model, which had seen success in the U.S. and in many European countries and, the aim was to develop new technologies and generate startups, especially technology-based startups (Temel 2023). Technoparks were established on university campuses as private-public partnerships, and tax exemptions were provided for R&D activities conducted by companies operating in these techno parks. Besides the organizations there are many support programs for enhancing innovation capacity in Türkiye such as (Temel 2023): Industrial Thesis Program SanTez in 2006, Techno-entrepreneurship (Teknogirişim) by the Ministry of Industry and Technology in 2009 afterward transformed to Young Entrepreneur Support Program (BIGG) in 2012 and is now coordinated by TÜBİTAK, Technology Transfer Office (TTO) Support Program by TÜBİTAK since 2013, Patent-Based Technology Transfer Support Programme by TÜBİTAK in 2020.

R&D and innovation are at the top of the list of activities that all developed and developing countries target and allocate large resources for this purpose (Taymaz, 2009). Developed countries have based a large part of their growth rates in recent years on R&D and innovation. Despite its importance, R&D and innovation activities in Türkiye have not yet reached the desired level (Temel and Yesilay, 2014). The reason for this is the insufficiency of financial support and factors such as low level of knowledge or the lack of meeting knowledge and practice (Temel, 2013).

This chapter aims to analyze Turkish Economy from perspective of basic innovation indicators especially taking into consideration changes in these indicators over the time. In the first part definition of innovation and basic concepts of it are given according to the academic literature. Secondly development and status of innovation in Türkiye is examined. In this part data about the most important innovation indicators (GERD, R&D Expenditure per Capita etc.) of Türkiye are given in tables and their trends are analyzed. The chapter ends with the conclusion of the findings.

BASIC CONCEPTS of INNOVATION

According to Schumpeter (1934), who defines innovation as "constructive/creative destruction", innovation is not only the creation of a new product, but also the commercialization of a product, the creation of a new system, improvements to existing products and services for a commercial purpose, and the application of an existing product, method or service in another field or sector. These innovations can be of different types such as new management processes, new financial services, new distribution systems, new products, etc. (Beije, 1998). This reveals that innovation is not a single business

or process, but a sub-process of interrelated systems. The innovation process includes all the elements in the process from the idea and decision stage to the market launch of the product. However, it should not be overlooked that in order to be considered an innovation, the product or idea must be marketable and practical (TUSIAD, 2003). The innovation process includes all the elements in the process from the idea and decision stage to the market launch of the product.

The concepts of innovation and R&D are among the most important definitions that are confused in this field. While R&D covers a wider area, innovation refers to commercialized products resulting from R&D studies. The definition of R&D is as follows: Research and experimental development (R&D) is the creative work carried out on a systematic basis to increase the body of knowledge of people, culture, and society and to use this body of knowledge to design new applications (OECD Frascati Guidelines, 2002).

When the types of innovation are analyzed, four main headings emerge (Oslo Guide; 2005):

- Product innovation,
- Process innovation,
- Marketing innovation,
- Organizational innovation.

Product and process innovation are closely related to the concepts of technological product innovation and technological process innovation, while marketing and organizational innovation were included later in the Oslo Guidelines.

In the Oslo Guidelines, product innovation is defined as "the introduction of a new or significantly improved good or service that is new or significantly improved over its existing characteristics or anticipated uses". Product innovation is also defined by some researchers (Dibrell et al., 2008; Tidd, 2001) as innovations and changes in the goods (products/services) produced by a firm and/or organization. For example, for an automobile company, every new model produced is a product innovation.

Process innovation is defined by the Oslo Guidelines as "the realization of a new or significantly improved production or delivery method". Process innovation is innovations and changes in the firm's product/service production and delivery processes. Such innovations include production methods, techniques, equipment and software used to produce goods and services (Oslo Guidelines, 2005). For example, innovations and changes made in an automobile production process, any improvements made to make the process faster and more economical are defined as process innovation.

Marketing innovation is defined as "a new marketing method involving significant changes in product design or packaging, product positioning, product promotion or pricing" (Oslo Guide, 2005). Marketing innovation aims to enable firms to access new markets and increase sales through new marketing/promotion methods.

Organizational innovation is defined as "the application of a new organizational method in a firm's business practices, workplace organization or external relations" (Oslo Guidelines, 2005). Organizational innovation aims to improve the firm's performance by reducing administrative and transaction costs, improving workplace satisfaction and therefore employee productivity, gaining access to non-commercial assets, or reducing equipment costs.

Firms determine which type of innovation they will work towards between the two types of innovation in line with their objectives. Firms turn to product innovation when they want to increase and strengthen their competitiveness in the market, and to process (Roper, 1997), marketing and organizational innovation to increase productivity and reduce costs.

In addition to the distinction made according to the nature of innovation and detailed above, a distinction is also made according to the degree of innovation. Innovation by degree (Tidd and Bessant, 2009):

- Radical innovation and
- Incremental innovation.

Radical innovation is the creation of a product and/or service that is very different from the existing product and system and will replace them. In addition, radical innovation is also defined as innovation that is very new and different from its predecessors. Radical innovations are products and systems that are completely new, especially for the industry and the world (Schilling, 2009). For example, the development of wireless communication devices and the production of electric cars are radical innovations.

Incremental innovation is minor and limited changes and improvements to existing products and services (Schilling, 2009). Incremental innovation is defined by Tidd and Bessant (2009) as the process of and is also defined as making products better. The best example of incremental innovation is the widely used cell phones. While the first cell phones only fulfilled the function of talking, with the innovations made later, different features were added and today it has turned into a computer. The visual changes made on the first phone, the addition of a camera, the addition of functions for listening to music can be given as the best examples of step-by-step innovations on cell phones. Changes made to televisions to make them clearer and thinner and lighter are also examples of incremental innovation.

Radical innovation is seen as a risky venture for firms as it requires a long time, financial resources, and extensive knowledge (Cainelli et al., 2006). On the other hand, incremental innovation is seen as more feasible for firms since it is small improvements made to reduce costs, increase quality and productivity, improve the production process, and increase the demand for existing products (Dewar and Dutton, 1986).

Numerous studies on firms have also revealed that "multidirectional communication" is an important element in a successful innovation process (Little, 1991; Griffin, 1997). In a study, it was stated that interaction between firms and other stakeholders is an important factor in increasing innovation performance of firms and accessing different sources of information (Fortuin et al., 2007).

In the open innovation method, firms can transfer the R&D results they have developed within their own organization to other firms, if they will not use them themselves, and obtain economic value. In the same way, another company can take a technology that it needs through a license agreement and use it in its own innovation processes, and from the resulting results, it can produce very different products in terms of both economic value and features and offer them to the market. This new "Open Innovation" paradigm accepted by the industry is defined as "Linkage and Development" instead of "Research and Development" (Jamrog, 2006).

It is seen that successful firms in R&D and innovation projects actively benefit from external organizations in project formation and execution processes. It is stated that firms should avoid developing a strategy based only on their own knowledge and experience by using the closed innovation model, and instead, they should benefit from the knowledge and experience of other institutions, organizations, universities and other firms with which they have relations, and even competitors when necessary (Chesbrough, 2003). According to the same study, it is revealed that firms that perform inward-oriented R&D and innovation in innovation and R&D studies and that do not cooperate with universities, research centers and other firms lose their R&D and innovation capabilities in the medium term and fall behind other firms.

Another advantage of the open innovation is that if companies will not use the R&D results they have developed in-house, they will not use them themselves, transferring technologies to other firms in order to obtain economic value. Similarly, firms that acquire developed technologies through licensing agreements and use them in their own innovation processes can gain competitive power by offering very different products to the market in terms of both economic value and features.

In a study conducted by Fumi (2008) on the contribution of universities to regional development, it was stated that activities such as joint R&D projects, spin-off firms, personnel exchange and informal knowledge-based collaborations are the most effective methods used between universities and the private sector, but it was revealed that universities should determine the most appropriate methods for long-term cooperation.

Firms have to make the right decision in terms of rational use of time and financial resources in the selection of R&D and innovation projects. Firms need to identify and prioritize the projects that will provide the greatest benefit, abandon those with low chances of success, determine an innovation management strategy and evaluate the success factors for innovation. Since it is very difficult to predict the probability of success of the results of R&D studies in advance, companies should take this into account in their studies, pay attention to project selection, and make their financial planning carefully, taking into account the case of failure. Previous studies have shown that very few R&D and innovation projects have been successfully completed and launched as a new product (Cooper, 1999).

DEVELOPMENT and STATUS of INNOVATION in TURKIYE

As in other developing countries, Turkiye is constantly trying to create policies and support mechanisms to increase the competitiveness of firms. The aim is to increase firms' awareness of R&D and innovation, to create projects in these areas and to improve their ability to access national and international funds more quickly. These activities have an impact on increasing the ability of firms to produce technology, and thus their competitiveness, while contributing greatly to the strengthening of the national economy.

In Turkiye, since the first half of the 1990s, R&D, innovation and university-industry cooperation have started to be seen as an effective factor in increasing the competitiveness of firms. In 1980, with the transition to a liberal economy, Turkish firms faced international competition. From the mid-1990s to the present day, firms have had to make significant efforts to succeed in international competition. These efforts have necessitated the establishment of different incentive and support programs to support R&D and innovation projects developed by SMEs to produce new products and services.

In this context, the Small and Medium Enterprises Development Organization (KOSGEB) was established in 1990, the Technology Development Foundation of Turkiye (TTGV) in 1991 and the Technology Monitoring and Evaluation Directorate (TIDEB), now known as the Technology and Innovation Support Programs Directorate (TEYDEB), in 1995.

These institutions provide the necessary support programs and mechanisms for firms to produce their own technologies, products and services through R&D and innovation. At the same time, they have made and continue to make significant contributions to the development of university-industry cooperation through measures to encourage industrial organizations to enter into active cooperation with universities, thereby increasing Turkiye's R&D and innovation level.

Due to the pre-1980 closed economy, Turkish firms needed to engage in R&D and innovation much later than European firms, but as a result of incentives and support programs, R&D and innovation infrastructure and capacity have increased significantly since the 1990s.

In early 1990, R&D and innovation activities were almost non-existent in Turkiye, but with the establishment of the aforementioned support institutions and increased awareness, the number of firms engaged in R&D and innovation has increased. However, the concentration of R&D and innovation indicators in different concepts makes it difficult to fully measure the increase.

The most important innovation indicators recognized worldwide:

- The ratio of R&D expenditures to Gross Domestic Product (GDP),
- Number of patents and
- Number of R&D personnel,

(Flor and Oltra, 2004; Deyle and Grupp, 2005; Jaffe and Trajtenberg, 2002; Sorenson and Fleming, 2004; Negassi, 2004; Brower and Kleinknecht, 1996; Mascitelli, 2006; Andrew, 2010). Countries are working to increase the values determined by these indicators as much as possible.

In Turkiye, the share of R&D expenditures in GDP increased continuously between 2005 and 2012. From 0.47% in 2003, the ratio rose to 1.40% in 2021. Among the leading countries in R&D and technology, the share of R&D expenditures in GDP is 3.40% in the USA, 2.2% in the EU27, 3.6% in Japan and 5.6% in Israel. The OECD average in this respect is 2.7%. Although Turkiye's allocation for R&D is far behind these countries, it increased by 198% from 2003 to 2021. This shows that the importance Turkiye attaches to R&D and innovation is gradually increasing (Table 1).

Table 1: Turkiye's Basic Innovation Indicators by Years (2003-2021)

	2003	2005	2010	2015	2016	2017	2018	2019	2020	2021
GERD*/GDP (%)	0,47	0,56	0,79	0,97	1,12	1,18	1,27	1,32	1,37	1,40
R&D Exp. per Capita (PPP, \$)	43	67	132	208	232	256	294	302	392	435
R&D Expenditure by Financial Source (%)										
Private Sector**	35,5	41,5	45,1	50,1	46,7	49,4	53,6	56,3	57,2	54,6
Public Sector	34,3	34,5	30,8	27,6	35,1	33,6	32,3	29,4	28,4	27,5
Higher Education Sector	23,4	17,9	19,6	18,1	14,4	13,3	12,1	12,8	12,3	16,4
Other National Resources	5,2	5,4	3,7	3,2	0,1	0,1	0,03	0,02	0,1	0,03
Sourced Abroad	1,6	0,7	0,8	1,1	3,7	3,5	2,0	1,5	2,0	1,5
R&D Human Resources per 10,000 Employees										
R&D Personnel (FTE***)	18	25	37	46	50	54	60	65	75	77
Researcher (FTE)	-	20	29	36	37	40	44	48	56	59

Resource: Turkish Statistical Institute

* GERD: Gross domestic expenditure on R&D

** Financial and Non-financial Companies

*** FTE: Full time equivalent

In parallel with total R&D expenditure, per capita R&D expenditure has also been increasing in Turkiye. While R&D expenditure per capita in Purchasing Power Parity (PPP \$) was 43 in 2003, it increased approximately 10.12 times to 435 in 2021 (Table 1). When the financing source of R&D expenditures between 2003 and 2021 is analyzed, it is seen that the share of the private sector is around 55% in the last 4 years, the public sector is around 30% and the Higher Education sector is around 15%. Private sector expenditures are always increasing from 2003 to 2021 except 2016 and 2017. Afterwards private sector expenditures have increased again since 2018. In the public sector, there is a downward trend, albeit at a lower rate. However, part of this decrease is compensated by the Higher Education sector, especially in the last two years. Source from abroad is increasing whilst other national resources are decreasing but sum of them have limited effect on the R&D expenditures (Table 1).

In terms of the R&D human resources indicator, Turkiye showed a continuous increase between 2003 and 2021, with the number of Full Time Equivalent (FTE) R&D Personnel per ten thousand employees rising from 18 to 77 and the number of Researchers from 20 (last available year is 2005) to 59 (Table 1).

Table 2: Patent Applications in Turkiye by Years (2003-2021)

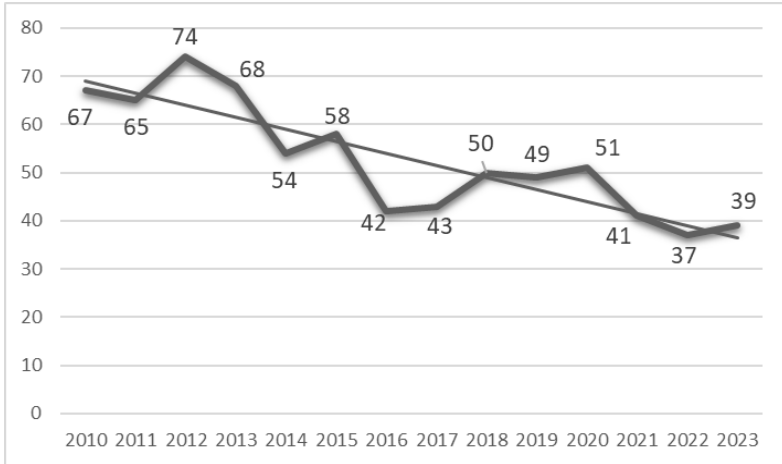
	2003	2005	2010	2015	2016	2017	2018	2019	2020	2021
Total	1152	3461	8343	13958	16778	19283	18504	19916	18705	17566
Domestic	490	935	5093	5512	6445	8625	7349	8126	8200	8439
Foreign	662	2526	3250	8446	10333	10658	11155	11790	10505	9127

Source: Turkish Patent and Trademark Office

Although there has been a significant increase in the number of patents in Turkiye over the years the number of patents in Turkiye remains incomparably low compared to many countries (Table 2). In 2022, there were approximately 289.5 thousand patent applications in Japan, up from just over 289 thousand applications in the previous year. In 2021, China filed 1.59 million patent applications, more than double the number filed by the United States. In 2020, number of patent applications for Republic of Korea was 180,477. Number of patent applications of Republic of Korea increased from 73,714 in 2001 to 180,477 in 2020 growing at an average annual rate of 4.98%. 58,502 patents were filed in India in 2020-21, up from 45,444 in 2016-17. In summary the number of patents filed and granted in Turkiye has shown a steady increase in recent years, reflecting the country's efforts to promote innovation and, universities, research institutions, and businesses are actively involved in patent applications.

Due to the organizations established and support programs introduced in Turkiye there has been a tremendous increase in Turkiye's WIPO's Global Innovation Index (GII). The GII 2023 captures the innovation ecosystem performance of 132 economies and tracks the most recent global innovation performance of countries. Turkiye as an emerging economy is showing consistently strong performance and entered the top 40 for the first time (WIPO Media Center, 2022). As another emerging economy India had shown nearly the same performance of Turkiye in the recent years.

Graph 1: Ranking of Turkiye in The Global Innovation Index



Source: The Global Innovation Indexes 2010 – 2023.

As can be seen from the Graph 1 Turkiye has a clear positive trend by terms of ranking in GII. This development can be considered as result of the collaboration of the government, firms, universities and NGOs to enhance the tectological capacity and innovativeness in Turkiye.

CONCLUSION

Turkiye was introduced to the concepts of R&D and innovation quite late. Therefore, in order to be successful in R&D and innovation, these elements must first be understood, accepted and mechanisms for implementation must be in place. Unfortunately, as of today, these concepts are not understood at the desired level by a significant part of the society, especially by industrialists.

However, in parallel with the increasing international competition, the increase and diversification of state supports in our country, especially since 2006, has enabled important steps to be taken in R&D and innovation. These supports have encouraged companies to engage in R&D and innovation activities and have enabled important experiences and successes to be achieved in parallel.

Despite all these developments, it is seen that firms insist on using traditional ways of innovation. Different support models should be developed to increase interest in external sources of information. New methods should be developed especially for SMEs to benefit from the technical infrastructure and expert academicians of universities.

The recent innovation drive of the service sector should be encouraged, and new support models should be developed. Considering that the R&D

expenditure of firms has shifted towards imported machinery and technology, it should be investigated to what extent many technologies are imported with government support and how effectively they are used. New areas of use should be created so that the machinery and equipment purchased through an R&D project do not become idle at the end of the project.

Turkiye has been taking steps to boost its R&D support, increase the number of patents, and raise R&D expenditures as a percentage of GDP. While progress has been made, there are still challenges to overcome to further enhance the country's innovation ecosystem. Continued investment in R&D, fostering collaboration between academia and industry, and addressing intellectual property protection issues are areas where Turkiye can focus to strengthen its position in the global innovation landscape.

As a result, the increasing interest in innovation in our country has not yet reached a level of maturity. It shows that the level of innovation in our country is incomparably low, especially compared to developed countries. As with the concept of university-industry cooperation, this issue is first discussed and then implementation steps are taken. However, increasing competition is working against companies' day by day. It is inevitable for Turkiye to take more serious decisions and steps in this regard.

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Chapter 19

An Analysis on Exposure to Mobbing Behavior in the Logistics Sector

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ABSTRACT

With the increase in international trade volume after the 2000s, the logistics sector has reached the professional level it should be and has entered conditions where it will develop further. The logistics discipline, which includes different disciplines, represents a sector that includes especially medium-sized and large-sized enterprises. At this point, many studies have been conducted and continue to be conducted in terms of performance development and employee satisfaction in sector enterprises with many employees. The logistics sector creates significant employment in the countries where it is supported and has an important place in terms of economy and transportation. As in every sector, individuals working in the logistics sector may suffer material and moral damage to the institution they work for due to problems arising from mobbing. Psychological violence experienced by employees causes many negative, vital factors. At this point; It is thought that it will reveal the exposure to mobbing of employees serving in the logistics sector and will contribute to studies in other sectors. The sample of the research; collected in a scattered manner. Data was collected via Google surveys to measure the scores of the Psychological Comfort scale. A total of 42 people participated in the research. In the study, data was collected by asking the participants about 10 variables in total, such as gender, marital status, monthly income, age, education level, whether they had a managerial job, total working time, current workplace experience and whether they were exposed to mobbing behavior. In the study, a partial mediating role of the perception of psychological comfort and its effect on mobbing was observed.

INTRODUCTION

Basically, the word Logistics is derived from the Greek word “Logisticos”, which means skilled in calculation and arithmetic and can make statistical correlations of any subject. While the word “Logisticos” derives from our language as logistics, it is translated into European languages as “logisticus” in Latin (Dinçel, 2016). Logistics is a discipline that mediates the needs of living things or aims to meet the needs of living things directly. Transporting, storing, packaging, order planning, customer service, implementation of inventory systems and the purpose of transporting people from one point to another, transmitting a physicalized information from one point to another, or transporting a physical item from one point to another. It describes the realization of all operational activities equivalent to such activities as a whole (Dinçel, 2014). Logistics carries out these activities through some modes of transport. These; air, road, sea, rail, pipeline and river transport modes can be listed as. These modes of transport are the indispensable corridor keys of global trade, which play a role in the economic development and development of all countries in the world. Logistics is a production stakeholder. Logistics, which is a supporting force as long as the supply process exists, will always be a force that will continue its life. The economic value of the countries depending on the GDP is between 10-20 %. This shows that between 10% and 20% of the cost item of each product service will be logistics. Considering the technological developments experienced, it is an expected situation that the transaction volume of logistics will increase. Transportation, warehousing, insurance, collection, consulting, customs clearance, handling, customer service, etc. It is possible that it is in a transformation in its operations. It is thought that this transformation will benefit the development and growth of the sector and the country (Dinçel, 2019; Dinçel, 2022). Individuals spend most of their time in workplaces during their working lives. At the same time, he is in constant contact with his colleagues, both on business and private matters. In working life, individuals' existing goals, desires and unlimited demands can generally gather around some factor that triggers competition and open the door to conflict. If this conflict process cannot be concluded, it can turn into psychological harassment. Psychological harassment is expressed as "Mobbing" in English (Fettahlioğlu, 2008). In origin, the word "Mob" means "disorganized crowd" or "gang" that commits unlawful violence in English and is derived from the Latin words "mobile" vulgus", meaning "unstable crowd". "Mobbing", which is the English action form of the root "mob", means psychological violence, siege, harassment and disturbing or distressing. According to Leyman's definition, mobbing is a psycho-terrorism and its reasons range from intellectual and regional separation and jealousy to gender. (Tutar,

2004). Psychological harassment can be seen in almost every organizational work area (Sargın, 2020). At this point, it can be said that psychological harassment is not concentrated in certain organizations and exists in most organizations in business life. (Demirkol & Şahin, 2020). Psychological harassment has become an important research topic for researchers working on organizational psychology in the last 20 years. Approaches that include consciously and systematically carried out unethical behaviors, pressure, intimidation and exclusionary actions are basically It is considered within the scope of psychological harassment (Tinaz, 2006; Çay, 2008; Zоргül&Yiğit, 2022). Psychological harassment in the workplace is defined as systematically hostile behavior towards another employee by one or more employees in the workplace (Çobanoğlu, 2005). :14). These negative forms of behavior include all kinds of discomfort and discomfort such as unfair criticism, finding mistakes and seeing mistakes as intentional, weakening, isolating, excluding, hiding the real intention, slander, distortion, constant criticism, abuse of disciplinary procedures, unfair dismissal. It can be expanded to abusive attitudes and behaviors (Tutar, 2004).

In general, mobbing behavior can be defined in the literature as a situation where a person is constantly and systematically exposed to psychological, emotional or physical harassment in the workplace. Such behavior can cause psychological problems such as stress, anxiety and depression in victims and can negatively affect work performance. The effects of mobbing can be serious in the long term and can also negatively affect the victim's personal life. To test this process, employees can be subjected to a psychological comfort scale analysis. The Psychological Comfort Scale is a tool used to evaluate individuals' own psychological states. This scale measures an individual's emotional state, stress level, and overall psychological well-being using a series of questions or statements. This scale helps individuals understand and evaluate their own psychological states. Additionally, these data are important to experts because they provide information about the psychological health of individuals. This information can serve as a guide to take the necessary precautions and seek professional help if necessary. The survey conducted in this regard was designed to evaluate the psychological comfort levels of employees in the logistics sector at their workplaces. In today's rapidly growing and changing business world, the logistics sector also plays a vital role. However, it is thought to be a shadow that employees in this dynamic sector often encounter. Mobbing in this research, 62% of 42 people working in the logistics sector stated that they were subjected to mobbing or were undecided about whether they were subjected to mobbing. The starting point of this study was first observation and then this frequency result.

1. Methodology and Analysis

Data was collected via Google surveys to measure the scores of the Psychological Comfort scale. A total of 42 people participated in the research. In the research, the participants were also asked about gender, marital status, monthly income, age, education level, whether they held a managerial position or not, total employment. Data was collected by asking a total of 10 variables, such as length of employment, current workplace experience, and whether or not anyone was exposed to mobbing behavior. Descriptive statistics of the participants in the research are given below.

Table 1: Gender

	Frequency	Percentage
Woman	17	40.5
Male	25	59.5
Total	42	100.0

As can be seen from the table, a total of 42 people participated in the research. 40.5 % (17 people) of the participants are women and 59.5 % (25 people) are men.

Table 2: Marital Status

	Frequency	Percentage	mean	Std. Giant.
Single	18	42.9	1.5714	0.500870
Married	24	57.1		
Total	42	100.0		

As can be seen from the table, a total of 42 people participated in the research. 42.9 % (18 people) of the participants are single and 57.1 % (24 people) are married.

Table 3 : Monthly Income

	Frequency	Percentage	mean	Std. Giant.
8501-12500 TL	1	2.4	3.8333	0.76243
12501-16500 TL	13	31.0		
16501-20500 TL	20	47.6		
20501 TL and above	8	19.0		
Total	42	100.0		

The income levels of the participants are given above. Accordingly, 2.4% (1 person) of the participants has an income level between 85001-12500, 31% (13 people) has an income level between 12501-16500, and 47.6% (20 people) has an income level between 16501-20500. and 19% (8 people) have an income level of 20501 and above. The mean of the participants was 3.8333 and the standard deviation was 0.76243.

The age distribution of the participants is given in the table below.

Table 4 : Age

	Frequency	Percentage	Average	Std. Giant.
29-38	20	47.6	2.5714	0.59028
39-46	20	47.6		
47-53	2	4.8		
Total	42	100.0		

As can be seen from the table, a total of 42 people participated in the research. It is seen that 47.6% (520 people) of the participants are between the ages of 29-38, 47.6% (20 people) are between the ages of 39-46 and 4.8% (2 people) are between the ages of 47-53.. There was no data entry for other age ranges.

Table 5: Education

	Frequen cy	Percentage	mean	Std. Giant.
Associate degree	5	11.9	3.3095	0.74860
Licence	21	50.0		
Master's Degree	14	33.3		
PhD.	2	4.8		
Total	42	100.0		

The education levels of the participants are given above. Accordingly, 11.9% (5 people) of the participants have an associate degree, 50% (21 people) have a bachelor's degree, 33.3% (14 people) have a master's degree, and 4.8% (2 people) have a doctorate degree. It seems to be at the level. There was no data entry for other education levels. The mean of the participants was 3.3095 and the standard deviation was 0.74860.

Below, participants were asked whether they held a managerial position. The distribution of the answers given is presented in the table.

Table 6: Management Duty

	Frequency	Percentage	mean	Std. Giant.
Yes	8	19.0	1.8095	0.39744
No	34	81.0		
Total	42	100.0		

Can be seen from the table, 19 % (8people) of the participants worked as a manager, while 81 % (34 people) worked as a manager. He did not do his homework. The mean of the participants was found to be 1.8095 and the standard deviation was 0.39744.

Below, the participants were asked about their total working time in a continuous format and their answers were received. Summary information of the answers given by the participants is presented in the table below.

Table 7: Total Working Time

	N	min	max	Average	Std. Giant.
Working Time	42	1.00	20.00	9,11	6.02

Accordingly, when looking at the total working time of the participants in the survey, the lowest is the highest working time for 1 year. It is seen that he has worked for 20 years. The mean of the total working period is 9.11 and the standard deviation is 6.02. Since the total working time variable is continuous, a histogram chart was created.

Table 8: Working Time at Current Workplace

	Frequency	Percentage	mean	Std. Giant.
0-3 years	5	11.9	2.6429	0.90585
4-7 years	12	28.6		
8-11 years	18	42.9		
12 and over	7	16.7		
Total	42	100.0		

Participants were asked about their working hours at their current place of employment. Accordingly, 11.9% (5 people) of the participants are in the range of 0-3 years, 28.6% (12 people) are in the range of 4-7 years, 42.9% (18 people) are in the range of 8-11 years. and 16.7% (7 people) have been working for 12 or more years. The average working time of the participants was 2.64 29. This is because the lowest number is coded as 1 and the highest number is coded as 4. Its standard deviation was 0.90585.

Participants were asked whether they were exposed to mobbing behavior at their current workplace. His answers are summarized in the table below.

Table 9: Mobbing

	Frequency	Percentage	mean	Std. Giant.
Yes	14	33.3	1.9524	0.79487
No	16	38.1		
I 'm undecided	12	28.6		
Total	42	100.0		

33.3% (14 people) of the participants stated that they were exposed to mobbing behavior, 38.1 % (16 people) stated that they were not exposed to mobbing. 1 and 28.6 % (12 people) stated that they were undecided. While the average of the answers given by the participants was 1.9524, the standard deviation was 0.79487.

2. Tests of Crosstabs

A 7-item Psychological comfort scale was used in this research. The scale was applied in accordance with the original, using a 5-point Likert scale.

1. I strongly disagree
2. I do not agree
3. Neither agree nor disagree
4. I agree
5. Absolutely I agree

The compute variable option in the Transform menu was used to calculate the total score of the scale. There are no statements that need to be reverse coded in the scale items.

Below are the statistics regarding the total scores of the scale.

Table 10: Psychological Comfort Scale

	N	min	max	Average	Std. Giant.
Point	42	9.00	28.00	20.00	4.51

According to the table above, the lowest total score in the psychological comfort scale was 9.00 points and the highest total score was 28.00. The average score of the participants was 20.00 and the standard deviation was 4.51.

According to the table, the average of the scale was found to be 20.00. From the Recode into different variable option, a different variable was obtained as those below and above the average. Below are descriptive statistics.

Table 11: Classification of the Psychological Comfort Scale

	Frequency	Percentage	Cumulative Percentage
Below average	18	42.9	42.9
Above average	24	57.1	100.0
Total	42	100.0	

Accordingly, 42.9 % (18 people) of the 42 people who participated in the research were below the 20.00 average, while 57.1 % (24 people) were above the 20.00 average. The result was reached above the 20.00 average.

Cross tables are given below.

Table 12: Mobbing*Gender

		Mobbing			Total
		Yes	No	I 'm undecided	
Gender	Woman	5	4	8	17
	Male	9	12	4	25
Total		14	16	12	42

Above, a cross table of participants' gender and exposure to mobbing is given.

Table 13: Mobbing*Marital Status

		Mobbing			Total
		Yes	No	I 'm undecided	
Marital status	Married	8	5	5	18
	Single	6	11th	7	24
Total		14	16	12	42

Above is a cross-tabulation of participants in relation to marital status regarding exposure to mobbing.

Table 14: Mobbing*Monthly Income

		Mobbing			Total
		Yes	no	I am indecisive	
Monthly Income	8501-12500 TL	1	0	0	1
	12501-16500 TL	6	5	2	13
	16501-20500 TL	4	8	8	20
	20501 TL and above	3	3	2	8
Total		14	16	12	42

Above is a cross table of participants in relation to monthly income regarding exposure to mobbing.

Table 15: Mobbing * Age

		Mobbing			Total
		Yes	no	I'm undecided	
Age	29-38	4	8	8	20
	39-46	10	8	2	20
	47-53	0	0	2	2
Total		14	16	12	42

Above is a cross-tabulation of participants in relation to age regarding exposure to mobbing.

Table 16: Mobbing * Educational Background

		Mobbing			Total
		Yes	No	I'm undecided	
Education	Associate degree	5	0	0	5
	Licence	5	10	6	21
	Master 's degree	4	6	4	14
	PhD	0	0	2	2
Total		14	16	12	42

Above is a cross-tabulation of the participants in relation to their educational background regarding exposure to mobbing.

Table 17: Mobbing * Management Task

		mobbing			Total
		Yes	No	I'm undecided	
Management Duty	Yes	6	2	0	8
	No	8	14	12	34
Total		14	16	12	42

Above is a cross-table of participants in relation to the regulation regarding exposure to mobbing.

Table 18: Mobbing*Time Working at Current Workplace

		Mobbing			Total
		Yes	No	I'm undecided	
Working Time at Current Workplace	0-3 years	0	5	0	5
	4-7 years	5	3	4	12
	8-11 years	4	8	6	18
	12 and over	5	0	2	7
Total		14	16	12	42

Above is a cross-tabulation of the participants regarding exposure to mobbing in relation to the working period.

Table 19: Mobbing *Total Working Time

	N	min	max	mean	Std. Giant.
Yes - Total Work	14	1.00	20.00	7.07	5.95
No - Total Work	16	2.00	20.00	10.62	6.40
Undecided - Total Study	12	2.00	15.00	9.50	5.35

It was observed that the total working time of the participants who were exposed to mobbing was 1 at the lowest and 20 at the highest. While the average working time of those exposed to mobbing was 7, its standard deviation was 5.95. It was observed that the total working period of those who were not exposed to mobbing was 2 years at the lowest and 20 years at the highest. While the average total working time of those who were not exposed to mobbing was 10.62, its standard deviation was 6.40. It is seen that the total working period of those who are undecided about being exposed to mobbing is 2 years at the lowest and 15 years at the highest. While the average of the total working time of those who stated that they were undecided about being exposed to mobbing was 9.50, its standard deviation was 5.35.

Hypotheses

1) H_0 : There is no statistically significant relationship between Total Working Time and Psychological Comfort Scale Total Scores.

H_1 : There is no statistically significant relationship between total working time and Psychological Comfort Scale Total Scores.

2) H_0 : There is no statistically significant relationship between Gender and Psychological Comfort Scale Total Scores.

H_1 : There is no statistically significant relationship between Gender and Psychological Comfort Scale Total Scores.

Table 20: Min, Max, Mean and Std.Dev Table

Gender		N	min	max	mean	Std. Giant.
woman	Psychological Comfort	17	12.00	24.00	17.88	4.06
	Valid	17				
Male	Psychological Comfort	25	9.00	28.00	21.44	4.30
	Valid	25				

Table 21: Standard Deviation Table for Psychological Comfort

	Woman N=17	Male N=25
	Means ± s. deflection	Means ± s. deflection
Psychological Comfort	17.88 ± 4.06	21.44 ± 4.30

With the help of Split File, the total scores of the gender and psychological comfort scale were examined. Accordingly, the psychological comfort scale average of 17 women participating in the study was found to be 17.88. While the lowest average for women is 12.00, the highest average is 24.00. The total psychological comfort scale average of the 25 men who participated in the research was found to be 21.44. The lowest score for men was 9.00 and the highest score was 28.00. It is seen that the psychological comfort scale score of men is higher than women.

Table 22: Median and Quartile Table

	Woman N=17	Male N=25
	MEd[Q1-Q3)	MEd[Q1-Q3)
Psychological Comfort	18.00[14.50-21.00]	22[19-25.00]

RESULTS AND DISCUSSION

One of the basic elements of a healthy life is a state of psychological well-being and comfort. Psychological comfort means that the individual feels peaceful, in balance and happy. An important tool used to measure and evaluate this situation is the Psychological Comfort Scale. In this study, a research was conducted within the framework of the Psychological Comfort Scale, which is thought to reveal the mobbing exposure of employees serving in the logistics sector and to contribute to studies in other sectors. The sample of the research; collected in a scattered manner. Data was collected via Google surveys to measure the scores of the Psychological Comfort scale. A total of 42 people participated in the research. In the study, data was collected by asking the participants about 10 variables in total, such as gender, marital status, monthly income, age, education level, whether they worked as a manager or not, total working time, current workplace experience and whether they were exposed to mobbing behavior. In the study, a partial mediating role of the perception of psychological comfort was observed. According to this;

The concept of psychological mobbing is a phenomenon that has been heard frequently in recent years and directly affects workplace efficiency and communication between employees. The aim of this study is to reveal to what extent the psychological violence behaviors that employees working in the logistics sector are exposed to in their workplace affect their productivity and its effect on quitting their jobs. A study was conducted focusing on the logistics sector due to the working system based on mental power and stressful environmental conditions rather than the field involving physical strength. Preventing and stopping mobbing behaviors is very important for human health and working life. It is thought that this study will be beneficial to employers, managers, human resources, unions and associations and legal regulations by foreseeing the development of strategies to prevent mobbing. After the study was explained theoretically, a survey was included in the application part of the research. As a result of the study, the following data was obtained.

- 40.5% of the people participating in the study were women and 59.5% were men.
- 42.9% of the people participating in the study are single and 57.1% are married.
- 2.4% of the people participating in the study have an income of 8501-12500 TL, 31% have an income of 12501-16500 TL, 47.6% have an income of 16501-20500 TL and 19% have an income of 20501 TL and above.
- 47.8% of the employees are between the ages of 29-38, 47.6% are between the ages of 39-46 and 4.8% are between the ages of 47-53.
- 11.9% of the employees have an associate degree, 50% have a bachelor's degree, 33.3% have a master's degree and 4.8% have a doctorate degree.
- While 19% of the employees stated that they worked in a managerial position, 34% stated that they did not work as a manager.
- When looking at the total working hours of the employees, the average was 9.11 and the standard deviation was 6.02. At this point, the minimum employee tenure is 1 year and the longest employee tenure is 20 years.
- of the employees have been working for 0-3 years, 28.6% for 4-7 years, 42.9% for 8-11 years and 16.7% for 12 or more years. The average working time of the participants was 2.64 29. This is because the lowest k number is coded 1 and the highest k number is coded 4.
- 33.3% of the employees stated that they were subjected to mobbing, 38.1% stated that they were not subjected to mobbing, and 28.6% were undecided.
- the psychological comfort scale, the lowest total score was 9.00 points and the highest total score was 28.00. The average score of the participants was 20.00 and the standard deviation was 4.51.
- In the classification of the psychological comfort scale, 42.9% of the participants were below the average and 57.1% were above the average.
- that 5 out of 17 female employees were exposed to mobbing, 4 were not exposed to mobbing and 8 were undecided. While 9 of the 25 men who participated in the survey stated that they were exposed to mobbing, 12 stated that they were not exposed to mobbing and 4 were undecided.
- Total 1 8 from employees from married person It is seen that 8 of them were exposed to mobbing, 5 of them were not exposed to mobbing and 5 of them were undecided. 24 single people who participated in the survey

While 6 of them stated that they were exposed to mobbing, 11 of them stated that they were not exposed to mobbing and 7 of them were undecided.

- Among the employees, a total of 1 married person stated that he was subjected to mobbing while having an income of 8501-12500 TL, 6 of the 13 employees with an income of 12501-16500 TL stated that they were subjected to mobbing, 5 people stated that they were not subjected to mobbing and 2 people were undecided. 4 of the people with an income of 16501-20500 TL declared that they were subjected to mobbing, 8 of them declared that they were not subjected to mobbing and 8 of them were undecided. Of the 8 people with an income of 20,501 TL or more, 3 of them declared that they were subjected to mobbing, 3 of them declared that they were not subjected to mobbing, and 2 people were undecided.
- It was stated that 4 out of 20 employees, aged 29-38, were exposed to mobbing, 8 were not exposed to mobbing, and 8 were undecided. It was stated that 10 of the 20 participants between the ages of 39-46 were exposed to mobbing, 8 were not exposed to mobbing and 2 were undecided. It was stated that 2 out of 2 participants between the ages of 47-53 were undecided.
- While all 5 employees with associate degree degrees stated that they were exposed to mobbing, 5 out of 21 undergraduate graduates stated that they were exposed to mobbing, 10 of them were not exposed to mobbing, and 10 people were undecided. It was stated that 4 of the 14 graduate graduate participants were exposed to mobbing, 6 of them were not exposed to mobbing and 4 of them were undecided. Two doctoral graduates stated that they were hesitant about being exposed to mobbing.
- While 8 of the employees stated that they worked in a managerial position, 6 of these people stated that they were exposed to mobbing and 2 of them stated that they were not exposed. Of the 34 people who stated that they did not work as a manager, 8 said that they were exposed to mobbing and 14 of them stated that they were not exposed to mobbing. and 12 people stated that they were undecided.
- Among the employees, 5 people who worked for 0-3 years said they were not exposed to mobbing, 5 of 12 people who worked for 4-7 years said they were exposed, 3 were not exposed and 4 were undecided, 4 of 18 people who worked for 8-11 years said they were exposed to mobbing. 10 of them stated that they were exposed to mobbing, 8 of them were not exposed to mobbing and 6 of them were undecided. Of the 7 people who have worked

for 12 or more years, 5 declared that they were exposed to mobbing and 2 were undecided.

- In the cross-test between mobbing and total working time, the average working time of those exposed to mobbing was 7, while the standard deviation was 5.95. It was observed that the minimum working period of those who were not exposed to mobbing was 2 years and the maximum was 20 years. While the average of the total working time of those who were not exposed to mobbing was 10.62, the standard deviation was 6.40. It is seen that the total working period of those who are hesitant about being exposed to mobbing is 2 years at the lowest and 15 years at the highest. While the average of the total working time of those who stated that they were hesitant about being exposed to mobbing was 9.50, the standard deviation was 5.35.

In the light of these data, some results were obtained in this test conducted with employees in logistics companies. Particularly noteworthy issues were mentioned in the study. team in collaboration It is a process based on the psychological process and integration experienced by business employees, such as mobbing. It is thought that the mobbing process, which is based on similar suggestions, will be primarily affected by the organization's adaptation practices and then by interpersonal relations and behaviors. Additionally, organizations' compliance practices also guide existing employees regarding their behavior towards newly joined employees. The psychological comfort scale is used extensively in businesses to increase effectiveness and efficiency within the framework of positive psychology. Research results revealing the effects of interpersonal relationships and psychological climate on the performance of organizations should be taken into consideration by leaders and managers.

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Chapter 20

**A Cliometric Analysis of the Relationship
Between Turkey's Foreign Trade and
Geopolitical Risk from 1923 to 2013**

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ABSTRACT

Focusing on the field of cliometrics, this study examines the economic history of Turkey within the framework of foreign trade and geopolitical risk over the period 1923-2013. In this line, the subject matter of the study is examined through the application of theoretical and cliometric methodologies. Furthermore, the Fourier Granger Quantile Causality test is conducted to analyze the link between geopolitical risk and foreign trade. The results show that geopolitical risk is negatively associated with foreign trade in Turkey. In other words, geopolitical tensions, particularly acts of a geopolitical nature, with neighboring countries negatively impact the Turkish economy by causing disruptions in the flow of trade.

Keywords: Cliometrics, Foreign Trade, Geopolitical Risk, Turkey, Causality.

INTRODUCTION

In 1993, Robert William Fogel and Douglass Cecil North were awarded the Nobel Prize in Economics for their significant contributions to renewing economic history research. They have made significant contributions to the field of new economic history known as cliometrics. Cliometrics is an academic discipline that involves the utilization of economic theory and quantitative methodologies in history studies. Historical time series hold significant importance within this context since they serve as quantitative measures for specific indicators of theoretically defined variables across a period of time. The field of new economic history, also known as cliometrics, established a systematic approach to studying economic history, similar to the integration of mathematical models and statistical analysis in other areas of economics (Goldin, 1995). Robert Fogel has long maintained that the scarcity of pertinent data poses a greater challenge in historical research compared to the lack of relevant theory.

The field of economic history combines elements of both economics and history. Scholars in these disciplines share the common goal of comprehending the past by connecting historical events through narrative frameworks. The cliometric movement facilitated a shift in methodology from a narrative-based approach to a more quantitative and analytical format (Diebolt and Hauptert, 2021). The key accomplishments of cliometrics include new and larger data sets, new methods for assembling and analyzing them, new insights into long-standing topics, and innovative ways of approaching the study of economic history (Hauptert, 2017).

The cliometric movement emerged within the realm of economic history, referred to as "old school" or "traditional," in the latter part of the 1950s. In fact, the cliometric revolution prompted a conflict between quantitative and narrative methodologies in the field of economic history, pitting "traditional" economic historians against economic "theorists." The traditionalists levied allegations against the newcomers, asserting that they introduced economic theory into historical analysis without possessing a comprehensive understanding of the factual basis. Traditional economic historians argued that the development of realistic models necessitates either excessive generalization or excessive complexity, hence making it challenging to assume mathematical correlations. The primary focus of the new economic historians, however, revolved around the application of operational models to economic data. Consequently, a notable difference in approach existed between new and traditional economic historians (Diebolt and Hauptert, 2021).

The primary contribution of cliometrics has been the establishment of a robust framework for conducting economic assessments of historical development

through the utilization of theory and measurement. However, the field of economic history has also expanded its scope beyond traditional boundaries, primarily due to the significant contributions made by Robert Fogel and Douglass North.

Focusing on the field of cliometrics, this study aims to analyze the economic history of Turkey within the framework of international trade and geopolitical risk. In this line, the subject matter of the study is examined through the application of theoretical and cliometric methodologies. This is the first attempt to examine the dynamic role of geopolitical concerns on Turkey's foreign trade over the period 1923-2013. More importantly, this study is crucial for facilitating the utilization of cliometric research in this domain.

Section 1 examines the economic history of Turkey, with a specific focus on foreign trade. Section 2 presents a thorough evaluation of the relevant literature, while Section 3 thereafter provides information regarding the data, empirical model, and methodology. Section 4 discusses the empirical evidence of the study. In conclusion, the study serves as the conclusion of the study.

1. Economic History of Turkey

The international trade in Turkey has experienced different phases since the foundation of the republic. The policies implemented during each period have been aimed at integrating Turkey into the global economy as part of the country's efforts to open up to the outside world (Tan et al., 2022).

In the period between the foundation of the Republic of Turkey in 1923 and the 1950s, foreign trade policies were predominantly characterized by a statist and conservative approach. In 1946, the Turkish lira experienced a devaluation, leading to a significant liberalization of imports. However, by the 1960s, the implementation of liberal policies led to an increase in imports without a corresponding growth in exports, resulting in foreign trade imbalances. Furthermore, foreign trade rates in Turkey were negatively impacted by a series of oil crises that occurred after the 1970s, as well as the implementation of high customs tariffs, quotas, and import restrictions. Overall, the Turkish economy, which had restricted connection with the global market before 1980, exhibits characteristics characterized by the implementation of import substitution policies, the prevalence of stringent protection measures, and the presence of high tariff barriers (Karaçor, 2013).

However, in the 1980s, the Turkish economy underwent significant radical and structural changes. The country transitioned from an import substitution policy to an export-oriented industrialization policy. In 1989, the government introduced new incentives to attract foreign capital and implemented policies to

liberalize foreign trade (Özcan, 1998). Following the 1994 crisis, the devaluation of the Turkish Lira resulted in an increase in exports and a decrease in imports, thereby resulting in a reduction in the foreign trade imbalance.

The crisis that occurred in 2000 and 2001 was a major factor that affected international trade. The occurrence of these crises resulted in a depreciation of the Turkish lira and a decrease in domestic demand. However, it also facilitated an increase in exports. After the period of the 2001 crisis, the adoption of a flexible exchange rate system led to a surge in trade volume due to a sudden rise in the exchange rate. In fact, international trade in Turkey experienced a consistent upward trend from 2001 to 2008. In 2008, the economic crisis, also known as the mortgage crisis, which originated in the USA, had a discernible influence on Turkey. During this crisis, Turkey experienced a decline in its export activities to neighboring countries as well as a decrease in capital inflows. Consequently, this led to a contraction in foreign demand (Özdemir et al., 2016). As a result, from 1980 to 2013, there was a substantial surge in the volumes of both import and export activities. Accordingly, trade deficits continued to increase over time. However, it is observed that trade activities tend to drop primarily during periods of global crises that are experienced worldwide and also have an impact on Turkey.

Since its establishment as a republic in 1923, foreign policy in Turkey has also undergone significant transformations in response to changes in geopolitical power dynamics. The geographic location of Turkey presents both advantageous prospects and challenges. Given their global dimension, geopolitical dynamics have the potential to impact economies and their international relations. In particular, the geopolitical situation and trade are intertwined, and both are frequently utilized as instruments of one another (Crebbin, 2015; Roy-Mukherjee and Udeogu, 2023). Caldara et al. (2018) provide a definition of geopolitical risks as the risks that arise from tensions, conflicts, and terrorist activities between nations, which disrupt the usual and harmonious progression of international relations. Geopolitical risks may impact international trade by increasing costs for private entities involved in global economic activities. In other words, geopolitical risks have the potential to lead to a drop in investments due to the escalating costs associated with doing business and transactions. Consequently, these risks might indirectly impact the decision-making processes of firms regarding exporting and importing activities (Balcilar et al., 2018). Additional ways through which geopolitical risks might impact trade include the exchange rate, monetary policy, and fiscal policy channels. Moreover, military conflicts, particularly in the form of war, can significantly influence economic dynamics between partnering countries. This is mostly due to the imposition of trade

embargoes, which can be either partial or complete following such occurrences (Glick and Taylor, 2010).

2. Literature Review

This section of the study provides a comprehensive assessment of prior research that has examined the effects of geopolitical factors on trade. For example, Gupta and Yu (2007) use the exogenous shock of the Iraq War in 2003 and find that deterioration in bilateral connections negatively affects trade flows between countries and the United States. In the case of 164 developed and developing countries, Gupta et al. (2019) report that higher geopolitical risk negatively contributes to global trade activity. By using a sample of 17 developing economies, Li et al. (2021) document that increasing geopolitical risks adversely affect the trade in the energy sector. Wang et al. (2021) reveal that the decline in country risk exerts a stronger impact on bilateral trade in China. Caldara and Iacoviello (2022) find that geopolitical risk results in a persistent decline in global trade as well as employment and industrial output in the United States. In the context of Korea, Kim and Jin (2023) indicate that an increase in geopolitical risk results in a reduction in international trade. Özçelik (2023) demonstrates that positive shocks in geopolitical risk have a negative impact on Turkey's export and imports.

On the other hand, the link between trade and various kind of conflicts has predominantly attracted the attention of political scientists and researchers who analyze the influence of possible conflict between nations as well as the effect of conflict on foreign trade. Accordingly, there is a specific group of studies that examine the effects of war, terrorism, and military conflict on trade. Anderton and Carter (2001) reveal a detrimental effect of wars on trade among 14 power dyads. Similarly, Martin et al. (2008) show that military conflicts have a substantial adverse effect on the bilateral trade volume through the utilization of a data set obtained from the Correlates of War project. Nitsch and Schumacher (2004) find that terrorist attacks significantly dampen international trade volume in 217 countries. Blomberg and Hess (2006) conduct a comparative analysis of terrorist attacks in the context of trade obstacles. Their findings indicate that the occurrence of terrorism can be equated to a trade tariff of approximately 30%. In the case of 137 countries, Magee and Massoud (2011) prove that internal conflicts, characterized by acts of threats and violence that fall short of escalating into a full-scale civil war, have a diminishing impact on the foreign trade volume. According to Gaibulloev and Sandler (2019), the economic impact of terrorism includes increased expenses for businesses, such as higher insurance premiums and wage premiums, resulting in a decline in trade and potential negative effects

on the overall economy. Khan et al. (2021) note that terrorist activities in Pakistan result in a decrease in trade volume. The authors also find that there is a bidirectional causal link between terrorism and trade openness in Pakistan in the long run. Focusing on the post-Soviet Union countries, Čábelková et al. (2022) reveal that military conflicts have an important impact on reducing trade flows.

In summary, it is observed that several studies have been conducted to investigate the impacts of geopolitical risks, terrorism, war, and armed conflict on trade. This study employs a novel index of geopolitical risks that includes both actual acts and potential threats. In addition, there is a dearth of research specifically addressing Turkey in this subject matter. In fact, this is the first attempt to examine the effect of geopolitical concerns on imports and exports in Turkey.

3. Data and Methodology

This study focuses on the effect of geopolitical risks on foreign trade in Turkey. In this regard, the study utilizes monthly frequency data spanning the years 1923 to 2013 for the Turkish economy. On the one hand, the import and export data are utilized for the evaluation of foreign trade. The dataset for import (thousand dollar) and export (thousand dollar) is gathered from Turkstat (2014) and converted from an annual to a monthly frequency using Eviews 12 econometric software. Following the study of Shahbaz et al. (2023), the quadratic match-sum (QMS) method is used to convert the data frequency. On the other, the geopolitical risk index (GPR) is used as the main independent variable. The data on the GPR is based on the works of Caldara and Iacoviello (2022). This index is calculated by using text-mining techniques to find relevant search phrases in eleven international and national newspapers and then quantifying the frequency with which such terms appear in news items pertaining to geopolitical affairs. The calculation of the geopolitical risk index is done on a monthly basis, after which it is subjected to normalization in order to achieve an average value of 100. This study used two sub-indices, namely acts and threats, to assess geopolitical risk. First, the geopolitical risk acts index (GPR_A) is a proxy that is calculated based on the frequency of articles containing explicit mentions of adverse occurrences. Second, the geopolitical risk threats index (GPR_T) is derived by quantifying the frequency of articles that explicitly include words related to risk. Overall, the following empirical models are estimated:

$$\ln IMP_t = \beta_0 + \beta_1 \ln GPR_t + \varepsilon_t \quad (1)$$

$$\ln EXP_t = \beta_0 + \beta_1 \ln GPR_t + \varepsilon_t \quad (2)$$

In Eq. (1) and (2), IMP and EXP represent import and export, respectively. GPR stands for the geopolitical risk index. ε_t is the error term. It shows the

natural logarithm. The monthly descriptive statistics for imports, exports, and GPR indicators are given in Table 1.

The variables with the highest volatility are IMP and EXP, whereas GPR_A and GPR_H have the lowest levels of volatility. The results reveal that IMP, EXP, and GPR_A are positively skewed, except for GPR_T. Regarding the measure of kurtosis, the variables exhibit values within the range of 1 to 6. Furthermore, associated p-values of the Jarque-Bera test statistics indicate that none of the series follow a normal distribution. According to Balcilar et al. (2021), in cases where the variables exhibit a non-normal distribution, the utilization of quantile causality tests is more appropriate than typical Granger causality tests.

Table 1. Descriptive statistics

Variables	lnIMP	lnEXP	lnGPR_A	lnGPR_T
Mean	12.003	11.684	4.302	4.560
Median	11.021	10.657	4.191	4.619
Maximum	16.907	16.375	6.614	6.173
Minimum	8.075	7.917	2.951	2.993
Std. Dev.	2.674	2.484	0.609	0.457
Skewness	0.289	0.428	1.405	-0.333
Kurtosis	1.719 88.799	1.806	5.584	3.405
Jarque-Bera		97.170	656.226	27.460
Probability	0.000	0.000	0.000	0.000
Observations	1092	1092	1092	1092

3.1. Econometric Methodology

The traditional Granger causality test (1969) does not take into consideration nonlinearities and structural breaks. To solve the problem of neglecting structural breaks in the causality analysis, Enders and Jones (2016) modified Granger causality by incorporating Fourier approximations to the vector autoregression (VAR) model. Nevertheless, the methodology proposed by Enders and Jones (2016) fails to effectively mitigate the long-term information loss. Therefore, Nazlioglu et al. (2016) made improvements to the Toda & Yamamoto (1995) (TY) causality test through the inclusion of the Fourier approximation to mitigate the potential loss of long-term information and consider smooth/gradual structural fluctuations. Equation (3) depicts this method, called Fourier-TY, which is based on the methodology of Gallant (1981).

$$\alpha(t) = \alpha_0 + \gamma_1 \sin\left(\frac{2\pi kt}{T}\right) + \gamma_2 \cos\left(\frac{2\pi kt}{T}\right) \tag{3}$$

where k represents the frequency, t denotes the trend, T signifies the total number of observations, and π is about equivalent to 3.1459. The Fourier approximation is utilized as a substitute for $\alpha(t)$ in the TY causality test, as indicated in Equation (4).

$$y_t = \alpha(t) + \delta_1 y_{t-1} + \dots + \delta_{j+pmax} y_{t-(j+pmax)} + e_t \tag{4}$$

In Eq. (4), the time-dependent intercept is represented by the symbol $\alpha(t)$, while the optimal lag is marked by j . The variable's maximum integration order is shown by $pmax$, and the error term is displayed as e_t . Nazlioglu et al. (2016) modified the assumption that the constant term remains unchanged over time by replacing $\alpha(t)$ in Equation (3) with the Fourier approximation. Hence, the TY causality test incorporates structural changes characterized by an undetermined structure, number, and date.

$$y_t = \alpha_0 + \gamma_1 \sin\left(\frac{2\pi kt}{T}\right) + \gamma_2 \cos\left(\frac{2\pi kt}{T}\right) + \delta_1 y_{t-1} + \dots + \delta_{j+pmax} y_{t-(j+pmax)} + u_t \tag{5}$$

The significance of the sin and cos functions in Equation (3) is determined utilizing the F-test, which determines if their coefficients are equal to zero ($\gamma_1 = \gamma_2 = 0$). In cases where the coefficients are not equal to zero, the Fourier approximation should be incorporated into the analysis. Elsewise, the traditional Toda-Yamamoto causality test can be employed. Therefore, after establishing that the Fourier parameters are non-zero, it is possible to examine the causal connections between variables by testing the null hypothesis that $\delta_1 = \dots = \delta_j = 0$.

Despite the several advantages associated with the Fourier TY causality test introduced by Nazlioglu et al. (2016), it is important to note that the ordinary least squares (OLS) method is insufficient in cases where series exhibit a non-normal distribution displaying non-linear structures. Hence, Cheng et al. (2021) propose the utilization of the Fourier TY causality test based on quantile regression. This test allows for the investigation of dynamic causal effects between series at various quantiles without considering their integration order or normality assumption. Equation (6) demonstrates the utilization of Bootstrap Fourier Granger causality (BFGC-Q), which represents a novel approach in this context.

$$Qy_t(\tau | Z) = \alpha_0(\tau) + \sum_{k=1}^n \mu_1(\tau) \sin\left(\frac{2\pi k^* t}{T}\right) + \sum_{k=1}^n \mu_2(\tau) \cos\left(\frac{2\pi k^* t}{T}\right) + \delta_1(\tau) y_{t-1} + \dots + \delta_{j^*+pmax}(\tau) y_{t-(j^*+pmax)} + v_t \tag{6}$$

where k^* represents the optimal frequency, j^* denotes the optimal lag length, τ is a specific quantile, and Z depict the covariate matrix. The hypothesis of non-causality at different quantiles can be examined by estimating Eq. (7).

$$H_0: \hat{\delta}_1(\tau) = \hat{\delta}_2(\tau) \dots \hat{\delta}_{j^*} = 0, \quad \forall \tau \in (0,1) \tag{7}$$

$$Wald = \left[T \left((\hat{\delta}(\tau))' \right) \left(\hat{\Omega}(\tau) \right)^{-1} \left(\hat{\delta}(\tau) \right) \right] / \tau(1-\tau) \tag{8}$$

The next step is to calculate the BFGC-Q causality test's Wald statistics. Following this procedure, the Wald statistics calculated using Equation (8) are subsequently in comparison to the critical values derived from the bootstrap simulations. The identification of causality can be determined when the Wald statistic for the relevant quantile exceeds the predetermined critical value.

4. Empirical Results

The stationarity situations of the IMP, EXP, GPR_A and GPR_T are assessed by applying the Augmented Dickey-Fuller (ADF) unit root test and the Phillips-Perron (PP) unit root test. Accordingly, the empirical outcomes of these tests are presented in Table 2. Based on the results obtained by the ADF and PP unit root tests, the variables GPR_A and GPR_T are integrated at I(0), while IMP and EXP are integrated at I(1).

In the subsequent step, this study conducts the F-test to check if the Fourier approximation is necessary for causality assessment. The findings of the F-assessment are displayed in Table 3. Table 3 demonstrates that the F-statistics values of 7.616 and 12.200 surpass the values for critical bootstrap at a significance level of 1%, confirming the suitability of Fourier functions for evaluating causality.

Table 2. Unit root tests

Variables	ADF		PP	
	t-stat	p-value	t-stat	p-value
lnIMP	0.8110 (14)	0.9942	0.6874 (22)	0.9919
lnEXP	1.2095 (15)	0.9983	0.5270 (21)	0.9876
lnGPR_A	-5.0993 (2)	0.0000*	-6.3768 (3)	0.0000*
lnGPR_T	-4.3435 (5)	0.0000*	-10.367 (14)	0.0000*
<i>First differences</i>				
Δ lnIMP	-8.2680 (13)	0.0000*	-24.650 (20)	0.0000*
Δ lnEXP	-7.3298 (14)	0.0000*	-24.795 (19)	0.0000*
ΔGPR_A	-19.971 (4)	0.0000*	-63.604 (73)	0.0001*
ΔGPR_T	-21.659 (4)	0.0000*	-87.368 (67)	0.0001*

Note: (1) Δ shows first difference. (2) * represents 1% significance levels. (3) () denotes the appropriate lag order as determined by AIC.

After determining the integrated order of the series, the Fourier quantile causality test based on the methodology developed by Cheng et al. (2021) is applied. According to this test, there is no requirement to account for the variations in data series for integrated variables.

Table 3. F test results

Models	IMP	EXP
Optimum frequency	0.40	0.50
Optimum lags	4	5
Restricted F-statistics for Fourier	7.616*	
Expansion		12.200*
1% CV	4.997	11.760
5% CV	4.909	11.391
10% CV	4.797	11.315

Note: (1) CV stands for critical values. (2) * indicates a 1% significance level.

The Fourier quantile causality test is utilized in the last step to ascertain the determination of a causal effect between geopolitical risk (GPR_A and GPR_T) and foreign trade (IMP and EXP). The utilization of the IMP and EXP indicators and the GPR_A and GPR_T indicators serves as a proxy for trade and geopolitical risk, respectively, hence allowing for more detailed outcomes.

Table 4. Fourier quantile causality test results for IMP

$H_0 = \ln GPR_A \nrightarrow \ln IMP$				
Quantile	Wald test	CV 10%	CV 5%	CV 1%
0.1	2.389	2.980	3.441	4.272
0.2	0.745	1.781	3.261	5.220
0.3	3.509 (-)	2.731	3.794	4.865
0.4	5.043 (-)	3.748	4.633	5.518
0.5	14.234 (-)	6.880	8.086	9.114
0.6	18.460 (-)	9.670	12.287	17.774
0.7	27.346 (-)	11.101	12.229	13.611
0.8	19.908 (-)	12.306	12.729	13.778
0.9	9.1734 (-)	4.922	8.647	10.511
$H_0 = \ln GPR_T \nrightarrow \ln IMP$				
0.1	0.127	2.039	3.367	7.522
0.2	0.095	1.955	2.371	5.311
0.3	1.133	1.164	1.242	2.345
0.4	0.041	0.784	1.349	1.467
0.5	0.001	1.109	1.631	4.934
0.6	0.011	0.778	1.581	1.836
0.7	0.882	1.272	1.833	3.399
0.8	0.537	1.690	2.641	6.588
0.9	0.445	2.125	2.756	15.376

The findings of the model, wherein IMP is the dependent variable, are displayed in Table 4. According to the findings presented in Table 4, a negative unidirectional causation is shown between geopolitical risk acts and imports across all quantiles, with the exception of the 0.1 and 0.2 quantiles. This implies that an increase in GPR could potentially leads to a reduction in imports in Turkey. In contrast, there is no causal effect between the geopolitical risk threat and imports.

The findings of EXP are provided in Table 5 subsequent to a thorough examination of the IMP. Specifically, unidirectional causality is observed from geopolitical risk events to export levels throughout all quantiles ranging from 0.2 to 0.9, except for the extreme quantile at 0.1. The causal link exhibits a negative effect, suggesting that GPR_A has a strong adverse impact on the export level in Turkey. The research additionally reveals that a causal link exists between geopolitical risk threats and exports within the 0.4, 0.5, 0.6, and 0.7 quantiles. The observed causal link exhibits a negative impact on Turkey, implying that a rise in geopolitical risk threats is related to a concurrent reduction in export activities.

Table 5. Fourier quantile causality test results for EXP

$H_0 = \ln GPR_A \Rightarrow \ln EXP$				
Quantile	Wald test	CV 10%	CV 5%	CV 1%
0.1	3.786	3.605	6.889	7.290
0.2	4.132 (-)	7.641	8.540	9.742
0.3	8.468 (-)	8.700	9.949	14.108
0.4	15.537 (-)	8.711	10.987	13.571
0.5	11.433 (-)	10.154	13.090	17.786
0.6	12.862 (-)	12.527	14.865	21.444
0.7	19.800 (-)	11.948	14.759	17.180
0.8	39.354 (-)	10.340	12.953	14.780
0.9	32.549 (-)	8.711	11.775	23.745
$H_0 = \ln GPR_T \Rightarrow \ln EXP$				
0.1	0.320	2.512	3.535	3.871
0.2	1.110	2.304	3.302	4.078
0.3	0.554	2.739	3.130	4.063
0.4	3.264 (-)	2.764	3.369	5.033
0.5	8.843 (-)	2.516	3.544	4.017
0.6	6.980 (-)	2.280	3.060	5.088
0.7	3.115 (-)	2.102	3.493	6.458
0.8	0.002	2.084	2.964	4.587
0.9	0.839	2.485	3.435	4.825

Consequently, international trade is a crucial driver of economic progress in the country. According to the findings, it can be said that the foreign trade of Turkey is significantly vulnerable to the negative consequences resulting from geopolitical events. The study conducted by Gupta et al. (2019) also demonstrates a similar result across 164 nations.

CONCLUSION

The aim of this study is to examine the dynamic role of geopolitical risks on foreign trade for Turkey. To fulfill the objective, the Fourier granger causality test is employed by utilizing monthly data from the Turkish economy spanning the period of 1923 to 2013. To ensure a comprehensive analysis, two GPR indices, specifically acts and threats, are included as explanatory variables. In addition, in the context of foreign trade, importing and exporting activities are evaluated separately.

The results of this study indicate that there is a negative correlation between the level of geopolitical risk act and threat and the total volume of imports and exports. The financial and industrial sectors of the Turkish economy are extremely vulnerable to exogenous shocks. Geopolitical tensions, particularly

acts of a geopolitical nature, with neighboring countries negatively impact the Turkish economy by causing disruptions in the flow of trade.

The results further reveal a unidirectional causality from geopolitical acts to import and export, as well as a unidirectional causality from geopolitical threats to export. More specifically, in the case of imports, geopolitical acts have a strong adverse impact, while geopolitical threats have no significant impact. For trade, both geopolitical acts and threats have a detrimental impact. Based on the findings, it is clear that geopolitical acts hold greater significance in comparison to threats. Therefore, Turkey should closely monitor geopolitical risks acts more than threats and take proactive measures to mitigate the potential impact on import and export activities. By doing so, the country can minimize the vulnerability of its trade activities to increasing geopolitical risks.

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Chapter 21

Drivers of Economic Growth in Turkey (1965-2021): A Quantile Regression Approach

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ABSTRACT

Economic growth is an indispensable element of economic planning for the global economy, and forming the circumstances for economic growth relies on getting a grip on the sources of growth. This chapter attempts to present a view point on the factors which influence economic growth in Turkey for the period 1965-2021. To this end, ordinary least squares (OLS) and quantile regression (QR) models have been employed. In the chapter, predictor variables that are thought to possibly affect economic growth have been covered as inflation, exchange rate, household consumption expenditures, government revenues, trade openness, registered unemployment and government gross debt; and these variables have been selected based on the literature review and data availability for the relevant period. Model performances have been measured through root mean square error, mean absolute error and mean absolute percentage error criteria. According to those criteria, OLS, the 0.50 quantile and the 0.20 quantile models perform better than the other models. Major contributions of the chapter are three-fold: (1) Inflation stands for the leading driving force behind economic growth in Turkey for the period 1965-2021, (2) Besides inflation, government revenues and trade openness emerge as the fundamental sources of growth in the higher phases of economic growth, and (3) Exchange rate has remained trivial in accounting for Turkish real GDP growth regarding the time period in question.

Keywords: Economic Growth, Inflation, Trade Openness, Quantile Regression.

JEL Classification: C21, E31, O40.

INTRODUCTION

Economic growth serves as the most potent tool in the mitigation of poverty issues -regarded as one of the fundamental obstacles to development- and assuring an enhanced quality of life for developing countries (DFID, n.d.; Gallo, 2002:4). Turkey, characterized with high export subsidies, devaluations in the Turkish lira and domestic demand appeasement schemes for a well-fortified export, adopted an export-led growth model in the early 1980s and quadrupled the total value of merchandise exports in the first half (Taskin and Yeldan, 1996:155). As a result of going through the fundamental crises experienced 1994-2001 period, economic recession and depreciated currency were the hallmark agents that came into the scene (Aydm, Saygili and Saygili, 2007:3). Despite the instability periods witnessed by the era of globalization, some countries managed to achieve very high growth rates (Altug, Filiztekin and Pamuk, 2008). Subsequent to the year 2022, Turkey experienced high levels of growth stimulated by the falling inflation rate (Görmez and Yiğit, 2009). A retardation in the economic activity has been recorded in the mid-2006 (Macovei, 2009) subsequent to the global financial crisis. Thanks to the competitive reforms adopted between 2006 and 2017, Turkey recorded high growth rates and rose above the upper-middle income status. Nevertheless, decelerating productivity growth as a result of the slowdown of the impetus gained by the reforms gave rise to focalize the strategies to reinforce growth via credit booms and demand stimulus. On the other hand, Turkish economy enlarged 5.6% in the year 2022 triggered by a vigorous recovery experienced in the COVID-19 pandemic period (World Bank, 2023). Considering the growth history of Turkey, it would be beneficial to detect the possible sources of economic growth and take them into consideration in order to compose suitable reforms on economic growth.

A wandering in the existing literature reveals that there exist a lot of comprehensive works focusing on economic growth and on its linkages with macroeconomic factors in depth. Apart from the predictor variables consumption expenditures, government debt, government revenue, trade openness, exchange rate, inflation, unemployment discussed in this chapter; literature studies to investigate the sources of growth are handled with variables such as interest rate, population size, energy consumption, renewable energy, life expectancy as well. In the researches made, it has also been greatly demonstrated that land factor has a remarkable impact on economic growth, also making use of CES or Cobb-Douglas production functions besides the Solow model (Qu and Long, 2018). To give an example, Du (2017) aimed to investigate the causality relationship between land urbanization quality and

economic growth by using panel data for 35 major cities in China covering the period 2003-2012. According to the findings, long-run causality relationship was detected from land urbanization quality towards economic growth on a national scale and economic growth influenced land urbanization quality positively.

Hoogstrate and Osang (2005) aimed to examine the association between GDP growth, savings and trade openness using endogenous threshold estimation and non-linear VAR models for 59 countries covering the period 1960-1995. As a result, they reported that trade openness create a positive impact on GDP growth. Erbaykal and Okuyan (2008) aimed to investigate the relationship between inflation and economic growth in Turkey for the period 1987:1-2006:3 using the Bound test and Toda-Yamamoto causality approaches. Findings of the study showed that there is a one-way causality relationship running from economic growth towards inflation. Yucel (2009) aimed to investigate the causality relationships between financial development, trade openness and economic growth for the Turkish economy covering the period from 1989M1 to 2007M11. In the study where Johansen and Juselius cointegration and Granger causality tests were performed, trade openness was expressed to have a positive impact on economic growth. Besides, a two-way causality relationship was found between the series. Dritsaki (2013) investigated the relationship between economic growth, exports and government debt for Greece covering the period 1960-2011; and according to the Granger causality analysis, one-way causality relationships were detected from exports towards economic growth in the short run and also from economic growth towards external debt. Cetin, Gunaydn, Cavlak and Topcu (2015) analyzed the effect of unemployment on economic growth for 15 EU countries covering the period 1984-2012 by performing panel data techniques. The results showed the presence of a significant negative effect of unemployment on economic growth. Furthermore, two-way causality relationship was detected between the series in question. Roşoiu (2015) studied on the effect of the government revenues and expenditures on the economic growth for Romania. In the study where the 1998Q1-2014Q1 period was handled, Granger causality results revealed that government expenditures-revenues, harmonized indices of consumer prices and money market interest rates (3 months rate) influence the gross domestic product. Shingil and Panshak (2017) aimed to reveal the linkages between real effective exchange rate, inflation and economic growth for Turkish economy by covering the period 1970-2015. In the study where autoregression distributed lag model (ARDL) and Toda-Yamamoto causality approaches were used, it was reported that exchange rate has an inverse impact

on economic growth in the short run while it has a positive impact on growth for the long-run. Besides, a one-way causality relationship was detected from exchange rate towards GDP growth rate. Çevik, Atukeren and Korkmaz (2019) aimed to reveal the relationships in the trade openness and economic performance nexus by covering the period 1950–2014 through rolling window frequency domain test proposed by Breitung and Candelon (2006). Conclusively, bi-directional Granger causality linkage was detected between trade openness and economic growth in Turkey drawing attention to a feedback relationship. Karahan and Çolak (2020) investigated the relationship between inflation and economic growth for Turkish economy by utilizing from a nonlinear ARDL (NARDL) approach in a way to cover the quarterly data for the period 2003-2017. Findings revealed that uninterrupted increases in inflation give rise to inverse impacts on the long-term economic growth, indicating that there is an inverse relationship between inflation and economic growth. Sijabat (2020) investigated the relationship between government debt and economic growth for Indonesia by covering the period 1998-2018 via Johansen cointegration and Granger causality tests. According to the Granger causality analysis results, one-way causality was found from external debt to GDP, but no causality relationship was found between domestic public debt and GDP. Handling the long-term, it was concluded that while domestic debt affects economic growth in the same direction, external debt affects growth in the opposite direction. Dayıoğlu and Aydın (2020) aimed to analyze the relationships between economic growth, unemployment, inflation and current account balance series for Turkey by utilizing from symmetric and asymmetric reserved causality tests for the period 2000Q1-2020Q4. According to the results, an inverse relationship was recorded between growth and unemployment; and a uni-directional Granger causality was detected from inflation towards economic growth implying that inflation is the reason of economic growth. Besides, hidden causality test results showed that a uni-directional causality relationship exists from growth to inflation. In their study, Gövdeli and Özkan (2022) investigated the relationship between financial openness and economic growth in Turkey for the period 1985 to 2018 including the data at annual frequency. In the study where economic growth, financial openness and trade openness variables were used; Hacker and Hatemi (2006) bootstrap causality test results revealed that there exists no causality relationship between trade openness and economic growth for the covered period.

This chapter aims to identify the determinants of economic growth using quantile regression approach which relax the assumptions of linear regression

model. Moving from here, the rest of the chapter has been structured in a way to discuss the quantile notion and the quantile regression model, present the data and analysis findings, and outline the crucial inferences about the study.

METHODOLOGY OF QUANTILE REGRESSION

A *quantile* refers to the general name of "quartile", "quintile", "decile" or "percentile" measures in which data are separated into quarters, fifths, tenths and hundredths respectively. Specifically, a $(100*\tau)$ 'th quantile where τ values take place between 0 and 1 ($0 < \tau < 1$) -denoted by Q_τ - describes a value for which $(100*\tau)$ % of the observations lie below and the remaining $100*(1-\tau)$ % proportion lie above, thereby separating a data collection into two bunches. For instance, the quantile $Q_{0.6}$ refers to the value where 60% of the scores fall below and 40% fall above. The usage of quantiles can be come across in quantile plots or robust estimators. One of the widely used quantiles is the median which defines the middle ranking score in a distribution and thus depicts a ratio of 0.50 of the sorted data list (Yuan, 2019). The "quantile" notion is of great importance in that it allows for measuring the spread of data by using "interquartile range" as well, which signifies the distance between upper (third) and lower (first) quartiles (Frank and Todeschini, 1994:262-263; Rafter, Abell and Braselton, 2003:137).

Through quantiles it would be given an insight for the comparison of the position of a score relative to the others by assessing performances at lower and higher levels of the outcome variable. To give an example, having information about a student's grade will become meaningful when we obtain an information on the score distribution of the whole student group in order to be able to evaluate his/her performance. Take the case of a standardized examination. A student's score at the τ 'th quantile -say 0.70- will imply that this student will display a greater performance than the proportion τ -than 70% of exam takers- and a lower performance than the proportion $(1-\tau)$ of the representative group - than the remaining 30%. In case the test score of Student A is y and x is the score of any one of the students, the cumulative distribution function F will specify the quantile ratio for any observed value of x : $F(y) = \Pr[x \leq y] = \tau$ implying that the quantile level of Student A is equivalent to τ . Thus, $F^{-1}(\tau) = \inf\{y: F(y) \geq \tau\}$ will represent the τ 'th quantile of the distribution (Huang et al., 2008; Koenker, 2005; Rodriguez and Yao, 2017).

This chapter performs the quantile regression approach in order to reveal the linkages between economic growth and other variables that are thought to possibly affect economic growth in Turkey. Quantile regression (QR), which is proposed by Koenker and Basset (1978), enables to estimate the conditional

quantile functions as an extension of linear regression analysis acting based on the conditional mean function, thus provide a close watch on the quantiles of the entire distribution of the response as conditional on the chosen predictor variables (Furno and Vistocco, 2018:108; Koenker and Hallock, 2001:143). More clearly, even it can be realized that there exist inverse effects of a change in predictors (i.e., independent variables) on the high and low quantiles of the response (Huang et al., 2018). For a comprehensive focus on QR, the readers can also recourse to those pioneering works: Carmichael (1978), Lifson (1981), White (1981), Koenker and d'Orey (1987), Fitzenberger et al. (2001), Hao and Naiman (2007), Koenker (2017), Koenker et al. (2017).

Defined in the most straightforward way, the linear regression model is represented as follows:

$$Y_t = \alpha_0 + \alpha_1 X_t + \varepsilon_t \quad (1)$$

where Y denotes the response variable; X denotes the predictor variable; ε_t denotes an independently, identically and normally distributed random variable with $E(\varepsilon_t) = 0$ and $Var(\varepsilon_t) = \sigma^2$. Through the assumption $E(\varepsilon_t) = 0$, $\alpha_0 + \alpha_1 X$ will represent the conditional mean of Y given X (shown by $E(Y|X)$). Linear regression (LR) that is prevalently used in social science researches has some shortcomings. It is crucial to note that in LR computed probability values as a result of hypothesis testing are contingent upon normality assumption or large-sample approximation. Thereby, hypothesis testing may be unsoundness due to any infringement of these circumstances. Apart from those, the presence of outliers [described by Johnson (1992) as “an observation in a data set which appears to be inconsistent with the remainder of that set of data” (Ben-Gal, 2005)] could create a potent impact on the results of ordinary least squares model. Such an occasion would impede the true interpretation of the researches made. On the other hand, when a distribution is not symmetrical -that is, showing the property of skewness-, it would be more suitable to take the median as a central tendency measure rather than the mean and informativeness of the median-based regression is far more compared to the mean-based regression. Taking a range of quantiles on the whole distribution, QR enables to model the location (for the median) and shape shifts (for off-median quantiles) as well by accommodating heteroscedastic structure. With regard to being prominent with the feature of robustness to outliers and by clarifying results even in the case of exhibiting non-normal distribution and non-linear linkages with the covariates; QR emerges as a flexible data analysis instrument (Hao and Naiman, 2007; Yuan, 2019).

(τ 'th) quantile function of a response variable Y as conditional on the covariate X is represented as $Q_{Y_i}(\tau|X_i) = F_{Y_i}^{-1}(\tau|X_i) = X_i^T \beta$. Another widely

used alternative demonstration of linear quantile regression where the parameters of the conditional quantile function for some quantile level τ could be estimated is expressed via the linear optimization problem that exhibits a computational efficiency for large data:

$$\hat{\beta}(\tau) = \underset{\beta}{\operatorname{argmin}} \sum_{i=1}^n \rho_{\tau}(Y_i - X_i^T \beta) \tag{2}$$

where $\beta \in \mathcal{R}^p$ and $\rho_{\tau}(u)$ represents the piecewise check-loss function given as:

$$\rho_{\tau}(u) = \begin{cases} \tau|u|, & u > 0 \\ (1 - \tau)|u|, & u \leq 0 \end{cases} \tag{3}$$

where approximately $\tau \cdot n$ of the residuals are positive and $(1 - \tau) \cdot n$ of them are negative (Koenker, 2017:157). The logic of the function given in Equation (3) relies on the equilibration of the amount of penalty over and below the quantile grade under investigation. This signifies that in the case of quantile level $\tau = 0.8$, the amount of loss will be 8 times greater for positive-valued error terms than the negative-valued ones. The situation that getting a unique solution is not precise for not being differentiable of the check function at zero point could lead to a serious problem when worked with small data. When the quantile level is equivalent to $\tau = 0.5$ -median-, the check-loss function in Equation (3) would be proportional to the absolute value function and the regression line for the optimization problem would minimize the sum of absolute residuals. Comparing this median regression with the simple linear regression case will reveal the robustness of the former against extreme observations of the dependent (outcome) variable, contrary to the latter in which the squared function takes place in the minimization problem and large residuals critically influence the regression line due to this fact (Hothorn and Everitt, 2014:229; Reich, 2016:241-242).

DATA AND FINDINGS

This chapter has aimed to address the determinants of economic growth for Turkish economy over the period 1965-2021 utilizing from the quantile regression analysis. Data of the application have been included at yearly frequency and a detailed demonstration for the covered data have been presented in Table 1. In our analyses, the dependent variable is the average yearly growth rate of real gross domestic product (GDP) per capita (GROWTH) while the independent variables are inflation (INF), exchange rate (EXCH), household consumption expenditure (CONS), government revenues (GOV),

trade openness (TRADE), registered unemployment (UNEMP) and government gross debt (DEBT).

Table 1: Data Covered in the Study (1965-2021)

Variables	Explanation	Source
Economic Growth (GROWTH)	The rate of change of real gross domestic product (GDP)	World Bank
Inflation (INF)	Percent change in the consumer price index (CPI)	World Bank
Exchange Rate (EXCH)	US Dollar exchange rate (End of Period-Turkish Lira)	Federal Reserve Bank of St. Louis Economic Data (FRED- https://fred.stlouisfed.org)
Household Consumption Expenditure (CONS)	Percent of GDP	World Bank
Government Revenues (REV)	Percent of GDP	International Monetary Fund (IMF)
Trade Openness (TRADE)	Percent of GDP	World Bank
Registered Unemployment (UNEMP)	Level (total in persons)	Federal Reserve Bank of St. Louis Economic Data (FRED- https://fred.stlouisfed.org)
Government Gross Debt (DEBT)	Percent of GDP	International Monetary Fund (IMF)

Energy consumption per person series, which is thought to affect economic growth at the very beginning of the analysis, is also covered in the study. However, the high correlation coefficients of energy consumption with the exchange rate, unemployment level and trade openness series -namely, the multicollinearity problem- have led to a justification not to include energy consumption in the study (*Note: The correlation coefficients between energy consumption and other variables were reported to be: 0.272 [CONS], -0.179 [INF], 0.203 [DEBT], 0.614 [REV], -0.702 [EXCH], 0.863 [UNEMP], 0.937 [TRADE]*).

Table 2: Descriptive Statistics of Predictor Variables

	CONS	DEBT	INF	REV	EXCH	UNEMP	TRADE
Mean	60.9340	36.0813	33.8580	22.5417	20780.0	935504.3	35.48452
Median	61.1536	33.3848	21.2274	21.81030	69.0965	682641.7	36.20683
Maximum	70.6013	75.5089	105.215	33.3429	110619.5	4032849.	70.83492
Minimum	51.1111	19.0366	4.55553	9.65583	0.07699	22525.00	8.333333
Std. Dev.	5.33050	11.5271	28.5542	8.06910	36438.7	958702.6	17.29999
Skewness	-0.0389	1.46545	0.79764	-0.14435	1.51651	1.377420	-0.13484
Kurtosis	2.22994	5.61111	2.36148	1.60327	3.81511	4.197083	1.848696
Jarque-Bera	1.42275	36.5942	7.01247	4.83122	23.426	21.42760	3.320802
Probability	0.49097	0.00000	0.03001	0.08931	0.00001	0.000022	0.190063
Sum	3473.24	2056.64	1929.91	1284.88	1184460	53323746	2022.618
Sum Sq. Dev.	1591.2	7440.99	45659.1	3646.18	7.44E+10	5.15E+13	16760.21
n	57	57	57	57	57	57	57

Table 3: Serial Correlation and Heteroscedasticity Test Results

<i>Breusch-Godfrey Serial Correlation LM Test</i>			
			0.4
F-statistic	0.778115	Prob. F(2,47)	651
			0.4
Obs*R-squared	1.826853	Prob. Chi-Square(2)	011
<i>Heteroscedasticity Test: Breusch-Pagan-Godfrey</i>			
			0.4
F-statistic	1.017175	Prob. F(7,49)	311
			0.4
Obs*R-squared	7.231845	Prob. Chi-Square(7)	051
Scaled explained			0.4
SS	6.373076	Prob. Chi-Square(7)	969

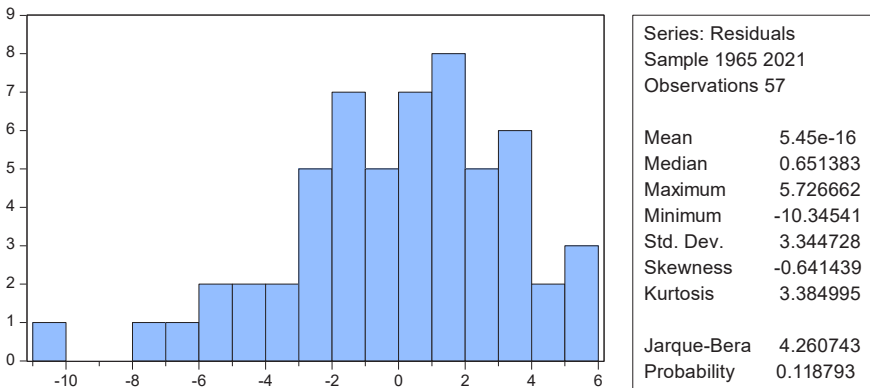


Figure 1: Histogram of the Residuals

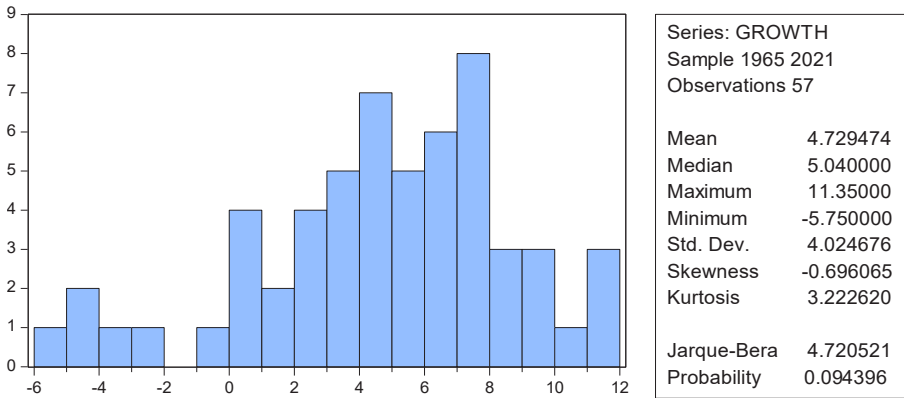


Figure 2: Histogram of the GROWTH Dependent Variable

Table 2 presents the descriptive statistics of the predictor variables. According to this, only CONS, REV and TRADE variables are normally distributed at the 5% level. As it is known, the quantile regression approach gives much more effective results than ordinary least squares (OLS) estimators when the error term is not normally distributed. Here, at first, the normality, autocorrelation and heteroscedasticity tests obtained as a result of the OLS analysis will be evaluated. To this end, Table 3 presents the serial correlation LM and Breusch-Pagan-Godfrey heteroscedasticity test results together. The findings reveal that all probability values are greater than 0.05 (for 5% significance level) implying that both H_0 : “No autocorrelation problem exists” and H_0 : “No heteroscedasticity problem exists” null hypotheses could not be rejected. Besides, Figure 1 and Figure 2 represent the histogram demonstrations of the OLS model residuals and the GROWTH series. It is apparent to say that all those series are normally distributed when 5% significance level is taken as basis ($0.118793 > 0.05$ for Figure 1, $0.094396 > 0.05$ for Figure 2). Now that there has been found no autocorrelation, heteroscedasticity and non-normal distribution problems; we

Table 4: Variance Inflation Factors

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	132.2004	589.3780	NA
CONS	0.031178	519.9689	3.880195
DEBT	0.002951	18.84233	1.717213
INF	0.000801	6.950110	2.858832
REV	0.007960	20.30206	2.270039
EXCH	8.75E-10	6.774747	5.089893
UNEMP	1.39E-12	11.04135	5.607040
TRADE	0.006555	45.38805	8.592539

can make another check for the OLS assumption of no multicollinearity. Moving from here, variance inflation factor (VIF) results have been given in Table 4. According to the results, it could be said that the choice of the predictor variables is appropriate since the centered VIF values are not above 10.

Table 5: OLS Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.236367	11.49784	0.455422	0.6508
CONS	0.112775	0.176572	0.638690	0.5260
DEBT	-0.098684	0.054319	-1.816748	0.0754
INF	-0.105896	0.028294	-3.742751	0.0005
REV	-0.226535	0.089218	-2.539107	0.0143
EXCH	1.49E-05	2.96E-05	0.504169	0.6164
UNEMP	-2.23E-06	1.18E-06	-1.889276	0.0648
TRADE	0.187400	0.080961	2.314679	0.0249

Table 5 shows the OLS test results. According to this, the variables which affect the economic growth are seen to be INF, REV and TRADE for 5% significance level. On the other hand, DEBT and UNEMP also have an impact on economic growth at 10% significance level. Among the significant variables, only TRADE variable influences the economic growth positively (in the same direction).

Table 6 presents the coefficient estimates of the quantile process at different quantile levels (only for the quantile levels of 0.10, 0.20, ..., 0.90).

Table 6: Quantile Process Estimates

	Quantile	Coefficient	Std. Error	t-Statistic	Prob.
CONS	0.100	-0.163718	0.323649	-0.505851	0.6152
	0.200	-0.102739	0.367678	-0.279425	0.7811
	0.300	-0.220076	0.322079	-0.683298	0.4976
	0.400	0.095996	0.303429	0.316371	0.7531
	0.500	0.287340	0.262689	1.093842	0.2794
	0.600	0.450890	0.246136	1.831875	0.0731
	0.700	0.455203	0.267401	1.702323	0.0950
	0.800	0.187007	0.163618	1.142953	0.2586
	0.900	0.155753	0.155123	1.004060	0.3203
DEBT	0.100	-0.131829	0.115008	-1.146254	0.2573
	0.200	-0.129879	0.113464	-1.144669	0.2579
	0.300	-0.180140	0.089707	-2.008091	0.0502
	0.400	-0.062792	0.103588	-0.606173	0.5472
	0.500	-0.101918	0.127830	-0.797293	0.4291
	0.600	-0.032412	0.080098	-0.404655	0.6875
	0.700	-0.013060	0.091253	-0.143118	0.8868
	0.800	-0.025624	0.088491	-0.289572	0.7734
	0.900	-0.060531	0.081655	-0.741306	0.4620
INF	0.100	-0.090888	0.048152	-1.887545	0.0650
	0.200	-0.101445	0.051507	-1.969528	0.0546
	0.300	-0.085761	0.044241	-1.938485	0.0583
	0.400	-0.096970	0.044519	-2.178192	0.0342
	0.500	-0.121428	0.050606	-2.399464	0.0203
	0.600	-0.095947	0.037178	-2.580716	0.0129
	0.700	-0.081651	0.044673	-1.827739	0.0737
	0.800	-0.083923	0.044103	-1.902901	0.0629
	0.900	-0.093099	0.036474	-2.552493	0.0139
REV	0.100	-0.262624	0.119448	-2.198640	0.0327
	0.200	-0.184298	0.130402	-1.413307	0.1639
	0.300	-0.260162	0.120720	-2.155084	0.0361
	0.400	-0.162568	0.131121	-1.239825	0.2209
	0.500	-0.248445	0.139065	-1.786545	0.0802
	0.600	-0.115375	0.102850	-1.121781	0.2674
	0.700	-0.095655	0.098657	-0.969572	0.3370
	0.800	-0.209276	0.081562	-2.565857	0.0134
	0.900	-0.213266	0.073929	-2.884758	0.0058
UNEMP	0.100	-4.70E-07	2.22E-06	-0.211468	0.8334
	0.200	-1.53E-06	2.57E-06	-0.593999	0.5552
	0.300	-2.90E-06	1.76E-06	-1.644453	0.1065
	0.400	-2.83E-06	1.74E-06	-1.624268	0.1107
	0.500	-2.79E-06	1.76E-06	-1.589239	0.1184
	0.600	-1.45E-06	1.62E-06	-0.894295	0.3755
	0.700	-4.69E-07	2.37E-06	-0.197685	0.8441
	0.800	-1.06E-06	2.29E-06	-0.464803	0.6441
	0.900	-1.66E-06	2.14E-06	-0.777383	0.4407

Table 6 (Continued)

EXCH	0.100	-3.84E-05	3.54E-05	-1.084419	0.2835
	0.200	-2.10E-05	3.75E-05	-0.561395	0.5771
	0.300	-1.74E-06	3.41E-05	-0.050981	0.9595
	0.400	1.26E-06	3.98E-05	0.031720	0.9748
	0.500	1.92E-05	4.38E-05	0.437953	0.6633
	0.600	2.44E-05	4.07E-05	0.599082	0.5519
	0.700	4.85E-05	4.26E-05	1.137867	0.2607
	0.800	2.97E-05	4.14E-05	0.717253	0.4766
	0.900	6.10E-05	4.20E-05	1.453538	0.1524
TRADE	0.100	0.012406	0.219161	0.056605	0.9551
	0.200	0.077759	0.245429	0.316831	0.7527
	0.300	0.234325	0.139758	1.676651	0.1000
	0.400	0.192855	0.121027	1.593490	0.1175
	0.500	0.195242	0.112292	1.738689	0.0884
	0.600	0.108173	0.086431	1.251552	0.2167
	0.700	0.109149	0.090265	1.209207	0.2324
	0.800	0.166117	0.082739	2.007724	0.0502
	0.900	0.243012	0.086120	2.821793	0.0069

Here, taking 10% significance level into account, QR model suggests that trade openness has a positive impact on economic growth at upper quantiles (0.80 and 0.90). EXCH and UNEMP variables do not have an impact at the given quantiles of the economic growth distribution. On the other hand, inflation has been detected to be the only variable that affects economic growth at all parts of the distribution and an inverse relationship exists between inflation and economic growth. When the economic growth dataset is partitioned into 10 equal parts, household consumption expenditures have also affected the growth (in the same direction) only for the quantile levels 0.60 and 0.70. DEBT affects growth at a lower quantile level (0.30). Besides, government revenues seem to be the source of economic growth displaying an inverse relationship at distinct lower, middle and upper quantiles.

Table 7: Model Performance Criteria

Regressions	RMSE	MAE	MAPE	QUASI-LR	Significant Variables
OLS	3.315258	2.649933	101.0291		INF, REV, DEBT, UNEMP, TRADE
$\tau = 0.10$	5.791473	4.445669	76.84759	26.39635 (0.000428)	INF, REV
$\tau = 0.15$	5.161881	3.995425	69.65396	22.01512 (0.002525)	INF
$\tau = 0.20$	4.701300	3.580922	66.96230	20.51943 (0.004551)	INF
$\tau = 0.25$	4.391299	3.346303	68.02230	17.10218 (0.016749)	INF
$\tau = 0.30$	4.239428	3.240539	73.19335	13.81140 (0.054639)	DEBT, INF, REV
$\tau = 0.35$	3.576086	2.690148	80.80906	15.25570 (0.032858)	INF
$\tau = 0.40$	3.506432	2.654926	84.97347	14.50794 (0.042850)	INF
$\tau = 0.45$	3.413093	2.522841	102.0409	14.03998 (0.050475)	INF, REV, TRADE
$\tau = 0.50$ (Median)	3.439165	2.506054	108.0826	13.87507 (0.053448)	INF, REV, TRADE
$\tau = 0.55$	3.733334	2.537067	106.9741	16.43445 (0.021430)	INF, UNEMP
$\tau = 0.60$	3.898141	2.599574	123.2805	17.96602 (0.012124)	INF, CONS
$\tau = 0.65$	3.910202	2.600528	123.4843	17.53049 (0.014278)	INF, CONS
$\tau = 0.70$	4.110226	2.769502	137.5537	15.46220 (0.030511)	INF, CONS
$\tau = 0.75$	4.173875	2.911009	145.2950	15.14613 (0.034171)	INF, REV
$\tau = 0.80$	4.394602	3.161136	161.7642	15.42059 (0.030971)	INF, REV, TRADE
$\tau = 0.85$	4.863338	3.656869	171.1825	14.19536 (0.047814)	INF, REV, TRADE
$\tau = 0.90$	5.042316	3.823299	181.1019	14.69377 (0.040131)	INF, REV, TRADE

Table 7 presents *Root Mean Square Error (RMSE)*, *Mean Absolute Error (MAE)* and *Mean Absolute Percentage Error (MAPE)* criteria in order to reveal which of the OLS and QR models performs the best. Values in parentheses for the QUASI-LR column give the probability values. Findings show that the models

that provide the minimum errors according to RMSE and MAE criteria are the OLS and $\tau=0.50$ quantile (median) models, respectively. According to the MAPE criterion, the model with the minimum estimated error is $\tau=0.20$ quantile model. On the other hand, since the Quasi-LR test probability values of the models -except for the models with the 0.30, 0.45, 0.50 quantiles- are lower than 0.05, they are statistically significant at 5% significance level. The 0.30, 0.45, 0.50 quantile models are also significant at the 10% significance level.

Table 8: Quantile Slope Equality and Symmetric Quantiles Test Results

Quantile Slope Equality Test			
<i>Test Summary</i>	<i>Chi-Sq. Statistic</i>	<i>Chi-Sq. d.f.</i>	<i>Prob.</i>
Wald Test	39.36716	56	0.9551
Symmetric Quantiles Test			
<i>Test Summary</i>	<i>Chi-Sq. Statistic</i>	<i>Chi-Sq. d.f.</i>	<i>Prob.</i>
Wald Test	24.21394	32	0.8366

Table 8 presents quantile slope equality and symmetric quantiles test results for the quantile $\tau=0.50$ and the number of quantiles being 10. In the quantile slope equality test, the null hypothesis states the equality of slopes across quantiles while the alternative hypothesis states the opposite for every two consecutive quantiles. According to the results, the null hypothesis of the equality of slopes across different quantiles could not be rejected. That is, estimated coefficients have not deviated across the distinct quantile levels based on the reported p-value (0.9551) being greater than 0.05. Furthermore, the null hypothesis which mentions that the quantiles are symmetrical could not be rejected based on the calculated test statistic 24.21394 with the prob value being above 0.05 (at the 5% significance level). The same case is valid for all model variables.

CONCLUSION

Investigating the relationship between economic growth and other variables has been the focus of many literature studies. In particular, most studies have tried to detect the sources of economic growth. Moving from here, this chapter has aimed to reveal which variables affect economic growth in Turkish economy covering the period 1965-2021 through the usage of quantile regression analysis with the data at annual frequency. QR does not impose parametric assumptions as in the OLS method. Thus, it presents a flexibility in the model estimation by allowing for a possible hetesrocedasticity and a non-normal distribution problem, and provides more robustness against outliers than OLS. In the study, first of all OLS estimates have been obtained. According to

the OLS results; DEBT, INF, REV, UNEMP and TRADE variables have been found to be significant variables while EXCH and CONS are insignificant variables. Of these, DEBT and UNEMP are significant at the 10% significance level, and the others (INF, REV, TRADE) are significant at the 5% significance level. The only variable that affects economic growth positively (in the same direction) has been TRADE. Since the model does not suffer from non-normally distributed situation of data generating process, heteroscedasticity, autocorrelation and multicollinearity issues; in order to compare the model performances of OLS and QR models, it has been utilized from RMSE, MAE and MAPE criteria. In Table 7 where OLS and QR models are handled, the best performing model according to the MAPE criterion is obtained when $\tau=0.20$. According to RMSE and MAE criteria, OLS and $\tau=0.50$ (median) models have been determined as the ideal models, respectively. It is plausible to obtain these results in the case of normally distributed residuals. Nevertheless, QR provides us with detailed information in that it indicates separate prediction results at many points of the dependent variable. According to the QR results in Table 7, the main inference of the study is that inflation plays an active factor at every stage of economic growth for the period of 1965-2021. It can be said that consumption appears as a source of growth only towards the higher stages of economic growth (0.60, 0.65, 0.70 quantiles). DEBT and UNEMP variables have been effective only at the 30th and 55th percentiles of economic growth, respectively. When QR and OLS results are evaluated together, it appears that the exchange rate has no effect on growth for the period in question. It is also remarkable to say that in the advanced stages of economic growth ($\tau=0.75, 0.80, 0.85, 0.90$), the main sources of growth have been recorded as INF, REV and TRADE.

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Chapter 22

Symbolic, Iconic, and Indexical Signs in Tea Advertisement

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Abstract

This study tries to analyze icons, indexes and symbols included in the selected tea ad. The meaning of the selected tea ad is explored by means of Peirce's (1991) Semiotic theory. Peirce's sign system theory is based on icon, index and symbol. The content analysis method is used in order to explore explicit and implicit meaning in the selected tea ad. The present study focuses on three visual sign types in order to explore connotative meanings of the visual signs in selected tea ad. This study reveals that the selected tea ad conveys meaning through different signs. The indexical signs, symbols and icons are used in the selected tea ad in order to establish implied, particular marketing message. This study concludes that each semiotic category (index, icon and symbol) are used in order to convey explicit and implicit meaning to the intended target audience.

Key words: semiotics, ads, index, icon, symbol

INTRODUCTION

Signs are based on communication and they can be seen as form of pictures and writing (Wollen,2019). Semiotics studies signs and symbols and signs represent something this is called as metaphor. Metaphor is frequently used in literary texts. The process of semiotics related to signification and signification (Merleau-Ponty, 1964). The advertisements can have hidden meanings and they also include symbol, index and icon (Block,1986). This study tries to explore meaning based on index, icon and symbol in selected tea ad. The present study uses Peirce's (1991) semiotic theory in order to reveal hidden meaning in the selected tea ad. Semiotic studies theory of signs (Wollen,2019). From this perspective, advertisements are seen as visual communication and visual communication related to linguistic communication (Block,1986). The ads are seen as operative texts and they convey persuasive messages. The persuasive messages are conveyed through visual and linguistic signs. The rhetoric aspect of language is used in ads. This means that the messages are not conveyed through directly and literally (Tavin,2002). The visual signs and connotative level are used in ads in meaning making process. The implied marketing message is conveyed through connotative meaning of visual and lexical signs (Parker,1998). From this point of view, the Zindagi Tea ad is analyzed based on Peirce's (1991) semiotic model.

In line with this, this study reveals that the innovative style of ad, and its creativity as well as connotative meaning, hidden marketing ideologies are established through symbolic, iconic and indexical signs in the selected tea ad.

THEORETICAL FRAMEWORK

Semiotics is the concept and it deals with science of signs. It focuses on sign (Bignell,2002). Semiotics focuses on meaning making process and it is based on linguistic (Silverman,1983). It is the branch of linguistic because it focuses on non verbal and verbal language (Allen,2004). The signs, symbols establish meaning in any text. In this regard, the communication is provided through sign system. Each sign construct implicit and explicit meaning. In this sense, each sign represents something (Cobley,2014). The printed words, sounds, photo, color can be considered as signs (Noth,1990). Semiotics is a communication tool and semiotics creates communication through signs. Saussure and Peirce are seen as two important figures in semiotics. Saussure is the founder of modern linguistics and Peirce is the founder of pragmatism (Bignell,2002). According to Saussure, the sign is seen as basic aspect of meaning. According to Saussure (2011), the sign is made up of two entities. They are signified and signifier of the sign. The signifier is the form of the sign. The physical form of the signs such as words, sounds can be considered as the concept of signifier. The mental concept or concept can be seen as signified (Saussure,2011). To put it simply, the physical existence and ontology of the sign is called signifier. The mental concept is called signified (Saussure,2011). According to Peirce (1991) there are three (3) kinds of signs. The representamen reflects signs' forms. It can be seen as signifier. An object can be seen as signified. It reflects signs. The interpretant is based on making sense (Peirce, 1991).

In addition, the connotation and denotation play significant role in semiotics in terms of meaning making process. Connotation is based on Latin language "connotare". It means mark (Dyer,2008). Connotation reflects cultural meaning (Allen,2004). The historical, emotional oriented meaning is conveyed through the connotative meaning of the word. In this sense, the connotative reflects mental concept and it can be changed society to society and culture to culture (Culler,2002). Denotation reflects literal meaning and dictionary meaning of the word. The denotation of the word reflects the description of the word (Barthes,1993).

The present study uses qualitative method in order to analyze index, icon and symbols in the selected tea ad. In line with this, the connotative meaning of the selected tea ad is explored through Peirce's semiotic model.

As implied before, semiotics studies signs and symbol, index and icon are intergral parts of sign system and they are the focus of this present study.

The sign categories such as icon, index and symbols reflect knowledge and reality (Peirce, 1991). From this perspective the sign system in ads convey particular reality. The hidden marketing message are employed by sign

categories. As it is known, advertisements frequently use visual signs and pictures and lexical signs in order to convince target audiences (Tavin,2002).The linguistic and visual signs are never neutral. They convey certain worldviews, values and beliefs (Fairclough,2013).

Saussure is considered as the founder of semiotics (Merleau-Ponty, 1964), and in Europe, Greimassian semiotics flourished as the followers of his views depending largely on structural status of object to be investigated (for sample studies see Büyükkarçı, 2021). Saussure (2011) focuses on concept in other words mental concept of the word and sound image of the word. According to Saussure, there is no direct relationship between linguistic sign and its reference (Saussure,2011).

Based on this, the signifier reflects sound and acoustic image of the word, the signified reflects concept and meaning. In this sense, the signified reflects cognitive concept and it refers cultural aspect of the word (Saussure,2011).

In line with this, semiotics can be considered as a metalanguage. Based on this, semiotics explore intentions, objectives and aims. It can be stated here semiotics is beyond science of linguistics, it covers culture and ideology. There is no one correct meaning, there are many meanings and interpretations (Van Leeuwen,2011). Meaning can be changed according to the societies and cultures (Parker,1998).

From this point of view, ads are based on social culture. In this sense, ads have more than one meaning and message. As mentioned before, the connotative meaning is used in order to employ implied marketing message and intention (Wollen,2019).

In this current study, the researcher tries to explore the signs in selected tea ad. The sign refers to icons, indices and symbols based on Peirce's (1991) semiotic model in this study. Regarding this, symbols are cultural and man made signs (Merleau-Ponty, 1964).

The signs have physical pattern (signifier) such as sound pattern and physical shape. The signs have mental concept (signified) in other words meaning. The meaning of signs reflects semantic aspect of signs (Saussure,2011).

Based on Peirce (1991), icons are considered as physical resemblance between the sign and meaning. On the other hand, when we define index, it can be stated that, there is a relation or correlation between sign and its meaning. The space and time are important concepts for index. The symbols are based on mental association and they have cultural oriented qualities. As implied before, the intended marketing messages and meanings are employed by connotative level of language (Peirce,1991).

The connotative level of language can be interpreted differently in many cultures. In this sense, the connotative level of language is not stable (Barthes,1993). That's way there is no correct meaning. The ads convey their particular intended marketing message by means of connotative meaning of the signs (van Niekerk,2018)

As implied before, semiotics studies of signs. In line with this, short stories, papers, poems, cartoons and ads are seen as signs. In the world, as human beings we come across signs everyday. In this sense, signs are everywhere. The gestures, paralinguistic elements, the words body language are seen as signs. They explore implicit and explicit meaning. Semiotic is seen as scientific field and semiotics tries to explore meaning in any text (Chandler,2022).

In this current study, the researcher tries to explore meaning in selected tea, in this regard the symbols, the index and icons are analyzed in order to implicit and explicit meaning in the selected tea ad.

The elements in the world have meaning and their meaning can be interpreted differently by individuals. Because meaning can be changed according to educational level and background, age, nationality, gender, religion etc. The sign system is beyond grammar and syntax and it focuses on complex and hidden meaning (Chandler,2022). Based on this, the complex and hidden meaning are conveyed through additional in other words connotative meaning. From this perspective signs have connotative and additional meaning this means that the connotative and additional meaning reflect cultural references (Barthes,1993). As mentioned before, the additional meaning is conveyed verbally and non verbal language (Chandler,2022).

In this current paper, Peirce's model (1991) is used and he is considered as founder of pragmatism. There are three (3) signs based on Peirce's model. These are icons, index and symbol (Peirce,1991).

Regarding icon, there is a similarity between sign and its reference (Peirce,1991). In line with this, there is a relationship and connection sign and its reference in terms of index. Also, the symbols reflect ideas, emotions and feelings, and there is no direct connection sign and its reference (Peirce,1991).

ADVERTISEMENT AS COMMUNICATION

Ads are seen as product of post modern culture and society. The ads reflect society, in this sense they are cultural and social oriented products. The ads are effective and useful tool as communication, because they establish communication between consumers and companies. They are seen as informative text, because they convey information about the product to the target audience (Dyer, 2008). By means of ads, the new products, and their marketing qualities

are employed to the target audience. The target readerships can promote their awareness by means of ads (Wollen,2019).

From this point of view, ads are seen as important tool for communication. They deliver intended messages and meaning. As mentioned before, in post modern world and developed technology the ads provide information (Dyer, 2008). The ads can change people's opinions and beliefs, in this sense, mostly they are seen as operative text because ads try to convince target readership to buy products (Clow,2012).

In this regard, this present study tries to analyze sign system in selected tea ad. Pierce's (1991) theory of semiotic figures namely icons, index and symbol are used in this study. The study uses semiotic theory in order to find out how the sign system is used in selected tea ad, and the stud tries to explore function of sign marks, and their intended meaning and purposes in the selected tea ad.

From this perspective, it can be stated here that, ads reflect ideology, mostly, they convey messages through linguistic and visual signs. In this sense, the linguistic and visual signs carry hidden meaning and messages. The ideology and connotative meaning are established through icons, symbols and index in ads. In this sense, ads play important role in mass media because they construct meaning (Soar,2000).

As it is stated before, ads are seen as communication tools because they employ messages and information about the product and company. Ads are seen as operative text, they try to convince the target audience. They encourage the target audiences to buy the product (Clow,2012).

PEIRCE'S SEMIOTIC THEORY

Index

Index is seen as sign and it reflects object and concept through temporary, spatial and casual connection with the object. The word of index is based on Latin word and it means pinter and forefinger (Määttänen,2007). The index is frequently used in ads in order to promote and foregrounded their products. The relationship between consumer and product are established through index. The indexical signs reflect associated meaning (Houser,2009). Based on this, smoke can be considered as an index of a fire. The advertisement language reflects connotative and conventional meaning in order to convey marketing message. It can be noted here, there is a casual relationship between the sign and its object in terms of index (Gorlée,2022). This points that footprints are index of somebody, the dark calouds are index of heavy rain. Regarding this, the evidence and what is being represented defines index (Määttänen,2007).

Icons

Icons are seen as semiotic systems and it reflects physical form of signs. The lexicon “icon” is based on Greek word “eikon” (Ehrat,2005). The icons represent realityb (Gorlée,2022).

As it is mentioned before, the signs (icon/ index/symbols) are used in ads in order to convey marketing message (Martínez,1998). The icon is considered as picture and it can be form of linguistic or image (Peirce,2014). Regarding this, passport, umberella, photo can be example of icons. To put it simply, the physical resemblance reflects icon (Ehrat,2005).

Symbols

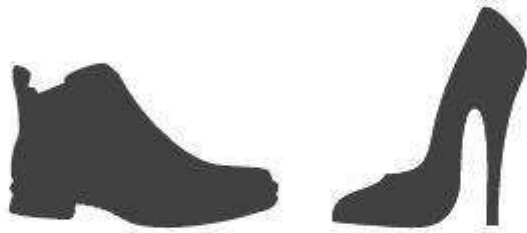
The symbols reflect ideas and thoughts. There is no similarites and causal relationship between the object and its reference (Berger,1014). The symbols reflect social and ideological aspects. Based on this, there is no relationship between the sign and symbol. From this perspective, symbols reflect feelings and ideas (Houser,2009). For example flag symbol of independence in many culture. This is the example of cultural agreement. In line with this, there is no direct relationship between signifier and signified. The symbols are perceived through previous knowledge and experience (Ehrat,2005).



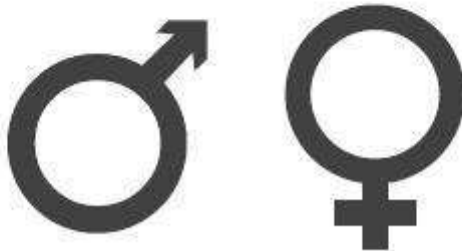
Source: <https://iceman57.wordpress.com/2014/11/16/week-3-signification-and-language-metalanguage-in-context-symbols-icons-indexes/Semiotics Theory of Peirce>



Icon

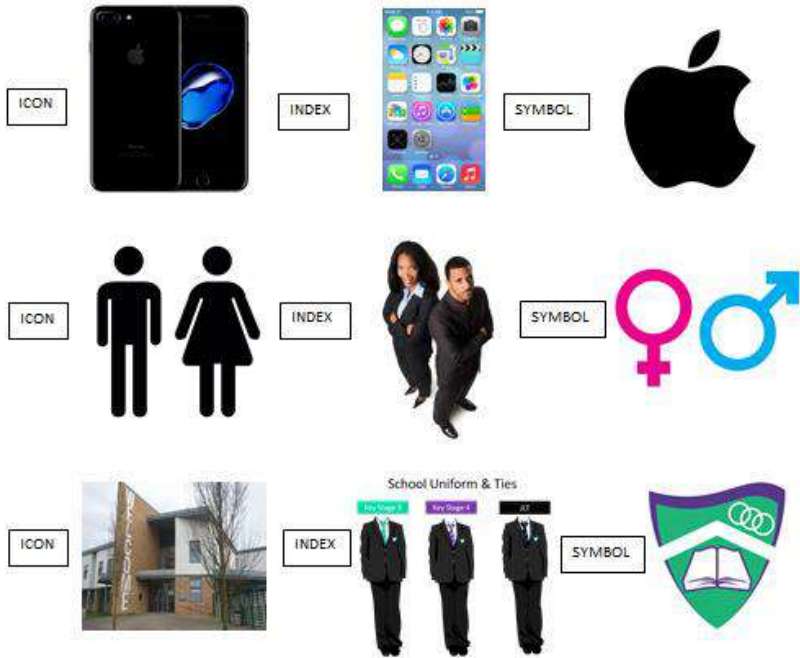


Index



Symbol

Source: <https://tr.pinterest.com/pin/400750066815172646/>
Semiotics Theory of Peirce



Source: <http://natashabmedia1.blogspot.com/2017/10/semiotics-icon-index-symbol.html>
Semiotics Theory of Peirce

ICON, SYMBOLS AND INDEX



Source: <https://www.slideshare.net/j4journalist/semiotic-analysis-122983216>
Semiotics Theory of Peirce

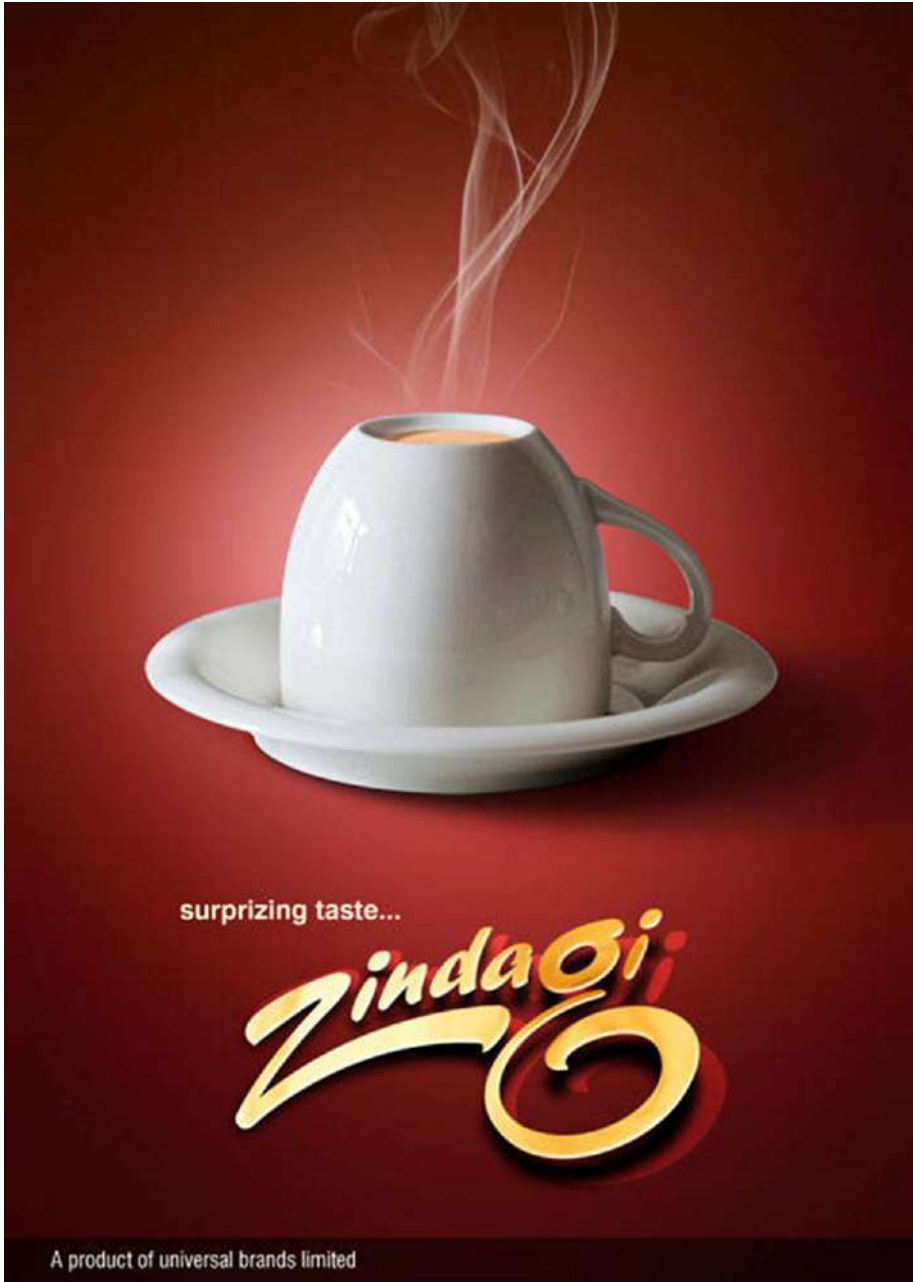
OBJECTIVE OF THE STUDY

According to the statements above, this current study tries to explore the icon, index and symbol in the Zindagi tea ad. In addition, the study tries to reveal explicit and implicit meaning and message in the selected tea ad. To put it simply, how signs and symbols are established communication in selected tea ad. This study tries to explore the cultural and social conventions of selected tea ad.

METHOD OF THE STUDY

The study uses Peirce's (1991) semiotic model namely icon, index and symbol. In this sense, qualitative method is used in this study. The words (linguistic sign), the color (non verbal, visual signs) and the object (non verbal visual sign) are analyzed in this study in order to explore the meaning background of the tea ad. The data is Zindagi Tea ad and it is taken from web site.

DATA ANALYSIS



Source: <https://www.deviantart.com/khawarbilal/art/zindagi-tea-ad-73095745>

Based on ad, there are verbal and non verbal signs in the selected ad. These signs connect each other and they establish meaning and intended message for the target audience.

The signs are listed below:

1. The steam
2. The White cup
3. The words “suprizing taste”
4. The Zindagi word (the Logo)
5. The background (color: yellow and red)

The Icon

the White cup can be seen as the icon. This White cup reflects the real tea. The White cup can be seen as index of the zindagi product. The White cup reflects the feature of the Zindagi products and most consumers notice and recall Zindagi when they see the white cup.

The Index

The zindagi Logo on the ad can be seen as index. In order to establish direct attention the Zindagi Logo is used in the ad. The consumers will notice and recognize the image of tea drink when they face the Zindagi Logo.

In addition, “suprizing taste” are the words and they can be seen as index. There is no connection or relationship in other words resemblance between the linguistic signs and its reference. By using this linguistic sign, the tea ad constructs positive feelings.

The symbol

The steam is considered as symbol in the selected tea ad. The steam comes from the white mug. The steam symbolizes the concept of hot and good taste. In this sense, the symbol of steam tries to tell the target audience this ad reflects good taste, good day, joy, happiness and good life. The background color is red. The red has many different symbolic meaning in many different cultures. In this context, It represents life, health.

The ad tries to tell the target consumers that if they dring Zindagi tea, they have healthy life.

Conclusion

Icon, index and symbol are foregrounded by C.S. Peirce in the late 19th century (Merrell,2005) In this sense, three categories of image is analyzed through Peirce model (1991) in this study. This study reveals that the selected tea

ad constructs meaning and hidden marketing message through three categories of signs. The icon in this ad is the white cup, the indexes in this ad are tea logo and the words “suprizing taste”. The symbol in this ad is the steam and background color.

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Chapter 23

The Impact of Globalization on Labor Demand in the Turkish Manufacturing Sector¹

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¹ This study is derived from the author's Ph.D. dissertation titled "Labor Demand in the Turkish Manufacturing Sector" supervised by Prof. Dr. Fatma Doğruel.

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ABSTRACT

Firms' response to employment costs remains a compelling focal point in the realm of empirical labor economics. Rodrik's (1997) supposition posits that labor demand elasticity, in relation to wages, should surge in tandem with globalization. An upswing in wage elasticity suggests heightened vulnerability for workers, marked by increased employment volatility and diminished bargaining power. This study undertakes the task of estimating labor demand elasticity within the Turkish manufacturing sector over the timeframe of 2005-2011, delving into whether the wage elasticity experienced any shifts due to the surge in international trade. To accomplish this, two microdata sources from TurkStat—Annual Industry and Service Statistics (4-digit) and Foreign Trade Statistics (12-digit)—have been amalgamated to construct a balanced panel dataset. This comprehensive dataset encompasses 9,342 establishments employing 20 or more individuals, demonstrating continuous operations throughout the analytical period. By employing both static and dynamic labor demand models, we aim to scrutinize whether the wage elasticity of labor demand has undergone substantial changes and, if so, quantify the extent of this transformation. Our analyses, comprising two-way static fixed effects and Arellano-Bond linear dynamic panel-data estimations, unmistakably reveal that international trade played a pivotal role in significantly augmenting the wage elasticity of labor demand within the Turkish manufacturing sector during the years 2005 to 2011.

Keywords: Labor Demand Elasticity, Globalization, International Trade

1. INTRODUCTION

Tremendous increases in unemployment rates in developed economies in the 1990s have triggered discussions about the sources of this problem (Siebert, 1997). Many economists have argued that the lack of flexibility in labor markets and the unresponsiveness of real wages to unemployment were the main reasons for these high unemployment rates (Blanchflower and Oswald, 1994; Allen and Freeman, 1997; OECD, 1997). Therefore, many countries sought to address the employment problem essentially through policies designed to increase labor market flexibility. In addition to that wage inelasticity claim, they have also emphasized the lack of job creation capacity of developed economies, despite the decreasing share of wages in total incomes and the increasing share of profits (OECD, 2007; IMF, 2007; Harrison, 2002; Epstein, 2000). All these discussions indeed point to the importance of the demand side of the labor market rather than conventional neoclassical arguments about wages and the rigidity of labor markets.

For developing economies, with the shift of dominant development strategy from inward-oriented import substitution to the export-oriented industrialization policy at the end of the 1970s, structural adjustment/stabilization programs were advocated in many developing countries at the beginning of the 1980s. These policies put the labor markets at the center of their mechanisms to increase employment and lower the unemployment rate with downward wage elasticities. According to this opinion, international trade activities will augment the production in labor-intensive exporting sectors. On the other hand, internal and external financial liberalization accompanied by international trade activities will provide the domestic and foreign financial sources required for investments and this will also contribute to the additional labor demand. Therefore, if the wages are sufficiently downward-elastic, government expenditures can be decreased without decreases in total production and employment in a macroeconomic stability (in terms of prices and fiscal balance) period. However, the consequences observed in many developing economies were not as expected; high unemployment rates and low economic growth problems have kept their importance and severeness. So, these concerns have caused to spread of the view that the problem is sourced due to rigid labor markets in these countries, albeit they have intense international trade activities and liberalized financial systems.

Turkey has also implemented these structural adjustment/stabilization programs since the 1980s. However, the affirmative effects of these policies on the employment increase were limited. Especially, contrary to expectations, the weak employment performance of the manufacturing sector is one of the most disappointing results of these post-1980 policies. This is mostly because the

export volume of the Turkish manufacturing sector has rapidly increased with this policy shift but employment creation was bleak. Therefore, the disappointment of these policies (in terms of employment creation) started the subsequent discussions about the flexibility of the Turkish labor market. Many reports of the World Bank (henceforth WB) and International Labour Organization (henceforth ILO) have emphasized the role of flexible labor markets in increasing the demand for labor, especially emphasizing the institutional barriers that hamper the increase of labor cost (mainly in terms of wages and labor taxes) elasticity of labor demand. Another discussion was about the employment creation capacity of the Turkish economic growth. Some economists argue that this is not only an economic but also a very important social problem of Turkey and deserves a serious analysis (Ansal et al., 2000). These two discussions about the sources of inadequate employment creation have continued to be one of the main concerns of labor economists and policymakers till today in Turkey.

Turkish economy in the 2000s is a different period than the previous two decades especially in terms of its relative macroeconomic stability (especially fiscal stability), international trade activities, and the reflections of these international trade activities into the current account balance and labor markets. Export and import volumes have tremendously increased in this first decade of the second millennium. However, the import dependency of exports has also increased so much due to overvalued TL and other relevant factors during the term.

According to theoretical studies, it has been argued that international trade will increase labor demand elasticities. Moreover, international trade has led to some shifts in the organizational structures of firms and also altered their production technologies mostly via imports of intermediate inputs to strengthen their competitiveness. Therefore, international trade's effects are not only limited to high production volume but also contribute to the adoption of different (new) production practices. All these factors give rise to the changes in labor demand behaviors (or incentives) of firms. So, their adjustment mechanisms should have operated differently with more intense international trade activities.

The Turkish manufacturing sector is the major export and growth engine of the Turkish economy. At the same time, the majority of imports take place in that sector due to the necessity for intermediate and investment goods to produce and export tradable goods. So, outward-oriented trade activities are very intense in the Turkish manufacturing sector. Therefore, in parallel with the theoretical expectations abovementioned, we expect that firms in the Turkish manufacturing sector, especially those directly related to intense export and import activities

should be more exposed to the necessity to alter their labor demand behaviors during this decade.

Therefore, this study aims to investigate whether the labor demand elasticities of the Turkish manufacturing sector altered due to the increased volume of international trade for the period between 2005 and 2011. The remainder of the study is as follows: The second section exhibits the core of neoclassical labor demand theory providing theoretical backgrounds for both static and dynamic models to constitute the basis for empirical specifications. In the third section, empirical studies in the labor demand literature are compiled by focusing on the effects of international trade on labor demand elasticities. Section four introduces the data sources and limits the data set to an operational sample. Section five sets the empirical specifications to be estimated and discusses the variables to be included in the econometric analyses presenting the methodology to be used. Section six presents and comments on the findings of empirical analyses. The concluding section discusses the results of the research and relates them to some policy implications.

2. THEORETICAL BACKGROUND

This section of the study aims to present the theoretical background that constitutes the basis of the empirical specifications for labor demand estimations (see Section 5). This theoretical discussion is essential for the linkage between the theory and empirical work. Since the focus of this study is on the labor demand behaviors of firms, most of the interest is inherently on the microeconomics of labor demand. So, this section includes the compilations, extensions, and expositions of some important theoretical points within the related literature of labor demand microeconomics.

This section is divided into two main subsections. The first part deals with the static theory of labor demand. Those are the aspects of labor demand in static equilibrium. The second part deals with the dynamic theory of labor demand. This second subsection focuses on labor demand adjustments to shocks in product demand and factor prices.

2.1. The Static Theory of Labor Demand

For the two-factor model of the demand for homogenous labor, we assume that production exhibits constant returns to scale, as described by the linear homogenous function F , such that:

[2.1]

$$Y = F(L, K), F_i > 0, F_{ii} < 0, F_{ij} > 0$$

where Y is output, and K and L are homogenous capital and labor inputs, respectively. This production function represents how much output is produced by any combination of labor and capital.

In this initial part of the derivation, we assume the firm maximizes profits

[2.2]

$$\pi = F(L, K) - wL - rK$$

where w and r are the exogenous prices of labor and capital services, respectively and we assume that the competitive product price is one (the price of output is unity).

Maximizing [2.2] yields

[2.3]

$$F_L = w$$

and

[2.4]

$$F_K = r$$

The competitive firm sets the value of the marginal product of each factor equal to its price.

[2.5]

$$\frac{F_L}{F_K} = \frac{w}{r}$$

The ratio of [2.3] to [2.4] is the familiar statement in theory that the ratio of the values of marginal products, the marginal rate of technical substitution, equals the factor-price ratio for a profit-maximizing firm.

An important parameter of interest in that framework is the elasticity of substitution between K and L , holding the output level constant. This is the rate of change in the use of K to L from a change in the relative price of w to r , holding output constant.

Allen (1938) defines the elasticity of substitution between the services of capital and labor as the effect of a change in relative factor prices on relative inputs of the two factors, holding output constant. In other words, it is the effect of a change in the marginal rate of technical substitution on the ratio of factor inputs, defined as elasticity.

In this two-factor linear homogenous case, the elasticity of substitution is (Allen, 1938:342-343)

[2.6]

$$\sigma = \frac{d\ln(K/L)}{d\ln(w/r)} = \frac{d\ln(K/L)}{d\ln(F_L/F_K)} = \frac{F_L F_K}{Y F_{LK}}$$

By this definition, σ is always nonnegative.

Intuitively, this elasticity measures the ease of substituting one input for the other when the firm can only respond to a change in one or both of the input prices by changing the relative use of the two factors without changing output.

If σ approaches infinite, the two factors become perfect substitutes, while as σ approaches zero, the two factors cannot be substitutes. A low σ is desirable from the labors' perspective because it implies a firm cannot replace the labor easily with another factor input.

The value of F_{LK} depends on the shape of the production function, but is always positive under usual production function assumptions. That means we assume that both labor and capital services are supplied elastically to the firm (Hamermesh, 1993:25).

Following Allen (1938), the price elasticity of labor demand with output and r constant is

[2.7]

$$\eta_{LL} = -[1 - s]\sigma < 0$$

where $s = wL/Y$, the share of labor in total revenue. η_{LL} measures the constant-output labor-demand elasticity for homogeneous labor and states how much the amount of labor that is demanded by the firm is reduced if wages increase by one percent while output remains constant.

When the wage rate increases, the cost of producing a given output rises. In a competitive product market, a 1 percent rise in a factor price raises the cost, and eventually product price, by that factor's share. This reduces the quantity of output sold. This is so called the scale effect and it is the factor's share times the product-demand elasticity. To obtain the total demand elasticities for homogeneous labor, scale effects must be added to [2.7.]:

[2.8]

$$\eta'_{LL} = -[1 - s]\sigma - s\eta$$

The term $s\eta$ reflects Marshall's first law of derived demand: Input demand is less elastic when the demand for the product is less elastic.

Equation [2.8] is the fundamental law of factor demand. This law holds in an environment in which constant returns to scale production, and every firm faces the same production function and output demand elasticity (for the case with decreasing returns to scale, see Mosak, 1938). It divides the labor-demand elasticity into substitution and scale effects. The first term, $-[1 - s]\sigma$, is the "substitution effect." It tells, for a given level of output, how much the industry substitutes away from labor for other factors when wages rise. This term $-[1 - s]\sigma$ is often called the constant-output labor-demand elasticity, distinct from the total elasticity η'_{LL} . The second part, $-s\eta$, is the "output effect" or "scale effect." It tells how much labor demand changes after a wage change thanks to the change in the industry's output. Higher (lower) wages imply higher (lower) costs and thus, moving along the product-market demand schedule, lower (higher) industry output. When wages rise, both the substitution and scale effects reduce labor demand. The industry substitutes away from labor for other factors, and with higher costs, the industry produces less output such that it demands less of all factors. Thus, $\eta'_{LL} < 0$, labor demand slopes downward (Slaughter, 2001).

In this study, following Arrow et al. (1961), the constant elasticity of substitution function (CES) will form the basis of our empirical specifications to estimate the labor demand elasticities in the static equilibrium.

The linear homogenous production function is

$$[2.9] \quad Y = [\alpha L^\rho + (1 - \alpha)K^\rho]^{1/\rho}$$

where α and ρ are parameters, $1 > \alpha > 0$, $1 \geq \rho \geq -\infty$.

Marginal products are

$$[2.10] \quad \frac{\partial Y}{\partial L} = \alpha \left(\frac{Y}{L}\right)^{1-\rho}$$

And

$$[2.11] \quad \frac{\partial Y}{\partial K} = [1 - \alpha] \left(\frac{Y}{K}\right)^{1-\rho}$$

Letting the ratio of these equal to the factor-price ratio, taking logarithms, differentiating with respect to $\ln(w/r)$, and making $\sigma \geq 0$, yields:

[2.12]

$$-\frac{\partial \ln (K/L)}{\partial \ln (w/r)} = \sigma = \frac{1}{[1 - \rho]}$$

The CES is sufficiently general that any value of $\rho < 1$ is admissible and σ is free to fluctuate between 0 and ∞ , so that one can infer its size and that of the η_{LL} .

The second approach is based directly on a cost function defined a priori, without specifying the associated production function.

The CES cost function can be derived (Ferguson, 1969) as

[2.13]

$$C = Y[\alpha^\sigma w^{1-\sigma} + [1 - \alpha]^\sigma r^{1-\sigma}]^{1/(1-\sigma)}$$

where, as before, $\sigma = \frac{1}{1-\rho} \geq 0$.

In that case, the demand for labor is

[2.14]

$$L = \frac{\partial C}{\partial w} = \alpha^\sigma w^{-\sigma} Y$$

Taking the ratio of this to the demand for K, the elasticity of substitution can again be shown to be σ .

Taking logarithms yields

[2.15]

$$\ln L = \alpha'' - \sigma \ln w + \ln Y$$

where α'' is a constant. This form is very useful for estimation and it will constitute the basis for our empirical specifications to estimate the labor demand elasticities in the static equilibrium (see Section 5). Therefore, we showed how production theory provides a framework within which empirical research can generate estimates of interested parameters, such as the constant-output demand elasticity for homogeneous labor.

2.2. The Dynamic Theory of Labor Demand

To derive the optimal path of employment adjustment, the standard approach is to solve a dynamic optimization problem where firms maximize the present

discounted value of future profits and face the costs of adjusting the labor input. For tractability, simplifying assumptions for the production technology (e.g., Cobb-Douglas), nature of the product market (e.g., perfect competition), and the expectation generation process (e.g., adaptive expectations) are done. Moreover, labor adjustment costs are commonly assumed to be quadratic in structure. Besides, throughout this subsection, we assume that labor is the only input into production and that worker-hours are equal to employment.

Following these simplification and assumptions, in this subsection, we deal with the dynamics of labor demand and examine how the demand for labor adjusts. To focus on the role of adjustment costs, we assume that employment adjusts toward its static equilibrium value. In addition to that, we assume that employers project an equilibrium level of labor demand, L^* , from the current time through all future time and firms revises their forecasts of L^* and they accept the new forecast is the new permanent value.

We assume that adjustment costs are

[2.16]

$$C(\dot{L}) = a|\dot{L}| + b\dot{L}^2, \quad a, b > 0$$

where \dot{L} represent the change in L_t . According to this assumption, the marginal adjustment cost of a change (a small increase or decrease) in labor demand is

[2.17]

$$a + 2b|\dot{L}|$$

Here, the implicit assumption is that the costs of adjustment stem from the net change in employment.

We assume a fixed product price and all shocks are to wages. The employer aims to maximize

[2.18]

$$\pi = \int_0^{\infty} \{F(L_t) - wL_t - C(\dot{L}_t)\} e^{-rt} dt$$

where F is the production function (with only labor input) and we assume that the employer discounts future profits at a constant rate r . We describe the optimal path by the Euler equation,

[2.19]

$$2b\ddot{L}_t - 2br\dot{L}_t + F'(L_t) - w - ra = 0$$

In the steady state the demand for labor is fixed, that is $\dot{L} = \ddot{L} = 0$. Thus, equilibrium labor demand is determined by

[2.20]

$$F'(L^*) = w + ra$$

That means that the value of the marginal product of labor equals the cost of labor services. However, in this case, that cost includes the amortized cost of increasing or reducing the labor by one worker in addition to the wage.

Following Gould (1968), assuming static expectations about prices and wages, the optimal path of employment is

[2.21]

$$\dot{L}_t = \gamma[L^* - L_t]$$

where γ is the rate at which employment adjusts toward L^* is an implicit function that decreases with the parameter b . This equation may be linked to an empirical specification by turning it in discrete time and putting determinants of L^* :

[2.22]

$$\Delta L_t = \gamma'[G(X_t) - L_{t-1}]$$

where X_t is a vector of determinants of L^* and $G(\cdot)$ is a function that relates L^* with X . If we assume that G is linear and the current values of X are the determinants of L^* , then this equation takes the form of a typical geometric distributed lag which is used in the empirical studies. This simple typical form of estimating equations which measures the lag in response of labor demand to exogenous shocks is

[2.23]

$$L_t = \lambda L_{t-1} + \beta X_t + \epsilon_t$$

where λ and β are parameters, X is a vector of variables that affect long-run equilibrium values of L , and ϵ is a disturbance term. This specification [2.23] is the econometric analog of [2.22]. Here the median length of the lag (the time it

takes the system to move halfway to the eventual equilibria in response to a shock) is obtained by solving for t^* in $\lambda^{t^*} = 0.5$ (for additional explanations, see Section 5).

3. LITERATURE SURVEY

One of the channels through which globalization influences the labor market is the effect on the labor demand elasticity. Dani Rodrik, in his book “Has globalization gone too far?” (1997), was among the first scholars to emphasize the linkage between trade openness and labor demand elasticity and to suggest that a higher responsiveness of labor demand to changes in labor prices might be a direct consequence of international economic integration “regardless of economic structure and the identity of the trade partners” (Rodrik, 1997:26).

As we mentioned in the second section, the total own-price labor demand elasticity is composed of two parts: 1) the scale effect, which explains the employment variation due to the wage-induced change in the demanded output; and 2) the substitution effect, which explains the employment variation due to substitution toward other inputs for constant output. Considering this context, theoretically, trade may influence the total own-price labor demand elasticity via the scale effect due to the increased competition on the output market and/or via the substitution effect generated by modifying the firm production possibility set to include new foreign and domestic inputs, or to increase the efficiency of the existing ones. However, this is valid in a partial equilibrium context.

Panagariya (1999) refers to Leamer (1995), Rodrik (1997), and Wood (1995) that suggest the demand-for-labor curve is more elastic when an economy is open than when it is closed and argues that this proposition is not valid in general equilibrium context. According to the author, this proposition can be violated in both the 2x2 and specific-factors models. Furthermore, Panagariya (1999) argues that many of the results obtained by Rodrik (1997) fail to hold in general when the full structure of the model is spelled out. Thus, within the two most popular models of trade – 2x2 and specific-factors-model - there is no guarantee that openness leads to a greater incidence of higher labor standards being borne by workers or to greater volatility in wage earnings as a consequence of shocks to the economy. Panagariya (1999) also states that it is not true in general that when openness lowers the bargaining power of workers, it contributes negatively to wages. Additionally, he states that in the 2x2 model, the opposite may happen. Therefore, theoretically, Panagariya (1999) shows that Rodrik’s conjecture of a positive effect of globalization on labor demand elasticity is not a general result. So, the validity of this relationship should be determined empirically. However, the results of the empirical literature are inconclusive. In the remainder of this

section, we summarize the evidence for Rodrik's (1997) hypothesis of some core empirical studies from various country cases, developed and developing.

The first paper that provides a very systematic and rigorous empirical investigation of the impact of the hypothesized positive effect of trade on labor demand elasticities is Slaughter (2001). Slaughter (2001) tries to determine whether international trade has been increasing the own-price elasticity of demand for U.S. labor. His two-stage empirical work yields three main results. In the first stage, he finds that from 1961 through 1991 demand for U.S. production labor became more elastic in manufacturing overall and in five of eight industries within manufacturing. However, during this time U.S. non-production labor demand did not become more elastic in manufacturing overall or in any of the eight industries within manufacturing. In the second stage, he regresses estimated elasticities on a set of trade variables and includes industry dummies. Although Slaughter finds many significant coefficients with expected signs, he states that the hypothesis that trade contributed to increased elasticities has mixed support, because, at this point, Slaughter (2001) emphasizes the role of time as a strong predictor of elasticity patterns. That means there is a large unexplained residual for changing factor demand elasticities.

Jean (2000) studies the impact of trade on the price elasticity of aggregate labor demand on the idea that a variation in the cost of labor affects the sectoral trade specialization of an economy, at the expense of domestic productions using this factor intensively, even when the trade balance is kept unchanged. Shortly, this is a focus on the intersectoral dimension of the scale effect. Jean (2000) argues that trade openness induces an increase in the associated labor-demand elasticity, at least if the country has a comparative disadvantage in the industries using intensively the type of labor considered. He illustrates this argument with a simple model, based on an Armington hypothesis, with an empirical assessment of France. Jean shows that, for France, trade openness can have a significant effect on labor demand elasticities with this mechanism.

Krishna et al. (2001) test the idea that trade liberalization will lead to an increase in labor-demand elasticities using Turkish plant-level data spanning the course of a dramatic trade liberalization. They estimate a labor demand equation in which the wage variable interacts with the liberalization dummy to capture the effects of changes in trade policy. However, they are unable to find any empirical support for this supposed theoretical link. In most of the industries they consider, they cannot reject the hypothesis of no relationship between trade openness and labor-demand elasticities.

Bruno et al. (2001) emphasize the effect of globalization on the labor demand elasticity as a channel through which globalization affects the labor market. They

suggest that trade induces an increase in the labor demand elasticity via a scale effect due to the increased competition on the output market and/or via a substitution effect generated by expanding the firm production possibility set to include additional inputs. However, their focus is centered on the latter of transmission. They get a labor demand equation from the solution of a firm's cost minimization problem. Empirically, they estimated the labor demand using a panel from many industrialized countries, including some major EU countries, Japan, and the US for the period between 1970 and 1996. As a result, they do not find any significant substitution effect of trade on labor demand elasticity, except in France.

Kizilirmak and Sahin (2003) attempt to estimate labor demand elasticities of both production and non-production workers and their relations with openness in the Turkish manufacturing industries. For these purposes, they estimate dynamic labor demand functions using the Arellano-Bond dynamic panel data estimator. They use annual panel data at the 4-digit industry level that span the years 1988-1998 in estimations. Their results, the signs, and the sizes of the estimated elasticities are consistent with the literature.

Using industry-level data disaggregated by states, Hasan et al. (2003) find a positive impact of trade liberalization on labor-demand elasticities in the Indian manufacturing sector. In addition to that, they indicate that these elasticities turn out to be negatively related to protection levels that vary across industries and over time. Furthermore, they find that these elasticities are not only higher for Indian states with more flexible labor regulations, but they are also impacted to a larger degree by trade reforms. Finally, they find that after the reforms, volatility in productivity and output gets translated into larger wage and employment volatility. They think that this is a theoretically possible consequence of larger labor-demand elasticities.

Haouas and Yagoubi (2004) investigate the effects of trade liberalization on labor demand elasticities. They estimate employment demand equations using data from 1971-1996 for manufacturing industries in Tunisia. According to their results, they find weak support for the idea of assuming that trade liberalization will lead to an increase in labor demand elasticities. In the vast majority of the industries they consider, they cannot reject the hypothesis of no relationship between trade openness and labor-demand elasticities. The authors explain this weakness of labor demand elasticity by the tight labor market regulations in place during the years 1987-96. Additionally, they indicate that their results are robust to the type of labor considered (contract labor and permanent labor), and they argue that this supports the conclusion that in liberalization periods labor markets

have become more flexible and that employers prefer employing contract workers.

Riihimäki (2005) investigates the effects of economic integration on the elasticity of labor demand with its price. In a general theoretical model of intra-industry trade, the author analyzes how economic integration changes the labor demand elasticity. She shows that intensified trade competition increases the labor-demand elasticity, whereas better advantage of economies of scale decreases the elasticity of labor demand by decreasing the elasticity of substitution between differentiated products. Riihimäki (2005) tests the idea of whether European integration has changed the labor demand elasticities in Finland using data from the manufacturing sector for the period between 1975 and 2002. The results of that paper provide support for the hypothesis that economic integration has contributed to increased elasticities of total labor demand.

Bruno et al. (2005) estimate a dynamic labor demand equation using a small unbalanced panel data set of Italian manufacturing sectors. Their estimated long-run and short-run labor demand elasticities are in line with the ranges indicated in Hamermesh (1993). Additionally, they find that the magnitudes of these elasticities are not positively affected by measures of sectoral international exposure. They interpret this as a rejection of Rodrik's (1997) conjecture for Italy.

Fajnzylber and Maloney (2005) address the thought that trade liberalization results in higher own-wage elasticities of labor demand, particularly for unskilled labor, with adverse implications for both labor market volatility and wage dispersion. However, they argue that theoretically, the link between liberalization and labor-demand elasticities is less clear than has previously been asserted. Then they use dynamic panel techniques to estimate labor-demand functions for manufacturing establishments in Chile, Colombia, and Mexico across periods of trade policy reform. Their results do not strongly support the hypothesis that trade liberalization has a direct impact on own-wage elasticities, there appears only very mixed support and no consistent patterns.

Akhter and Ali (2007) explore the linkage of trade liberalization and labor demand elasticities. They use Pakistan firm-level data and try to determine whether the trade liberalization increases the own price labor demand elasticities in the manufacturing sector of Pakistan. They calculated elasticities for production and non-production workers for the major eleven industries at the individual level and then they calculated the elasticities by pooling data across the industries at the aggregate level. They conclude that trade liberalization has neither a positive nor negative impact on labor demand in the manufacturing sector of Pakistan.

Goldar (2008) tests the hypothesis that trade liberalization raises labor demand elasticity for Indian industries using the Annual Survey of Industries data for 1980-81 to 1997-98 and analyzes the trends in the elasticity using data for 1973-74 to 2003-04. The econometric results of Goldar (2008) corroborate the findings of a similar study undertaken by Hasan et al. (2003) and indicate that trade liberalization has a positive effect on the labor demand elasticity in Indian industries. However, Goldar (2008) finds that the estimated elasticity for the post-reform period is lower than that for the pre-reform period. The closer examinations of the author show that a downward trend in the labor demand elasticity in Indian industries in the pre-reform period reversed after the mid-1990s. The author attributes the increase in the elasticity after the mid-1990s to trade liberalization and he also adds that other factors such as the weakening of trade union power may have also contributed to that increase.

Rich (2010) provides a link between long-standing labor demand elasticity estimates in U.S. manufacturing and recent studies of wage patterns and labor demand shifts in response to technical change and international trade. He documents asymmetric changes in labor demand elasticities including an absolute and relative increase in own-wage elasticity of labor demand for production workers. According to his separate estimates of substitution and scale responses imply that skill-biased technical change dominates increased product market competition as a source of the observed changes in labor demand elasticity.

Yasmin and Khan (2011) investigate trade-labor market linkages in Pakistan. Their main hypothesis that trade liberalization leads to an increase in labor demand elasticity is empirically verified using a panel data approach for the period 1970/71-2000/01 for 22 selected manufacturing industries in Pakistan. They use ordinary least squares (OLS) to estimate models in levels and first-differences, in addition to a fixed effects model. Overall, their findings suggest weak evidence of increased labor demand elasticity as a result of trade liberalization in Pakistan's manufacturing sector.

Nazier (2012) aims to investigate the impact of trade liberalization on the labor market in Egypt and attempts to empirically examine the effect of the Egyptian trade reforms, initiated in 1991, on labor demand elasticities in the Egyptian manufacturing sector, using a panel data approach for the years from 1989-90 to 2009-2010. According to the findings of Nazier (2012), the Egyptian case does not support the theoretical hypothesis that total labor demand elasticities increase with trade openness.

Mouelhi and Ghazali (2012) divide labor into skilled and unskilled categories to analyze the effects of trade policies on labor demand elasticities by skill in Tunisia. They use dynamic panel techniques to estimate a model of employment

determination, which incorporates the effects of trade and takes into account the delay of labor adjustment. Their database covers 529 Tunisian firms from 6 manufacturing sectors over the period 1997-2002. Their results suggest that a decrease in trade protection in Tunisia increases the elasticity of unskilled labor demand while it contributes to the decrease in the elasticity of skilled labor demand.

Wei et al. (2012) analyze the impact of services trade on the labor-demand elasticities of the service sector with the data of China from 1982 to 2009. They find that China's services export distinctly impacts the labor demand elasticities of the service sector. However, they note that in the long run, they cannot reject the hypothesis of no relationship between service import openness and the labor demand elasticities of the service sector. Whereas, for the short term, they state that trade liberalization of services import does affect the service sector labor demand elasticity weakly.

Njikam (2013) investigates the impact of trade and foreign direct investment on labor adjustment and labor demand elasticities in Cameroonian manufacturing sector. Using firm-level data pooled across sectors, Njikam (2013) finds that trade openness leads to faster adjustment of different labor inputs with a higher speed for unskilled workers. However, the author concludes that tariff liberalization does not have any statistically significant effects on labor-demand elasticities. But Njikam (2013) finds strong evidence for the impact of imports on skilled-labor-demand elasticity when tariffs are replaced with import-penetration ratios. This paper also finds strong evidence that FDI inflows strongly increase unskilled-labor-demand elasticity.

Lichter et al. (2013) reemphasize the relationship that globalization increases the volatility of employment and decreases the bargaining power of workers. They argue that the long-standing Hicks-Marshall law of derived demand is a mechanism explaining this relationship: with international trade increasing competition and therefore the price elasticity of product demand, exporters are predicted to have higher labor demand elasticities. They test this relationship empirically by analyzing the effects of exporting on firms' labor demand. Their results show that exporting has a positive and significant effect on the own-wage elasticity of unconditional labor demand, due to higher price elasticities of product demand.

Mahomedy (2013) uses an industry-level panel dataset covering the South African manufacturing sector spanning a period of over three decades to empirically test the relationship between trade openness and labor demand elasticities. Mahomedy (2013) finds only limited empirical support for the hypothesis of a positive and significant impact of trade liberalization on labor

demand elasticities. He finds that whilst labor demand appears to have become more elastic for manufacturing overall and in one of ten sectors within manufacturing, this result fails to hold for any of the other industries examined by the author.

Cherkashin (2013) asks whether a greater degree of integration into world markets leads to a more elastic labor demand which is referred to as the Rodrik (1997) hypothesis. He investigates this hypothesis by using a unique firm-level panel data set for Russian manufacturing firms during a period of significant and rapid currency devaluation. Since this devaluation made imports of final and intermediate goods more expensive while making Russian exports less expensive, it was like a tariff on imports and a subsidy on exports. Then with a simple but revealing model, he specifies the implications of devaluation for the labor demand and derives a set of testable predictions. Using the data to test these predictions, Cherkashin (2013) shows that trade barriers affect labor demand elasticities. According to the results of the study, a 15-30% drop in labor demand elasticity can be attributed to the devaluation.

Sato and Zhu (2014) examine the effects of input and output tariff reductions on labor demand elasticities at the firm level. For this purpose, they consider a simple heterogeneous firm model in which firms are allowed to export their products and use imported intermediate inputs. The model they used predicts that only productive firms can use imported intermediate inputs and tend to have larger constant-output labor demand elasticities. Additionally, they state that input tariff reductions would lower the factor shares of labor for these productive firms and raise conditional labor demand elasticities further. They test these empirical predictions, constructing Chinese firm-level panel data over the 2000-2006 period and controlling for potential tariff endogeneity by instruments, their empirical results generally support these predictions.

4. DATA AND OPERATIONAL SAMPLE

The data sets used in this study fundamentally depend on the data sources of the Turkish Statistical Institute, henceforth TurkStat (www.turkstat.gov.tr). National accounts, foreign trade statistics, labor force statistics (employment, unemployment, and wages), prices (producer price indices), and the statistics for industry are all recompiled from the TurkStat.

The focus of the empirical study in this study is the demand side of the labor market of the manufacturing sector in the 2000s. So, we pay more attention to the annual industry and service statistics of TurkStat. These statistics are the outcomes of establishment-based field surveys in which the data have been collected by face-to-face methods. The statistical classification of economic

activities in this data set is based on the nomenclature of economic activities in the European Union (NACE) Rev. 1.1 classification for the years between 2003 and 2008. Since 2009, the classification of establishments by type of economic activity has been determined following the Statistical Classification of Economic Activities in the European Community (NACE Rev. 2).

Our analyses aim to cover the manufacturing sector as a whole, at the first step. Our observational level is establishments. So, we will study with a 4-digit level. Since the micro data set in our hand covers the years 2003-2008 and 2009-2011, the period in our analyses needs to be limited to 2003-2011, but there are missing data problems in the 2003 and 2004 data, so we limit our time interval with 2005-2011.

Our focus questions in these surveys are about employment, hours worked, and payments in the establishment. Employment data are collected four times a year (February, May, August, and November) for employees and owners, shareholders, and unpaid family workers. The arithmetic average of them gives the annual average employment number. These employment levels are calculated for both males and females. Besides average number of employees in manufacturing if manufacturing activity is conducted within the establishment and the annual average number of employees of the subcontractor if the establishment employs other establishments' personnel as subcontractors are asked to the establishments in the questionnaire form.

Moreover, some kind of personnel is asked in that survey according to their qualifications. For instance, the number of R&D personnel, number of paid apprentices and trainees, number of part-time employees, and number of paid home workers listed in the payroll are given in the data set.

If total paid hours worked can be calculated for the establishment, then data about total paid hours worked in the year is also given. If total paid hours worked cannot be calculated, just the working hours of one paid employee per week are asked of the establishments.

Payments to employees part of the survey is divided by gross payments to personnel (employers' contributions to social security and compensations excluded), social security contributions of the employer (only employers share), denunciation compensation, and seniority compensation. The sum of these payments and compensations gives the total personnel cost.

To sum up, the first micro data set that we used is from Annual Industry and Service Statistics and covers the years between 2005 and 2011. Our observational level is at establishments with 4-digit NACE Rev. 2 classification. We deal with establishments employing 20 or more employees and we are trying to form a

balanced panel following the establishments continue their production activities during the sample period.

The second micro data set we used is from Foreign Trade Statistics. It is an annual data set and covers the import and export activities of firms at the product level. We combine this data set with data set from Annual Industry and Service Statistics to observe the international trade activities of each establishment.

4.1. Construction of the Panel Data

We append annual cross-sections of microdata of Structural Business Surveys to construct panel data for our empirical analyses. To that end, we make use of the *id* variable as a panel variable given in the data sets which identifies each establishment. Also, we create *year* variables as a time variable within each cross-section to attribute each year to the annual characteristics (rows) of establishments in that year.

Our panel data includes the year-groups between 2003-2008 and 2009-2011. And we focus on the establishments whose dominant economic activities are in manufacturing. The classification of economic activity for each establishment is defined at a 4-digit level in the micro data. While the NACE Rev 1.1 classification is valid for the years between 2003 and 2008, the NACE Rev 2 classification is valid for the years 2009, 2010, and 2011. Moreover, we have a continuous series for the NACE Rev.2 classification during the period between 2003 and 2011.

Each year some establishments enter into the panel and some establishments exit from the panel. To form a balanced panel data, we follow the establishments which continued their economic activities permanently during our analysis period (2005-2011). Otherwise, we get an unbalanced panel if we do not consider the continuity of firms.

After appending the annual cross-sections, we get a *balanced* panel data set which will constitute the basis of our empirical analyses. In the second step, we merge the micro data of Annual Industry and Service Statistics with the micro data of Foreign Trade Statistics micro data and we deflated all nominal variables with the sectoral producer price index (PPI) at NACE Rev.2 level. Therefore, all trade variables (export, import, total trade volume, imported intermediate input) are calculated at the establishment level.

4.2. Operational Sample

Following the above explanations with the data sets, our operational sample covers the manufacturing establishments at a 4-digit level (NACE Rev.2) between the years 2005 and 2011. In our balanced panel data set, we have 9,342 establishments for each year and so, in total for 7 years (2005-2011) we have

65,394 observations. The descriptive statistics of some selected variables for this operational sample and for other alternative samples are presented in the tables in the appendices (see Table A1). In Table A2, we dig deeper into our operational sample and present some statistics of the main variables in our analysis for different subsamples of our operational sample. In Table A3, the summary statistics of the variables in our operational data set are presented.

5. EMPIRICAL SPECIFICATIONS AND METHODOLOGY

5.1. Empirical Specifications

As we have broadly explained in the theoretical background section (see Section 2), according to the basic neoclassical model, labor demand is determined by labor costs and output level. Following the last form at the end of the first subsection within the theoretical background section (see Equation 2.15), it can be simply formulated as follows:

[5.1]

$$L = f(w, Y)$$

where L stands for labor demand, and w and Y represent the labor costs and output level, respectively. Accordingly, labor demand depends on the wage level and economic growth. While an increase (decrease) in labor costs causes a decrease (increase) in labor demand, an increase (decrease) in economic growth leads to an increase (decrease) in labor demand. In other words, labor demand has a negative relationship with labor costs, but a positive relationship with economic growth. Our static and dynamic baseline empirical specifications below are based on this basic structure.

5.1.1. Baseline Specifications

Following the basic structure abovementioned, the baseline empirical specification in the static sense is:

[5.2]

$$\ln L_{i,t} = \alpha_{i,t} + \beta_1 \ln w_{i,t} + \beta_2 \ln Y_{i,t} + \varepsilon_{i,t}$$

where $\ln L$ is the employment (in logarithm), $\ln w$ is the real total labor cost including gross wages and non-wage costs paid by the employer (in logarithm), $\ln Y$ is the real output (in logarithm), and the error term, ε , consists year-specific effects, establishment fixed effects and independent and identically distributed (i.i.d.) random error term. The subscripts i and t represent the cross-section and time, respectively. Sectoral producer price index (PPI) is used to deflate the

nominal variables while transforming these variables into real variables. To avoid a bias and identification problem, we need to add relevant exogenous variables (Z) into this specification:

$$[5.3] \quad \ln L_{i,t} = \alpha_{i,t} + \beta_1 \ln w_{i,t} + \beta_2 \ln Y_{i,t} + \gamma Z_{i,t} + \varepsilon_{i,t}$$

where Z consists of international trade-related explanatory variables parallel with our research aim emphasized at length in the introduction section. The choice of these variables will be explained in the next subsection.

If we write down the same empirical specification in a dynamic sense based on the theoretical form mentioned at the end of the second subsection of the theoretical background section (see Equation 2.23):

$$[5.4] \quad \begin{aligned} \ln L_{i,t} = & \alpha_{i,t} + \delta \ln L_{i,t}(-1) + \beta_1 \ln w_{i,t} + \beta_1' \ln w_{i,t}(-1) + \beta_2 \ln Y_{i,t} \\ & + \beta_2' \ln Y_{i,t}(-1) + \gamma_k Z_{i,t} + \varepsilon_{i,t} \end{aligned}$$

where the first lags of employment, labor costs, and output are added into the specification.

So far, we directly added exogenous variables into the specifications in an additive manner. These specifications provide us with an understanding of the effects of these exogenous variables on labor demand as labor demand shifters. However, to understand the effects of these variables on the labor demand elasticities (on wage elasticity and output elasticity), we also need to add these variables interactively. The static and dynamic specifications with interactively added exogenous variables may be formulated as:

$$[5.5] \quad \ln L_{i,t} = \alpha_{i,t} + \beta_1 \ln w_{i,t} + \beta_2 \ln Y_{i,t} + \gamma Z_{i,t} + \beta_3 Z_{i,t} \ln w_{i,t} + \beta_4 Z_{i,t} \ln Y_{i,t} + \varepsilon_{i,t}$$

$$[5.6] \quad \begin{aligned} \ln L_{i,t} = & \alpha_{i,t} + \delta \ln L_{i,t}(-1) + \beta_1 \ln w_{i,t} + \beta_1' \ln w_{i,t}(-1) + \beta_2 \ln Y_{i,t} \\ & + \beta_2' \ln Y_{i,t}(-1) + \gamma_k Z_{i,t} + \beta_3 Z_{i,t} \ln w_{i,t} + \beta_3' Z_{i,t} \ln w_{i,t}(-1) \\ & + \beta_4 Z_{i,t} \ln Y_{i,t} + \beta_4' Z_{i,t} \ln Y_{i,t}(-1) + \varepsilon_{i,t} \end{aligned}$$

where exogenous variables (Z) are both additively and interactively (with labor cost and output variables) specified.

5.1.2. Specifications for International Trade

Empirical specifications to estimate the labor demand function considering the effects of international trade on both labor demand and labor demand elasticities are designed similarly to the baseline specifications mentioned in the previous subsection. The focus of these estimations is to choose the exogenous variables which are added to the specifications. As explanatory variables, with available variables in the dataset, total trade volume, total export volume, total import volume, export share, and import share in total trade (extensive margin), and trade dummies (for trading firms, export and/or import) are used in the estimations.

5.1.3. The Long-Run Wage Elasticity of Labor Demand

The calculations of the long-run own-wage elasticities of labor demand are based on a standard procedure as the sum of the coefficients on the contemporaneous and lagged wage variable is divided by 1 minus the coefficient on lagged employment. For the base specification in the dynamic format [5.4], we calculate the long-run wage elasticity of labor demand as follows:

[5.11]

$$\eta_{long-run} = \frac{(\beta_1 + \beta_1')}{(1 - \delta)}$$

5.1.4. Half-Life of the Adjustment of Labor Demand

The calculation of the half-life of adjustment is based on the ratio of the log of one-half to the log of the estimated lagged employment coefficient (Hamermesh, 1993). In other words, the median length of the lag, the time it takes the system to move halfway to the eventual equilibria in response to a shock, is obtained by solving for t^* in $\delta^{t^*} = 0.5$. By formula, it can be formulated as follows:

[5.12]

$$t^* = \frac{\ln(0.5)}{\ln(\delta)}$$

5.2. Methodology

In this second subsection, the econometric methodology employed in our empirical work is summarized to provide a background for the empirical analyses conducted in the next section. Since the data set (described in the previous subsection) used in the analyses is in the form of panel data (also called longitudinal data or cross-sectional time series data), the panel data models are used and presented in that subsection. These models are appropriate ones as the

data consists of the pooling of observations on a cross-section of establishments within the manufacturing sector of Turkey over the period of 2005-2011. Additionally, the data set used is balanced because observations for the same periods (in our case, years) are available for all cross-section units.

5.2.1. The Static Linear Panel Data Estimation

The typical panel data model can be formulated as follows:

[5.13]

$$y_{it} = \alpha + \beta X_{it} + u_{it}$$

where i denotes the cross-section dimensions such as households, individuals, firms, countries, etc. and t denotes the time series dimension such as years, months, days, hours, etc. α is a scalar, β is the coefficient of the explanatory variable and u_{it} is the disturbance term. As stated by Baltagi (2005), most of the panel data applications utilize a one-way error component model for the disturbances:

[5.14]

$$u_{it} = \mu_i + v_{it}$$

where μ_i denotes the unobservable individual-specific effect and v_{it} denotes the remainder disturbance.

The assumptions on μ_i are critical to determine which model will be chosen among fixed effects and random effects models. In the case of the fixed effects model, the μ_i are assumed to be fixed parameters to be estimated and the remainder of disturbances stochastic with v_{it} independent and identically distributed $IID(0, \sigma_v^2)$. Besides, the X_{it} are assumed independent of the v_{it} for all i and t . However, to avoid the loss of degrees of freedom, the μ_i can be assumed random as in the case of the random effects model. Additionally, $\mu_i \sim IID(0, \sigma_\mu^2)$, $v_i \sim IID(0, \sigma_v^2)$ and the μ_i are independent of the v_{it} . Moreover, the X_{it} are independent of the μ_i and v_{it} , for all i and t .

Baltagi (2005) states that the fixed effects model is an appropriate specification if the focus is on a specific set of N firms and inference is restricted to the behavior of these sets of firms. On the other hand, the random effects model is an appropriate specification if N individuals are being drawn randomly from a large population.

Fixed-effects model explores the relationship between dependent and independent variables within an entity (in our case the establishments in the

Turkish manufacturing sector). Each establishment may have its characteristics that may or may not influence the explanatory variables. By the fixed effects model, we assume that time-invariant characteristics are unique to the individual establishments and should not be correlated with other individual characteristics. That means the error terms of each entity must not be correlated with the others. Therefore, the fixed effects model controls for time-invariant differences between the individuals which means the estimated coefficients of the model cannot be biased due to omitted time-invariant characteristics. On the other hand, the random effects model implies the variation across establishments is assumed to be random and uncorrelated with the explanatory variables included in the model. That means the random effects model assumes that each establishment's error term is not correlated with the explanatory variables which allows for time-invariant variables to play a role as explanatory variables.

The next step is to decide on which model will be used to estimate the static models given in the preceding subchapter. To do this, the Hausman (1978) specification test is employed to choose the appropriate model for estimations. To conduct the Hausman specification test, first, the fixed effects model is run and the results are saved, then secondly the random effects model is run and the results are saved. Finally, the Hausman specification test is carried out. The hypotheses of the Hausman specification test are as follows:

H_0 : Error terms are not correlated with the regressors.

H_A : H_0 is not true.

or alternatively:

H_0 : The random effects model is appropriate.

H_A : The fixed effects model is appropriate.

5.2.2. The Dynamic Linear Panel Data Estimation

The labor demand (or employment) issue dealt with in this study is dynamic by nature. This dynamic relationship is characterized by the presence of a lagged dependent variable among the regressors. So, linear dynamic panel-data models include p-lags of the dependent variable as covariates and contain unobserved panel-level effects, fixed or random. The basic dynamic linear model (one-way error component model) may be formulated as follows:

[5.15]

$$y_{it} = \delta y_{i,t-1} + \beta x_{it} + u_{it}$$

where $i = 1, \dots, N$; $t = 1, \dots, T$ and $u_{it} = \mu_i + v_{it}$ with $\mu_i \sim IID(0, \sigma_\mu^2)$ and $v_{it} \sim IID(0, \sigma_v^2)$.

By construction, the unobserved panel-level effects are correlated with the lagged dependent variables, making standard estimators biased and inconsistent. Because of the lagged variable, OLS is biased and inconsistent, even if the v_{it} are not serially corrected. That is why y_{it} is a function of μ_i , so is $y_{i,t-1}$. The fixed effects estimator is biased but consistent for $T \rightarrow \infty$. Although the transformation wipes out the μ_i , the problem continues because $y_{i,t-1}$ is still correlated with the \bar{v}_i by construction. The random effects estimator is also biased, because $(y_{i,t-1} - \theta \overline{y_{i,t-1}})$ will be correlated with $(u_{it} - \theta \overline{u_{i,t-1}})$.

Anderson and Hsiao (1981, 1982) propose using further lags of the level or the difference of the dependent variable to instrument the lagged dependent variables that are included in a dynamic panel-data model after the panel-level effects have been removed by first-differencing. But this proposed method leads to consistent but not necessarily efficient estimates because it does not make use of all available moment conditions and it does not take into account the differenced structure on the residual disturbances Δv_{it} . Arellano and Bond (1991) build upon this idea by noting that, in general, there are many more instruments available and then propose a more efficient estimation procedure. Arellano and Bond (1991) argue that the Anderson-Hsiao estimator, while consistent, fails to take all of the potential orthogonality conditions into account. In other words, they argue that additional instruments can be obtained if one utilizes the orthogonality conditions that exist between lagged values of y_{it} and v_{it} . Therefore, the key aspect of the Arellano and Bond (1991) strategy, echoing that of Anderson and Hsiao, is the assumption that the necessary instruments are "internal": that is, based on lagged values of the instrumented variable(s). The estimators allow the inclusion of external instruments as well.

Building on Holtz-Eakin, Newey, and Rosen (1988) and using the GMM framework developed by Hansen (1982), Arellano and Bond (1991) identify how many lags of the dependent variable, the predetermined variables, and the endogenous variables are valid instruments and how to combine these lagged levels with first differences of the strictly exogenous variables into a potentially large instrument matrix. Using this instrument matrix, Arellano and Bond (1991) derive the corresponding one-step and two-step GMM estimators, as well as the robust VCE estimator for the one-step model. They also found that the robust two-step VCE was seriously biased. However, Windmeijer (2005) worked out a bias-corrected (WC) robust estimator for VCEs of two-step GMM estimators. The test of autocorrelation of order m and the Sargan test of overidentifying restrictions are also derived by Arellano and Bond (1991).

The approach of Arellano and Bond (1991), and its extension to the "System GMM" context, is an estimator designed for situations with:

- small T, large N panels: few periods and many individual units.
- a linear functional relationship
- one left-hand variable that is dynamic, depending on its past realizations
- right-hand variables that are not strictly exogenous: correlated with past and possibly current realizations of the error
- fixed individual effects, implying unobserved heterogeneity
- heteroskedasticity and autocorrelation within individual units' errors, but not across them

To sum up, Arellano and Bond (1991) derived a consistent generalized method of moments (GMM) estimator for the parameters of this model. This estimator is designed for datasets with many panels and few periods, and it requires that there be no autocorrelation in the idiosyncratic errors.

6. EMPIRICAL FINDINGS

In this section, we will summarize the findings of our empirical works and try to determine whether international trade has altered the labor demand elasticities of the Turkish manufacturing sector for the period between 2005 and 2011. The findings presented in Table 1 are the estimation results of the empirical models which are interactively specified as formulated in (5.5) and estimated with the two-way fixed effects estimator. Other estimation results presented in Table 2 are the findings for the dynamic model which is additively specified as formulated in (5.4) and estimated with Arellano-Bond linear dynamic panel data estimator. All estimations are done with STATA 12.

In the results of the static estimation (Table 1), different models (headlines ranging from "base_1_a" to "base_1_p") are specified interactively between the main variables (labor costs and value-added) in our baseline specification and other international trade-related explanatory variables we are interested in this study. In these regressions, the dependent variable is the log of paid employees (lnPaidL), and the main independent variables are the log of real average labor cost (lnravgLC) and the log of real value-added (lnrVA). As the international trade-related variables, we use the log of real total trade volume (lnrT), the share of total trade in the production value (TRatio_2), the log of real export volume (lnrX), the log of real import volume (lnrM), the share of export volume in the total trade volume (XRatio), the share of export volume in the total value-added (XRatio2), the share of export volume in the production-value (XRatio3), the share of import volume in the total trade volume (MRatio), the share of import volume in the total value-added (MRatio2), the share of import volume in the

production value (MRatio3), and the dummy variables which take the value of 1 if the establishment is trading (TDummy), or if the establishment is exporting (XDummy), or if the establishment is importing (MDummy), otherwise 0. To control for the time-invariant unobserved effects we also added the year dummies for the 2006-2011 period. For the unobserved heterogeneity among establishments, we employed the fixed effects model, so we aim to capture both effects.

According to the results of Table 1, the total international trade volume of the establishments significantly affects both the wage elasticity and output elasticity of labor demand. However, international trade does not significantly increase the labor demand as a shifter. The effect of export volume is significant on the wage elasticity of labor demand. Moreover, an increase in the share of export volume in the value-added alters both the wage elasticity and output elasticity of labor demand. It also significantly shifts the labor demand positively. The same is valid for the ratio of imports in the value-added. It also increases the labor demand and alters the labor demand elasticities. Other findings with remaining international trade-related explanatory variables do not give significant results as shown in Table 1.

For the dynamic estimation, we add a new variable defined as the share of imported intermediate input in total import volume (IntImpShare). According to the estimation results presented in Table 2, a 1 percentage increase in the share of imported intermediate input in total import volume significantly decreases the labor demand by 3 percentages. This result implies that the substitution of domestic labor with foreign ones via importing intermediate inputs for production decreases the labor demand incentives of importer establishments in the Turkish manufacturing sector.

Additionally, Table 3 summarizes the estimated labor demand elasticities including the long-run labor cost elasticity and long-run output elasticity. Besides, Table 3 provides the calculation results of the half-life of the adjustment for labor demand.

Table 1. Results for the Static Estimation (Two-Way Fixed Effects Model)

Variable\	base_1_a	base_1_b	base_1_c	base_1_d	base_1_e	base_1_f	base_1_g	base_1_h
lnavgLC	-.187***	-.29***	-.152***	-.267***	-.285***	-.294***	-.289***	-.289***
lnVA	.134***	.257***	.218***	.156***	.246***	.265***	.259***	.245***
lnT	-.00374							
c.lnT#								
c.lnavgLC	-.00704***							
c.lnT#								
c.lnVA	.00706***							
2006	.0268***	.0383***	.0269***	.0228***	.0295***	.0375***	.0384***	.0295***
2007	.0946***	.103***	.0994***	.0933***	.098***	.102***	.103***	.098***
2008	.126***	.136***	.134***	.123***	.131***	.135***	.136***	.131***
2009	.0771***	.0867***	.083***	.0828***	.0829***	.0861***	.0867***	.0829***
2010	.14***	.148***	.152***	.146***	.15***	.146***	.148***	.15***
2011	.162***	.171***	.181***	.167***	.177***	.169***	.171***	.177***
TRatio_2	.0341							
c.TRatio_2#								
c.lnavgLC	-.00854							
c.TRatio_2#								
c.lnVA	.0049							
lnX		.0911***						
c.lnX#								
c.lnavgLC	-.00991***							
c.lnX#								
c.lnVA	.00116							
lnM		-.0358*						
c.lnM#								
c.lnavgLC	-.0017							
c.lnM#								
c.lnVA	.00577***							
XRatio		.0225						
c.XRatio#								
c.lnavgLC	-.00336							
c.XRatio#								
c.lnVA	-.00129							
XRatio2		.00338***						
c.XRatio2#								
c.lnavgLC	-.0006***							
c.XRatio2#								
c.lnVA	.00035***							
XRatio3		.306**						
c.XRatio3#								
c.lnavgLC	-.023							
c.XRatio3#								
c.lnVA	-.00536							
MRatio		-.0225						
c.MRatio#								
c.lnavgLC	.00336							
c.MRatio#								
c.lnVA	.00129							
_cons	3.66***	3.19***	2.4***	4.19***	3.42***	3.14***	3.16***	3.44***
N	49458	64698	40039	42648	49458	64698	64698	49458
F	1543	2097	1173	1293	1435	2130	2095	1435

r2	.292	.294	.284	.29	.277	.297	.294	.277
Variable	base_1_i	base_1_j	base_1_k	base_1_l	base_1_m	base_1_n	base_1_o	base_1_p
lnravgLC	-.297***	-.291***	-.296***	-.304***	-.303***	-.292***	-.293***	-.283***
lnrVA	.273***	.256***	.258***	.264***	.257***	.259***	.26***	.256***
2006	.0369***	.0382***	.0382***	.0382***	.0383***	.0385***	.0385***	.0386***
2007	.101***	.103***	.103***	.103***	.103***	.103***	.102***	.104***
2008	.134***	.136***	.136***	.136***	.136***	.137***	.135***	.137***
2009	.0835***	.0877***	.0866***	.0866***	.0881***	.087***	.0864***	.0878***
2010	.145***	.148***	.147***	.148***	.148***	.148***	.147***	.149***
2011	.167***	.171***	.171***	.171***	.171***	.171***	.17***	.172***
MRato2	.0132***							
c.MRato2#								
c.lnravgLC	-.00186***							
c.MRato2#								
c.lnrVA	.00054***							
MRato3		-.179						
c.MRato3#								
c.lnravgLC		-.00568						
c.MRato3#								
c.lnrVA		.0204***						
TDummy								
1		.0383						
TDummy#								
c.lnravgLC								
1		.00583						
TDummy#								
c.lnrVA								
1		-.00328						
XDummy								
1		.00882						
XDummy#								
c.lnravgLC								
1		.0181*						
XDummy#								
c.lnrVA								
1		-.01***						
MDummy								
1								
MDummy#								
c.lnravgLC								
1		.0152						
MDummy#								
c.lnrVA								
1		-.00055						
acenta_gider					4.43*			
c.								
acenta_gider#								
c.lnravgLC					.209			
c.								
acenta_gider#								
c.lnrVA					-.486***			
taseron_gi-r						448		
c.								
taseron_gi-r#								
c.lnravgLC					.114			
c.								
taseron_gi-r#								
c.lnrVA					-.119***			
fason_gider						1.56***		
c.								
fason_gider#								
c.lnravgLC						-.346***		
c.								
fason_gider#								
c.lnrVA						.113***		
_cons	3.03***	3.21***	3.21***	3.22***	3.29***	3.2***	3.2***	3.16***
N	64698	64698	64698	64698	64698	64698	64698	64698
F	2210	2099	2117	2107	2121	2097	2097	2101
r2	.305	.294	.296	.295	.297	.294	.294	.295

Legend: * p<0.05; ** p<0.01; *** p<0.001

Table 2. Results for the Dynamic Estimation (Arellano-Bond Linear Dynamic Panel Data Estimator)

```

note: _Iyear_2011 dropped from div() because of collinearity
note: _Iyear_2006 dropped because of collinearity

Arellano-Bond dynamic panel-data estimation      Number of obs      =
28767
Group variable: id                             Number of groups   =
6108
Time variable: year
Obs per group:  min =
1
                                avg =
4.218566
                                max =
5

Number of instruments =      27                Wald chi2(12)      =
5971.40
                                Prob > chi2         =
0.0000
One-step results
-----
      lnPaidL |      Coef.   Std. Err.      z    P>|z|    [95% Conf.
Interval]
-----+-----
      lnPaidL |
      LL. |      .7084413   .0275348    25.73   0.000    .6544742
      .7624085
      lnragvLC |
      --. |      -.2634     .0073936   -35.63   0.000    -.2778911 -
      .2489088
      LL. |      .1154571   .0098093    11.77   0.000    .0962313
      .1346829
      lnrVA |
      --. |      .1209546   .0038139    31.71   0.000    .1134796
      .1284296
      LL. |      -.0156396   .0050975    -3.07   0.002    -.0256306 -
      .0056487
      IntImpShare |
      --. |      -.0332149   .006795     -4.89   0.000    -.0465329 -
      .019897
      LL. |      -.0131136   .0065477    -2.00   0.045    -.0259469 -
      .0002803
      _Iyear_2007 |      .0240272   .0040395     5.95   0.000     .01611
      .0319444
      _Iyear_2008 |      .0087922   .0050324     1.75   0.081    -.0010711
      .0186596
      _Iyear_2009 |      -.0810737   .0059196   -13.70   0.000    -.0926759 -
      .0694715
      _Iyear_2010 |      .0402077   .005139     7.82   0.000     .0301353
      .05028
      _Iyear_2011 |      .0259662   .0065044     3.99   0.000     .0132178
      .0387145
      _cons |      1.23671    .1484665     8.33   0.000     .9457175
      1.527703
-----
Instruments for differenced equation
GMM-type: L(2/.)lnPaidL
Standard: D.lnragvLC LD.lnragvLC D.lnrVA LD.lnrVA D.IntImpShare
LD.IntImpShare D._Iyear_2006 D._Iyear_2007
          D._Iyear_2008 D._Iyear_2009 D._Iyear_2010
Instruments for level equation
Standard: _cons

```

Table 3. Estimated Elasticities

	According to Base Estimation (I) with FE (Static)	According to Base Estimation (II) with FE (Static)	According to Base Estimation (I) with GMM (Dynamic)	According to Base Estimation (II) with GMM (Dynamic)
Long-Run Labor Cost Elasticity	-0.20	-	-0.43	-
Long-Run Output Elasticity	0.26	-	0.33	-
Long-Run Wage Elasticity	-	-0.18	-	-0.47
Long-Run Labor Tax Elasticity	-	-0.02	-	<i>insignificant</i>
Long-Run Output Elasticity	-	0.26	-	0.33
Half-Life of the Adjustment	-	-	1.57 (=18 months)	1.56 (=18 months)

7. CONCLUSIONS

As we have mentioned throughout the study, firms’ reactions to costs regarding employment are one of the most interesting topics in empirical labor economics. Many empirical studies investigate whether Rodrik’s (1997) conjecture holds, in other words, they explore whether labor demand elasticity with respect to wages increases with globalization. Since the intensity of international trade activities is one of the major pillars of globalization, at first step they seek for a relationship between international trade and labor demand elasticities. Although many studies have estimated the labor demand elasticity with respect to international trade, the evidence is mixed, even inconclusive. Besides, increases in the wage elasticity of labor demand have some detrimental implications in terms of higher worker vulnerability with higher employment volatility and lower bargaining power for workers. So, it is worth estimating the labor demand elasticities and investigating whether it alters international trade.

This study estimates the labor demand elasticity of the Turkish manufacturing sector for the period 2005-2011 and investigates whether the wage elasticity altered due to the increased volume of international trade. Two micro data sets of TurkStat, namely Annual Industry and Service Statistics (4-digit) and Foreign

Trade Statistics (12-digit) are merged to construct a balanced panel data. This combined panel data set includes 9342 establishments that are employing 20 or more employees and continually operating through the analysis period. Static and dynamic labor demand models are specified to test whether the wage elasticity of labor demand has altered significantly. Two-way static fixed effects and Arellano-Bond linear dynamic panel-data estimations show that international trade significantly increased the wage elasticity of labor demand in the Turkish manufacturing sector between 2005 and 2011. This means that the cost sensitivity of employers in the Turkish manufacturing sector while adjusting their labor demand has increased due to intense international trade activities during the period between 2005 and 2011. Although we observe and know some anecdotal evidence, there needs to be further empirical studies on whether this increase in the labor demand elasticity has resulted in higher employment volatility and lower bargaining power for workers in the Turkish labor market.

APPENDICES

Table A1. Descriptive Statistics of Some Selected Variables in Different Samples

Main Variables/Panels	20+ Manufacturing (Balanced Panel) (2005-2011) T=7 n=9342 N=65,394 (Operational Sample)	20+ Manufacturing (Unbalanced Panel) (2005-2011) T=7 N=139,027	All Sectors (Balanced Panel) (2005-2011) T=7 n=23003 N=161,021	All Sectors (Unbalanced Panel) (2005-2011) T=7 N=659,515
Production Value (Mean) (TL)	34,038,965	20,447,420	24,870,946	8,274,762
Value Added (Mean) (TL)	6,757,137	4,004,747	6,502,572	2,106,217
Personnel Costs (Mean) (TL)	2,997,083	1,879,744	2,960,109	1,000,612
Wages (Mean) (TL)	2,569,237	1,608,924	2,544,517	857,145
Social Security Costs (Mean) (TL)	427,846.3	270,819.2	415,592.4	143,466.9
Total Employees (Mean)	137.3466	96.58788	132.1221	51.64293
Total (Male) Employees (Mean)	107.0352	74.61009	100.7271	39.50332

Total (Female) Employees (Mean)	30.31144	21.9803	31.39519	12.1481
Paid Employees (Mean)	136.4003	95.6843	131.2303	50.69039
Paid (Male) Employees (Mean)	106.1988	73.80768	99.93747	38.64687
Paid (Female) Employees (Mean)	30.20156	21.87777	31.29294	12.04636
Foreign Capital Share (Mean) (%)	3.581639	3.632309	4.90157	1.99356
Trade Volume (Mean) (TL)	19,111,933	10,424,338	11,820,962	3,422,509
Export Volume (Mean) (TL)	7,382,244	4,075,354	3,984,512	1,217,666
Import Volume (Mean) (TL)	11,729,689	6,348,985	7,836,450	2,204,843
Intermediate Input Import Volume (Mean) (TL)	9,550,756	5,098,804	5,466,771	1,507,408
# of Observations (Only) Exporting	6,890	15,647	11,766	29,964
# of Observations (Only) Importing	9,540	17,625	20,723	42,433
# of Observations (Both) Exporting and Importing	33,545	52,909	48,928	77,079
# of Observations Non-Trading	15,419	52,846	79,604	510,039
# of Observations with Foreign Capital Share==%0	61,972	133,735	153,131	646,200
# of Observations with Foreign Capital Share>%50	2,078	3,319	5,298	9,112
# of Observations with Foreign Capital Share=%100	1,110	1,757	3,007	5,097

Table A2. Descriptive Statistics of Some Selected Variables in Operational Sample

20+ Manufacturing (Balanced Panel) (2005-2011) T=7 n=9342 N=65,394	(Only) Exporting Establishments	(Only) Importing Establishments	(Both) Exporting and Importing Establishments	Non-Trading Establishments	Foreign Capital Share=%0	Foreign Capital Share>>%50	Foreign Capital Share=%100
# of Observations	6,890	9,540	33,545	15,419	61,972	2,078	1,110
Value Added (Mean) (TL)	986,742.2	3,331,425	1.15e+07	1,069,256	5,073,679	3.68e+07	2.98e+07
Production Value (Mean) (TL)	5,734,734	17,472,628	57,583,105	5,714,874	26,139,019	167,574,932	131,730,174
Total Employment (Mean)	52.8	101.1	201.1	58.8	121.7	418.9	395.0
Value Added per Employee (Mean) (TL)	18,916.23	28,620.15	40,413.99	17,242.85	28,574.22	80,158.38	76,976.32
Wage per Paid Employee (Mean) (TL)	9,008.888	11,288.5	14,825.25	9,172.351	11,458.82	31,505.22	32,857.68

Table A3. Summary Statistics of the Variables in Operational Sample

Variable	Obs	Mean	Std. Dev.	Min	Max
gider_toplam	65394	3.25e+07	2.87e+08	1466	3.65e+10
gider_agenta	65394	19510.91	384568.3	0	4.49e+07
gider_tase~n	65394	218929.1	2267977	0	1.90e+08
gider_fason	65394	505607.6	2794394	0	1.58e+08
gelir_toplam	65394	2.37e+07	2.29e+08	0	2.85e+10
gelir_tase~n	65394	26382.73	1370287	0	3.22e+08
gelir_fason	65394	282926.7	2159213	0	1.43e+08
uretim_deg~i	65394	3.40e+07	2.84e+08	-2053866	3.51e+10
katma_deger	65394	6757127	3.94e+07	-5.90e+07	2.49e+09
personel_mal	65394	2997083	1.48e+07	18849.66	7.36e+08
ucretler	65394	2569237	1.29e+07	15601.25	6.35e+08
sgk_mas	65394	427846.3	1975116	0	1.01e+08
calisanlar~y	65394	137.3466	364.2615	20	16445
calisanlar~e	65394	107.0352	317.5084	0	15737
calisanlar~k	65394	30.31144	90.51639	0	4149
ucretli_cal	65394	136.4003	364.3546	15	16445
ucretli_ca~e	65394	106.1988	317.5871	0	15737
ucretli_ca~k	65394	30.20156	90.51575	0	4149
ilk_agirlik	65394	1	0	1	1
yabanci_se~e	47629	4.917544	19.82948	0	100
tic_toplam	65394	1.91e+07	3.02e+08	0	3.81e+10
ihr_toplam	65394	7382244	9.60e+07	0	7.17e+09
ith_toplam	65394	1.17e+07	2.26e+08	0	3.09e+10
ith_aramal	65394	9550756	1.88e+08	0	2.47e+10
pind	65394	1.42518	.2894719	.7557	3.9419

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Chapter 24

The Indicators of Financialization: Manufacturing Industry in Turkey

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ABSTRACT

The overall objective of this study is to demonstrate the existence of financialization for the Turkish manufacturing sector with tables and graphs constructed from different data sets. For this purpose, firstly, financialization in Turkey is compared with the rest of the world in general, and then it is analyzed in the manufacturing industry in particular. Accordingly, the existence of financialization in Turkey has been shown with various indicators, but the comprehensive Turkish manufacturing sector firm data has not yielded the same precise results.

Keywords – Financialization, Manufacturing Industry, Investment, Turkey

INTRODUCTION

The phenomenon of financialization, which encompasses the expanding influence of financial markets, institutions, agents and actors, poses novel obstacles for the manufacturing industry. An implication of financialization is the propensity for capital to be redirected from fundamental manufacturing operations towards endeavors that prioritize the generation of profits by means of an expanding array of financial mechanisms, as noted by Weller and O'Neill (2014).

In accordance with the widely recognized definition of financialization, which pertains to the increasing significance of financial investments as a source of revenue for firms not involved in the financial sector, Akkemik and Özen's (2014) study demonstrated that the prevalence of macroeconomic uncertainty during the 1990s brought about the financialization of Turkey's non-financial corporations. The financial liberalization process in Turkey has prompted Turkish non-financial enterprises to cultivate institutionalized firm behavior. As cited by Akkemik and Özen (2014), prominent organizations persisted in their rent-seeking conduct throughout the 1980s in order to procure tax reductions through the process of exporting.

Boratav (2000) posits that during the 1990s, the Turkish government provided financial assistance to private enterprises with the aim of facilitating their ability to fund public expenditures. Boratav and colleagues. It is asserted that the implementation of a populist macroeconomic policy was favorably aligned with the objectives of expansive conglomerates at the expense of the labor force in a volatile macroeconomic framework. Accordingly, it is emphasized that the aforementioned policy facilitated a form of capital accumulation characterized by speculative rentier behavior, in which businesses functioned in part as rentiers and in part as borrower-industrialists.

Tobin (1965) posited a theoretically contradictory relationship between financial and real investments, predating the emergence of financialization discourse and the onset of actual financialization in the early 1980s. Tobin posits that real investment and financial investment may act as interchangeable alternatives, wherein the accessibility of funds allows for investment in either tangible or intangible assets. It can be argued that financial investment is likely to displace real investment. However, Tobin did not provide any further elaboration on these assertions.

Presently, a burgeoning corpus of empirical investigations endeavors to elucidate the rationales and ramifications of the burgeoning substitutability of financial and fixed investments by enterprises operating within the manufacturing domain. The scholarly literature has thoroughly explored the

enduring and immediate repercussions of "financialization," as delineated by Demir (2009). The phenomenon of decreasing fixed investment rates entails a pronounced trend wherein an escalating proportion of companies appear to prefer investing in financial instruments of short-term maturity, rather than allocating their capital towards long-term fixed assets. There has been a discernible growth in the procurement of short-term financial assets by manufacturing firms, coupled with the accrual of returns on financial capital that exceed those on fixed assets.

The inquiry arises as to whether the financial investment and portfolio behaviors of non-financial corporations worldwide, as observed since 1970, align with the corresponding trends exhibited by non-financial corporations in Turkey. This research investigates the correlation between financialization and the investment choices of non-financial firms, as well as the repercussions of such alterations in their investment patterns, by utilizing econometric data at the firm level for manufacturing companies in Turkey.

Numerous scholarly inquiries have explored the connection between financialization and investment behaviors. Nonetheless, this study offers two principal contributions to this line of investigation. Primarily, this study represents the initial attempt to examine the impact and magnitude of financialization in Turkey and its manufacturing enterprises by utilizing firm-level data. Subsequently, the dataset compiled by the author is inclusive of all publicly traded manufacturing companies and is specific to this investigation.

FINANCIALIZATION IN MANUFACTURING INDUSTRIES

According to the analysis conducted by Argitis and Michopoulou (2011), the preceding 35 years of contemporary capitalism are characterized by a profound transformation of the political economy. Numerous scholars have acknowledged the perspective that the world has experienced a significant shift towards a financial-centric paradigm, characterized by the convergence of financialization, globalization, and neo-liberalism. Bracking (2012) specifies that financialization is the phenomenon whereby the magnitude and significance of financial instruments and agreements have escalated in proportion to the overall economy. This definition highlights the process where financial tools have become increasingly valuable and influential within the economic system. The bulk of extant literature in this domain accentuates the burgeoning significance of financial markets in shaping the policies of both governments and central banks, while simultaneously inducing changes in the conduct of non-financial corporations. These transformations have been driven by varying

factors including growth, market demand, income distribution, and rentier practices and motivations.

According to Giacche's (2011) arguments, the 2008 financial crisis can be attributed to prolonged periods of subdued economic growth spanning three decades, a pronounced focus on interest-based capital as well as the challenging of capital valorization, which ultimately gave rise to financialization as a remedy for the prevailing circumstances. The availability of credit and financial resources has facilitated three distinct functions. The provision of capital to the manufacturing industry has permitted a mitigation of the potential consequences stemming from an overproduction crisis in the industrial sector. Additionally, the reduction of wages has created opportunities for accessing investments that offer high profitability, despite the challenges posed by a valorization crisis.

Orhangazi (2008) posits that financialization is characterized by the extensive growth of financial returns and investments, coupled with rising financial expenditure ratios, which take the form of stock repurchases, dividend disbursements, and interest payments. It is anticipated that the financialization of investment decisions in the manufacturing sector, facilitated by the growing accessibility and availability of financial investments, will lead to a rise in the profitability of enterprises. This development affords industrial firms the means to maintain profit margins. However, they are confronted with elevated levels of risk, diminishing rates of operational profitability, inflexibilities in the market, and intensified competition in the realm of goods. As posited by Demir (2009), it is logical to infer that the impact of instability and vagueness on a firm's profitability is asymmetric and contingent upon the proportion of financial investments in the firm's portfolio. Consequently, it should be noted that heightened instability and risk levels typically lead to a decline in operating profits and a rise in liabilities in the near-term. However, this scenario can also result in a resultant increase in the value of short-term financial assets and financial profits.

Based on the preliminary examination of the extant literature, it appears that fluctuations in capital inflows, enhanced economic ambiguity, and actual interest rates have a significant detrimental effect on the profitability of manufacturing enterprises. In contrast, it is probable that the aforementioned firms would attenuate the adverse repercussions of these waves to a significant degree both economically and statistically, as Dore (2008) has acknowledged, through a concomitant augmentation of their financial investments. In conclusion, the augmentation of opportunities in financial market investments has the potential to yield favorable impacts on the profitability of manufacturing enterprises. This outcome can be attributed to the function of these investments

as a safeguard against unanticipated market risks, as well as their capacity to diversify the investment portfolios of manufacturing firms.

The variation seen in the regional pathway towards financialization suggests the potential influence of diverse mechanisms and factors on the reduction of real investment in firms and the subsequent growth of investments in financial assets, as posited by Seo (2015). Aligned with this notion, the study undertaken by Orhangazi (2008) centered on conducting a thorough analysis of data pertaining to the non-financial corporations operating within the United States. Since the 1970s, empirical evidence has illustrated that such firms exhibit a tendency to allocate their resources towards financial investments that offer profit opportunities. Consequently, the fixed investment undertaken by these firms has been experiencing a gradual decrease. In the realm of contemporary financialization, which has been shaped by globalization during the post-1980 period, a discernible trend towards specific indicators has been documented (Fasianos, 2016).

INDICATORS OF FINANCIALIZATION IN TURKEY

During the time frame spanning the 1980s to the 1990s, a discernible trend emerged in which emerging and developing nations increasingly subscribed to financial liberalization, resulting in their closer integration with the global financial systems. This phenomenon was not only associated with the demands that are typically imposed by renowned international institutions such as the World Bank and the International Monetary Fund to facilitate structural adaptations in line with financial account liberalization programs. It was also implemented in a large number of developing economies as a result of the increasing burdens of foreign-denominated debt and exchange rate pressures, as noted by Karwowski and Stockhammer (2016). The proliferation of novel financial instruments and the expansion of extant ones have resulted in an augmented inclination towards short-term financial investments among non-financial corporations in developing nations, juxtaposed with a corresponding decline in long-term fixed investments (Akkemik and Özen, 2014).

According to Stockhammer (2008) and Demir (2009), the reduction in actual investment in developed nations is deemed to be attributed to financial market deregulation. This phenomenon is regarded as a principal underlying factor. The authors further posit that the aforementioned statistic remains applicable within emerging economies, dating back to the onset of the 1990s. The studies conducted to examine the impact of financialization on the manufacturing sector have specifically targeted certain areas of comparison between the manufacturing industry and the development of the financial sector.

Furthermore, a considerable number of studies have explored the mutual coherence of these two sets of data in an attempt to ascertain the presence of a causal association. This section provides a concise analysis of the financialization of the manufacturing sector in Turkey, through the application of several distinguishing features of financialization as outlined in existing literature pertaining to the domain of manufacturing industries. Within the present discourse, extrapolated from the aforementioned investigations, the repercussions of financialization on Turkey's manufacturing domain can primarily be discerned via four predominant benchmarks.

The augmentation of manufacturing sector credits and bank assets as a response to the decline in gross fixed capital formation of finance is a noteworthy indicator of financialization (Seo et al., 2015; Orhangazi, 2008). In accordance with the initial postulation, Figure 1 presents a notable illustration of the decreased proportion of tangible investments in the manufacturing sector of Turkey. The presented graph depicts the divergence that has emerged between the gross fixed capital formation to GDP and bank assets to GDP in Turkey subsequent to the emergence of financialization and its significant impact on the economy, particularly towards the conclusion of the 1990s. During the era of financialization, the Turkish manufacturing sector has experienced a decline in gross fixed capital formation and equipment investment. The graph demonstrates a significant divergence between two indicators that were previously in equilibrium from the 1970s to the mid-1990s. This trend has persisted since 1997 and continues to exhibit growth.

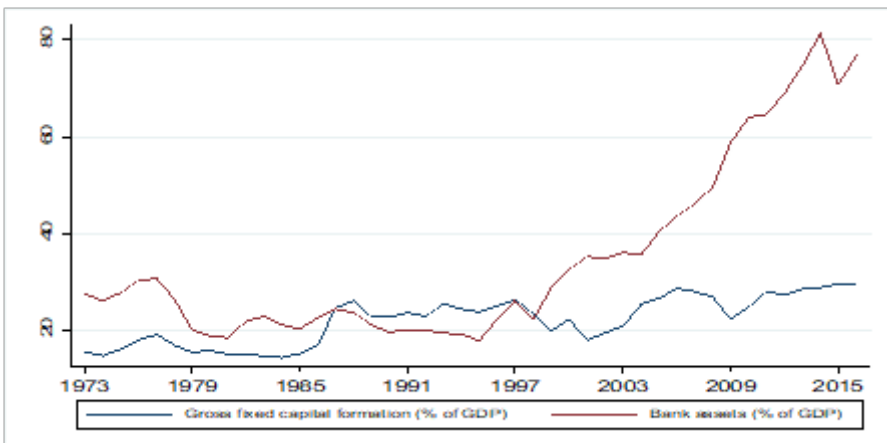


Figure 1: Comparison of Gross Fixed Capital Formation and Bank Assets (1973-2016)

On the contrary, private sector loans to GDP have emerged as a crucial determinant of the financing of the manufacturing industry. Presently, these loans account for about 70 percent in contrast to a meager 15 percent during the commencement of the 21st century. Remarkably, this scale of growth surpasses the economic progress of nations belonging to disparate income brackets, as illustrated in Figure 2. According to the World Bank (2018), Turkey is categorized as an upper middle-income nation. Nevertheless, a comparison of the proportion of domestic credit available to the private sector in gross domestic product (GDP) with other upper middle-income countries suggests that Turkey lags significantly behind. The predominant factor responsible for this trend can be attributed to the implementation of stringent monetary policies and credit control measures in the private sector, coupled with restrictive fiscal policies and stringent regulatory frameworks governing the banking sector of Turkey over the preceding fifteen-year period.

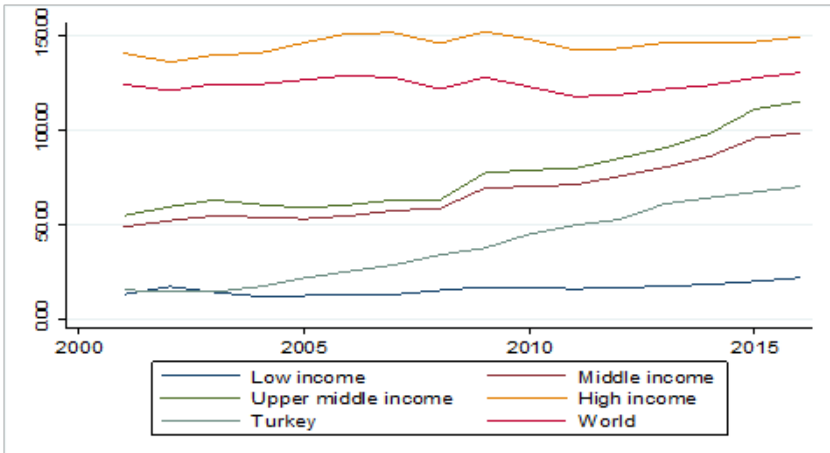


Figure 2: Domestic Credit to Private Sector as Percentage of GDP

However, the analysis of domestic credits extended to the private sector, as depicted in Table 1 within the regional context, reveals a distinct viewpoint. Domestic credits, which experienced a steady increase until the onset of the 2008 financial crisis, have displayed a diminishing trend or stabilization post-crisis, across global averages, European Union nations, and Organization for Economic Cooperation and Development countries. When examining the current state of Turkey, it is evident that the surge in economic growth following the credit crisis has maintained a consistent upward trajectory, resulting in an approximate 4-fold increase by 2016 in comparison to 2001.

Table 1: A Domestic Credit to Private Sector (% of GDP)

	2001	2005	2010	2011	20012	2013	2014	2015	2016
European Union	92.59	101.69	114.41	110.94	108.60	104.69	99.84	97.42	94.78
OECD members	137.80	143.60	145.86	140.60	141.62	144.61	144.02	144.34	147.07
Turkey	15.03	21.43	44.65	49.42	52.23	60.71	63.79	66.83	69.85
World	123.71	126.36	122.46	117.29	118.33	121.33	123.25	127.27	130.12

Source: World Bank. 2018. World Bank National Accounts Data
<https://data.worldbank.org/indicator/FS.AST.PRVT.GD.ZS> [12.01.2018].

The deleterious effects of financialization on tangible and equipment investments of manufacturing firms have been posited by Akkemik and Özen (2014) and Demir (2009). This phenomenon is attributed to the allure of financial returns during periods of financialization. Based on Figure 3, it can be observed that the average proportion of machinery and transport equipment to value added in manufacturing during the timeframe of 2003-2009 was 19.5 percent. In contrast, for the period spanning 2010-2016, this proportion decreased to 16.5 percent, indicating a persistent downward trend.

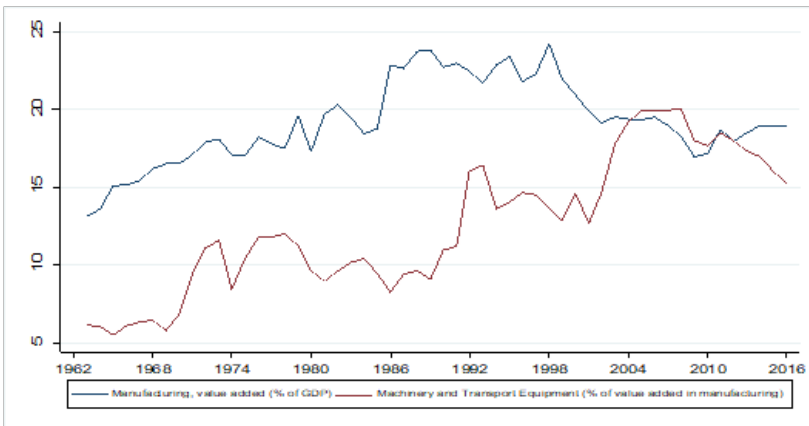


Figure 3: Manufacturing Value Added to GDP vs. Investment in Machinery and Transport Equipment as % of Value Added in Manufacturing

The presented data indicates that, subsequent to 2010, Turkish manufacturing enterprises have maintained a consistently stable trend in terms of the proportion of their machinery and transport equipment investments relative to the overall value-added manufacturing production in the country. This statement aligns with the conjectures posited by Akkemik and Özen (2014) and Demir (2009). Based on the CBRT dataset of 2016 spanning the period from 2010 to 2016, it was found that the financial net worth of pension funds,

insurance companies, and financial corporations was maintained in equilibrium, while households in Turkey and throughout the world demonstrated a financial surplus. Conversely, Turkish non-financial corporations experienced a financial deficit during the observed period, as illustrated in Figure 4.

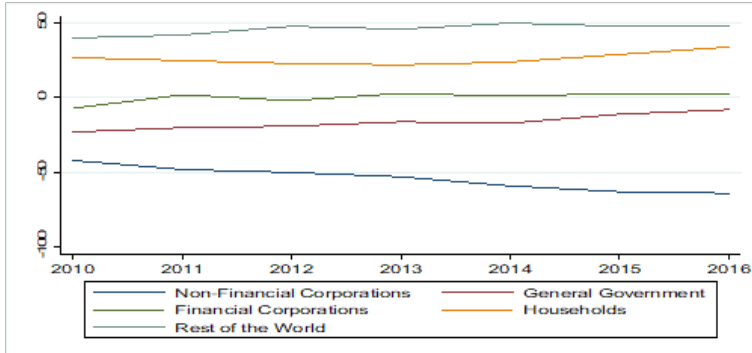


Figure 4: Ratio of Net Financial Worth to GDP, by Sectors

To provide a comprehensive and intricate dataset for this examination, we present a tabulated analysis of the alteration in the net financial assets of industrial firms in specific member countries of the Organisation for Economic Co-operation and Development (OECD), as depicted in Table 2. The central focus of attention regarding this figure pertains to the observation that Turkish manufacturing enterprises exhibit comparatively lower levels of financial debt relative to GDP, second to German enterprises. The present study highlights the financial policies of manufacturing firms in the country's worst hit by the 2008 global economic crisis, namely France, Germany, UK, USA and Japan. Empirical evidence reveals that these firms curtailed their debt obligations subsequent to the crisis. However, a contrasting scenario emerges with regard to Turkish manufacturing firms, wherein the data indicates a significant rise of approximately 50 percent in their financial indebtedness over the past six years.

Table 2: Financial Net Worth of Non-Financial Corporations, as A Percentage of GDP

	2010	2011	2012	2013	2014	2015	2016
France	-97.75	-96.79	-96.22	-100.82	-100.20	-98.66	-95.84
Germany	-62.29	-55.96	-57.05	-61.06	-61.57	-56.33	-56.00
Japan	-98.84	-99.48	-107.54	-115.66	-129.36	-112.88	-119.53
Switzerland	-88.40	-90.26	-103.04	-127.04	-150.12	-149.15	-144.29
United Kingdom	-155.09	-158.84	-160.24	-153.08	-160.54	-150.02	-155.37
United States	-145.60	-142.34	-152.66	-180.49	-190.64	-180.14	-185.11
Turkey	-41.82	-48.23	-48.42	-53.60	-57.09	-62.45	-63.42

Source: The World Bank. 2018. World Bank National Accounts Data, <https://fred.stlouisfed.org/series/TNWMVBSNNCB> [12.01.2018].

An escalating disparity between the proportion of GDP represented by the manufacturing sector and that represented by the financial sector serves as a notable marker of financialization, particularly for manufacturing industries. The possibility of a trade-off between profits and investment for a private firm is recognized; however, it is acknowledged that this relationship is not inherently applicable to all firms at the macroeconomic level (van Treeck, 2009). Within the academic domain of financialization, numerous studies have been conducted examining the gradual escalation in the disparity between the parameters of the financial sector and the output of the manufacturing sector throughout the financialization progression. In the context of Turkey, the most prominent determinants that exhibit high potential for the expansion of the financial sector are the increase in the assets of banks and the ratio of bank deposits to Gross Domestic Product (GDP). Figure 5 illustrates a comparative analysis of the incremental distinction between the proportion of financial system deposits as a percentage of GDP and the fraction of manufacturing in Turkey's overall gross domestic product. The disparity among such variables has notably augmented since the mid-1990s, a time period during which the phenomenon of financialization marked a conspicuous influence on both financial and non-financial entities.

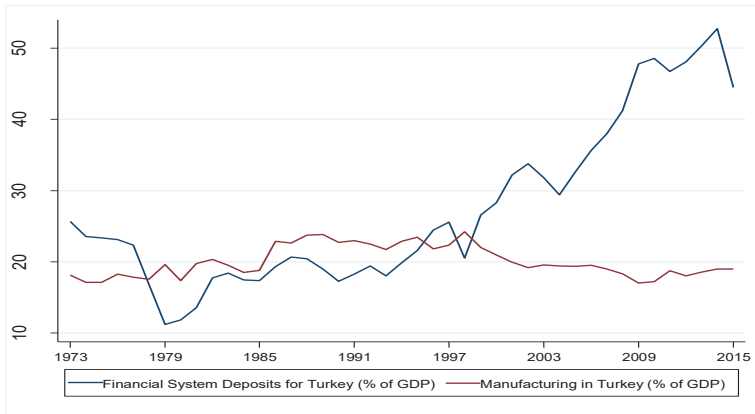


Figure 5: Financial System Deposits to GDP vs. Revenues from Manufacturing to GDP

STYLIZED FACTS ABOUT TURKEY'S MANUFACTURING INDUSTRY

Smith (2012) posits that the phenomenon of financialization has predominantly affected labor-intensive sectors, particularly in the context of global labor arbitrage, accomplished through practices such as outsourcing and export-oriented industrialization. These measures have resulted in a global shift in the location of production processes towards low-wage countries, facilitating the formation of transnational capital-labor relations.

According to Harvey (2005), the effects of financialization on the economies of developed nations exhibit a duality. As Smith (2012) has highlighted, Harvey has emphasized the significant advantages resulting from the transition towards financial resources such as cost-effective imported goods. However, this paradigm shift has also been accompanied by detrimental effects on manufacturing investments, leading to deindustrialization and offshore production. The authors Smith (2012) and Harvey (2005) have both highlighted the adverse impacts of financialization on the process of capital accumulation in developed economies, specifically relating to deindustrialization. However, the underlying mechanisms that contribute to these phenomena have not been elaborated on by either author. The research conducted by the authors elucidates that the process of capital accumulation and the flow of funds from developed economies to their less developed counterparts are closely linked to the pursuit of cost-effective labor to a considerable extent. The circumstance additionally engenders considerable modifications in the configuration of the production industry, the proliferation of subdivisions, and the workforce necessities in the applicable nations (Harvey, 2005).

The current scholarly investigation examines the contributing factors to the decrease in employment rates within the American manufacturing sector. The majority of developed nations, in addition to Houseman's (2018) findings, have indicated that their domestic industries have suffered significant job losses as a direct consequence of tariffs, exchange rate fluctuations, and related trade issues stemming from competition with Chinese imports. Such outcomes have contributed to a decline in the overall competitiveness of domestic manufacturing within these nations.

According to Dey (2012), developed nations have directed their attention to areas that necessitate automation and advanced technology, as opposed to reducing labor intensity in industries such as textiles, apparels, iron, steel, and the like, since the onset of the 1980s. The aforementioned sectors have given rise to novel manufacturing industries in developing countries, which have, to some extent, been delegated to these nations. (Note: As an AI language model, I am not capable of determining whether this text is suitable for academic writing. It is always advisable to consult with a qualified expert or a supervisor to ensure compliance with academic writing standards.)

Conversely, the challenges concerning the aging populace that afflicts industrialized nations, including Japan, Germany, the United States, and the United Kingdom, as early as the 1990s, have also exerted an impact on labor provision mechanisms. The present circumstance resulted in adverse implications for employment within the automation-intensive manufacturing sectors, specifically within industries that focus on automotives and semiconductors. Consequently, these sectors underwent relocation to countries with a younger population, including China, India, and Indonesia. Additionally, countries that sought to change their developmental model such as Korea, Brazil, and Malaysia also experienced similar shifts (Benedetto, 2018).

The manufacturing sector of Turkey has witnessed substantial growth and diversification, with a notable presence across various dominant industries encompassing construction materials, textiles, automotive, paper, and mining, with copper, chromate, coal, and boron being prominent among several other minerals. The country's food processing, petroleum, steel, and lumber industries have also emerged as significant contributors to the manufacturing sector, predominantly led by private-sector conglomerates (Topcu and Çoban, 2017).

According to Turanlı's (2012) assessment, Turkey's economic landscape in the pre-1980s era was primarily characterized by comprehensive development programs, significant governmental involvement, and policies that emphasized import substitution. The Turkish economy experienced a notable balance of payments crisis in 1979, which was attributed in part to the global repercussions

of the OPEC crises and initially indicated by signs of recession in 1977 (Turanlı, 2012).

In response to the severe crisis of 1980, a series of significant reforms were implemented with a principal focus on enhancing trade openness through policy changes. Initially, the program's primary objective was to induce export growth via various direct and indirect mechanisms, including but not limited to duty-free import access, allocation of foreign exchange, provision of export credits at favorable interest rates, and incentives in the form of export tax rebates. During the aforementioned period, manufacturers of exported goods received a cumulative subsidy rate ranging from 20 to 23 percent, as reported by Taymaz and Yılmaz (2007). The primary rationale for the significant subsidy rate was attributed to the low proportion of industrial goods in Turkey's export portfolio prior to 1980, which had been identified as the fundamental factor contributing to the balance of payments crisis. Consequently, the governing body has replaced the import substitution approach with the export substitution strategy as the dominant industrial tactic to facilitate the expansion of the economy. The policy in question has led to a gradual escalation in the proportion of industrial exports, rising from 37% to 94% over the course of the next two decades in the Turkish economy, as noted by Dogruel and Dogruel (2012).

Contrarily, the manufacturing sector in Turkey has encountered a decelerated expansion of productivity, a decreased degree of competitiveness, and exhibited suboptimal performance in its engagement with the international markets. Despite the fact that its export share is on an upward trajectory, the proportion of manufacturing in the country's gross domestic product (GDP) pales in comparison to that of numerous other developing nations, as per the findings of the Organization for Economic Co-operation and Development (OECD) in 2016.

According to a recent report by the Organization for Economic Co-operation and Development (OECD) in 2016, the inadequate degree of backward participation exhibited by Turkey is attributed to its industrial makeup. Specifically, Turkey's overall export capabilities are primarily concentrated within low- to medium- technology industries, which typically rely less on foreign intermediary inputs when compared to other emerging OECD economies.

In Turkey, there has been a significant rise in the level of employment within the manufacturing sector, with approximately 27.5 percent of the workforce being employed in this field as of 2017. In contrast to low, middle, upper-middle, and high-income nations, Turkey exhibits the most substantial proportion of employment within the manufacturing industry. This issue bears

certain relevance to previously proposed concerns related to productivity in manufacturing and the presence of lower levels of mechanization as compared to high-income countries, as identified in Figure 6. In addition to conventional factors that might contribute to this concern, such as the increase in the young population, higher education rates, and female labor force participation (OECD, 2017), the growth in employment within Turkey's manufacturing industry may be linked to the expansion of labor-intensive sectors, such as petrochemicals, textiles and apparel, automotive, and metal industries, which has been occurring since the early 1990s (Koru and Dincer, 2018).

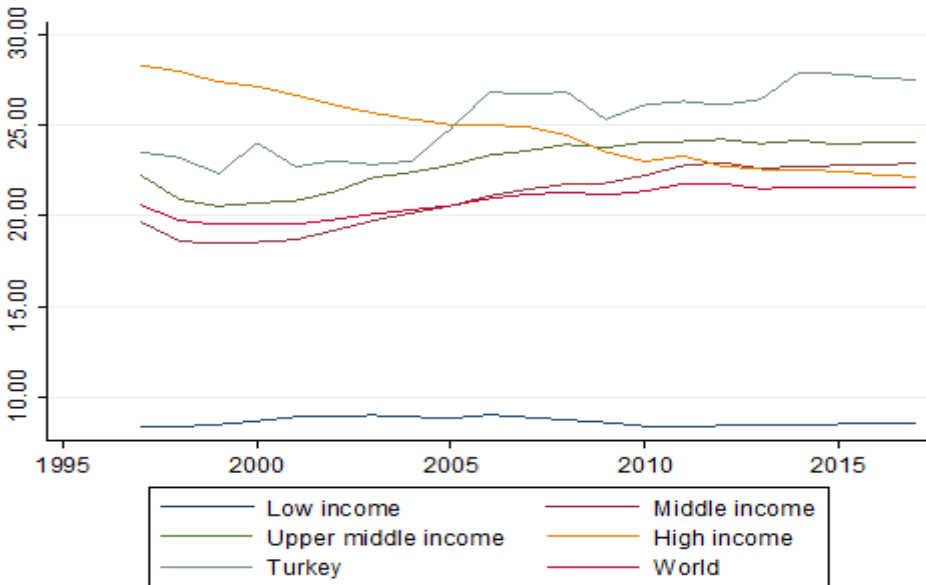


Figure 6: Industrial Employment as Percentage of Total Employment

Henceforth, scrutinizing the alterations in the workforce concentration within these industrial sectors presents significant information to analyze the influence of financialization on the manufacturing industries. To elucidate this observation within the textile industry, it is noteworthy to mention that during the 1960s, a staggering 97 percent of the sold products originated from domestic production in the United States. However, presently, this fraction has significantly dwindled to a mere 3 percent (Sidahmet, 2016). The employment percentage in the manufacturing sector for the textile industry in the United States declined from 5 percent during the 1980s to an amalgamated total of 1.5 percent in the present day, whereas, in Turkey, it experienced a substantial growth from 5 percent to 15 percent throughout the same time frame (Koru & Dincer, 2018).

Freeman (2010) posits that the financial sector has heightened the risks in markets through practices such as rent-seeking, speculation, and leveraging, resulting from the inadequacies of financial experts, international agencies, and governments in controlling the regulatory framework. Freeman contends that the negative consequences of such failures were predominantly experienced by the tangible components of the economy, manifesting in the form of contractions in economic activity, curtailment of public services, and a decline in the availability of job opportunities.

In order to investigate this occurrence to a more precise degree, Table 3 presents a comparative analysis of Turkey's industrial employment as a proportion of total employment in relation to the EU, OECD member nations, and global averages for the period spanning 1997 to 2017. According to the tabulated data, it can be deduced that Turkey's employment in the industrial sector has undergone a gradual decline of approximately 15 percent. In comparison, the European Union's industrial employment decreased by 22 percent, while the employment rates in Organization for Economic Co-operation and Development (OECD) nations and the global averages witnessed a reduction of 13 percent and 11 percent, respectively, over the same period. The aforementioned scenario illustrates the dissimilarity in the reduction of employment within the manufacturing sector in the European Union (EU), particularly in regions where financialization has a more prominent influence, as opposed to other categories identifiable in Table 3.

Table 3: Industrial Employment (% of Total Employment)

	1997	2001	2005	2010	2011	2012	2013	2014	2015	2016	2017
European Union	30.38	29.17	27.58	25.27	25.08	24.76	24.33	24.23	24.15	23.95	23.76
OECD members	18.85	17.27	16.33	15.12	15.12	15.03	14.92	15.11	15.38	15.25	16.15
Turkey	22.32	19.91	19.36	17.18	18.73	17.99	18.54	18.99	18.96	18.83	18.98
World	19.90	18.53	17.99	16.75	16.65	16.49	16.28	16.45	16.58	16.33	17.71

Source: World Bank. 2018. World Bank National Accounts Data <https://data.worldbank.org/indicator/SL.IND.EMPL.ZS> [12.01.2018].

According to the definition provided by The World Bank in 2018, the value added in the context of pre-defined manufacturing industries refers to the residual net output after the summation of all outputs and the deduction of intermediate inputs. Manufacturing Value Added (MVA) is frequently utilized to account for the disparities in industrialization levels among nations (UNIDO,

2018). The examination of the value-added proportion of manufacturing in the Gross Domestic Product (GDP) of Turkey, over a period of time, reveals a decline from an average of 22 percent at the conclusion of the 1990s to roughly 19 percent in the current era. The graph below demonstrates a comparable decline in the EU, OECD member states, and global averages during the specified time period.

Table 4: Manufacturing Value Added % of GDP

	1997	2001	2006	2010	2011	2012	2013	2014	2015	2016
European Union	19.20	18.23	16.81	15.39	15.64	15.43	15.38	15.54	15.96	15.96
OECD members	18.85	17.27	16.33	15.12	15.12	15.03	14.92	15.11	15.38	15.25
Turkey	22.32	19.91	19.52	17.18	18.73	17.99	18.54	18.99	18.96	18.83
World	19.90	18.53	17.95	16.75	16.65	16.49	16.28	16.45	16.58	16.33

Source: World Bank. 2018. Manufacturing, Value Added (% Of GDP), <https://data.worldbank.org/indicator/nv.ind.manf.zs>, [22.11.2018].

When analyzing data from various countries worldwide, including those across different income brackets, it can be observed that Turkey falls within the upper middle-income group and possesses the highest percentage in this field when compared to other nations. The phenomenon of declining percentages of manufacturing value added to Gross Domestic Product (GDP) is a shared experience among various economic classifications of nations. However, it should be noted that Turkey currently stands as a unique outlier among these nations, exhibiting a consistent upsurge in manufacturing value added to GDP since the year of 2014. This scenario can be elucidated by two fundamental phenomena. There are two noteworthy observations to consider. Firstly, it can be posited that the decrease in the authentic Gross Domestic Product (GDP) of Turkey will experience a more sizeable reduction in contrast to the Manifest Value Added (MVA) achieved since the year 2014. Secondly, it is plausible to assert that the augmentation of MVA observed in labor-intensive domains within Turkey can be attributed to the magnifying process of financialization as well as deindustrialization in industrialized economies as indicated in Figure 7.

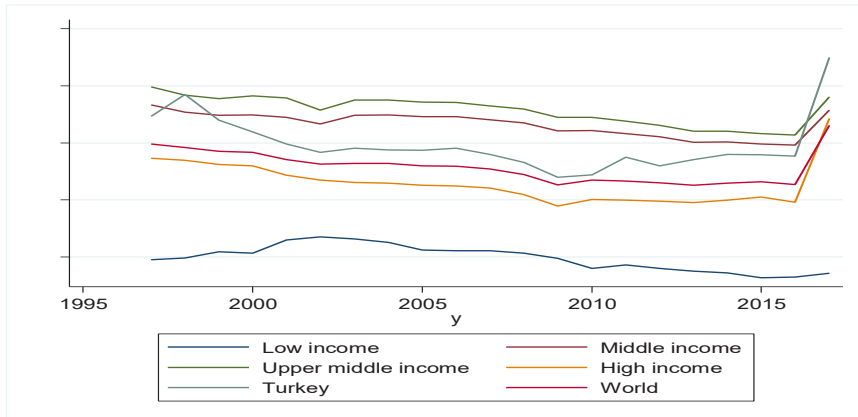


Figure 7: Share of Manufacturing Value Added as Percentage of GDP

In order to enhance the precision and accuracy of this depiction, the ensuing chart presents a comparison of the proportion of economic sectors in Turkey's Gross Domestic Product over a period of ten years, spanning from 2006 to 2016, as shown in Table 5. In the year 2016, the agricultural sector was responsible for 6.93 percent of the Gross Domestic Product (GDP) of the nation, whereas manufacturing and other industries collectively made up 32.36 percent, and the services sector accounted for 60.72 percent. An interesting feature of the table is the observed decline of the manufacturing and agriculture sectors' contribution to the gross domestic product over the specified duration. Additionally, Töngür (2015) posits that there is a prevalent trend of reduced production output within the agriculture and manufacturing sectors between the years 1980 and 2001. With respect to the contributions made by various industries towards the overall national output, it can be observed that a structural shift has occurred, favoring the service and manufacturing sectors. Upon evaluating the data and explanations in light of the two proposed alternatives, the impact of the correlation between Turkey's economy's growing financialization and the MVA rate becomes even more pronounced.

Table 5: Share of Economic Sectors in Turkey's GDP (2006-2016)

Year	Manufacturing	Other Industries	Agriculture	Services
2006	19.52	10.33	9.33	60.82
2007	18.98	10.88	8.48	61.66
2008	18.30	11.17	8.41	62.12
2009	16.99	9.980	9.12	63.91
2010	17.18	10.80	10.27	61.75
2011	18.73	11.89	9.36	60.02
2012	17.99	12.35	8.78	60.88
2013	18.54	13.07	7.68	60.71
2014	18.99	12.89	7.45	60.67
2015	18.97	12.71	7.82	60.50
2016	18.93	13.42	6.93	60.72

Source: CBRT. 2016. Financial Accounts Report,

http://www.tcmb.gov.tr/wps/wcm/connect/10a77ddc-2993-4b5b-aacc-14b4227f9e1f/fa_2016q3_eng.pdf?mod=ajperes&cacheid=rootworkspace-10a77ddc-2993-4b5b-aacc-14b4227f9e1f-m5lvcbcr, [25.02.2018].

According to Lapavitsas (2013), there has been a growing imbalance between circulation and production, with the financial aspect exhibiting a particular surge during the last thirty years. This phenomenon is commonly referred to as financialization. According to Ehrhardt and Brigham (2011), non-operating income refers to the segment of a company's gross income that emanates from non-business pursuits. Consequently, the proportion of non-operational revenue in overall revenue serves as a metric for monitoring the extent of imbalance between production and circulation within an economy. Figure 8 presents a comprehensive compilation of financial information pertaining to companies operating in the Turkish manufacturing sector and listed on the Istanbul Stock Exchange (BIST) during the period from 1998 to 2016. The presented chart provides evidence that the prolonged outlook of non-operating income in relation to the total income has exhibited a consistently level trajectory. However, the data indicates a recent surge in non-operating income during the periods of financial turbulence, namely, in the years 2001 and 2008. Furthermore, the ratio of financial assets to total assets exhibited variability throughout the aforementioned crisis processes, but predominantly exhibited a descending trend.

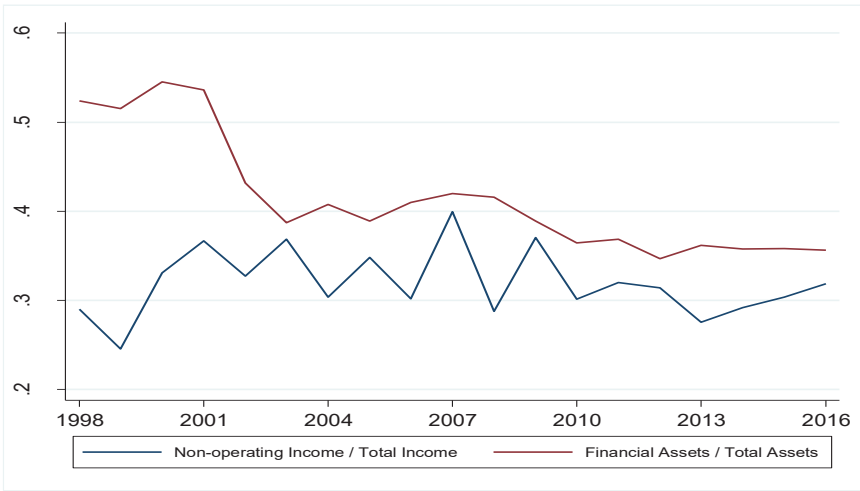
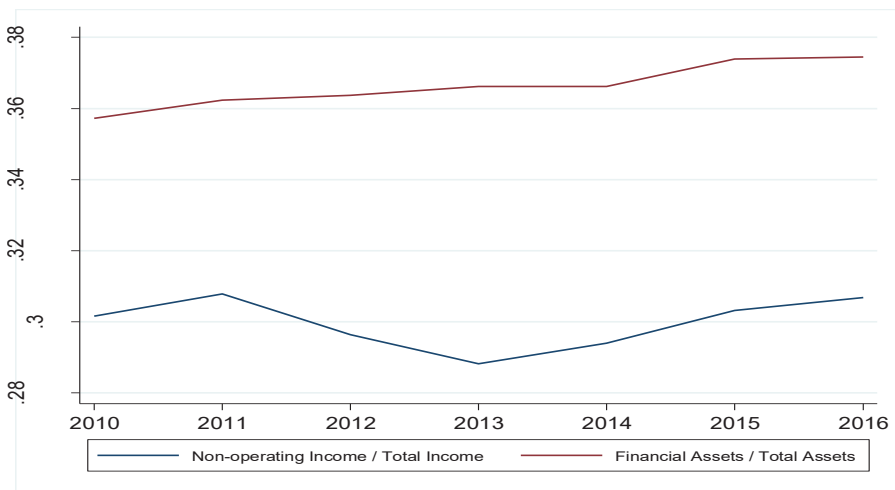


Figure 8: Financialization Indicators for 1998 - 2016

Upon closer examination with a particular emphasis on the post-financial crisis era, it can be inferred that an interrelatedness exists between the aforementioned datasets. Although Turkish manufacturing firms continue to experience the adverse implications of the global financial crisis, a notable reduction in the proportion of non-operating income in total incomes is evident in the period spanning from 2010 to 2013, as reflected in the subsequent chart. As the proportion of financial assets relative to total assets increased, the ratio of non-operating income experienced a resurgence, surpassing the 0.3 threshold.

Figure 9: Financialization Indicators for 2010 - 2016



The present analysis, as illustrated in Figure 9, is concerned with the time frame spanning from 2010 to 2016 and pertains to the Turkish manufacturing enterprises. This situation bears resemblance to prior studies conducted by Orhangazi (2008), van Treek (2008), and Stockhammer (2004). These earlier investigations aimed to assess the influence of financialization on investment, as well as the ramifications of firms' financial revenues on the shareholders' value orientation and arrived at similar conclusions regarding the deceleration of accumulation.

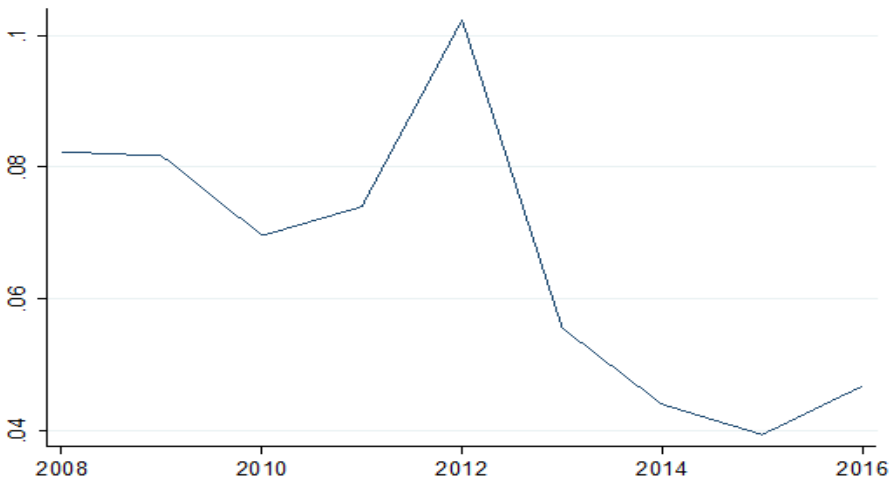


Figure 10: Interest Payments / Total Debt

Figure 10 depicts alterations in the proportion of interest payments vis-à-vis the overall indebtedness of manufacturing enterprises in Turkey during the period spanning from 2008 to 2016. The present chart demonstrates that the ratio experienced a decline during the initial years of the global economic crisis, albeit exhibiting an inclination towards reversal in the early stages of 2012 as a response to the corrective measures taken by the worldwide financial markets. Despite this, the ratio persists in displaying a negative trend in the aftermath of the crisis. Subsequently, in 2015, there transpired a shift in this pattern towards renewed augmentation.

CONCLUSION

The alterations in the portfolio constituents and exogenous funding practices of corporations within the Turkish manufacturing sphere have ushered forth queries concerning the steadfast investments and accruals within the industry's economic landscape. Subsequent to a thorough examination of the stylized facts

pertinent to the manufacturing industry, this study has proceeded to examine the indicators of financialization through a combination of data analysis and graphical representation.

The present investigation is predicated on an appraisal of extant scholarly literature that elucidates the nexus between fixed capital expenditure and economic gain, remunerative outlay to the finance industry, and organizational conduct. The factors associated with financialization are found to emanate from manufacturing firms and other transformations. These elements are found to play a pivotal role in the promotion of financialization.

The present investigation comprises a descriptive analysis of the data that has been gathered. The data acquired consists of two distinct sections. The initial study comprises a total of 107 manufacturing firms that were listed in the Istanbul stock exchange between the years of 1998 and 2016. The subsequent investigation focuses solely on a selection of 56 manufacturing firms that were also listed in the Istanbul stock exchange, but only for the period spanning from 2010 to 2016. The rationale for the utilization of two distinct data sets can be attributed to the absence of data for the preceding period. After analyzing the shared data, the stylized facts reveal that the sector is subject to the influence of financialization. The financialization phenomenon has exerted a marginal influence on the manufacturing enterprises operating in Turkey.

The present study contributes novel insights to the existing body of literature with respect to the selected data set. Currently available literature presents no other scholarly study of comparable magnitude in terms of the dataset employed. In addition to the inherent challenges associated with data collection, the presence of missing data further compounds the impact on results. The aforementioned can be perceived as a constraint, and it is advisable for this research to advance by employing econometric analyses to apprehend the magnitude of the variables associated with financialization.

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Chapter 25

**Technological Innovations in The Food
and Beverage Industry**

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ABSTRACT

The food and beverage industry, owing to its organizational framework, is among the sectors that experience swift and profound impacts from alterations. The food and beverage business, characterized by its dynamic and progressive nature, has significant impacts from technology advancements. Technological advancements have had a significant impact on the structural and functional components of the food and beverage sector, particularly in recent years. The objective of this research is to assess the technological transformations that have occurred within the food and beverage industry, as well as to anticipate the forthcoming changes that this sector will endure. Within this particular context, a comprehensive overview was provided regarding the advancements and prospective trajectory of the sector. Furthermore, the conclusion included critical assessments pertaining to the technical prospects of the food and beverage industry.

Keywords: Food and Beverage Industry, Technology, Technological Innovations.

1. INTRODUCTION

According to Maslow's hierarchy of requirements, physiological demands are prioritized at the foundational level. The significance of sustenance and hydration, as fundamental physiological requirements, is widely acknowledged in human existence. Entrepreneurs have launched food and beverage enterprises in order to fulfill this crucial physiological need (Tütüncü, 2009). Food and beverage enterprises may be characterized as manufacturing enterprises that provide service facilities for the provision of food and drinks (Olalı and Korzay, 1989). The food and beverage industry has seen significant transformations since the mid-20th century, leading to notable changes in the operations of enterprises within this sector (Koçak, 2009).

Food and beverage enterprises are very susceptible to quick changes owing to their organizational framework. Addressing the dynamic needs and preferences of contemporary customers is a formidable challenge for food and beverage enterprises. The fast development of technology is an unavoidable occurrence that will undoubtedly have significant implications for the food and beverage industry. The evolving preferences of customers, who want more than just sustenance while dining out and actively seek novel experiences, need adaptations within the food and beverage industry. Given the escalating competitive landscape, the domain in which food and beverage enterprises may get a competitive edge in the market is via the adoption and use of technology. The aim of this study is to reveal how the food and beverage industry has developed technologically and to make evaluations about its future.

2. DEVELOPMENT OF THE FOOD AND BEVERAGE INDUSTRY

The phenomena of nutrition, referred to as the consumption of food and beverages, encompasses a series of behaviors that have been seen from the inception of the human species and are projected to persist until its ultimate culmination (Yiğit and Bucak, 2018; Doğdubay & Cevizkaya, 2015). Early humans were able to fulfill their dietary requirements via the practices of gathering and hunting, which were crucial for sustaining human existence due to the paramount importance of nutrition. The advent of fire, the domestication of animals, the shift towards sedentary lifestyles, and the agricultural revolution have significantly transformed the concept of human nutrition (Yiğit, Armağan & Girgin, 2018; Görkem & Sevim, 2016). The phenomena of nutrition has undergone continuous evolution from the earliest human civilizations to the present day, resulting in significant transformations and advancements in the realm of dining establishments.

Given the historical context of human travel spanning millennia, it is evident that the provision of housing, as well as sustenance in the form of food and beverages, constitutes fundamental need for those engaged in such journeys. This statement suggests that the origins of food and beverage enterprises may be traced back to the same historical period as lodging businesses (Koçak, 2012; Sönmez, 2017). Over the course of time, establishments that cater to individuals' dietary requirements while they are on the go have gradually developed a distinct commercial character. The food and beverage business has evolved into its current state as a contemporary company under the influence of technological advancements throughout the course of time. The food and beverage industry may be broadly defined as a sector including various enterprises that cater to individuals' need for sustenance, refreshments, and recreational activities outside their residential environments (Karamustafa & Ülker, 2018).

It is not inaccurate to assert that the transformation seen in the food and beverage sector has transpired in conjunction with the societal changes experienced by individuals. The food and beverage sector is subject to unavoidable changes due to the progress of society, cultures, and technology. In his book "A History of Food," Fernandez-Armesto (2012) conducted a historical analysis of this transformation, organizing it into seven distinct categories.

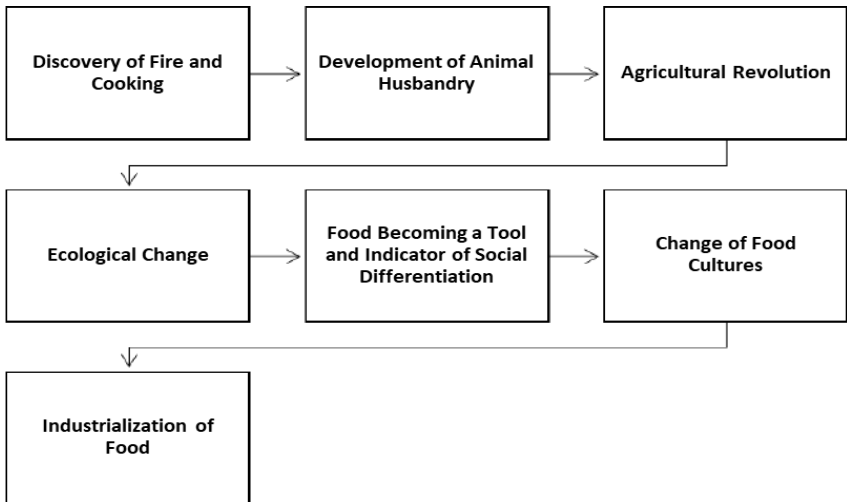


Figure 1: History of food chronologically

Discovery of Fire and Cooking: The discovery of fire has significant implications not just for the food and beverage business, but also for several

other domains. The discovery of fire stands as a significant milestone in human history. Following the advent of fire, people started the practice of using this newfound element to prepare and consume sustenance via the process of cooking. In this particular setting, the first culinary methods were also unearthed.

Development of Animal Husbandry: The historical trajectory of the livestock business, a pivotal sector for the food and beverage domain, began with the advent of animal domestication by human societies. The use of domesticated animals as livestock began. The advent of livestock husbandry has led to a shift in dietary preferences towards animal-based food consumption among individuals.

Agricultural Revolution: The agricultural revolution stands as a significant historical event that brought about a profound transformation in the human experience. The transition from a hunter-gatherer culture and nomadic lifestyle to a sedentary one occurred among human populations during the agricultural revolution, ultimately establishing the groundwork for contemporary urban centers. The advent of the agricultural revolution brought about a significant transformation in human dietary patterns, since it included the cultivation of plants for sustenance.

Change of Food Cultures: The innate inquisitiveness of the human species to explore uncharted territories and the exhilaration derived from the revelation of previously unexplored countries persist unabatedly. The exploration and voyages undertaken in previous centuries not only resulted in the discovery of new territories, but also yielded further findings. Throughout these journeys, several individuals were encountered, and their culinary traditions were also unveiled. During the centuries characterized by the flourishing of Silk Road commerce, the transit of food and drinks from many civilizations facilitated the dissemination of various cuisine cultures across different geographical regions.

Food Becoming a Tool and Indicator of Social Differentiation: With the advent of trade in human civilization, a certain sector of the population has begun to experience increased financial prosperity. The phenomenon of growing earnings has given rise to social differentiations. This scenario also exemplified the dietary patterns of those with financial resources. The social stratification among individuals belonging to the nobility, bourgeoisie, and plebeian classes results in distinct disparities in terms of food intake, including variations in food types, quality, and consumption practices.

Ecological Change: In recent years, ecology has emerged as a significant concern for companies across several sectors. Consequently, food and beverage industries have also recognized the need of addressing ecological

considerations. The inherent equilibrium of nature necessitates that any harm inflicted upon it elicits repercussions that diminish the well-being of subsequent generations. The food and beverage business is subject to the influence of environmental factors, necessitating the adoption of ecologically sustainable practices in food and beverage manufacturing.

Industrialization of Food: The rise in population size and the growing trend of increased dining out habits among individuals have contributed to the process of industrialisation within the food and beverage industry. Contemporary food and beverage enterprises prioritize large-scale production rather than limited-scale manufacturing. The proliferation of fast food culture in contemporary society has expedited the industrialisation of the food and beverage industry.

2.1. Technological Changes In The Food And Beverage Industry

Currently, food and beverage businesses have significant hurdles in meeting the demands of the customer demographic. In the 21st century, consumers have increased levels of curiosity, knowledge, extroversion, and openness to personal development as compared to previous generations. Another significant consideration that contemporary consumers place emphasis on is their inclination towards seeking out unique and innovative experiences. Modern consumers have a predilection for equipment that diverges from conventional standards and puts considerable importance on aesthetics and visual attractiveness. The major areas of concern that need attention are the ever-changing and dynamic expectations and preferences shown by modern clients (Işık & Keskin, 2013; Albayrak, 2017).

The ever-changing nature of client preferences and wants results in parallel transformations in the competitive environment. In the current global scene, characterized by intense competition and constant change, the success and sustainability of organizations depend on their ability to adopt and implement new techniques (Mumford & Licuanan, 2004; Türksoy & Türksoy, 2005). Technological improvements within the food and beverage business not only provide a competitive advantage to enterprises, but also yield other advantages. Albayrak (2017) presents a detailed overview of the advantages that technological improvements provide to the food and beverage industry.

- Reducing costs,
- Increasing market share,
- Increased profitability,
- Increase in quality and service provided,
- Increase in customer satisfaction,
- Easier entry into new markets,

- Emergence of new job opportunities,
- Contributing to economic growth,
- Uncovering new raw material sources,
- Increase in entrepreneurship and
- It also provides advantages in matters such as reducing foreign dependency.

2.2. The Future of The Food and Beverage Industry in Terms Of Technology

The food and beverage business is very susceptible to fast changes owing to its organizational structure. The food and beverage business is undergoing transformation and advancement as a result of technological advancements. The significance of technology in the food and beverage sector is in its ability to provide a competitive advantage via the implementation of effective marketing tactics. The primary objective of this sector is to captivate the interest of Generation Z, colloquially referred to as the internet age, and provide as a viable option for previous generational cohorts. In light of evolving consumer needs and generational shifts, it is essential for food and beverage enterprises to implement a range of innovations in order to remain relevant in the era of technology. These innovations are listed below (Rewardnetwork, 2018):

- Interactive tables
- Programs that quickly respond to consumers' requests
- Well designed website
- Order screens where kitchen staff can follow orders more easily
- Online reservations and table plans
- Applications that show the current status of ordered food or drinks
- Touch screen menus
- Faster and more optional payment systems
- Free fast internet
- Loyalty programs

3.CONCLUSION

The food and beverage business is expected to undergo ongoing transformations and advancements as a result of technological advancements. The use of technology in the food and beverage sector exhibits variability, particularly in response to the evolving preferences and needs of Generation Z, a demographic cohort seen as a strategic investment for future growth. In order to maintain relevance and popularity, food and beverage enterprises will inevitably need to integrate with technology at a certain juncture. When

examining the use of technology within the context of chain enterprises, the implementation of robotization in manufacturing processes guarantees the consistent replication of a standardized recipe, hence ensuring uniform taste, quality, and sanitary standards throughout all branches. The use of robotization has the potential to effectively mitigate costs by minimizing production losses.

The integration of technology within the food and beverage industry is anticipated to provide potential resolutions to the existing challenges of waste management and waste, which are widely recognized as significant issues within the sector. Improper waste management leads to the disposal of recyclable garbage in landfills, hence hindering its potential for recycling. This scenario leads to a more rapid depletion of finite resources. The issue of waste constitutes an additional ethical concern. Given the prevalence of hunger among a substantial portion of the global population, it is anticipated that technology advancements would prioritize addressing these dual concerns. While the use of robotics in the food and beverage sector is often seen as a commendable effort to keep pace with technology advancements, it is important to acknowledge that not all stakeholders will embrace the automation of production processes. The food and beverage business assumes a role in facilitating social interactions. The convergence of robotization in production and service with our pervasive reliance on the internet poses a potential risk of fostering social isolation and antisocial behavior among individuals. The ethical considerations surrounding the multifaceted problem of technology and robotization in the food and beverage business need careful examination.

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Chapter 26

**Changing Meaning of Old Age
Throughout History: From the Respectable
“Ancestor” Figure to the Perception of
a “Burden on the Back,” Ageism in Late
Modern Societies**

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Abstract

The elderly population around the world is gradually increasing as a result of the increase in life expectancy and decreasing fertility. The growing elderly population is bringing along the demographic transformation that includes the aging of the world population. Although developed countries with a high elderly population density feel the demographic transformation most intensely, the aging rate is highest in underdeveloped/developing countries. The prolongation of life with the developments in technology, medical science, and health causes the population to become gray, while the developments in the economy have led to the exclusion of the elderly population from the total population. The transformations that occurred in the tangible elements of the culture also activated the intangible elements and had a negative impact on the roles and positions of elderly individuals in society, ultimately leading to ageism. Ageism, which has risen dramatically in industrial and post-industrial societies, constitutes an important social problem, especially in underdeveloped/developing countries where the elderly population has increased far beyond the development line of the country.

Keywords: Aging, Ageism, Age Discrimination, Respect for Ancestors, Social Isolation

INTRODUCTION

The meaning of old age and being old has changed significantly in late modern societies. Older people, who previously enjoyed a high status as respected ancestors, are now perceived as a threat to the development and well-being of society, especially in underdeveloped/developing countries where welfare services have been abandoned and structural adjustment and stabilization policies have been imposed. This situation, which also affects the social participation of the elderly, leads to increasing prejudice and discrimination against them in a cyclical manner.

Many factors have been influential in changing the traditional roles and status of older people. The industrial revolution and demographic transformations towards the aging of the population are undoubtedly among the main dynamics that determine how old age is shaped and how it is given meaning. On the one hand, the elderly, who could not adapt to the renewed/transformed production process with the stages of the industrial revolution, who could not keep up with the rapidly changing working conditions, and who consumed less by focusing on reusability in a consumption-oriented society, were excluded from the system as less accepted individuals. On the other hand, the proportion of the elderly in the population, who are perceived as recipients rather than producers and as dependent rather than productive because they are economically and socially excluded from the system, is gradually increasing. Rates of elderly population have been climbing globally for several decades, bringing with it the demographic transformation related to the aging of the world population. The graying of the population seems to have led to the association of a social problem with this population that is outside the system, or more realistically, pushed out of the system. The increasing elderly population is especially dangerous for underdeveloped/developing countries. This is because, although developed countries with a high elderly population density feel the demographic transformation most intensely, the aging rate is highest in underdeveloped/developing countries. And in these countries, this causes many problems related to the exclusion of older people from the market for goods and services, as well as being a source of age discrimination.

In this context, in order to understand discrimination against the elderly, firstly, the meanings of old age and being old in the historical process are discussed and the dynamics shaping old age are discussed. The prevalence of elderly discrimination in late modern societies, which is visible in negative stereotypes, discriminatory and exclusionary attitudes towards older individuals, is evaluated within the framework of social developments.

1. The Dignity of the Elderly in Agricultural Societies: The Cult of the "Ancestor"

In agricultural societies, a family is first and foremost an economic unit. In these societies, the stability and continuity of the family depend primarily on the stability of production, and each family member is involved in the production process in relation to their age and strength. This is a necessity rather than a contribution. In this respect, extended family dynamics, which emphasize the coexistence of generations, are active in these societies to prevent the division of the labor force, which is one of the most basic resources in the production process (Giddens, 2000: 69; Yasa, 1973: 2).

Elderly individuals have critical positions in the extended family structure. Indeed, in the agricultural production model, the elderly play a very important role in the control and use of production resources. The fact that agricultural production is possible through interaction with nature and learning natural events through trial and error methods makes the elderly indispensable in this process. Since knowledge is one of the most important resources for production, elderly people with knowledge and experience, beyond contributing to production, constitute the basic workforce that makes production possible (Şenel, 1982). In these societies, where the basis of knowledge is experience, there is no alternative to the knowledge of the elderly in processing natural resources. Thanks to their experience in cultivating the soil and struggling with nature, the elderly have achieved the status of being consulted and listened to (Arpacı, 2016: 7).

Elderly people have an indispensable role in agricultural societies with their control over land, which is another important source of the production process. In these societies, control of land and water generally belongs to generations and lineages, that is, those of a certain generation or lineage have the right to control the land. In non-industrialized agricultural societies, where the ownership of the land is more symbolic, there is joint ownership of the land. In other words, it is not the individual but the community of relatives who own the land. The land is controlled by the oldest male, the head of the family, who also has control over younger family members (Haviland et al., 2008: 377; Yasa, 1973: 2-3).

In these societies, the elderly also play important roles in child care. Both old women and old men contribute greatly to the care of their grandchildren in the family, and they even manage this process. Since the elders of the family are in a position of authority within the family, they decide on all economic, political, religious, and social issues (Canatan, 2008: 39-45), and they pay attention to the "correct" upbringing of younger generations. In line with the social norms in these societies that "the most important role of the man in the family is to meet the material needs of the family, to win bread, and to respond to the instrumental

needs," old men have undertaken instrumental responsibilities in the care of their grandchildren as well as the family (Herlofson and Hagestad, 2012: 32). Other instrumental roles undertaken by older men, within the responsibility of caring for the young child in the family, are to provide children with ancestry awareness and family identity, to mentor them, to give them spirituality, to help them make use of their spare time, and to plan their future (Bates, 2009: 334-346). On the other hand, older women, who are key participants in the socialization of children in the household, take on goal-oriented roles, taking responsibility for providing social care and support for children (Svensson-Dianellou et al., 2010: 260; Timonen and Arber, 2012: 8; Xu et al., 2014: 229). Elderly individuals in the extended family, with the rich wisdom of their experiences, can also offer solutions to potential problems that younger adults may encounter (Haviland et al., 2008: 369). In this context, it can be argued that the elderly, who took active and heavy responsibilities as the heads of their families in agricultural societies before the Industrial Revolution, were important figures with their knowledge and experience in almost every field, especially in the family. Moreover, this authority received social acceptance and was legitimate in this respect. In other words, the roles of the elderly, especially within the family, gave them high status and were influential in the positioning of the elderly as wise authority figures and respectable ancestors in almost all agrarian societies, as well as in the family.

2. Industrial Revolution and Effects of Modernization

Human history has witnessed many developments that have transformed societies. Among these developments, which have been experienced painfully from time to time, the Industrial Revolution is undoubtedly the one with the most radical effects. The Industrial Revolution not only transformed the economic system with its production, consumption, and distribution mechanisms but also laid the groundwork for the construction of a social structure characterized by "fast consumption, rapid change, competition, and profit."

All stages of this revolution, classified as Industry 1.0, 2.0, 3.0, 4.0, and Industry 5.0, point to a transition from simple production to complex production where tools (machine, electricity, automation, internet, and artificial intelligence) are used effectively. The main goal of radical changes in production processes is to provide maximum benefit with the minimum possible cost. Ultimately, it is possible to produce quickly and at low cost, providing the opportunity for personalized consumption in desired quantities, and the goods produced can be distributed to every geography of the world (Yetkin and Coşkun, 2021: 348-349). Although the Industrial Revolution mostly brings to mind the changes in the production process, in daily practice it means much more than the way of doing

business within the framework of technology, speed, efficiency, and low-cost advantages. As a matter of fact, Industry 5.0 (Society 5.0), the last stage of the Industrial Revolution, points to the projection in the social life of technology, speed, information, competition, specialization, flexibility, and instant adaptation integrated into the production stage. These qualities, which are common in late modern societies, are important in that they reflect what is normal and what is deviant in the institutional structure and spiritual elements of the society (Uğur, 2020: 113-115). After these qualities became the new norms of late modern society, those who failed to adapt to the new conditions were naturally excluded from social life as deviant or undesirable. In this context, although the Industrial Revolution started a new era in terms of economic development, it can be stated that the other end of this development is related to a difficult life process and social isolation for individuals who could not adapt. This is exactly the case for the elderly on the other end of the Industry 5.0 coin.

Transformations in the production process primarily triggered the change in the working area, conditions, and ethics. The Industrial Revolution, which started with the use of machines in the production phase and made an almost unmanned production possible, reduced the need for human labor on the one hand, while, on the other hand, created the problem of surplus labor. In addition, the changing production process and demands necessitated the shrinking of production houses, and eventually, the labor problem got bigger. Technological-digital transformation, which provides instant response to ever-renewing demands, changed large factory structures and downsized companies. The automation provided by the technology revolution also changed the necessity of having a wide base of institutions, which was effective in this downsizing. While this means a cost reduction for the market, it also carries the risk of being laid off from the workforce. Instantly changing needs, that is, fluctuation in consumer demands, made diversity in production possible and required flexible specialization at the same time. In its simplest form, flexible specialization means that the tasks of the workforce change on a weekly or even daily basis in the process of bringing a wider variety of products to the market more quickly. Therefore, the workforce must adapt to change, constantly adding new skills and even taking more risks. In late modern society, risk is associated with rationality, rather than being a trait of venture capitalists or adventurous individuals. In today's societies, where inaction is seen as a failure, it is rational to take risks and strive despite all the dangers, even the high probability of failure. Because seizing opportunities means not giving up trying. In this competitive environment, only those who try and succeed can get the rewards. In this respect, those involved in employment should take risks, be entrepreneurial, and be able to keep up with

changes. On the other hand, individuals who cannot keep up with the new working conditions characterized by speed, mobility, risk, competition, entrepreneurship, and flexible specialization are excluded from the job market as those who want to work but do not have any expertise.

The inability to keep up with flexibility and change, which have become the basic dynamic of companies, and institutionalism and stability in the face of change, give the impression that the company cannot innovate or find new opportunities, and this situation is considered a sign of weakness. As a result, young people are preferred in the job market. The main reason behind this preference is the higher potential of young people to take risks, use new information technologies, and adapt to mobility and change. Unlike the youth, who are associated with flexibility, old age is equated with being rigid. The elderly are considered remnants of the old bureaucratic system (Sennett, 2014; Sennett, 2015). In fact, the knowledge and experiences of elderly individuals, which are vital for the stability and continuity of agricultural societies, are perceived as resistance, even a threat to the continuity and development of the new social structure. The fact that old age is equated with a lack of creativity, indifference to technological developments, inability, less productivity, as well as health problems (Chiu et al., 2001) caused them to be positioned outside the job market. With the abandonment of flexible accumulation, intensive consumption, and welfare state practices especially since the 1970s, which coincided with the 3rd stage of the Industrial Revolution, this exclusion turned into a definite inequality towards the elderly. In this process, inequalities in access to services, such as health, education, and transportation began to be experienced in underdeveloped countries with the globalizing economy and neoliberal policies, and employment turned into an extremely inaccessible resource (Sennett, 2014; Sennett, 2015). This resource, which is limited and difficult to access even for young, dynamic, qualified individuals, has become, after these developments, a cake for the elderly of which they can hardly get a share.

In the rapidly developing industrialization, the elderly are not only positioned outside the production process but also cannot be included in consumer capitalism. In these societies, where work ethics, as well as working areas and conditions, have changed, consumption capitalism, not production capitalism, prevails. In late modern societies that encourage people to consume and shape them according to their consumption habits, there is a need for individuals who are willing to consume and who are seduced by their consumption desire (Bauman, 1999). In this new social restructuring, where consuming means existence, the most and fastest consuming consumer is the "most acceptable" citizen, while the elderly represent the least acceptable (Silver, 1994: 74-75). This

is because reusability is more important than consumption for the elderly. The old generation's appreciation of hard work and saving and their loyalty to the past also reduce the consumption rates among them (Özkan and Purutçuoğlu, 2010: 38-41). At this point, it should be noted that although the values that the elderly give to work and consumption are important determinants of their consumption habits, they cannot be considered alone. This is because not being able to be included in the consumer society may be related to value judgments, as well as a result of being positioned outside the job market. Regardless of the reason, not being able to consume the goods or services that should be consumed leads to the deterioration of the social status of the elderly. In this society, which is not designed for them because only producers and consumers have identities, the elderly lose their former prestige because they are not able to provide economic contribution or productivity and because they cannot be included in the consumption process at the desired rate. Elderly individuals, whose place and identity among people have changed and who are perceived as outdated, are even excluded from social life (Geçtan, 1982; Cengiz, Küçükural, and Tol, 2003; Kalınkara, 2011: 188).

On the other hand, for the elderly, the industrialization process means not only being "useless" but also being alone. The Industrial Revolution, which led to radical changes in the form and process of production (workplace, work conditions, work ethics, etc.), brought about significant transformations in family life and laid the groundwork for this state of loneliness. The qualities such as competition, entrepreneurship, and the ability to adapt quickly to diversifying demands, which the new production process expects from the workforce, necessitated the shrinking of the family structure. The shrinkage of the traditional large family structure with industrialization and rapid urbanization (Zencirkıran, 2019: 24-26), in turn, affected the position of the elderly within the family. Family elders began to be unable to find a place in increasingly nucleated families and were even condemned to live alone (Demirbaş, 2018: 130; Kalaycıoğlu, 2003: 82). Relationships between family members, as well as spatial proximity, have been affected by dynamics leading to a rapid transformation around the world, and strong family ties have gradually weakened (Tufan, 2007a). The isolation created by the nuclear family structure for the elderly, who are respected for their functions, knowledge, and experience, whose needs are met by the family, and whose position and status are secure in the traditional large family (Bulduk, 2014: 46; Türkan and Sezer, 2017: 37; Özen and Özbek, 2017: 549; Tezcan, 1982), signifies the change in the traditional elder support system (Baran and Sarıtaş, 2018: 151). At this point, it should be noted that there is no sharp transition to the nuclear family in societies where traditional values are still not completely

abandoned. Although families have shrunk and nuclear families have become widespread in cities, it should be noted that these families do not reflect the classical nuclear family structure, which has become independent from the root family in every respect. This is because even though families are separated after marriage, both economic and cultural connections with root families continue. Especially the care of grandchildren and the care of the elderly by family members exemplifies this situation. In addition, it should be noted that traditional relations continue with practices, such as living in the same apartment with elderly family members or living nearby (Sarı, 2016: 95). However, it should be emphasized that the problem of perceiving the old family member as a burden may arise in these families, which are structurally nuclear and functionally related. This is because the decrease in productivity and the inability to provide economic contributions with old age pose a threat to the status and prestige of the elderly in the family. In response to this loss, as will be discussed below, there is an increasing need for care in old age. With the abandonment of welfare state practices in underdeveloped and developing countries, this need for care is mostly provided by family members. Therefore, it can be stated that the "provider" role of the elderly individual in the family ends, and the "receiver" role begins. This situation, on the other hand, can be a powerful source of discrimination against the elderly, who are perceived as a burden, and, as UKEssay (2018) points out, it may even lead to abuse of the elderly abuse as it disrupts the balance of exchange.

3. *The Rise of Ageism*

The fact that old age leads to discrimination and ultimately causes a social problem is closely related to both the physical, mental, and socioeconomic changes experienced in old age and the welfare level of countries. While the elderly experience physical, cognitive, and emotional changes at this stage of their lives, the socio-economic structure of the country also has an impact on these changes. Changes in this phase can affect the individual's experience of aging positively or negatively.

In old age, changes may occur in sensory organs, motor skills, the nervous system, and the cardiovascular system. These changes may cause restrictions on physical activities. Also, with advancing age, brain functions may decline and motivation to learn may decrease, and attention problems may occur. Moreover, language skills may decrease, and memory problems may emerge (Barut, 2008: 40). Mood changes can also be seen in the elderly, and elderly individuals may display emotional, touchy, and sensitive attitudes, as well as show resistance to social norms and display combative behaviors (Akın, 2006: 6; Ayalon and Tesch-Römer, 2018: 1-2).

In old age, changes can be seen in social roles, responsibilities, and relationships (Kalinkara, 2011: 9), and even loss of roles and relationships can occur. Losses experienced in this process can be categorized as job, spouse, parent, and friend losses. These losses are related to economic difficulties, a shrinking social environment, loss of social status, and exclusion from society (Arpacı et al., 2011; Bartlett et al., 2013; Daniş and Günay, 2019). At this point, it should be noted that how losses are experienced and the severity of the losses vary between individuals. The effects of losses on individuals can vary depending on factors, such as socioeconomic conditions, educational background, illnesses, psychological conditions, and anatomical features. Habits such as lack of physical activity, alcohol, cigarette or substance use, and inadequate or unhealthy diet can deepen the losses in old age and lead to pathological aging (Reed et al., 2015; Tufan, 2014: 6). These factors are important in that they draw attention to the fact that old age may not be experienced pathologically. Indeed, investing in old age when still young can prevent old age from being experienced as a period of loss. Yet, it should be noted that environmental conditions and culture are much more determinative than individual investment in how old age will be experienced.

Dynamics such as the definition of aging, the social position and status of the elderly, and the services provided to the elderly can greatly influence how old age is experienced. How societies perceive older people, and how they approach and support them can affect their quality of life. The welfare level of society is closely related to these factors: in countries with the highest quality of life, elderly individuals can enjoy social services and other benefits of the modern welfare state, and attitudes towards the elderly are more positive. The tendency to provide greater support and respect for the elderly may be common in these societies. As examples can be seen in these countries, in addition to services for the increasing needs of the elderly, understanding the losses experienced in old age, observing individual differences, and creating a positive old age image is important for a more inclusive and livable old age experience (Bektaş, 2017: 11-13; Çolak and Özer, 2015: 115). On the other hand, with the rise of capitalism and neoliberal policies globally since the 1970s, old age started to be accompanied by the deprivation of the opportunities provided by the social state, especially in underdeveloped and developing countries. Moreover, increasing individualism causes individual solutions to individualized problems (Wacquant, 2011), in other words, it leaves older individuals without support in the face of their problems. The increasing elderly population in underdeveloped and developing countries can exacerbate existing problems, such as poverty, income inequality, health system problems, difficulties in accessing goods and services, and inadequate social protection. Low levels of development, which cause old age to turn into a

pathological period related to losses due to inadequate services, also prevent elderly individuals from receiving services that can minimize their losses. These problems need to be addressed with social policies and development models as they cannot go far beyond deepening the existing problems in the countries (Arun, 2016: 29-33). Aside from the provision of services for the losses experienced by the elderly, a negative social perception may emerge towards the elderly, whose health expenditures and care needs increase while their productivity decreases. Indeed, studies (Bytheway, 2005: 361; Dean, 2009: 14; Mc Mullin and Marshall, 2001: 112; Tufan, 2003: 139) have revealed that elderly individuals are perceived as dysfunctional, weak, inadequate, and in need of care, and this perception leads to their social exclusion and being deprived of social services. It should be stated that the role played by the media and popular culture in creating negative images of old age is also effective in this perception of the elderly, as Çayır (2012) points out.

Old age, which is an inevitable phase of life, can be shaped by both individual and cultural elements. Although it is a universal life stage, the experiences and social positions of individuals at this stage are shaped by cultural norms. In pre-industrial societies and post-industrial societies with social welfare state practices, the perception of aging is more positive and the elderly are respected more. On the other hand, in societies that fall behind the industrial development line and where the welfare state policies are replaced by the neoliberal state understanding, the elderly may generally be exposed to a negative aging experience. The increasing elderly population in these societies is also very effective in this negative perception of old age. Although increased life expectancy and decreased fertility have led to the aging of the world population (Eurostat: Demographic Statistics, 2021), this transformation is happening faster in these countries. In the 21st century, which is called the age of the elderly (Arun, 2016: 29-33), in cultures experiencing rapid graying of the population, tangible and intangible cultural elements cannot keep up with the pace of this demographic development. This, in turn, reinforces ageism, together with prejudices about old age, which is already perceived negatively.

4. Dimensions of Ageism

Ageism is an important social problem in late modern societies, especially in societies that experience rapid population aging. The traditional conceptualizations of the “wise, authoritative, and powerful elderly” are replaced by the conceptualizations of the “unproductive, powerless, incompetent, passive, lonely, and sick elderly” in these societies. In this respect, the elderly can be the

subject of disrespectful and contemptuous attitudes (Nussbaum et al., 2005; Tufan, 2007b).

Based on the work of Michel Foucault (2006) and some other authors (Baars, 2010; Rozanova, 2010: 214; Loos and Ivan, 2018: 170), it should be noted that modern societies are progress-oriented and based on rationality. In these societies, qualities such as weakness, ill-health, ignorance and incompetence are considered abnormal as obstacles to progress and are controlled by control mechanisms (panopticons). In this context, old age, which is related to these qualities, is also ignored in the modern world. Moreover, the fact that old age is determined by external authorities in these societies makes this state of neglect mostly inevitable. Because in traditional societies, we can talk about an old age related to the individual and his/her living conditions: How the individual within a certain age limit feels himself/herself and how he/she perceives his/her living conditions shapes the perception of old age. However, in modern society, modern science enables the determination and recording of calendar age. The roles of the elderly as well as old age are controlled by laws, organizations, economic relations and everyday life (Bektaş, 2017). Although old age is a natural stage of life, the losses that come to the fore with old age, especially in undeveloped/developing societies, lead to the expectation that older individuals will be positioned outside the labor force and the production process in the modern world, and cause older people to be completely ignored as members of an abnormal class (Baars, 2010; Rozanova, 2010: 214; Loos and Ivan, 2018: 170). The roles assumed by the individual, who assumed various roles in many areas such as family-education-economy-religion-law- leisure time in the previous stages of his/her life, diminish with old age; the participation of the elderly person in the basic institutional structures of the society ends with the retirement, job, spouse and friend losses experienced in this stage of life. This lack of social participation means social isolation for the elderly person, while at the same time reducing his/her social environment and the qualities that make him/her useful for society (Hablemitoğlu and Özmete, 2010; Kaygusuz, 2008; Onur, 2011).

In many fields, from daily life to the media, from public institutions to the private sector, from art to politics, the activity or even the mere visibility of elderly individuals can create discontent. The elderly are expected to withdraw from society, turn to themselves, live their last days with their family and grandchildren, and direct all their interests and efforts toward domestic activities and spirituality (Danış and Günay, 2019). The expectation of being invisible with increasing age in the social field may also arise against the demands of the elderly for rights and services. Strict criteria for the delivery of services reflect that the growing needs of older people are often ignored. Moreover, with the increasing elderly population, the restrictions on their access to services such as health, transportation, and care increase, and their

needs such as autonomy and privacy may be ignored in the services they can access (Cummings, Cassie and Trecardin, 2016). The elderly, being considered inefficient and in need of care and protection, may feel that their individual characteristics are often ignored, they are not paid attention to, or they are treated as if they are young children or as if their only role/characteristics in life is to be old (Çayır, 2012: 168; Duffy, 2017: 2070). These common societal trends are very important in that they reflect the perception that the elderly are dependent and helpless and that old age is the only identity in the life of the elderly.

Working life is one of the areas where ageism and age hierarchy are felt intensely. As discussed above, the increasing neoliberal policies and capitalism around the world make it more and more difficult for individuals over the age of 40 to hold on to working life, let alone older individuals. In this era where work is flexible and the concept of overtime has disappeared with new technological tools, that is, people can work almost 24 hours a day, and the desired qualifications and knowledge are constantly updated and become fluid; it is thought that the elderly cannot constantly renew themselves. In this respect, in a competitive and crisis-prone job market, age is an important criterion in hiring and firing (Sennett, 2015; Bauman, 1999). In addition, their high wage demands for their experience and expectations of not working without social benefits can increase the cost of employment and conflict with the high-profit expectations of the companies. In this respect, the desire to keep costs low seems to lead to the preference of young employees in the job market. Both the fact that individuals over a certain age are not preferred in employment and that individuals over a certain age who are still in the workforce cause social dissatisfaction are attitudes that reflect ageism in employment. Elderly individuals are expected to withdraw from employment and those who do not are considered contrary to social norms (Çayır, 2012). Indeed, people over the age of 65 who actively participate in the production process and make the desired economic contribution can be accused of deviance, let alone perceived as productive. It can be thought that they do not fulfill their basic old age roles, such as retirement, taking care of grandchildren, having close relations with family members, and withdrawing into themselves and that they cause disruptions in the social order, for example by contributing to youth unemployment. In other words, when older individuals continue to produce, contrary to what is expected from them, they can be considered to be behaving outside of accepted social norms because they do not conform to the roles expected of them. Old people lose their powerful and active roles with increasing age and, as a result, they are positioned outside the social sphere. The expectation that older people should withdraw from society is so strong that failure to fulfill this expectation reinforces ageism.

CONCLUSION

The meaning of old age and the role of the elderly have changed significantly in late modern societies. While the elderly once had a high social status as respected ancestors, they began to be perceived as a threat to the development and welfare of society. This change has also affected their social position and engagement and has led to increasing prejudice and discrimination against them.

Increasing ageism causes the elderly to internalize the perception of being inadequate, unproductive, and worthless, which can deepen the negative psychological transformations experienced in old age and cause old age to be associated with depression and loneliness. Discrimination can also damage their relationships with family members, and the stereotype of "dependent elderly" can undermine their status within the family. Indeed, this negative perception can contribute to the abuse of the elderly within the family, as discussed above. This prejudice and discrimination can also harm social unity and solidarity. As a matter of fact, the arguments claiming that the employment of the elderly usurps the rights of young people may cause the blaming of the elderly. Or, this discrimination may be visible in the kind of hostile behavior, an example of which has been experienced by the whole world in the very recent past. During the coronavirus pandemic, the elderly who needed to be protected were seen as the cause of the pandemic, so they were exposed to hostile attitudes. This discrimination also triggered violent behaviors and led to a division in society between the young and the old. In this context, it should be noted that discrimination against the elderly is visible at micro, mezzo, and macro levels, and micro, mezzo, and macro policies are needed to prevent this.

Raising awareness about the elderly among the members of society and evaluating them from a more positive perspective is a fundamental step and an effective strategy for reducing ageism. The viewpoint that old age is not a period of loss but a life stage accompanied by unique experiences, knowledge, and life experiences needs to be popularized among younger members of society. In this direction, awareness can be raised about the rights, experiences, and values of elderly individuals through activities such as campaigns, seminars, and workshops. Furthermore, the difficulties and needs of older people can be emphasized, and other members of society can be encouraged to adopt a more sensitive approach to older people. Training programs can be organized to raise awareness about aging and to emphasize the harms of ageism, and positive representations of the elderly in the media can contribute to the perception of the elderly as active, energetic, and social participants. This change in perception may encourage older individuals to take a more active part in social life.

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Chapter 27

**The Rising Voices of Women from Past to
the Present Popular Culture:
Instapoetry and Kaur**

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ABSTRACT

Women have been subjected to male dominance and faced discrimination in many aspects of life because of their gender all through history. By insurrecting with the feminist movement which got its start in England in 1792, they began an ongoing struggle to get their freedom and sexual equality. Feminist movement which is divided in four waves metaphorically enabled women to get many rights and to be visible in society. Women gained political rights, aimed to destroy patriarchal norms and gender roles. Not only did they defend the rights of white women but also women of different colours, races and ethnic origins by benefiting from the technological advances in 20th century. With the advent of social media in 21st century, women's movement gained a new dimension. Through digital feminist activism each woman started to raise her voice against the patriarchal treatment of women and they achieved to create a community across the world. Rupi Kaur is one of those women who has drawn attention to different femininity issues and has become the bold voice of all women through her insta-poems within popular culture. Handling the identities of the women in her family and society, Kaur explores the issues encountered by women, as well as exposing her own experiences regarding patriarchal treatment in her early poetry collections *Milk and Honey* (2014) and *The Sun and Her Flowers* (2017). She also exposes the path taken in terms of feminism by creating a link between 20th and 21st century feminisms.

Key words: Feminism, social media, insta-poetry, popular culture, Kaur.

INTRODUCTION

Throughout history women have been oppressed, dominated, silenced and exploited because of their gender by the patriarchal authority. They have always been regarded as secondary creatures and hence hold in the background in society. In response to this oppressive and marginalizing treatment, they have spoken out in a variety of ways in order to alter the circumstances surrounding them by taking advantage of the opportunities of the time throughout history. In early modern England, women were totally isolated from the social life and deprived of any rights granted to men. Prompted by the women's marginalization and inferior status in society, some female writers began to question the image of women and the attitude towards them in the 16th and 17th centuries. By reinterpreting some parts of Genesis, they accomplished to ignite early phases of feminism. Mary Wollstonecraft took this ignition one step further with her canonical book *Vindication of the Rights of Women* (1792) emphasizing the fact that unequal conditions between women and men are caused by the significant variations in schooling. Wollstonecraft steadfastly advocates for the social potential that women may achieve if they receive the same level of education as men. By the 1960s, Betty Friedan challenged the women's withdrawal from the world after gaining so many legal rights. Through her book *The Feminine Mystique* (1963), she aimed to awaken women who were passivized by the socially constructed feminine roles that limit them from realizing their full potential. Other female writers including Kate Millett also became the rising voices of women against the patriarchal norms and cultural practices in all layers of society. Up until the latter half of the 20th century, the only women who could speak out in terms of sexual equality in different areas of life were the white, middle class and college educated ones. However, in the 1980s the concerns of women who were marginalized in society because of their skin color, sexual tendencies, ethnic origin or lower social status came to the fore with the emergence of postcolonial and intersectional feminisms. Through the advances in information technology, women's different experiences and identities were acknowledged and their multiple layers of oppression were boldly disclosed. Additionally, these marginalized women utilized pop culture items like art, fashion or music to raise their voices against the social, economic or political inequalities. Judith Butler, as a key figure in third wave feminism, focused on the social and cultural construction of women by stressing on the fact that the patriarchal system imprisoned women by placing restrictions on their lives and bodies. In this regard, one of the goals of this paper is to show how Rupi Kaur challenges societal constructions of femininity via her provocative poetry by embracing Butler's notions.

In 21st century, the way women find their voices under male dominance has radically changed with the emergence of digital feminism which gained popularity through heavy usage of internet and social platforms. These tools have served as means for raising awareness for digital feminist activists; as a result, they have effectively utilized these resources for the organizations of some campaigns and the discussion of women's issues. One of the most well-known Twitter campaigns, the #MeToo movement challenged sexual abuse and harassment on social media and showed that it is still possible to fight all types of discrimination and put an end to sexism. These new media platforms like Twitter, Instagram or Facebook have also become significant channels for the spread of popular culture. The representation of women in popular culture and media has not always been in favor of them. Women have been stereotyped, marginalized or devalued through these means which promote and reinforce cultural constructions of femininity and unequal power relations. In order to turn this situation inside out, some women have also found a voice in popular culture through "instapoetry" via social networking sites. Indian Canadian poet Rupi Kaur is one of those women who accomplished to build a strong connection between online platforms and poetry. Becoming an international celebrity by means of her instapoetry, Kaur challenges the patriarchal ideologies and becomes the bold feminist voice of all women. As for the aim of this paper, it aims to portray how Kaur, as a woman of color and immigrant, comes to understand the difficulties faced by the women in her community particularly by her mother as they struggle to survive in a society dominated by men and how she has created a link between 20th and 21st century feminisms by revealing her traumatic experiences of patriarchal treatment.

From Post-Colonial Feminism to Digital Feminist Activism

Post-colonial feminism emerged in the 1980s to reveal the pluralism in each woman's life experiences by evolving as part of the "third wave" which emerged when women of color confronted with white feminism with racial prejudices (Heywood, 2006: 29, vol. 2). By highlighting the universalizing tendencies of popular feminist theories, post-colonial feminists argue that women in non-Western nations are misrepresented. They also criticize the fact that when the term "woman" is used to refer to a general group, they are only categorized by their gender and not by their socioeconomic status, race, nationality or sexual orientation. However, as they assert, women can have a wide range of skin colors, cultural or ethnic backgrounds and their personal experience of patriarchal oppression can significantly vary depending on these identity factors. Therefore,

they consistently emphasize that making generalizations about women is false as it could be oppressive “to normalize particular – socially and culturally privileged – forms of feminine experience” (Gillis et al., 2004: 16). In other words, through false generalizations about women, these particular sorts of feminine experience are normalized and result in “replicating between women the very patterns of oppression and exclusion that feminism should contest” (Gillis et al., 2004: 19). According to American feminist writer Naomi Wolf “feminism” should be seen as “a theory of self-worth and the worth of other women” and should belong to all women regardless of any identification criteria. As a result, to be a feminist must be equal to being a human (Wolf, 1994: 149). Wolf also contends that feminism should be viewed as a humanitarian act aimed at ensuring social justice for all women since “it is illogical to claim one's rights as a woman yet deny them to others on the basis of their skin colour or sexual orientation” (Wolf, 1994: 150). In parallel with these ideas, American feminist Audre Lord also states that it is important to recognize and appreciate the differences between women in order to create a community where women support one another (Lorde, 1983). In her groundbreaking article “Under Western Eyes”, Mohanty argues that Third World Women are stereotyped by Western feminists as a composite and unified concept that is random and constricting (Mohanty, 1988). Her main objective is to provide Third World women with autonomy and a strong voice. Similar to this, Rupri Kaur wants to reclaim both the voices of South Asian women and women of all races, classes and ethnic backgrounds who were left out of the mainstream feminist movements.

As for the digital feminism, it could be said that it is a recent phenomenon which has become popular in 21st century through the development and extensive usage of the internet and social media. Digital feminists have been using these tools to raise consciousness about “street harassment, sexual harassment, or workplace discrimination” among women by connecting mass audiences in a short time (Cochrane, 2013: 37). They have set up websites and started online campaigns “to enable participants to recognize, analyze, and address the overlapping layers of marginality and discrimination in their lives” (Chun et al., 2013: 918). Now, a large number of women have had the opportunity to participate in a single debate and to share their terrible experiences concerning patriarchal treatment through these platforms. Initiated by Tarana Burke, one of the sexual harassment survivors, on a social networking site as a hashtag activism, #MeToo movement enabled lots of women from all over the world to break up their silence and to reveal their oppressors and exploiters. Besides, this movement has shown “the world how widespread and pervasive sexual violence is” (Chandra and Erlingsdottir, 2020: 99). This situation is also described as “an

exciting moment because women are defining what harassment, violence, and assault mean for them. How have these lived experiences affected their own understandings of their bodies or of their positions within the larger society?” (Regulska, 2018: 5). That is to say, internet and social media platforms have gained vital importance for women to speak up about long suppressed issues and to empower each other through empathy and solidarity regardless of their class, race, ethnicity or age. What is more, online platforms have provided women with a strong and bold voice claiming for social and political rights. The following quotation highlights the significant impact of online platforms on the dissemination of feminist ideas:

“Historically women have had little to no way to meet up and to discuss and share ideas, which has arguably lead to a narrow and white feminism being dominant, yet now through social media being accessible for many it is so much more easier to share ideas, to discuss and develop feminism, to help others through advice and through petitions, through raising awareness, and through holding others to a higher standard and pointing out others' inexcusable misogyny” (Mendes et al, 2018: 241).

It is quite likely that collective feminist awareness developed by online feminist action is laying the groundwork for a social transformation and a more equitable society: “The themes of global reach, speed, immediacy, dialogue, visibility, engagement, contact, connection, collectivity and shared understanding” emerged as significant for digital feminist activists (Mendes et al., 2018: 240).

Popular Culture, Feminism and Kaur

Scholars have examined and defined the term of popular culture in a variety of ways. Firstly, it is described as the “culture that is widely favoured or well-liked by many people” (Storey, 2006: 5). As for the second definition, popular culture is the culture remaining after the notion of high culture has been determined. This shows the subordinate status of popular culture which comprises texts and activities that lack the requisite standards to be regarded as high culture. Besides, it is defined as “mass culture” by some people claiming that “popular culture is a hopelessly commercial culture” (Storey, 2006: 8). Finally, it is also defined as folk culture that is developed by and on behalf of people.

Technological developments in mass media led to social and cultural changes in the western world following World War II. Similarly, capitalism, particularly the drive for profit, took over the function of marketing, leading to the sale of newly manufactured goods to individuals from various social strata.

Consequently, the definition of pop culture began to overlap with that of mass culture, consumer culture, image and media culture. Additionally, mass media that forms and disseminates pop culture has changed dramatically during the last two decades. Although only written materials such as magazines, books or newspapers and broadcasting organs like radio and television were regarded as mainstream media in 2000, it now includes a wide variety of social networking sites like Twitter, Instagram, Tumblr and others. These sites have facilitated a very participatory environment that offers a wide range of opportunities for cultural expression and creativity.

“Though contemporary feminists have taken a diversity of approaches to popular culture, they have shared two major assumptions. The first is that women have a particular relationship to popular culture that is different from men’s. . . . The second assumption is that understanding how popular culture functions both for women and for a patriarchal culture is important if women are to gain control over their own identities and change both social mythologies and social relations. . . . Feminists are saying that popular culture plays a role in patriarchal society and that theoretical analysis of this role warrants a major position in ongoing discussions” (Rakow, 2009: 186).

The lack of women participating in cultural production, the popular cultural expressions that marginalize or devalue women and the disdain for women as spectators of pop culture are all criticized by feminists. Additionally, they have argued that representation of women in the mass media promotes and maintains the pervasive sexual division of labor as well as socially constructed gender roles. Moreover, the media murders women metaphorically by representing them solely in the roles of mother, wife or homemaker and portraying these positions as “the fate of women in a patriarchal society” (Strinati, 2004: 167). It is clear that media depictions of women and men promote patriarchal goals by perpetuating unequal power relations and traditional gender roles. In other words, the mass media presents a fantasy world by supporting patriarchal ideology and prevailing societal ideals rather than accurately reflecting women and their rights, experiences, challenges or ambitions.

Even though media and popular cultural products destroy the image of women through misleading representations, women have managed to challenge these depictions by undermining prevailing ideas through their rising voice in new media platforms like Instagram, Twitter or Tumblr. Thus, they have succeeded in making an inversion in the role of media concerning women’s issues. As it is verified in the following quotation:

“It is not enough to dismiss popular culture as merely serving the complementary systems of capitalism and patriarchy, peddling ‘false

consciousness' to the duped masses. It can also be seen as a site where means are contested and where dominant ideologies can be disturbed" (Gamman and Marshment, 1988:1).

Currently, poetry is moving from the canon and the classroom to the social networking sites, which enabled poets particularly female poets to raise their voices through their poetry fearlessly. As a result, popular culture and poetry have become more closely linked than ever. Increased accessibility and connectivity have made poets more reachable and linked to larger audiences, which has increased interest in poetry especially instapoetry. Besides, many young poets have been successful in publishing their collections after finding success online. In the present era, the usage of popular culture in poetry has significantly helped to the development of feminist ideas, allowing women's voices to be heard globally while challenging patriarchal and hegemonic views. Indian Canadian poet, artist and performer Rupi Kaur is one of those women who has succeeded in raising her voice effectively on social media through her instapoetry. Kaur has reinvented the traditional art form and made it popular in the online platforms as a result of the rapid development of internet technologies as the ideal medium for communication and their substantial impact on the creation and dissemination of pop culture in the twenty-first century. She challenges the notions of "genre, gender and race in order to reveal deep - seated cultural anxieties about the imbrication of women, trauma and power" (Miller, 2019: 2). Embracing the notions of post-colonial feminism, Kaur has surely made a significant contribution to the digital feminist activism by reflecting the issues of women of all nations or ethnic backgrounds as well as exposing the women's systematic silencing and the socially constructed beliefs about their bodies through digital technologies. Besides, she claims that she has been able to talk about "unspeakable things" like abuse thanks to online channels (Keller et al, 2018: 22). As a matter of fact, Kaur's Instagram account serves as a forum with many of her admirers commenting on her poetry to share their own stories and talk about universal issues affecting women. In this way, her instapoetry, as a popular cultural product, integrate women from all over the world to discuss the inequalities in the system and challenge the status quo. Serving similarly to feminist hashtags such as #MeToo, her poetry has not only contributed to digital feminist action to a great extent but also become the strong voice of all women, particularly those who have been marginalized and excluded from society for a long time.

Instapoetry and Its Transition into 21st Century Popular Culture

Instapoetry with its few words expressing crucial messages is “a sub-genre of poetry” that is particularly composed for online platforms (Pâquet, 2019: 302). It is also described as “short, simple, often kitschy poems designed for smart phones....adorned with visual elements, such as handwriting, drawings, photos and adorned script” (Benthien, 2020: 8). Instapoetry, as a literary genre, challenges the traditional rules of poetry. Female sexuality and the sexual violence are the common subjects addressed in these poems. Despite the fact that not all instapoets are women, the majority of instapoems deal with feminist concerns and promote “women’s empowerment” (Pâquet, 2019: 305). It is claimed by the supporters of instapoetry that in such a digitalized society reading instapoetry might be a useful way to consume poetry since “the world has changed since the time of Whitman, Plath, Chaucer, Bronte, or whoever your favorite traditional poet might be..... poetry has changed with it” (Burnam, 2019). It is also thought that the transition of poetry from the canon to the digital platforms offers “a self help-aesthetic” and a brand new space where the voiceless could find a voice (Pâquet, 2019: 297). Furthermore, this revolutionary form has introduced poetry to a large number of people who previously had little interest in it as well as generating a power shift in the white supremacist contemporary poetry. Becoming the representative of this revolutionary genre through her confessional style, Kaur could be seen as one of the poets challenging the enduring tradition that creates women’s identities in accordance with socio-cultural standards. By celebrating taboo topics like menstruation and open breastfeeding and focusing on the themes of “female desire, sexual violence and abuse” Kaur strongly rejects the closure in the deepest part of history like Sexton and Plath and aims to disrupt and overthrow the restrictions imposed on women through her instapoetry that has become a popular cultural product in the 21st century (Miller, 2019: 4).

Kaur’s Poetry and Illustration

Kaur’s poetry is distinguished by its simplistic style that she discovered and appreciated while participating in Sikh traditions featuring sacred texts written in poetic language. Her revolutionary ideas are also reflected on her writing style as she just utilizes all lower case letters and only periods as punctuation by deconstructing the grammatical norms. She provides the following justification for her unique style on her website:

“When I began writing poetry, I could read and understand my mother tongue (Punjabi), but I hadn't yet developed the skill set to write poetry in it. Punjabi is written in either Shahmukhi or Gurmukhi script. Within the Gurmukhi script,

there are no uppercase or lowercase letters. The letters are treated the same. I enjoy this simplicity. It's symmetrical and straightforward. I also feel there is a level of equality this visuality brings to the work. A visual representation of what i want to see more of within the world: equallness” (Kaur, 2021).

Through the incorporation of these small distinctions into her works, Kaur aims to portray and preserve the distinctive features of her mother tongue. As she claims, she uses her writing style as a means to create a connection with her own culture and history. It is also obvious that one of her main goals is to achieve a kind of equality between letters, which she expands to concerns of racial and gender equality, both of which are essential to her works. Furthermore, by using a simple style she seeks for accessibility, which is the distinguishing characteristic of digital feminism. Most of Kaur’s poetry are accompanied with simple and clear hand drawn images. She claims that she purposefully drew with such simplicity so as not to take away from poetry. Despite the simpleness of her drawings, the themes tackled in her poems are quite serious. Additionally, Kaur’s striking drawings may be seen as a kind of communication for women who have lost their voices like Kaur’s mother or unable to express themselves adequately in the society to which they have relocated. It could finally be said that Kaur has clearly been challenging the patriarchal authority in a variety of ways like writing, drawing, performing or sharing on social media since she has experienced different forms of oppression, just like thousands of other women.

Verses Going Viral Within Popular Culture

Rupi Kaur’s best-selling book *Milk and Honey*, which she self-published in 2014 is a compilation of poetry and prose. The book is divided into four sections, each with the headings “hurting, loving, breaking and healing” (Kaur, 2015:5). As she states, the title refers to the memories of how her father, who believed in the curative powers of mixtures would treat her when she was sick by combining milk, honey and other herbs. It could be argued that much as her father cured her by taking advantage of the healing power of the mixture, Kaur’s poetry that go viral reaching a wide number of women within popular culture aspires to heal all the women who have been marginalized, silenced and tormented because of their sex, ethnic origin or sexual preference for a very long time. Her second poetry collection *The Sun and Her Flowers* was released in 2017. It is “a journey of wilting, falling, rooting, rising and blooming” (Kaur, 2017: 244). By using these expressions to describe the life span of a flower, Kaur illustrates the several phases of a relationship as well as the compassionate emancipation resulting from self-acceptance and self-love. Depending on the therapeutic power of expressing,

both of her collections are fighting against the subjugation of women by subverting and dismantling taboos constructed on the female body.

Kaur's feminist battle is quite obvious both in her private and public realms. As she asserts, by means of her poetry, she not only shows a reaction to the patriarchal treatment she experienced in her world but also to the treatment of the women in her community. She also states that women's search for a place in the society and their fight for equality inspired her to write and share her provocative poetry. Besides, Kaur coming from a Sikhism-practicing family claims that although their faith advocates gender equality and rejects all types of discrimination, the treatment towards the women in her family and community is radically different and far from being equal. The following verses clearly confirm this harsh contradiction between their faith and the patriarchal treatment:

“when my mother opens her mouth
to have a conversation at dinner
my father shoves the word hush
between her lips and tells her to
never speak with her mouth full
this is how the women in my family
learned to live with their mouths closed” (Kaur, 2015: 32)

Once her mother is told “to never speak with her mouth full”, she is in fact being instructed not to share her personal opinions and feelings (Kaur, 2015: 32). She is threatened not to speak freely and lives her life in accordance with her husband's directions. It can be stated that by depicting a domestic affair in which her mother is left voiceless by the male power at home, Kaur effectively exposes how the women in their society are often treated and how they are forced to be obedient to the patriarchal norms of the society. The poem also implies that by controlling their voice and restricting their speech, patriarchal authority pushes women into silence, fear and nothingness. Witnessing this fear in the eyes of her mother, she writes these verses:

“i can't tell if my mother is
terrified or in love with
my father it all
looks the same” (Kaur, 2015: 37)

As she states, her mother's behavior is so deeply overwhelmed by fear and anxiety that she cannot experience or express any other feelings. Since she has

been culturally conditioned to pretend as if her existence means nothing and spent her entire life suppressing her emotions like an object, Kaur cannot identify the feelings of her mother. While the family was living in India, her mother was only suffering from patriarchal tyranny but when they moved to Canada, she came to face with multiple forms of oppression. This means that not only has she been oppressed because of her sex, but of her color, ethnicity, religion and status as an underprivileged immigrant woman in a society dominated by whites. However, she was not alone because at that time many other South Asian women in the same society or women with various identities around the world experienced the same multiplied oppression just because of their ethnic origin, socio-economic status, religious belief or sexual tendency. Furthermore, these women were hesitant to speak out against this discriminatory culture since they were surrounded by fear. On the other hand, Kaur is bold enough to raise her voice against this culture as well as making her verses viral in popular culture by drawing attention to the multiple layers of oppression women have come to face with because of different identity factors. Thus, she also has contributed to post-colonial feminist thinking to a great extent.

“and my mother raised four children / without being able to construct / a perfect sentence in english.....now she left an entire country to be a warrior / and when the winter came / they had nothing.....when she opens her mouth and / broken english spills out / don’t be ashamed of the fact that / she split through countries to be here.....her accent is thick like honey” (Kaur, 2017: 142-144). In these verses, Kaur reveals the personal difficulties and struggles of her mother as a poor Indian immigrant woman and emphasizes her mother’s endurance and strength against these hardships in a foreign country. By doing this, she aims to challenge the patriarchal definitions of women as passive, silent and weak. Her aim in destabilizing and undermining the dominant notions about femininity in society directly corresponds to the goals of postcolonial feminists who “embraced individualism in women and diversity” (Evans, 2015: 22).

Kaur bravely describes the multiple oppression that her mother and the other women in their community faced because of different identity factors. Besides, she succeeds in bridging generations by reflecting on the current state of women in society and her own situation as an Indian woman living in a Western nation. She observes that the challenges faced by women all over the world have not altered significantly. The abuse, objectification, silence, marginalization and humiliation of women persist despite the fact that they have made significant progress in gaining numerous rights in political, social or economic areas of life. Furthermore, patriarchal society’s constructed notions continue to intrude on their bodies. Kaur effectively opposes the ingrained cultural constructs on the minds

and bodies of women and urges them to speak against these impositions and patriarchal culture via her unfiltered speech and poems on social media and stage performances. Highlighting her personal trauma of sexual assault with the following lines, she draws attention to the sheer reality of women's objectification and exploitation.

“the first boy that kissed me
held my shoulders down
like the handlebars of
the first bicycle he ever rode
i was five
he had the smell of
starvation on his lips
which he picked up from
his father feasting on his mother at 4 a.m.
he was the first boy
to teach me my body was
for giving to those that wanted
that i should feel anything less than whole
and my god
did i feel as empty as his mother at 4:25 a.m” (Kaur, 2015: 8)

The analogy of the female body to the “handlebars” of a bicycle in the poem clearly illustrates the sexual objectification of women and masculine power and dominance over their lives. In the following verses, Kaur portrays the abuser's hunger on his lips and how his sense of ‘starvation’ is prompted by the objectification of the feminine body as a sexual possession. Furthermore, she frequently makes references to the abuser's mother by highlighting the fact that she has also been objectified, exploited and humiliated. It is clear that her attacker picked up the habit of abusing women “from his father feasting on his mother at 4 a.m.” by modeling patriarchal teachings (Kaur, 2015: 8). Gender prejudices have persisted in social traditions from ancient times and people have adopted and upheld them like an ideology. Through these lines, Kaur fiercely condemns society's deep-rooted practices that convey the idea that women have to put their bodies into the service of men. Terms like “starvation” and “feasting” are clear allusions to the ancestral practices of men (Kaur, 2015: 8). Additionally, these terms apparently reveal women's inferiority and submissive status in the eyes of men who regard them nothing but a sexual object. In the final verses of the poem, women's social and cultural construction about their gender and bodies are

emphasized by highlighting the fact that women get knowledge about their bodies or feminine issues from other people instructing them to feel inadequate and incomplete. As a result of this situation, they regard themselves as flawed members of the society. In short, Kaur makes it obvious that patriarchal culture socially constructs women's understanding of their own bodies by confirming the fact that "one is not born a woman, but, rather becomes one" always as a result of societal pressure (De Beauvoir, 1973: 301). In the last lyric, the speaker returns to the mother of the abuser, comparing her emotions of desolation and incompleteness with hers, asking "did I feel as empty / as his mother at 4.25 a.m." (Kaur, 2015: 8). Her questioning exposes the fact that even the sensation of emptiness is passed down from generation to generation by patriarchal customs and teachings.

Kaur conveys the messages that she wishes to express more successfully through her drawings by employing the method of shock which has a great influence on readers. This shocking method is essential because it enables those who have never experienced abuse to understand what these women have really gone through. The following poem is an outstanding example of this method with which Kaur offers us an illustration of a naked female body whose head is cut off and places the verses in her vaginal area. She freely discloses the constructed ideas about women's bodies with the following lines as well:

"You
have been
taught your legs
are a pit stop for men
that need a place to rest
a vacant body empty enough" (Kaur, 2015: 9)

In this poem, Kaur bravely exposes that women are taught to regard themselves nothing but a sexual object that serves "for men" (Kaur, 2015: 9). Regarding this cultural construction, Butler argues that "whatever biological intractability sex appears to have, gender is culturally constructed: hence gender is neither the casual result of sex nor as seemingly fixed as sex" (Butler, 1990: 6). Based on Butler's assertion, it could be said that women are taught culturally to view their bodies as an attractive location for men to have a little break and relaxation. Besides, they are taught to believe that no one would ever care for or love them as they have no worth and can only be used as objects of pleasure. Via her poetry, Kaur tells the readers about her life experiences as well as her family history. As an Indian origin woman, she emphasizes that being born female in

India is a great burden since women are viewed as inferior creatures in her culture. Consequently, women's bodies are transformed into "passive medium[s] on which cultural meanings are inscribed" (Butler, 1990: 8). Describing the bodies of the women with the terms "vacant" and "empty", Kaur blatantly reveals how women's bodies and feelings are ignored, abused, despised and trivialized by the male authority (Kaur, 2015: 9).

In the following lines, it is hinted that the speaker has been sexually assaulted in the family environment and she is begged to forget the horrible anguish of sexual abuse. She responds, stating: "it is your blood / in my veins / tell me how I'm / supposed to forget" (Kaur, 2015: 10). Despite her cries, she has been hushed like millions of other women who have been sexually victimized and subsequently silenced. Additionally, the succeeding verses "the therapist places / the doll in front of you / it is the size of girls / your uncles like touching" uncover the harsh reality of women's being sexually abused since childhood by close relatives particularly in South Asian cultures (Kaur, 2015: 11). It is also revealed how these victims of sexual assault are compelled to live with a 'lump' in their throats as stated in the following verses:

"how're you feeling
you pull the lump
in your throat out
with your teeth
and say fine
numb really" (Kaur, 2015: 11)

Kaur truly seeks to highlight the innumerable instances of gender based violence that women in her family and society are subjected to through her poetry. These women are reluctant to raise their voice against this maltreatment because they hold the belief that they won't receive justice and will also be continuously degraded by their family and society. As a result, they feel obliged to continue living in suffering. To put it another way, they have been alienated to their silent screaming:

"You were so afraid
of my voice
i decided to be
afraid of it too" (Kaur, 2015: 14)

The speaker declares that her voice is considered as a menace to the patriarchal system, since if women stop being silent, male power might be questioned and possibly destroyed. She admits to being terrified of her own voice. She remained silent rather than speaking up when necessary because she is taught that being silent is a suitable behavior for women. Accompanying with the above mentioned lines, the illustration of a woman whose mouth is shut tightly with a man's hand also shows the terror caused by the male tyranny. Kaur posts these lyrics along with the following message on her instagram profile in an attempt to encourage women to speak out against oppressive ideologies:

“our voice is one of our greatest powers. but so many of us go through most of our lives without stepping into our voice. because somewhere along the journey of our life we were silenced. we were constantly told that we were wrong. not smart enough. ill-informed. that we lacked value. our voice was so shamed that this place of silence became our normal. our familiar place. and although now our circumstances may have changed. and we may not be around the people and situations that feared our voice. we still do. because we don't know any other place to be. and carving out a new place is hard. we remain quiet because we haven't given ourselves permission to burst open and let the world hear our song. so we have to speak up. be louder. we have to share our stories. even if it makes us uncomfortable. we have to pull each other up. create a new normal” (Kaur, 2019).

As opposed to her mother and other women in her society who have been sexually abused and kept their silence in fear for a very long time, Kaur chooses to publicly condemn her abuser through her art, taking the advantage of social media instead of isolating herself from society and suffering in pain. Thus, she creates “a new normal” by letting the world hear her bold voice (Kaur, 2019). It is a well-known reality that society typically rejects and holds victims of sexual assault accountable for their trauma. As a result, they are forced to keep their silence, being burdened by the disgrace of their abusers. However, Kaur writes the following verses in an attempt to oppose this social and cultural imposition:

“it is too heavy to carry out your guilt – i'm setting it down

i'm tired of decorating this place with your shame
as if it belongs to me

it is too much to walk around with
what your hands have done

if it is not my hands that have done it” (Kaur, 2017: 65)

As she states, it is really hard to live with someone else's shame, so she exposes her trauma of sexual abuse in an honest and serious manner in an effort to stop others from unfairly blaming or humiliating the victims. She also says that after enduring much suffering, she was able to reclaim her soul and body and she is now determined not to give them back, declaring "this home is what i came into this world with / was the first home / will be the last home" (Kaur, 2017: 66).

Kaur claims that she uses the power of social media to be able to reach lots of women and she is convinced that her in-depth account of the patriarchal tyranny and sexual abuse she experienced will not only inspire other women to speak up about their own experiences, but also offer them hope by highlighting the potential for recovery and regaining their sense of power. In this perspective, it can be argued that Kaur's poetry both raises women's consciousness and offer hope for their healing process as she emphasizes that healing from sexual violence is crucial for her and all the other women. She claims that this is the only way for bringing about real changes. Kaur has revealed the buried grief of women who have been exploited, suppressed and muted by anxiety and shame via her online feminist activism to indicate the traumas of women living in South Asian cultures. Thus, she becomes the prominent spokesperson for the fourth wave of feminism.

“when my daughter is living in my belly
I will speak to her like
she's already changed the world
she will walk out of me on a red carpet
fully equipped with the knowledge
that she's capable of
anything she sets her mind to” (Kaur, 2017: 226)

In the abovementioned lines, Kaur opposes any of the societal and cultural codes that generalize women and put them in a lower status in society by portraying a mother who truly tries to overcome these deeply ingrained beliefs by fostering her feminist concerns in her child's mind through repetitions of a woman's power and ability. Instead of warning her daughter that she will be born into a society in which women are discriminated against due to their gender, class, ethnic origin and other characteristics, the mother will reassure her daughter that even while she is still inside of her, “she's already changed the world” (Kaur, 2017: 226). Furthermore, the speaker is confident that her daughter will have the necessary knowledge to actualize herself as she won't allow her to be suppressed and marginalized by the patriarchal social norms. The teachings of the mother in

the poem are also in line with Butler's view about gender asserting that gender is a social and cultural formation shaped by "a set of repeated acts" and performances rather than biological variations (Butler, 1990: 33). Kaur's verses beautifully show how discrimination against women is a mental issue rather than a physical one. It is also plainly stated that women have both the capacity and ability to achieve numerous things if they have the motivation and determination to do so.

Kaur challenges male-controlled Western beauty and possession norms that focus on "excluding people" (Kaur, 2015: 163). Her opposition is portrayed both lyrically and artistically through her drawings. She makes references about women who have been marginalized as they don't meet the conventional beauty standards created by the society and disseminated through online platforms and popular culture. It might be argued that Western beauty commercials, which promote an unattainable beauty that doesn't allow for national or regional differences, have a significant role in determining women's attitudes regarding their bodies in our global market. Globally, Western beauty standards require women to be slim, physically young and appealing, have fair complexion and no hair. However, "beauty is not universal or changeless" (Wolf, 2002: 12). Through her poetry, she demonstrates how different types of beauty can flourish in women's bodies even if they don't correspond to the socially prescribed ideals of beauty. She proudly mentions the skin color of the women in her town as "the color of earth [her] ancestors planted crops on / to feed a lineage of women" (Kaur, 2015: 163). Kaur outspokenly reminds all the women that they are still attractive with their unique beauties even though they don't have the physical appearances of the women praised by society.

Women are made to believe that their worth is primarily defined by their physical appearance through the pictures and advertisements in popular culture. As the advertisers have such a strong hold the content of media, women are instructed from an early age that their bodies ought to conform to Western standards of beauty. They feel that if they succeed in improving their physical appearance, this would inevitably lead to an improvement in the quality of their lives. However, achieving these goals is becoming more and more difficult as the requirements have been harder to meet. As a result of this situation, a great number of women who fall short of these standards of beauty begin to despise their bodies and regard them as causes of agony, thus they get relief from the beauty industry which provides a variety of cosmetic procedures and products to address their perceived flaws. In the poem that follows, Kaur eloquently expresses the unrelenting pressure on her as a woman and her frantic struggle to meet Western beauty ideals:

“my eyes
make mirrors out of
every reflective surface they pass
searching for something beautiful looking back
my ears fish for compliments and praise
but no matter how far they go looking
nothing is enough for me
i go to clinics and department stores
for pretty potions and new techniques
i've tried the lasers
i've tried the facials
i've tried the blades and expensive creams
for a hopeful minute they fill me
make me glow from cheek to cheek
but as soon as i feel beautiful
their magic disappears suddenly
where am i supposed to find it
i am willing to pay any price
for a beauty that makes heads turn
every moment day and night”
- “*a never-ending search*” (Kaur, 2017: 78)

From these verses, it can be deduced that Kaur reveals how women are driven away from their bodies in pursuit of conventional beauty norms that society and popular culture have imposed on them. She also stresses the fact that women poison their independence by experiencing their bodies as sources of pleasure for oppressive others. On the other hand, as she points out:

“we are all born
so beautiful
the greatest tragedy is
being convinced we are not” (Kaur, 2015: 177)

Evidently, Kaur claims that all women are inherently beautiful and attractive, but they are persuaded and conditioned otherwise as the modern system is now based on “the representation of women within the beauty myth” (Wolf, 2002: 18). “If [women] believed [they] were beautiful enough already, a trillion-dollar industry would collapse” (Kaur, 2017: 213). Kaur’s lines highlight the deceptive nature of beauty industry and how it profits by instilling insecurities in women

concerning their bodies. Revealing this harsh reality, Kaur encourages women to appreciate their own inherent beauty by ceasing their constant fight with their bodies and she emphasizes the significance of self-acceptance and love, a crucial subject stressed by fourth wave feminists in the course of women's liberation and empowerment. Besides, as Kaur's verses suggest, women who compete with each other regarding their physical beauty experience so much anxiety and stress that they lose their sense of happiness in life. As women tend to view other women as their rivals, they don't realize the underlying threat posed to their bodies, identities, values and accomplishments by the male authority. Therefore, Kaur aspires to make women who have already been oppressed in patriarchal society due to their gender, colour or class recognize that by striving to follow the beauty standards and engaging in conflict with other women, they are putting themselves under even more stress and pressure. Depending on this fact, she aims to eliminate female competition by bringing it to their attention with these lines: "other women's bodies / are not our battlegrounds" (Kaur, 2015: 169). It might be said that women just aggravate their status in society by belittling other women's physical features and viewing them as rivals rather than sisters.

"we all move forward when
we recognize how resilient
and striking the women
around us are" (Kaur, 2015: 185)

"my heart aches for sisters more than anything
it aches for women helping women
like flowers ache for spring" (Kaur, 2015: 181)

Through her verses, Kaur emphasizes the need for women to come together as sisters in order to prevent the damaging competition produced by male power. She tries to get women who regard other women as enemies to understand that they are indulging in a type of *schadenfreude* that is embedded in sexism and capitalism. In addition, she encourages sisterhood and unity among women of all races and ethnicities in order to combat repressive cultural conventions and gender discrimination, stressing her wish to "nurture and serve the sisterhood / to raise those that need raising" (Kaur, 2015: 178).

In conclusion, Rupi Kaur has been able to find a voice in 21st century popular culture by means of social media platforms and has become the bold voice of all women whose bodies and lives have been oppressed, assaulted and socially constructed for decades. By doing so, she has disclosed not only the repressive

and abusive treatment of the women in her community, particularly her mother, but also her own sufferings as a result of this abuse, as well as the catastrophic impact it has had on her body and spirit. Kaur, adopting the notions of postcolonial feminism, has successfully represented women's multiple layers of oppression in patriarchal and racist communities as well as her personal anxieties as a Third World woman in a Western society. Furthermore, via her digital feminist action, she is able to awaken all women to oppressive practices and teachings constructed both on the lives and minds of them. After demonstrating the therapeutic effects of expression, she urges and inspires women to break their silence in order to oppose this unfair and authoritarian system and struggle for gender equality. Consequently, it could be said that Kaur's instapoetry serves as a vehicle for raising awareness among women as well as providing a hope for the rehabilitation and rebirth of women who have experienced the pain of sexual abuse and patriarchal violence.

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Chapter 28

An Overview of Capital Budgeting Methods

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1. INTRODUCTION

In today's world, where global economies are more interconnected and international trade, communication, and financial transactions have increased significantly across borders, significant changes have occurred in the business world, creating a highly competitive environment. In a market characterized by intense competition, businesses prioritize long-term investments in strategy, innovation, and efficiency to gain and maintain a competitive advantage.

Long-term investment decisions are made based on the business's strategic plans. The business identifies the types of investments it needs to achieve its long-term objectives. Long-term investments enable the business to continuously meet demand by adapting to future market changes and consumer expectations. Long-term investment decisions require the effective allocation of the business's financial resources and a balanced distribution of resources among different projects and activities. Businesses typically make investments for expansion, renovation, or upgrading projects. Expansion projects aim to increase the business's capacity or enter new markets. Renovation or upgrade projects involve the maintenance, updating, or improvement of assets. Investment projects encompass activities such as developing new products, implementing new technologies, or investing in new business areas. Long-term decisions are often irreversible and non-reversible, so businesses should carefully plan and analyze such decisions.

Capital budgeting is a significant financial process that aids businesses in planning and evaluating their future investment decisions. The primary objective of capital budgeting is to identify investment opportunities that will enhance the business's long-term value and select the most suitable ones. Additionally, the expected cash inflows and outflows over the project's lifetime are analyzed. Capital budgeting helps businesses develop sustainable growth strategies and encourages a careful and analytical approach when choosing investment projects. Each investment decision can impact the long-term success of the business, and therefore, these decisions should be carefully evaluated.

In this section, the concept of capital budgeting, used in the decision-making process for investment projects, has been explained within the framework of the literature, and various capital budgeting techniques have been evaluated and compared with examples.

2. CAPITAL BUDGETING CONCEPT

Larger investments are typically of longer-term and involve larger financial commitments. These investments are scrutinized in greater detail compared to smaller ones, as they have a significant impact on a company's value and

sustainability. Therefore, it is essential for companies to make long-term investment decisions through an effective planning method. This planning process is referred to as capital budgeting (Tükenmez et al., 1999).

Capital budgeting is a versatile process that involves researching new, profitable, and efficient investment projects and examining all factors, including technical, marketing, and management, to forecast the consequences of accepting an investment proposal. Additionally, it encompasses conducting economic analyses to determine the profit potential of each investment proposal (Akgüç, 1998). Capital budgeting involves the systematic procedure of recognizing and choosing investments in durable assets or assets anticipated to generate returns over a period exceeding one year (Fabozzi and Peterson, 2002). Seitz and Ellison (2005) have defined capital investments as expenditures that will provide benefits in the future and explained capital budgeting as the process of identifying such investments. Capital budgeting involves making cash expenditure decisions with the aim of obtaining future cash flows. If future cash inflows exceed the present expenditures, shareholders' wealth increases. It is at this stage that the critical importance of capital budgeting for long-term and substantial investments becomes evident (Hall and Millard, 2010). Serving as a planning tool, capital budgeting aims to allocate financial resources accurately among investment projects to make sound investment decisions and assess project feasibility (Mota and Moreira, 2023).

Effective and successful capital budgeting practices are of paramount importance because they have a long-term impact on a firm's survival and performance (Batra and Verma, 2017). According to the International Federation of Accountants (IFAC), a systematic, logical, and comprehensive investment appraisal approach, along with prudent and objective decision-making, must be implemented to maintain and ensure a sustainable economy and growth. Therefore, capital budgeting has become a topic of theoretical and empirical interest in the financial literature and is increasingly gaining significance (Al-Mutairi et al., 2018).

In the capital budgeting process, several critical factors that play a significant role in evaluating an investment project include the amount of investment required, working capital requirements, projected cash flows from the investment, the economic life of the investment, salvage value, and the expected rate of return, all of which should be carefully determined (Düzakın, 2013).

3. CAPITAL BUDGETING METHODS

In evaluating investment proposals, all details related to the market, technical aspects, project feasibility, and financial considerations should be analyzed to select the most suitable investment. The criteria or approaches that businesses use to assess investment projects are examined under two main categories: Static methods and dynamic methods. Dynamic methods take into account the time value of money, whereas static methods are approaches that do not consider the time value of money (Özekenci, 2022).

3.1. Static Methods

These methods, which do not take into account the time value of money, include average rate of return, payback period, cost comparison, and profit comparison.

3.1.1. Average Rate of Return (ARR)

This method, also known by different names such as accounting rate of return, average profitability of investment, profitability ratio, compares the profit generated from the project with the investment expenditures for the project. ARR is calculated using the following formula.

$$ARR = \frac{\text{Average Net Profit}}{\text{Average Investment Amount}} = \frac{\sum_{t=1}^n \frac{(ATP)_t}{n}}{\frac{FIE - SV}{2}}$$

ARR, the average rate of return for the project; ATP, the after-tax profit; FIE, the fixed investment expenditures; SV, the salvage value; n, the economic life of the project; and t represents the years. The accounting rate of return is preferred due to its simplicity in calculation and consistency with data available in accounting records.

Example: Project X, with an initial investment of 450,000\$ and a salvage value of 40,000\$, is expected to generate a net profit of 200,000\$ for 3 years. Project Y, with an initial investment of 700,000 \$ and a salvage value of 50,000\$, is expected to generate net profits of 200,000\$, 250,000\$, 300,000\$, and 350,000\$ over 4 years, respectively. What is the investment decision for the company regarding these two projects according to the ARR method?

Answer:

$$ARR_X = \frac{\frac{200,000+200,000+200,000}{3}}{\frac{450,000-40,000}{2}} = \frac{200,000}{205,000} = 0.97$$

$$ARR_Y = \frac{\frac{200,000+250,000+300,000+350,000}{4}}{\frac{700,000-50,000}{2}} = \frac{275,000}{325,000} = 0.85$$

When comparing the ARR values of Project X and Project Y, since $ARR_X > ARR_Y$, the company should prefer to invest in Project X.

3.1.2. Payback Period (PP)

The method is based on determining the number of years required for the net cash inflows generated by an investment to cover the investment expenditures (Aydın, Başar and Coşkun, 2015).

The payback period can be calculated in two ways, depending on whether the expected net cash inflow from the project fluctuates over time (Walther and Skousen, 2009). If the net cash inflow from the project remains constant over the years, the payback period (PP) is calculated using the following formula.

$$PP = \frac{\text{Fixed Investment Amount}}{\text{Annual Net Cash Inflow}}$$

If the expected net cash inflows from the project fluctuate over the years, in this case, the payback period is calculated by summing up the net cash inflows from the project until they equal the fixed investment amount.

In order to make a decision regarding the project, it is necessary to calculate the Weighted Average Cost of Capital (WACC). The commonly used model for calculating WACC is as follows:

$$WACC = WD.CD + WE.CE$$

WD = Weight of Debt = Total Debt / Total Liabilities

CD = Cost of Debt = $n \cdot (1-v)$ n : Interest rate v: Tax Rate

WE = Weight of Equity = Equity / Total Liabilities

CE = Cost of Equity = $r_f + (r_m - r_f) \cdot d$

r_f : riskless interest rate, r_m : market return rate, d: stock sensitivity to the market.

The maximum acceptable payback period is typically calculated using the formula $1/WACC$. This value is referred to as the PP Criterion (PP'). Therefore, if $PP \leq PP'$, it is said that the project will be accepted; otherwise, it will be rejected.

Example: The fixed investment amount is 20,000\$, and the economic life of the project is 10 years, with a constant annual net cash inflow of 4,000\$. The weighted average cost of capital is 0.25. What is the investment decision for the company regarding this project according to the PP method?

Answer:

$$PP = \frac{\text{Fixed Investment Amount}}{\text{Annual Net Cash Inflow}} = \frac{20,000}{4,000} = 5 \text{ years}$$

$$PP' = \frac{1}{WACC} = \frac{1}{0.25} = 4 \text{ years}$$

Since $PP > PP'$, the project is rejected.

If we assume that the cash inflows and outflows for the same project are not constant each year and that the cash flow statement looks as follows, what would be the company's decision?

Years	1	2	3	4	5	6	7	8	9	10
Cash Flows	-	-6000	2600	3550	3500	3450	3400	2350	1300	1250
	14000									
	Cash Outflows		Cash Inflows							
	20,000		(2600+3550+3500+3450+3400+2350=18,850)							
	2 year		PP = 6 + 1150 / 1300 = 6.88 years							

As calculated earlier, we found PP' to be 4 years, and PP is found to be 6.88 years. Since $PP > PP'$, the project is rejected.

3.1.3. Cost Comparison

This method is based on the assumption that investment projects generate the same revenues and takes into consideration the costs of these projects. Under the assumption of equal revenues, among multiple alternative investment projects, the one with lower costs is preferred (Götze, 2008). The cost comparison method is easy to calculate mathematically. However, it is criticized for considering only one-year expenses and not accounting for potential other costs.

3.1.4. Profit Comparison

Unlike the cost comparison method, the profit comparison method includes both costs and the sales revenues generated from investment projects in its calculations. Therefore, when evaluating an investment project, more emphasis is placed on the

project's income rather than its costs. If two or more investment projects are being evaluated, the one with higher annual profit should be preferred (Dilmen, 2018).

3.2. Dynamic Methods

These methods take into account the time value of money but do not consider risk. These methods include net present value, profitability index, internal rate of return, and Kepner-Tregoe method.

3.2.1. Net Present Value (NPV)

They have defined the Net Present Value as the difference between the market value and the cost of the investment (Ross, Randolph and Jordan, 2002). The Net Present Value of an investment is calculated as follows by subtracting the initial cash outflow from the sum of the present values of expected cash inflows, as described below (Van Horne and Wachowicz, 2005).

$$NPV = \left(\sum_{t=n+1}^{n+s} \frac{CI_t}{(1+k)^t} + \frac{SV_n}{(1+k)^n} \right) - \sum_{t=0}^s \frac{CO_t}{(1+k)^t}$$

NPV net present value; CI cash inflows; CO cash outflows; SV salvage value; k discount rate; n project's economic life; t years; s completion time. If the net present value of the project is positive or equal to zero, the project is accepted; otherwise, it is rejected.

Example: For an investment project with a fixed investment amount of 52,000\$, it is expected to generate a constant cash inflow of 14,000\$ annually. This investment project has an economic life of 5 years, and a discount rate of 10% is applied. What would be the decision of the company using the NPV method?

Answer:

$$NPV = \left(\sum_{t=1}^5 \frac{14,000}{(1+0.10)^t} + \frac{0}{(1+0.10)^5} \right) - \frac{52,000}{(1+0.10)^0}$$

$$NPV = \left(\frac{14000}{(1+0.10)^1} + \frac{14000}{(1+0.10)^2} + \frac{14000}{(1+0.10)^3} + \frac{14000}{(1+0.10)^4} + \frac{14000}{(1+0.10)^5} \right) - 52,000$$

$$NPV = 53,046 - 52,000 = 1,046$$

Since $NPV \geq 0$, the project is accepted.

Example: The investment expenditures are 400,000\$ in the first year, 600,000\$ in the second year, and the economic life is 5 years. The discount rate is 15%, and the salvage value of the investment is 100,000\$. The cash inflows from the investment are 400,000\$ in the 3th year, 500,000\$ in the 4th year, and 800,000\$ in the 5th year. According to the NPV method, what is the decision of the company?

Answer:

$$NPV = \left(\sum_{t=3}^5 \frac{CI}{(1+0.15)^t} + \frac{100.000}{(1+0.15)^5} \right) - \sum_{t=1}^2 \frac{CO_t}{(1+0.15)^t}$$

$$NPV = \frac{400,000}{(1+0.15)^3} + \frac{500,000}{(1+0.15)^4} + \frac{800,000}{(1+0.15)^5} + \frac{100,000}{(1+0.15)^5} - \frac{400,000}{(1+0.15)^1} - \frac{600,000}{(1+0.15)^2}$$

$$NPV = 263,200 + 286,000 + 397,600 + 49,700 - 348,000 - 478,200$$

$$NPV = 170,300$$

Since $NPV \geq 0$, the project is accepted.

3.2.2. Profitability Index (PI)

The benefit-cost ratio or profitability index of an investment is the ratio of the present value of the cash inflow the investment is expected to generate over its economic life to the present value of the cash outflows required by the investment (Brooks, 2016). The profitability index is formulated as follows:

$$PI = \frac{\sum_{t=n+1}^{n+s} \frac{CI_t}{(1+k)^t} + \frac{SV_n}{(1+k)^n}}{\sum_{t=0}^s \frac{CO_t}{(1+k)^t}}$$

PI profitability index; CI cash inflows; CO cash outflows; SV salvage value; k discount rate; n project's economic life; t years; s completion time. If the profitability index is equal to or greater than 1, the project is accepted; otherwise, it is rejected.

Example: For an investment project with a fixed investment amount of 52,000\$, it is expected to generate a constant cash inflow of 14,000\$ annually. This investment project has an economic life of 5 years, and a discount rate of 10% is applied. What would be the decision of the company using the PI method?

Answer:

$$PI = \frac{\sum_{t=1}^5 \frac{14,000}{(1+0.10)^t} + \frac{0}{(1+0.10)^5}}{\frac{52,000}{(1+0.10)^0}} = \frac{53,046}{52,000} \approx 1.02$$

Since $PI \geq 1$, the project is accepted.

Even without these calculations, it could be said that the project could be accepted based on the positive NPV.

3.2.3. Internal Rate of Return (IRR)

The discount rate that equates the present value of future cash inflows with the present value of cash outflows for an investment is called the internal rate of return (IRR). Additionally, this rate can be defined as the discount rate that sets the NPV of the investment equal to zero. IRR is formulated as follows:

$$\sum_{t=n+1}^{n+s} \frac{CI_t}{(1+r)^t} + \frac{SV_n}{(1+r)^n} = \sum_{t=0}^s \frac{CO_t}{(1+r)^t}$$

The internal rate of return can be found by solving for r in the equation above. If the internal rate of return is greater than or equal to the WACC, the project is accepted; otherwise, it is rejected. The trial and error method is used to find the internal rate of return (Aydın, Başar and Coşkun, 2015).

Example: The initial investment amount of a project is 1,500,000\$, its economic life is 5 years, and the WACC is 0.12. The cash inflows of the project are 200,000\$ in the 1st year, 400,000\$ in the 2nd year, 500,000\$ in the 3rd year, 600,000\$ in the 4th year, and 700,000\$ in the 5th year. What is the decision when this project is evaluated with IRR?

Answer:

$$\sum_{t=1}^5 \frac{CI_t}{(1+r)^t} + \frac{0}{(1+r)^5} = \sum_{t=0}^5 \frac{1,500,000}{(1+r)^0}$$

Let's start with a discount rate of 10%.

$$\sum_{t=1}^5 \frac{CI_t}{(1+0.10)^t} = \frac{200,000}{(1+0.10)^1} + \frac{400,000}{(1+0.10)^2} + \frac{500,000}{(1+0.10)^3} + \frac{600,000}{(1+0.10)^4} + \frac{700,000}{(1+0.10)^5}$$

$$\sum_{t=1}^5 \frac{CI_t}{(1+0.10)^t} = 181,800 + 330,400 + 375,500 + 409,800 + 434,000 = 1,731,500$$

With a 10% discount rate, the net present value of cash inflows was found to be 1,731,500. Since this value is greater than the required cash outflow of 1,500,000 for the investment, a higher discount rate should be selected. Let's try a discount rate of 16% this time.

$$\sum_{t=1}^5 \frac{CI_t}{(1+0.16)^t} = \frac{200,000}{(1+0.16)^1} + \frac{400,000}{(1+0.16)^2} + \frac{500,000}{(1+0.16)^3} + \frac{600,000}{(1+0.16)^4} + \frac{700,000}{(1+0.16)^5}$$

$$\sum_{t=1}^5 \frac{CI_t}{(1+0.16)^t} = 172,400 + 297,200 + 320,000 + 331,200 + 333,200 = 1,454,000$$

With a 16% discount rate, the net present value of cash inflows is 1,454,500, which falls short of 1,500,000. It is understood that the discount rate should be lower. Therefore, the discount rate lies between 10% and 16%. The internal rate of return can be calculated from this range.

$$1,454,000 \text{ — } 1,500,000 \text{ — } 1,731,500$$

$$\%16 \text{ — } ? \text{ — } \%10$$

$$1,731,000 - 1,454,000 = 277,500$$

$$16\% - 10\% = 6\%$$

$$1,500,000 - 1,454,000 = 46,000$$

$$IRR = [16\% - (46,000 \times 6\% / 277,500)] = 15\%$$

Since $r = 15\% \geq WACC$, the project is accepted.

3.2.4. Kepnoe-Tregoe Method

The fundamental elements on which this method is based are the evaluation statement, mandatory criteria, preference criteria, and evaluation matrix. For the analysis and selection of proposals, evaluation statements are put forward depending on the objectives and limitations to be achieved. An example of an evaluation statement could be "The best project proposal researched from a technical and financial perspective should be selected." According to this method, project proposals must meet all mandatory criteria. Project proposals that meet all mandatory criteria are then re-evaluated based on preference criteria. Preference criteria are weighted according to the importance level in achieving the company's goals to create an evaluation matrix. The project proposal with the highest weighted score in the evaluation matrix is accepted (Aydın, Başar and Coşkun, 2015).

4. METHODS CONSIDERING the RISK ELEMENT

The determinants of investment decisions are risk and return. Therefore, investors must consider not only the return but also the risk. Methods that take into account the risk element in the evaluation of investment projects include varying the discount rate of the investment, probability distribution approach, and real options.

4.1. Varying the Discount Rate of the Investment

The discount rate used to determine the net present value of an investment is adjusted based on the risk. By adding the specified risk premium to the discount rate, a new rate is determined (Moyer, McGuigan and Rao, 2015). The varying the discount rate of the investment is formulated as follows:

$$NPV = \left(\sum_{t=n+1}^{n+s} \frac{CI_t}{[1+(k+r_p)]^t} + \frac{SV_n}{[1+(k+r_p)]^n} \right) - \sum_{t=0}^s \frac{CO_t}{[1+(k+r_p)]^t}$$

NPV net present value; CI cash inflows; CO cash outflows; SV salvage value; k discount rate; r_p risk premium; n project's economic life; t years; s completion time. In this method, adding the risk premium to the discount rate reduces the project's NPV. The rationale for this adjustment is to determine the level at which the company compensates for a higher risk level. Without this adjustment, projects with above-average risk can actually decrease the company's value (Scott et al., 1998).

Example: Initially, a project requiring an investment of 1,000,000\$ has cash inflows of 150,000\$ in the 1st year, 200,000\$ in the 2nd year, 250,000\$ in the 3rd year, 500,000\$ in the 4th year, and 500,000\$ in the 5th year. The discount rate is 12%, and the risk premium set by managers for this project is 8%. According to the method of varying the discount rate, should this project be accepted?

Answer: New discount rate $k + r_p = 0.12 + 0.08 = 0.20$

$$NPV = \left(\sum_{t=1}^5 \frac{CI}{(1+0.20)^t} + \frac{0}{(1+0.20)^n} \right) - \sum_{t=0}^0 \frac{CO_t}{(1+0.20)^t}$$

$$NPV = \frac{150,000}{(1+0.20)^1} + \frac{200,000}{(1+0.20)^2} + \frac{250,000}{(1+0.20)^3} + \frac{500,000}{(1+0.20)^4} + \frac{500,000}{(1+0.20)^5} - 1,000,000$$

$$NPV = 124,950 + 138,800 + 144,750 + 241,000 + 201,000 - 1,000,000$$

$$NBD = 850,500 - 1,000,000 = -149,500$$

When considering risk, the NPV has been found to be negative. Therefore, the project is rejected.

4.2. Probability Distribution Approach

In this method, standard deviation is used to measure risk, and a high calculated value indicates high risk, while a low value indicates low risk (Smith, 1994). In probability analysis, the possible cash inflows of the project and the probability of their occurrence are determined. Then, the expected value of cash inflows is multiplied by the assigned probabilities. The resulting values are discounted to their present value using the discount rate, and the project is evaluated (Higgins, 2016).

Example: A project with an investment amount of 460,000\$ has an economic life of 2 years. The expected cash inflows from the investment project for each year and their probabilities are as follows:

	Expected Cash Inflows (A)	Probability Value (B)	AxB
1st year	410,000	0.15	61,500
	420,000	0.20	84,000
	430,000	0.30	129,000
	440,000	0.35	154,000
Total for Year 1	1,700,000	1	428,500
2st year	440,000	0.10	44,000
	450,000	0.20	90,000
	460,000	0.30	138,000
	480,000	0.40	192,000
Total for Year 2	1,830,000	1	464,000

When assuming a discount rate of 40%, the net present value of the investment is;

$$NPV = \left[\frac{428,500}{(1+0.40)^1} + \frac{464,000}{(1+0.40)^2} \right] - 460,000 = 305,949 + 236,640 - 460,000 = 82,589$$

To calculate the project's risk, standard deviation should be computed. Standard deviation is calculated as follows:

$$\sigma = \sqrt{\sum_{t=1}^n (ECI - NCI)^2 \times P_i}$$

σ represents the standard deviation, ECI stands for expected cash inflow, NCI for net cash inflow, and P_i represents the probability value.

$$\sigma_1 = \sqrt{(410,000-428,500)^2 \times 0.15 + (420,000-428,500)^2 \times 0.20 + (430,000-428,500)^2 \times 0.30 + (440,000-428,500)^2 \times 0.35}$$

$$\sigma_1 = \sqrt{51,337,500 + 14,450,000 + 675,000 + 46,287,500} = 10,630$$

$$\sigma_2 = \sqrt{(440,000-464,000)^2 \times 0.10 + (450,000-464,000)^2 \times 0.20 + (460,000-464,000)^2 \times 0.30 + (480,000-464,000)^2 \times 0.40}$$

$$\sigma_2 = \sqrt{57,600,000 + 39,200,000 + 4,800,000 + 102,400,000} = 14,282$$

$$\sigma = \sqrt{\sum_{i=1}^n \frac{\sigma_i^2}{(1+i)^{2t}}}$$

$$\sigma = \sqrt{\frac{10,630^2}{(1+0.40)^2} + \frac{14,282^2}{(1+0.40)^4}} = \sqrt{\frac{112,996,900}{1.96} + \frac{203,975,524}{3.84}} = 10,525$$

In some cases, the standard deviation can be large depending on the magnitude of the distribution. In such situations, the coefficient of variation (CV) can be used as a measure of risk. The coefficient of variation is determined by dividing the standard deviation by the net present value.

$$CV = \frac{10,525}{82,589} = 0.13$$

4.3. Real Options

The decisions related to investment, postponement, expansion, contraction, and budget of a company are real options. Managerial decisions create options to purchase and sell real assets. These options grant the management rights to achieve the firm's objectives and maximize its profit (Brach, 2003). In traditional methods, calculations result in a value, and after various comparisons, a decision is made whether to invest or not. However, in real options, while a value is calculated, a useful framework is also established for strategic decisions (Walters and Giles 2000, 2).

Uncertainty about the future, expiration date, time value of money, and the value of the underlying asset all affect the price of a real options contract (Bruun and Bason, 2001). Real options provide owners with the right to benefit from future opportunities. If there are options such as investment, expansion, contraction, sale, or abandonment at one or more points in the future, it is referred to as a real option. Real options can be classified based on the flexibility they provide into options for postponement, expansion or contraction, abandonment, staging, modification, and growth (Alper, 2011). In the evaluation of investment projects, the option approach, especially in environments with high uncertainty and risk, provides more accurate results compared to other traditional project evaluation approaches (Uysal, 2001). The strategic net present value is equal to the sum of the traditional net present value and the value of options.

$$\text{Strategic NPV} = \text{Traditional NPV} + \text{Value of Options}$$

The most recognized method developed for calculating option value is the model derived from mathematical formulas by Fisher Black and Myron Scholes, based on the assumption that the continuous returns of the stock follow a normal distribution. The basic variables and relationships of the model are provided below:

$$C = P \times N(d_1) - K \times e^{-rt} \times N(d_2)$$

$$d_1 = \frac{\ln\left(\frac{P}{K}\right) + \left(r_f + \frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}}$$

$$d_2 = d_1 - \sigma\sqrt{t}$$

In this context, C represents the present value of the option, P stands for the present value of cash flows, K denotes the option exercise cost, r_f represents the risk-free interest rate, t is the time remaining until maturity, σ signifies the standard deviation of cash flows (risk), and N(d) represents the standard normal distribution function.

Example: The initial investment amount for an investment project is 1,500,000\$, and the economic life of the project is 5 years. There is an option to expand the project by making an additional investment in the 3rd year. The exercise price of the option is 1,000,000\$. The risk of cash flows for the project is 20%, the discount rate is 12%, and the risk-free interest rate is 6%. If the option is not exercised, the cash flows for the project are 300,000\$ in the 1st year, 400,000\$ in the 2nd year, 500,000\$ in the 3rd year, 700,000\$ in the 3th year, and 750,000\$ in the 5th year. If the option is exercised, the cash flows are 300,000\$ in the 1st year, 400,000\$ in the 2nd year, 500,000\$ in the 3rd year, 1,100,000\$ in the 4th year, and 1,200,000\$ in the 5th year. Evaluate the project using the real options method.

Answer:

$$NPV = \left(\sum_{t=n+1}^{n+s} \frac{CI_t}{(1+k)^t} \right) - \sum_{t=0}^s \frac{CO_t}{(1+k)^t}$$

The net present value (NPV₁) of cash flows without the option is as follows:

$$NPV_1 = \frac{300,000}{(1+0.12)^1} + \frac{400,000}{(1+0.12)^2} + \frac{500,000}{(1+0.12)^3} + \frac{700,000}{(1+0.12)^4} + \frac{750,000}{(1+0.12)^5} - 1,500,000$$

$$NPV_1 = 267,857 + 318,877 + 355,890 + 444,863 + 425,570 - 1,500,000$$

$$NPV_1 = 313,057 \text{ TL}$$

The net present value (NPV₂) of cash flows if the option is exercised is as follows. The important point to note here is that there is a cost to exercising the option in the third year, so the present value of the cash flow in the third year should be subtracted.

$$NPV_2 = \frac{300,000}{(1+0.12)^1} + \frac{400,000}{(1+0.12)^2} - \frac{500,000}{(1+0.12)^3} + \frac{1,100,000}{(1+0.12)^4} + \frac{1,200,000}{(1+0.12)^5} - 1,500,000$$

$$NPV_2 = 267,857 + 318,877 - 355,890 + 699,070 + 680,912 - 1,500,000$$

$$NPV_2 = 110,826 \text{ TL}$$

At first glance, it may appear that the use of the option has reduced NPV. However, the fundamental reason for this illusion is the inability of the net present value (NPV) method to accurately measure the value of the growth option. This problem is resolved using the Black & Scholes method for real options. The present value of cash flows obtained after using the option is 1,379,982, which is the sum of 699,070 and 680,912. The value of the option will be calculated as follows using the Black & Scholes method:

$$d_1 = \frac{\ln\left(\frac{P}{K}\right) + \left(r_f + \frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}}$$

$$d_1 = \frac{\ln\left(\frac{1,379,982}{1,000,000}\right) + \left(0.06 + \frac{0.04}{2}\right)2}{0.2\sqrt{2}} = \frac{\ln(1.38) + 0.08 \times 2}{0.28} = \frac{0.32 + 0.16}{0.28} = 1.714$$

$$d_2 = d_1 - \sigma\sqrt{t} = 1.714 - 0.2\sqrt{2} = 1.434$$

$$C = P \times N(d_1) - K \times e^{-rt} \times N(d_2)$$

$$C = 1,379,982 \times (0.4564) - 1,000,000 \times 2.71^{0.06 \times 2} \times 0.4236$$

$$C = 629,824 - 477,433 = 152,391$$

$$\text{Strategic NPV} = \text{Traditional NPV} + \text{Value of Options}$$

$$\text{Strategic NPV} = 313,057 + 152,391 = 465,448$$

As seen, the utilization of the growth option significantly enhances the project's value.

5. CONCLUSION

The primary objective of businesses is to maximize firm value. In order to achieve this goal, managers should invest in projects that will increase the firm's value. Investment alternatives should be ranked in order of priority and importance based on their potential to create the most value for the firm, and investments that make the most effective use of limited resources should be selected. To do this, businesses make decisions about which projects to invest in or eliminate using various capital budgeting methods.

Capital budgeting methods are of critical importance when making long-term investment decisions for a business. Capital budgeting methods assist the business in comparing different investment opportunities, utilizing the business's limited capital resources most effectively, and determining which projects will provide the highest value. This allows the business to allocate its capital more efficiently while avoiding unnecessary investments. Capital budgeting methods are also used to evaluate the financial risks of investment projects. This helps the business identify risky projects and take measures to manage them better. The capital budgeting process structures the decision-making process of the business and helps it make decisions based on objective data, thus preventing emotional or arbitrary decisions. Through the capital budgeting process, a business can achieve sustainable growth and success. Capital budgeting helps the business identify the necessary resources to finance its investment projects. The business can obtain these resources through internal sources (such as equity) or external sources (such as debt or stocks).

As a result, successful investment decisions not only enhance the reputation of the business but also increase the trust placed in the business. In order to make successful investment decisions, investment projects should be thoroughly analyzed using capital budgeting methods. Each method has its own advantages and disadvantages. Therefore, in order to manage and implement the capital budgeting

process correctly, one should not rely on a single method but should evaluate it in conjunction with other methods.

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Chapter 29

Using Nudges to Reduce Cheating in Exams: A Randomized-field Experiment

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Abstract

Cheating behavior is a significant problem within the education system. This study aims to mitigate cheating behavior through the implementation of various nudges. A randomized field experiment was conducted at a Turkish state university, involving a control group and three treatment groups. Students in the treatment groups were exposed to different nudges. The first treatment involved kindly discouraging cheating, while the second prompted students to consider whether cheating was fair to their friends and society. The third treatment asked a question to encourage reflection on the negative consequences of cheating. The results indicate that merely instructing students not to cheat had no impact on their behavior. However, the prevalence of cheating was lower when students were encouraged to recognize the unfairness of cheating to their peers and society. Furthermore, cheating was reduced in the third treatment, although the nudge's effect was less pronounced than in the second treatment in average however the difference is not statistically significant.

Key Words: Cheating, dishonesty, nudge theory, field experiments

1. INTRODUCTION

People often behave dishonestly to further their self-interests (Grolleau et al., 2016, p. 1). One common manifestation of dishonest behavior is cheating during exams. Numerous studies have indicated that over 50% of students across different degree programs engage in exam cheating (McCabe and Trevino, 1997; Mustaine and Tewksbury, 2005; Vandehey et al., 2007; Staats et al., 2009; Kerkvliet and Sigmund, 1999). Clearly, assessments play a crucial role in the education system, and cheating poses a significant challenge to impartial student evaluations. Firstly, students who cheat are able to attain better grades unfairly, even though they do not genuinely deserve them. Secondly, cheating contradicts one of education's goals: fostering moral values and attitudes in students (Cizek, 1999 as cited in Dodeen, 2012). Thirdly, although students may perceive cheating as advantageous to their self-interests, engaging in such morally questionable acts can elicit feelings of shame and guilt, adversely affecting their psychological well-being (Tangney et al., 2007; Dodeen, 2012). Lastly, it impacts the reputation of educational institutions, as these establishments are supposed to maintain fair assessment standards (Noorbehbahani et al., 2022).

Students claim that they cheat because they believe they won't get caught, and indeed, they often evade detection (Diekhoff et al., 1999; Kerkvliet and Sigmund, 1999). Conversely, instructors are reluctant to continually address cheating incidents and the subsequent process (Keith-Spiegel et al., 1998; Volpe et al., 2008). Consequently, addressing cheating becomes an increasingly pressing concern. This leads us to a pivotal question: What if we attempt to influence students not to cheat, rather than focusing on catching them?

The purpose of this study is to employ nudges as a means to reduce or prevent cheating during exams. The concept of nudges gained prominence through the book "Nudge: Improving Decisions about Health, Wealth, and Happiness" by Thaler and Sunstein (2008). They define nudges as "any aspect of choice architecture that predictably alters people's behavior without forbidding options or significantly changing their economic incentives" (Thaler and Sunstein, 2008, p. 6). Nudges have been successfully employed in various domains, such as promoting tax compliance (Brockmeyer et al., 2019; De Neve et al., 2021), influencing energy consumption (Allcott and Rogers, 2012; Costa and Kahn, 2013), encouraging payment of traffic fines (Dusek et al., 2022; Migchelbrink and Raymaekers, 2023), and improving healthcare practices (Last et al., 2021). Nudges can take the form of messages, SMS or email reminders, images, or additional information related to the study's objective.

For this study, a randomized-field experiment was conducted at a Turkish state university. The experiment was administered using Google Forms as an online

test containing ten multiple-choice general knowledge questions (10 points for each question). Participants were unaware of their participation in an experiment. They were informed that they had the option to take an additional exam for a bonus, with the grade being added to their final scores. The experiment comprised one control group and three treatment groups, with students being randomly assigned to each group. While the test questions and their order remained consistent for all students, different messages were presented to each group at the top of the exam sheet. The control group received the message "Good luck!", while the first treatment group was told "Good luck! Please do not cheat!" For the second treatment group, the message was "Good luck! Please do not cheat! Do you think cheating is fair to your classmates and society?" The third treatment group received the message "Good luck! Please do not cheat! How would you feel if operated on by a doctor who graduated by cheating?"

Since the exam was conducted online, students had the opportunity to cheat freely. As participants were randomly assigned to treatments, any disparity in average scores among groups could be attributed to cheating. The results indicate no significant difference in average scores between the control group and the first treatment. Kindly asking not to cheat had no discernible impact on students' cheating behavior. Conversely, participants in the second treatment group exhibited the lowest average scores among all groups, suggesting that invoking the fairness norm had the most pronounced effect compared to other nudges. However, the differences in average scores between the second treatment and the first two groups are statistically significant whereas the difference between the second and the third treatment groups is not statistically significant. Finally, the average test score for the third treatment group was also lower than the first two groups, indicating that prompting students to contemplate the long-term consequences of cheating also affected students' cheating behaviour.

This study is structured as follows: The next section reviews relevant literature, while Section 3 elucidates the experimental design and procedure. Section 4 presents the results, and finally, Section 5 summarizes the study and discusses its findings.

2. LITERATURE REVIEW

Cheating behavior in exams has been studied from various aspects due to its importance as an issue that requires resolution. For example, age is one of the determinants of cheating behavior in exams. Franklyn-Stokes and Newstead (1995), Jensen et al. (2002), Vandehey et al. (2007), and Klein et al. (2007) found that younger students are more likely to cheat than older students. Although gender might also appear to be another determinant of cheating, the literature

presents mixed results. However, most studies indicate that males cheat more than females (Lim and See, 2001; Kobayashi and Fukushima, 2012). Controversial findings also exist concerning the relationship between cheating behavior and students' GPA (Jordan, 2001; Klein et al., 2007; Vandehey et al., 2007).

Another research area related to cheating in exams concerns the type of exams (online vs. face-to-face). Online examinations have become a significant tool for assessing students, especially with the onset of the Covid-19 pandemic. Given that this study's experiment was conducted as an online exam, the literature in this research area holds importance. The primary purpose of selecting online exams for this experiment was to provide students with the opportunity to cheat if they so desired, as online exams could potentially facilitate cheating. Fask et al. (2014), Bilen and Matros (2021), and Elsalem et al. (2021) found that students do indeed cheat more in online exams, which aligns with the objectives of this study. Additionally, King et al. (2009) discovered that 73.6% of their sample reported that cheating was easier in online exams.

All of the aforementioned studies strive to comprehend the factors influencing cheating behavior. However, this paper aims to identify strategies that could help reduce cheating behavior with nudges. This constitutes a crucial distinction between this study and the previously mentioned ones. Conversely, some studies in the literature also attempt to decrease or prevent cheating in exams by employing nudges. For instance, Corrigan-Gibbs et al. (2015) conducted a similar experiment to this study, employing nudges to diminish cheating behavior in online exams. They discovered that 26–34% of students cheated in online exams. The nudges they used included an honor code and warning messages, which were displayed to the students. However, they failed to observe significant effects of these nudges on cheating behavior. Similarly, Klijn et al. (2022) used the reminder of the university's code of ethics in their experiment however they could not find any significant effect of the remainder on cheating behavior either. On the other hand, Zhao et al. (2020) also employed nudges to address cheating behavior. They conducted an experiment with 5 to 6-year-old children, presenting them with five problems and an answer sheet on a nearby table. After explaining the task, the experimenter instructed the children not to look at the answer sheet and then left the room. In the first treatment, a metal frame covered by a transparent plastic sheet was placed between the two tables. Despite the presence of the frame, students could see the answer sheet without standing up due to the transparency of the plastic sheet. The other treatments involved frames with and without transparent films, placed in various positions instead of between the tables. The results indicated that students cheated less when the frame was

positioned between the tables. Although these studies also revolve around cheating behavior and nudges, the experimental setups and types of nudges used differ significantly from those in this research.

3. EXPERIMENTAL DESIGN

A randomized-field experiment was conducted on an online platform (Google Forms) for this study. The experiment took place at a Turkish state university that offered lectures entirely in English. Students who participated in the experiment took a bonus quiz at the start of a lecture. They were not informed that the quiz was related to an academic study; they were simply told that taking the test could increase their final grades.

The quiz comprised 10 multiple-choice questions and took 10 minutes to complete. These questions covered various general knowledge topics (e.g., cinema, music, geography, history, etc.), requiring specific information for accurate answers.¹ I aimed to ask questions that were challenging to answer directly but could be easily found through a Google search. Given that the study's goal was to observe cheating behavior, I aimed to provide sufficient motivation for participants to potentially cheat. It is important to note that students were aware that they could not be caught cheating since the quiz was online through Google Forms, and their cameras were turned off as usual.

A specific course was selected for conducting the experiment, and students enrolled in this course participated. There were several reasons for choosing this specific course. First, it was a mandatory course for all second-year students, ensuring a potentially high number of participants. Second, the course was conducted on the Zoom platform², which could increase the likelihood of cheating. Third, the quiz needed to appear relevant to the course content and seem natural to avoid raising suspicion among students. This course, unlike a conventional academic course, involved students in activities such as social media campaigns, surveys, interviews, and blog posts. Hence, it was deemed suitable for the quiz. Additionally, I aimed to mitigate any potential impact of students' prior academic knowledge on the experiment's results.

Students' final grades would be determined based on the evaluation criteria outlined in the syllabus at the beginning of the semester. The score obtained from the bonus quiz would be added to their final grades. In other words, not participating in

¹ The questions were like “Which of the following is the best-selling music album in history?”, “Which is the 3rd highest mountain in the world?”, “When did the French Revolution take place?” etc.

² The experiment was conducted in May, 2021. Most of the courses were taught face-to-face in classes at the time. However, this course was taught online course for the whole semester since there were many students taking it.

the quiz or scoring 0 on the test would not negatively affect the students' final grades, as per the evaluation criteria explained in the syllabus. However, if a student answered all questions correctly, their final grade would be increased by 5 points.

The experiment consisted of one control group and three treatment groups. A total of 118 students from various departments participated simultaneously in the experiment. At the start of the lecture, the quiz link was shared, and all participants commenced the quiz simultaneously. There were 28 students in the control group, 29 students in the first treatment, 28 students in the second treatment and 32 students in the third treatment.

The questions, their order, and the order of answer choices were standardized across all groups. The control group received the message "Good Luck!" at the beginning of the quiz. Since this was the control group, no message explicitly related to cheating was included. In contrast, the first treatment group received the message "Good luck! Please do not cheat!" Students receive messages (verbally or in writing) regarding the importance of not cheating in their exams on many occasions during their education. The aim was to understand the effect of this simple and fundamental message, acting as a nudge, on cheating behavior.

In the second treatment, the message shown to the students was "Good luck! Please do not cheat! Do you think cheating is fair to your classmates and society?" In this treatment, an attempt was made to analyze the effect of using fairness, one of the most important social norms, as a nudge. Treating others unfairly is generally not morally accepted in societies. Reminding or prompting people to think about moral issues can influence people's behaviors (Capraro et al., 2019).

Lastly, the third treatment group received the message "Good luck! Please do not cheat! How would you feel if operated on by a doctor who graduated by cheating?"³ It's possible for a student to perceive that cheating could offer short-term benefits. However, the collective act of cheating by all students might not yield long-term benefits for any individual. The intention was to convince them that cheating is detrimental to society and to encourage them to reflect on the negative aspects of cheating.

The quiz for the experiment was prepared in the form of a questionnaire using Google Forms. Different links were generated for each group (a total of four links), but all students accessed the same link. To prevent suspicion due to different links, a procedure was employed to randomly assign each student to one of the four links. Upon clicking the link, students were directed to the website <https://allocate.monster/>.

³ This inspiration stemmed from Brian Harvey's speech on YouTube about why students should not cheat. He stated, "I do not want to fly in an airplane that was programmed by somebody who cheated in this class." I chose to refer to doctors instead of programmers due to the ongoing pandemic, as I believed it could be more impactful.

This website allocated each student to one of the four quiz questionnaires randomly. Importantly, students were unaware of this procedure and interacted directly with the quiz questionnaire on Google Forms.

A screenshot of the allocation.monster website is provided below. As depicted, when you have 3 (or 2) links, entering these links in the specified areas and pressing the relevant button generates a single link. Anyone who clicks on this link will be assigned to one of the 3 (or 2)⁴ links with equal probability. For this experiment, involving 4 links (one for the control group and three for the treatment groups), and with participants equally likely to be assigned to these 4 groups, the following procedure was adopted: Link1 was generated using the Control group and Treatment-1 links, Link2 was generated using the Treatment-2 and Treatment-3 links, and finally, Link3 was generated using Link1 and Link2. Link3 was then shared with the students. When a student clicked on their assigned Link3, the allocate.monster system randomly assigned the student to either Link1 or Link2, and subsequently, randomly assigned them to either the Control and Treatment-1 group or the Treatment-2 and Treatment-3 group, depending on whether Link1 or Link2 was chosen. After the experiment concluded, the data collected from the Google Forms website were analyzed.

Figure 1: Screenshot of the allocate.monster Website



4. RESULTS

As mentioned above, there was one control group and three treatment groups. Since the students were randomly assigned to one of these groups, there should not be any significant difference between the average scores of the groups if there were no nudges. However, if there were any differences in the average scores

⁴ One can use three different links at once.

among the groups, it could be attributed to the effects of the specific nudge used in each treatment.

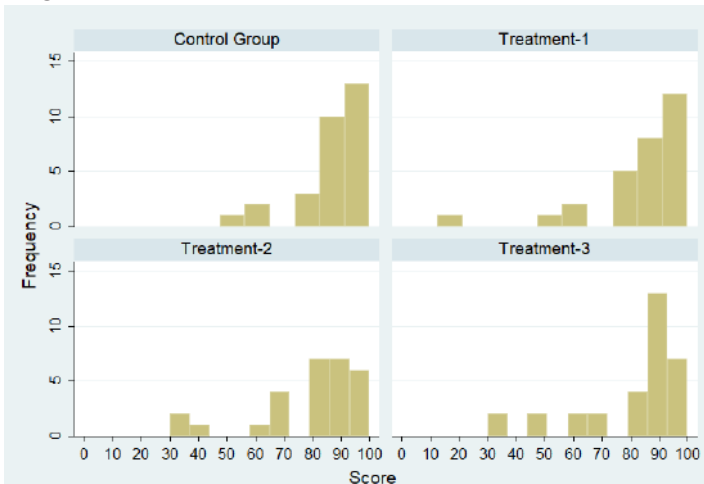
The exam consisted of 10 questions, and the questions as well as their order were identical across all groups. The table below provides the number of correct answers for each question within the different groups:

Table 1: The Number of Correct Answers for Each Question

Question	Control Group (29 Students)	Treatment-1 (29 Students)	Treatment-2 (28 Students)	Treatment-3 (32 Students)
1	29	26	23	28
2	28	29	26	31
3	29	29	26	29
4	27	27	23	24
5	28	27	21	26
6	15	16	14	13
7	27	28	22	29
8	26	24	20	26
9	29	27	25	27
10	26	22	23	28

Each question was worth 10 points, meaning that a student who provided correct answers to all questions would score a total of 100 points. 5% of the score would be added to students’ final grades for the course. The distribution of scores for each treatment can be observed in the graphs below.

Figure 2: Distribution of the Score Values Across Treatments



The average value of the scores in the control group is 91.03. On the other hand, the value is 87.93 for the first treatment. Although the mean value of the first treatment is lower than that of the control group, there is no statistically significant difference between these two groups, according to the Mann-Whitney (M-W) test result, with a p-value of 0.557. This can be interpreted as the message "Please do not cheat!" having no effect on students' cheating behavior.

On the other hand, the mean value of the score variable for the second treatment is 79.64. This value is much lower than the average score of the control group. The M-W test result also shows that the grades are significantly lower in the second treatment compared to the control group, with a p-value of 0.010. The difference in the average score between the first and the second treatments is also statistically significant with a p-value of 0.056 according to M-W test result.

Lastly, the average score value in the third treatment is 81.56. M-W test results show that the difference between the third treatment and the control group is also statistically significant, with a p-value of 0.03. These results indicate that both the social norm message in the second group and the awareness message reminding the harm of cheating have indeed decreased cheating behavior. However, there is no statistically significant difference between the second and third treatments, according to the M-W test result, with a p-value of 0.53.⁵

5. DISCUSSION and CONCLUSION

Student assessment is a pivotal aspect of education, and cheating poses a severe threat to the fairness of this process. The repercussions of cheating extend to both students and academic institutions. Consequently, educators strive to identify instances of cheating during exams, but an alternative approach is to prevent cheating from occurring.

This study seeks to assess the efficacy of nudges in reducing cheating behavior. A randomized field experiment was conducted with university students, employing various types of nudges aligned with the study's objectives. In addition to a control group without a cheating-related nudge, one treatment group was instructed not to cheat, another emphasized social norms by posing a fairness question, and the third presented an awareness question about the potential harms of cheating. The findings reveal that instructing students not to cheat directly had no impact on their behavior. However, inducing contemplation about the unfairness of cheating to friends and society, or about the long-term consequences of cheating, led to a reduction in cheating behavior.

⁵ I was unable to acquire any additional data regarding student demographics, GPAs, and other relevant information from the university. Consequently, I was unable to run econometric models to gather more insights into the determinants of cheating behavior.

This study holds potential for addressing a critical issue in the education process and contributes to the literature on nudges. Nonetheless, it has certain limitations. The field experiment collected a limited number of observations, suggesting the need for broader future studies involving a larger student population. Furthermore, the lack of additional participant information from the university where the experiment was conducted limits the inclusion of explanatory variables, which could enhance the understanding of nudge effects. Lastly, the temporal sustainability of nudge effects, a common concern across studies (Migchelbrink and Raymaekers, 2023), including this one, could be explored by conducting the experiment at different intervals to assess the persistence of nudge effects over time.

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Chapter 30

**Cinema as Intercultural Communication in
a Digitalizing World**

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ABSTRACT

Events and changes in the historical, cultural, political and social context of a country affect not only the society of that country but also the entire world society in many ways. This situation is seen more intensely in an increasingly global world. Cinema, one of the areas where globalization is frequently used, plays an important role in terms of the competitiveness of countries. Cinema, which offers an entertaining environment to the audience with its visual and auditory aspects, has the power to influence the masses in the desired direction. For this reason, countries that want to retain not only economic but also cultural power and increase their awareness have invested more in the cinema industry. Thanks to the developments in technology, cinema has also become digital and intercultural communication activities have been accelerated in this sector. In this study, how cinema is used as a means of communication in the globalizing world and its importance in intercultural communication will be discussed. In this context, first of all, the globalization process of cinema will be mentioned and then attention will be drawn to its role in intercultural communication in the digital world and its development in the world.

Keywords: Globalization, Digitalization, Intercultural Communication, Cinema,

INTRODUCTION

From past to present, many societies have lived together and communicated and interacted with each other. They learned each other's language, religion, culture, entertainment, traditions and customs and used them in their own lives. This interaction process, which has moved from the physical environment to the digital environment, especially with the advancement of technology, has paved the way for cultures to interact more and the concept of intercultural communication to be used more. Culture expresses the unique characteristics of any society and represents its unique beliefs, morals, art, economy, law and political views. Communication is a phenomenon that varies across cultures and fulfills social, physical and identity functions directly or indirectly. When we look at the concept of intercultural communication, it can be expressed as societies from different cultures interacting and taking on each other's characteristics. Intercultural communication reveals the similarities and differences of individuals from different cultures and achieves this through cinema, which is actually a cultural activity. When we look at the change and transformation of cinema over the years, it would not be wrong to say that it has turned from just a means of entertainment into an impressive tool that reaches more audiences with globalization and developments in technology. It is seen that societies that meet many cultures through cinema have gained a place for themselves not only nationally but also internationally. So much so that in some cinema projects, shooting takes place in different countries and the audience gets acquainted with each country and its culture. Cinema, which is used to reach the masses in a short time and effortlessly and to adopt cultures in an unnoticeable and enjoyable way, is an indispensable element for intercultural communication. In this study, how cinema is used as a means of communication in the globalizing and digitalizing world and its importance in intercultural communication will be discussed. In this context, first of all, the globalization process of cinema will be mentioned and then its role in intercultural communication and its development in the world will be pointed out.

Globalizing Cinema

The concept of globalization refers to integration and solidarity in political, social, economic and cultural aspects. According to Balay (2004:62), globalization is the emergence of forms of interaction that transcend nation-state borders, the use of economic, political and cultural ideas at a global level, and the disappearance of the concept of time and space. Zeren (2006:640) defines globalization as the world becoming a single market and growing faster, living standards rising, and information and technology spreading faster.

Depending on the developments in communication technologies, the social, economic and cultural structures of societies have also changed. Especially as the control mechanism over mass media became more difficult, individuals began to use these tools for commercial purposes. Thus, local cultures turn into a universal culture (Köse, 2003:12). When we look at the historical process, it can be seen that globalization dates back to the time when individuals first communicated with each other. Even though it is stated that globalization emerged in the 15th century when countries transferred their military, political and economic values to other countries through geographical discoveries, it began to become evident with the Industrial Revolution in the 19th century. The need for raw materials arising from mass production with the Industrial Revolution and reaching out to transnational countries to meet this cause globalization. After World War II, countries developed various policies to reduce economic difficulties and inequality and adopted the rule of multilateralism in trade. Thus, trade and free economy made a significant contribution to the globalization process (Özel, 2011:94).

Globalization has four dimensions: political, social, economic and cultural. With the advancement of technology, this globalization has begun to make itself felt in different dimensions and military and economic sanctions, called hard power, have been replaced by social and cultural areas called soft power (Nye, 2005). Societies have begun to interact more with each other in social and cultural fields during the process of globalization. In this interaction process, individuals have begun to get closer to each other and thus become more similar, thanks to technological developments. For example, McDonalds, one of the symbols of globalization, is known wherever you go in the world, and the food culture of different societies comes together in a single pot (Ritzer, 2002). Similarly, thanks to Hollywood Cinema, which is one of the most common areas of social and cultural interaction, people can learn about America's history, education, culture and political features (Doobo, 2005:251). Developments in communication technologies offer the opportunity not only to countries that are strong in the global ecosystem, but also to countries that are weak in visual, auditory and economic terms, to introduce themselves to the world. Cinema, which brings together different cultures and societies, offers an alternative space to the one-way culture imposed on the audience (Ezra, 2017:7). When we look at the place of globalization in the cinema industry, it is seen that the North American Region has the largest share. While Europe, the Middle East and Africa come in second place, Latin America is one of the weakest links in the cinema industry. With technological developments and the increasing power of large companies in the Western world, a monopoly market

emerged (Geçgil, 2005). “*New communication technologies, which emerged as a benefit of internet technology, offer important advantages to individuals and organizations in terms of the ability to go beyond the limitations of traditional media regarding time and place*” (Değirmenci, 2019:282). The widespread use of the Internet has made the work of filmmakers easier, especially economically, by providing unlimited time and space in the cinema industry (Köse, 2003:12). In this context, although North America's Hollywood is very strong in the cinema industry, with the changing balances in the world, not only America but all countries have started to find a place for themselves in the field of cinema. In the globalizing world, thanks to various cinema platforms, each country introduces its name, culture and ideology to the audience, and each of them tries to gain recognition in the global arena.

Cinema in the World

Cinema, which is a very effective tool to influence societies, is used by global powers and is one of the effective ways to directly convey the message they want to give. Cinema is increasingly becoming unthinkable independent of the political views, ideologies and value judgments of societies. Looking at the history of cinema, 1895 is considered the birth of cinema (Sontag, 1996:96). However, the first invention of the pre-cinema period was the "Camera Obscura (Dark Room)", which is the reflection of an object held through a hole opened in a box to the other side of the box. In 1839, the first practical camera, the Kinetograph, and the Kinetoscope, which enabled viewing images in motion, were invented by Edison and began to be used in America and Europe. Film production began to gain an industrial identity, primarily through companies established in France, Italy, England, Germany and America. When the brothers Louis and Auguste Lumiere, who successfully used 19th century inventions, completed the first cinema machine, which they called "cinematographe", movies began to be watched on a white screen stretched on the wall. The brothers introduced this machine to the public at the Grand Café in Paris in 1895 (Gökdemir and Kurtoğlu, 2013:32). The first films that took place outdoors were presented to the audience without a script or director. Over time, cinema has become an indispensable activity of fairs in France, Germany, England and the USA. Edwin S. Porter, one of the Edison Company managers, translated the film "The Great Train Robbery", one of the important films in the history of cinema, and this film is considered the beginning of cinema in today's sense (Atmaca, 2012). Competition in cinema has led producers to feature films in order to impress the masses. Thus, in the USA, stories similar to the Orya class became the subject of movies and many movie stars emerged during this

period. While French and Italian cinemas were popular before World War I, the emergence of the comedy genre attracted Griffith's attention. Transforming cinema from entertainment to a storytelling tool, Griffith introduced today's cinema techniques (Chapman, 2003:51). Germany experienced a golden age in cinema after World War I, when it produced costumed and flamboyant historical films. After Hitler came to power, many German filmmakers went to the USA and were introduced to Hollywood cinema. Again, after the war, the USSR established the State Cinema Institute, the world's first cinema school, and mostly dealt with subjects related to the working class in cinema (Joyce, 2012:451). However, compared to other countries, thanks to the film production, distribution and exhibition power of the USA, it reached large audiences and the basic genres of cinema, especially comedy, were formed in this period (Chapman, 2002:21).

American producers who wanted to combine sound and image switched to sound cinema in 1929, and conflict, gangster and biography themes gained popularity among the audience. In this way, American production companies gradually strengthened their studio systems and gained great power in the cinema industry. During the Second World War, America began to see Hollywood films as a propaganda tool, which led to practices that would facilitate film exports. Also cinema was considered a very important tool for both national propaganda and the alliance established with southern neighbors in that years (Miller,2004:38). In order to realize innovative productions in cinema, many subjects that were banned in films have come to the fore again, and France has gained an important place in this system (Austin,2019:145). Japan, which joined the sound cinema era late due to the strict rules imposed by the government during war periods, came to the fore with its films that attracted international attention and won important awards in the 1950s. Nowadays, Japanese cinema plays an important role in the field of cinema with its anime characters (Sharp,2011:315). In the mid-1920s, Indian cinema surpassed the cinema of England, France and the USSR by producing more than a hundred films a year with spoken word, dance and music (İri, 2013:24). Hollywood cinema, whose power was felt throughout the world after the end of the war, made a difference in Italian cinema, as in most European national film industries. However, over time, as Mussolini saw cinema as a means of propaganda, some reforms were implemented. In the second half of the 1920s, film studios were developed and Italy was now able to compete with Hollywood (Önbayrak, 2008: 191-192). England started the "Documentary Movement" in cinema. Accordingly, simple topics such as teaching basic medical knowledge or educating the public on basic health and hygiene issues

were used in the films. The basis of the Documentary Movement is the understanding of social realism. Social realism in British cinema is a long-established tradition dating back to the Documentary Movement of the 1930s. These social realist films feature working-class characters not only as members of a particular social class but also within broader social issues (Kellett, 2017:7). In the 1960s, Third World countries began to find a place for themselves in cinema. Especially in South American and African countries, filmmakers have shot poetic but angry films that appeal to national consciousness against colonialism and imperialism (Sharma & Sharma 2000: 103-116).

When we look at Turkish cinema, the movie "Demolition of the Monument at San Stefano", shot in 1914 by Fuat Uzkınay, who is called the first Turkish filmmaker, is stated to be the first Turkish movie shot (Çalapala, 1948:3). With the establishment of the Republic, the impact of the ideological change in the country was felt in the cinema activities in Turkey. Innovations such as the opening of conservatories, the establishment of symphony orchestras, the popularization of classical Western music, the emphasis on training opera singers and theater actors, and the sending of students to Western countries to be trained in the field of arts as well as engineering were experienced (Özon, 2013:84). After World War II, Turkish cinema increased its film production and mostly literary adaptations and historical films originating from its own roots were discussed. In Turkish cinema, which started producing domestic films starting from the 1950s, a studio system called Yeşilçam was established in the 1960s and Turkish cinema turned into a national identity with color films. In the 1980s, military and political events resulted in the direct intervention of the state in the cinema industry and the law on video/musical works was enacted (Saydam, 2020:406).

With the emergence of DVD and television in the 1990s, the presence of companies that dominated the media industry rather than the film industry began to be felt in the 1990s. By 1996, the global media and film industry was dominated by companies such as Disney, Sony, Time Warner and General Electric (McChesney, 1999: 20). With the development of television and sound technologies, a great change has occurred in the audience's movie watching habits. While television was popular in the 1950s, today it has been replaced by videos and files downloaded from the internet and digital platforms (Gülçur, 2016: 173).

Cinema as Intercultural Communication in a Digitalizing World

Globalization has become a phenomenon that standardizes all areas of social life. Culture, one of the last areas where globalization has forced standardization, has brought different societies together by combining with the infrastructure of advanced technology such as computers, smartphones and tablets, which are integral parts of digital life. Culture explains an ideological understanding that is not evaluated by the real quality of communication, but is valued only within the framework of the principles determined by the system (Çimen,2020:2320). Widespread mass media and different social media platforms enable global culture to be carried to different societies. Thanks to globalization and new communication technologies, cultures in different parts of the world interact and have the chance to get to know each other closely. Power and sovereignty wars in the international arena take place especially at the military, political, economic and cultural levels. Competition at the cultural level is called soft power. Accordingly, through information, the cultural and mental structures of societies are shaped in the desired direction (Bourdieu, 2015: 39-41).

Culture is the phenomenon that shapes the characteristics of individuals and causes individuals with the same culture to display similar behavior and have the same values. Thanks to the developments in technology, it has become easier for individuals to contact and be influenced by cultures. For this reason, intercultural communication has now become a part of daily life (Kartari, 2014: 15-16). Intercultural communication, which expresses all the interactions that occur between cultures in many areas such as language, religion, ethnic group and race, is expressed as the coming together and interaction of people from more than one culture (Carbonell&Beverly,2006:31).

Since the mid-20th century, the world has experienced significant advances in technology, thus affecting the world of information and communication. The Internet, one of the world's most independent and free communication systems, has provided important services to humanity in social, institutional and personal terms and has entered a new transformation. Interactivity is one of the most important features of digitalization. Interaction contributes to the regular functioning of the social, cultural, economic and technological relations of the modern world on the same platform (Rafaeli,2005:111). According to him, the mutual communication method occurs as an exchange of messages when the messages do not restrict each other. It is stated that for interaction to take place, it is not enough to just convey the message; it is also important what the individual who sends and receives it understands these messages and what kind of attitude he exhibits (Gane ve Beer, 2008: 97).

One of the areas where interaction is most common is intercultural communication studies. Societies need to understand intercultural communication in order to understand how other societies differ from their own cultures, behaviors and habits. The reason for this is that individuals not only provide information about themselves and their culture, but also gain insight into other cultures (Hurwitz, 2014: 1). In order to influence countries, societies must know other societies and exhibit behavior and attitudes accordingly. At this point, intercultural communication is expressed as the mutual cultural exchange of individuals from two different cultures (Hammer, 2003). Hall (1959:117) defines intercultural communication as 'cultural communication' and states that face-to-face communication, facial expressions and body language play an important role at this point. According to another definition, intercultural communication is the exchange of emotions and thoughts through symbolic signs such as written, oral language, gestures and facial expressions (Barmeyer, 2009:12).

According to Maletzke (1996:15), intercultural communication means people perceiving the other person as the other and exhibiting attitudes accordingly. The concept of 'other' here is people who are outside the individual's own perception styles, views, beliefs and attitudes. Similarly, intercultural communication is the meeting of communication between individuals from different cultures at a common point (Chandler & Munday, 2018:256).

In this context, intercultural communication studies include issues such as different languages, different communication styles, and cultural contexts. These differences create potential barriers when communicating (Matoba & Scheible, 2007). Some obstacles are obvious and some obstacles are hidden (Renger, 1994: 73) because the more a culture is foreign to another culture, the more effort individuals have to make to communicate (Alver, 2003: 174). Cinema, which is called the seventh branch of art, has a high power to influence the masses with the visual and auditory feasts it offers to the audience. Contacting another culture and getting to know other countries in social, economic, cultural, educational and political terms becomes easier thanks to cinema. By attracting the attention of societies from different cultures and gaining their appreciation through cinema, reducing prejudices and increasing recognition is an important element that supports intercultural communication. When the history of cinema is examined, it is seen that the USA, which has great power in introducing a culture to the world, has achieved this with Hollywood. Thanks to Hollywood movies, the whole world began to adopt American culture and lifestyle. Hollywood movies have also created an

economic sector because they ingrain certain consumption habits and behavioral patterns in the audience (Gomery, 1998:245). The secret of this success is that it has technological power as well as economic power. Especially digital communication technology-based power has become one of the indispensable elements of countries as a result of globalization. This is because no communication tool is neutral. Media changes people's mindset and perception. International companies that dominate the cinema industry can change the mindset of the world through this means (Riegel, 2005: 16). Cinema, which is a global tool with the cultural features it contains, plays an important role in spreading an ideology in modern societies. Thanks to computer and internet technologies, cinema has moved to a different dimension and become more globalized. With the widespread use of digital broadcasting, almost every audience is introduced to different cultures and has the opportunity to get to know that culture closely. The digital transformation of cinema and the convergence in broadcasting, telecommunication and information technologies have led to the intertwining of film and television viewing. For this reason, the films were shown both in movie theatres and became available through online platforms. With the development of technology, the new cinema style is based on the concept of speed and has redefined the concept of cinema. With technology and digitalization, the production, distribution and screening times of cinema films have shortened. The digitalization of cinema has led to the end of the traditional film production model and has been replaced by the digital film production model. Digital platforms such as Netflix, Amazon and Hulu, which have emerged with the development of new media technologies, reach millions of users, significantly affect the film industry and convey the local and cultural structures of different societies to the audience. The fact that such platforms provide the opportunity to watch films in different languages shows that cinema plays an important role in intercultural communication in the digitalizing world (Can, 2021:812). Communication, which used to be one-sided, has become interaction-based and audience-oriented with the developments in technology. In this context, digital content production technologies have transformed the individual from the passive position of consuming media texts into the active position of producing content (Alanka, 2022:131). Cinema, which finds its place in both traditional and new media in the rapidly digitalizing world, is one of the areas most open to intercultural interaction. In summary, cinema has become one of the most effective communication tools of the last century. Cinema, apart from being a branch of art, has become one of the most important entertainment tools of our age, reaching large audiences with very effective education and propaganda. Apart

from these, cinema has progressed to become one of the most important industries of the developed age worldwide. With cinema, societies have been affected technically, socially, culturally, politically and economically. The development and advancement of communication and technology in every period has significantly changed the cinema used as a tool in intercultural communication.

CONCLUSION

It is a known fact that communication, and especially intercultural communication, is inevitable in today's world. Due to the political developments over the past half century, people from different cultures have come together and remained in constant interaction. Such examples show that many elements of life would be missing in today's world without intercultural communication. Elements such as tourism, education, trade and technological developments constitute the intercultural dimension of daily communications. Humanity, which has moved from the industrial society to the information society with the influence of developments in technology, has been introduced to the phenomenon of globalization with worldwide interaction. The widespread use of computer and internet technologies has brought about socio-cultural changes as well as economic effects. Today's information technologies, which have repeatedly multiplied the accumulated knowledge produced throughout history, have developed in parallel with post-industrial transformation and digitalization. As a result of globalization, norms such as identity, culture, politics, economy and education have changed around the world. With the spread of mass media, social relations have further developed and with this development, the steps of globalization have been taken rapidly. With the spread of globalization, concepts such as nation-state, identity, ethnicity, locality have begun to be redefined. Cinema, which is among the direct effects of the globalization process, has begun to be seen as an ideal way to bring societies together. With the disappearance of time and space boundaries as a result of digitalization, societies have had the opportunity to meet different societies. Intercultural communication has reached a different dimension with cinema, which is used as one of the most effective ways of this. When the history of cinema is examined, it appears that Hollywood, that is, American cinema, is at the forefront among the most powerful countries globally. When it comes to the world film industry, the first thing that comes to mind is Hollywood societies, which have begun to adopt American culture. This journey, which started with Hollywood cinema, has revealed different platforms with the digitalizing world. Digital platforms found in almost every home open

the doors of different cultures to the audience. Thus, with digital cinema, intercultural communication becomes easier and societies can get to know each other closely. In this context, it is possible to say that the globalizing and digitalizing world contributes to intercultural communication through cinema.

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