

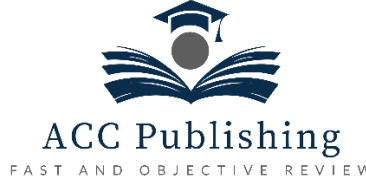


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## Revisiting the environmental Kuznets curve hypothesis in the context of renewable and non-renewable energy in China

### Çin'de yenilenebilir ve yenilenemez enerji bağlamında çevresel Kuznets eğrisi hipotezinin yeniden gözden geçirilmesi

Zikrullah Zaland<sup>1</sup> 

Hatice Imamoglu<sup>2</sup> 

<sup>1</sup> PhD. Candidate, Faculty of Economics, Administrative and Social Sciences, Cyprus Science University, Dr Fazıl Küçük Caddesi, Ozanköy, 99320, Kyrenia / TRNC Mersin 10 - Turkey, [zikrullahzaland15@gmail.com](mailto:zikrullahzaland15@gmail.com)

ORCID: 0000-0001-9544-5341

<sup>2</sup> Assoc. Prof. Dr., Department of Banking and Finance, Faculty of Economics, Administrative and Social Sciences, Cyprus Science University, Dr Fazıl Küçük Caddesi, Ozanköy, 99320, Kyrenia / TRNC Mersin 10 - Turkey, [haticeimamoglu@hotmail.com](mailto:haticeimamoglu@hotmail.com)

ORCID: 0000-0002-3299-499X

#### Corresponding Author:

Hatice Imamoglu

Cyprus Science University, Dr Fazıl Küçük Caddesi, Ozanköy, 99320, Kyrenia / TRNC Mersin 10 - Turkey, [haticeimamoglu@hotmail.com](mailto:haticeimamoglu@hotmail.com)

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#### Abstract

This research paper attempts to determine the effect of fossil fuel, renewable energy, and economic growth on carbon dioxide emissions and revisits China's Environmental Kuznets curve (EKC) hypothesis. The time series analysis will be performed for the years 1990 to 2020. To begin, Augmented Dickey-Fuller (ADF) and Phillips Perron (PP) tests will be performed to verify the series' stationarity. Second, the cointegration test will be utilized to determine the validity of a cointegration vector before performing the Fully Modified Least Square approach to conduct long- and short-term estimation. The empirical analysis illustrates that renewable energy negatively and significantly affects short- and long-run carbon dioxide emissions. However, fossil fuel consumption only positively and significantly affects carbon dioxide emissions in the short run. The empirical evidence supports the Environment Kuznets Curve's hypothesis in China. Fossil fuel consumption has a considerably higher effect on carbon dioxide emissions than renewable energy. To avoid ecological damage in China, authorities must pay more consideration to encouraging the use of energy from renewable sources. This demonstrates that China's overall environmental performance first deteriorates before gradually improving with economic growth.

**Keywords:** Fossil Fuel, Renewable Energy, EKC Hypothesis, China

**Jel Codes:** C22, O44, Q43

#### Öz

Bu araştırma makalesi fosil yakıtların, yenilenebilir enerjinin ve ekonomik büyümenin karbondioksit emisyonları üzerindeki etkisini belirlemeye çalışmaktadır ve Çin'deki Çevresel Kuznets eğrisi (EKC) hipotezini yeniden ele almaktadır. 1990-2020 yılları için zaman serisi analizi gerçekleştirilmiştir. Başlangıç olarak serinin durağanlığını doğrulamak için Artırılmış Dickey-Fuller (ADF) ve Phillips Perron (PP) testleri gerçekleştirilecek. İkinci olarak, uzun ve kısa vadeli tahmin yapmak için Tamamen Değiştirilmiş En Küçük Kareler yaklaşımını uygulamadan önce bir eşbütünleşme vektörünün varlığını belirlemek için eşbütünleşme testi yapılmıştır. Ampirik analiz, yenilenebilir enerjinin kısa ve uzun vadeli karbondioksit emisyonları üzerinde olumsuz ve anlamlı etkileri olduğunu göstermektedir. Ancak fosil yakıt tüketimi yalnızca kısa vadede karbondioksit emisyonları üzerinde olumlu ve önemli ölçüde etkiler ortaya koymaktadır. Ampirik kanıtlar Çin'deki Çevre Kuznets Eğrisi hipotezini desteklemektedir. Fosil yakıt tüketiminin karbondioksit emisyonları üzerinde yenilenebilir enerjiye göre çok daha yüksek bir etkisi vardır. Çin'de ekolojik hasarı önlemek için yetkililerin yenilenebilir kaynaklardan enerji kullanımını teşvik etmeye daha fazla dikkat etmesi gerekiyor. Bu, Çin'in genel çevre performansının önce kötüleştiğini, ardından ekonomik büyümeyle birlikte kademeli olarak iyileştiğini göstermektedir.

**Anahtar Kelimeler:** Fosil Yakıt, Yenilenebilir Enerji, EKC Hipotezi, Çin

**Jel Kodları:** C22, O44, Q43



## Introduction

This research objective is to reconsider the reliability of the EKC hypothesis in China by considering fossil fuels and renewable energy consumption. One of this century's most significant environmental issues has been global warming. In 2013, climate change would have a major and significant effect on regional economic and social development, according to the Intergovernmental Panel on Climate Change (IPCC, 2021) Fifth Report. Additionally, the report held that carbon dioxide (CO<sub>2</sub>) emissions from burning fossil fuels were the primary contributors to global warming and climate change.

Since China joined the World Trade Organization (WTO, 2021), it has significantly improved social and economic development and human welfare in the past few decades. This has led to an increase in China's need for energy, particularly fossil fuels. Fossil fuels continue to be the primary source of energy use in China, accounting for nearly 70% of all domestic energy consumption, regardless of significant efforts to reduce pollution and promote energy usage from renewable sources, energy efficiency, and saving energy (WDI, 2018). Consequently, China has a significant environmental degradation problem that the rest of the world needs to deal with. This is one of the main issues that both developed and developing countries equally are currently facing. In 1997, the Kyoto Protocol was signed by over 100 countries. That protocol targets countries to reduce carbon dioxide to protect humanity and global warming. China has been signed the Kyoto Protocol in 1998. At that time, China was listed as a developing nation and initially ignored environmental issues. However, it repaid growth in population and economy. It became the biggest user of energy and the biggest emitter of carbon dioxide worldwide, putting China under enormous worldwide pressure to reduce CO<sub>2</sub> emissions.

In 1996, China became a net importer of petroleum, causing a risk that has been integrated into the energy security strategy. China became a net coal importer in 2009, indicating an increase from its previous 53% reliance on oil imports (Wu, Liu, Han, and Wei 2012). There are several elements to the concept of energy security. Energy security is defined by several elements, such as the sufficient supply of energy at affordable prices, which is the most accepted definition of energy security (Yergin, 1988; Bielecki, 2002; Lin, 2009). The three energy security components focus on two essential elements of this idea: technology and economics. As environmental protection has gained public attention, the concept of energy security has introduced new possibilities - the environment (Board, 2007; OCED, 2007). International organizations focus on the environment when addressing energy security (Yao and Chang, 2014). Energy consumption is one of the main determinants that contribute to environmental degradation. In general, environmental quality literature is based on the EKC hypothesis.

The EKC hypothesis describes an "inverted U-shaped" relationship between income level and CO<sub>2</sub> emissions in this regard. Carbon emissions increase during the first stage, reaching a tipping point (also called the turning point) with economic growth. In further stages of economic growth, the carbon dioxide emission starts to decrease. In 2014, China and the United States intend to significantly decrease carbon dioxide emissions to control climate change (Liu, Guan, Moore, Lee, Su, and Zhang, 2015). Following China's policy to open up, the demand for increased non-renewable energy consumption affected natural disasters and caused severe damage to the environment. The main reasons for increasing carbon dioxide emissions are fossil fuel usage, oil, gas, and coal. As an outlook, China must change its energy production ratio and improve its renewable energy production ratio to achieve sustainable environmental and long-term growth.

China is currently the second-biggest economy in the world and has faced numerous challenges during decades of unprecedented economic growth, making it an interesting case to conduct research in China. There are more severe challenges concerning China's energy. China surpassed the United States as the world's largest energy consumer in 2010, representing 20.3% of the world's energy use. The ongoing rise in energy demand has increased reliance on oil, which will exceed 70% by 2020 (Yuan, Zhang, Wang, Huang, Fang, and Liang, 2020). Furthermore, the concentration of import resources and several economic and geopolitical factors in crises endanger China's energy security supply (Yuan et al., 2020; Sun, Hao, and Li, 2022). Also, with no oil price authority, China can passively suffer shifts in oil prices (Hu, Wang, Su, and Umar, 2022). Concerns regarding energy security have increased the public's understanding of energy security (Wang, Zhao, Su, and Lobont, 2023). Energy security understanding may influence how individuals live and use energy, decreasing carbon dioxide emissions (Li, Zhang, and Su, 2019). On the other hand, (Golley and Meng, 2012) stated that education and awareness regarding energy usage impact the environment. However, the critical question is whether one indicator can capture the complex nature of the environment's status and degradation and how economic activities and development can influence it. The lack of agreement in the literature may be linked to these differences in factors.

The research paper is structured as follows: section 2 gives a literature review, section 3 points out theoretical contexts, section 4 explains data and methodology, section 5 empirical findings, and section 6 concludes and makes suggestions for policy.

## Literature review

There is significant literature on the EKC hypothesis in China's non-renewable and renewable energy context. Prior research indicates a positive relationship between renewable and unrenovable energy usage. Some of the significant research investigates the effect of renewable and non-renewable energy usage on CO<sub>2</sub> emissions for various countries, such as China, the UK, the USA, France, Pakistan, and OECD countries (Khizar and Anees, 2023; Zhang, 2022; Qin, Raheem, Murshed, Miao, Khan, and Kirikkaleli, 2021; Shen, Su, Malik, Umar, Khan, and Khan, 2021; Zhou, Tang, and Zhang, 2020; Ren, Shao, and Zhong, 2020; Temiz Dinç and Akdoğan, 2019; Dogan and Seker, 2016; Govindaraju and Tang, 2013). However, for a sustainable environment, it is necessary to increase the use of renewable energy to reduce carbon dioxide emissions. A higher CO<sub>2</sub> emission level will encourage an increase in fossil fuel energy use and impact environmentally sustainable investments (Ren et al., 2020).

Temiz Dinç and Akdoğan (2019) focused on the causal relationship between economic development and renewable energy usage. The outlook of this paper illustrates that energy usage and production have supported long- and short-term relations with economic development. Although there is a bidirectional relation in the long and short term between renewable energy usage and economic development, which also encourages suggestions, increased renewable energy and related energy source usage are vital for sustained development, and this process aims to minimize energy usage, which can negatively impact growth. However, changes in economic development will be represented in energy demand. (Govindaraju et al. 2013) stated that China has a long-term relationship with coal, CO<sub>2</sub> emissions, and economic development. There are also unidirectional solid links between them. Therefore, (Murshed, Elheddad, Ahmed, Bassim, and Then, 2021) stated that the increase in carbon dioxide emissions was statistically caused by foreign direct investment (FDI), negatively affecting ecological stability. Although FDI encourages renewable energy production, both FDI and production can reduce the destructive impact on the environment.

In order to investigate the CO<sub>2</sub> Kuznets curve of China, Jalil and Mahmud (2009) used time series data and the auto-regressive distributed lag (ARDL) methodology; the findings corroborated the EKC hypothesis. Using province-level data from China, (Wang, Zhou, Zhou, and Wang, 2011) investigated the CO<sub>2</sub> Kuznets curve using panel techniques and discovered a U-shaped relationship between CO<sub>2</sub> emissions and economic growth. However, (Yin, Zheng, and Chen, 2015) calculated the moderating impact of developments in technology and environmental regulation on China's CO<sub>2</sub> Kuznets hypothesis and discovered an inverted-U Kuznets curve. So far, the EKC theory has also been examined for other environmental degradation indicators in China, such as PM<sub>2.5</sub> and environmental impact, using a geographical econometric approach. For example, (Wang, Kang, Wu, and Xiao, 2013b) used a geographical econometric model and found demonstrated promoting an inverted U-shaped EKC between economic growth and ecological footprint, as opposed to ordinary least square regression. Hao and Liu (2015) used the spatial lag model (SLM) and the spatial error model (SEM) to verify their EKC theory for PM<sub>2.5</sub> in China and account for the spatial effects of PM<sub>2.5</sub>. On the other hand, Junyi (2006) examined the existence of an EKC relationship between economic growth and carbon dioxide emissions using Chinese provincial data from 1993 to 2002. The finding shows the negative impact of carbon dioxide emission on economic growth and labour's positive effect on economic growth. Although the abatement equation also finds that physical capital and the secondary industry share a positive impact on pollution abatement expenses, pollutant emissions still have a positive effect.

Mallick and Mahalik (2014) investigated the economic development, energy consumption, and financial growth nexus in China and India using data from 1971 to 2011. In China, empirical evidence from the autoregressive distributed lag model suggests that financial development, economic growth, and industrial output negatively impact energy consumption. Furthermore, financial development, energy consumption, and industrial output all harm growth. (Zhang, Anaba, Ma, Li, Asunka, and Hu 2020) investigated the relationship between solar energy technology, the environmental impact of energy systems, economic growth, and CO<sub>2</sub> in China between 1990 and 2017. The empirical findings suggest the enhancing effect of energy and economic growth, while solar energy technology decreases emissions levels. Zhang and Cheng (2009) investigated the relationship between China's energy use, economic growth, and carbon dioxide emissions. It discovered the causal relationship between economic growth and energy use, as well as between energy use and carbon dioxide emissions. According to Govindaraju et al. (2013), CO<sub>2</sub> emissions, economic growth, and use of coal are all cointegrated in China. The

researchers emphasized unidirectional causality from economic growth to CO<sub>2</sub> emissions and a bidirectional relationship between economic growth and the use of coal in both the short and long term.

Environmental issues are prevalent and trendy topics that scholars frequently address. Although there is extensive literature on the environmental Kuznet's curve, this paper will review some of it (Al-Mulali, Ozturk, and Solarin, 2016). They examined the nexus of economic growth, renewable energy usage, and environmental quality within the context of the EKC hypothesis for 107 countries from 1980 to 2010. The results show that using renewable energy with lower Co<sub>2</sub> emissions in Eastern, Central, and Western Europe, America, South Asia, and East have supported the environmental Kuznets curve hypothesis. (Shahbaz, Chaudhary, and Ozturk, 2017) examined the relationship between urbanization and energy usage in Pakistan from Q1 1972 to Q4 2011. The findings suggest that urbanization, economic growth, and technology raise energy demand.

Some researchers have used spatial analysis to investigate environmental issues. EKC research using spatial models began in the 1990s and continued into the early 21st century. Zhou et al. (2010) utilized Chinese provincial panel data from 1989 to 2007 to test the EKCs on seven industrial pollutants. They discovered an inverse N-shaped relation between five types of industrial pollution emissions and economic growth per capita. (Wang, Wang, Wei, and Ye, 2013a) and Wang et al. (2013b) investigated the environmental effects of the environmental footprint using data on national per capita use, production, and biocapacity. The empirical findings reject the Environmental Kuznets Curve hypothesis. Hao et al. (2016) used 73 Chinese cities 2013 to analyze the connection between economic growth indicators and air quality. Their findings indicated an inverted U-shaped EKC for the environment in China. Kang et al. (2016) used geographic panel data for carbon dioxide emissions from 1997 to 2012. It discovered an inverse N-shaped relationship between economic development and CO<sub>2</sub> emissions and indications of geographic spillover effects on EKC. (Qian, Liu, and Forrest, 2022) examined how financial agglomeration impacts the growth of China's green economy. Based on the findings, it can be concluded that technological advancements that support integrated economic growth, energy efficiency, and emissions reduction are the main ways of improving green total factor productivity. (Jiang, Wang, and Xia, 2020) investigated the factors influencing China's carbon emission changes. It concentrated on the significance of renewable energy expansion and determined that non-renewable energy reduced China's carbon dioxide emissions.

Zhou et al. (2020) examined the effect of the growth of economy and environmental quality in 30 Chinese provinces in the period 2010-2017. The model investigated if green financing is substantially connected with economic development and the environment. The paper's findings suggest that green money has a favourable effect on environmental progress. As an outlook, a model of the influence of sustainability on the relationship between economic growth and environmental quality is produced based on the concept of the EKC. Dogan et al. (2016) investigate the determinants of Co<sub>2</sub> emissions in the European Union. The empirical evidence validates the EKC hypothesis. Trade and renewable energy lowers CO<sub>2</sub> emissions while non-renewable energy raises CO<sub>2</sub> emissions; thus, there is a bidirectional relationship between renewable energy and CO<sub>2</sub> here and a one-way causal relation from income to CO<sub>2</sub>.

## Theoretical settings

This paper investigates the effect of both renewable and non-renewable energy consumption on carbon dioxide emissions. In addition, this paper also examines the validity of the EKC Hypothesis in China. To examine the nexus mentioned above, the following functional form is proposed for this paper;

$$CO2_t = f(Y_t^{\beta_1}, Y_t^{2\beta_2}, RE_t^{\beta_3}, FF_t^{\beta_4}) \quad (1)$$

whereas  $t$  stands for year and  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$ , and  $\beta_4$  are applied as a coefficient for explanatory variables of the econometric model.

This paper uses the following model in long-run and short-run form to capture the long-term effect.

$$\ln(CO2)_t = \beta_0 + \beta_1 \ln Y_t + \beta_2 \ln Y_t^2 + \beta_3 \ln RE_t + \beta_4 \ln FF_t + u_t \quad (2)$$

Where  $\ln\text{CO}_2$  stands for carbon dioxide emissions in logarithmic form;  $\ln Y$  stands for income (gross domestic product) in logarithmic form;  $\ln\text{RE}$  stands for renewable energy in logarithmic form;  $\ln\text{FF}$  stands for fossil fuel in logarithmic form; finally,  $u$  stands for disturbance term.

## Data and methodology

### Data

The study will focus on environmental issues in the context of renewable energy and fossil fuel usage in China from 1990 to 2020. The data are extracted from the World Bank (WDI, 2022). Carbon dioxide emission, income level, renewable energy, and fossil fuels are the variables of interest.  $\text{CO}_2$  is presented as carbon dioxide emission as "kt";  $Y$  as the gross domestic product as a constant 2015 US\$;  $\text{RE}$  is represented as renewable energy;  $\text{FF}$  is represented as fossil fuel usage. Table 1 provides the descriptive statistics of the factors of interest.

**Table 1:** Descriptive Statistics

	CO2	Y	RE	FF
Mean	15.5139	29.1545	2.9653	4.4252
Median	15.6276	29.1772	2.8277	4.4584
Maximum	16.223	30.3912	3.5288	4.4884
Minimum	14.5918	27.658	2.4283	4.3152
Standard deviation	0.572	0.8472	0.4138	0.0602
Skewness	-0.1654	-0.1539	0.0971	-0.485
Kurtosis	1.4197	1.7485	1.2821	1.6272
Jarque Bera	3.4759	2.2147	3.9853	3.7671
Probability	0.1759	0.3304	0.1363	0.1521
Sum	496.4434	932.9437	94.8909	141.6062
Sum Sq. Dev	10.1415	22.2507	5.3086	0.1124

Source: Author's calculations.

### Methodology

#### Unit root tests

This paper uses one of the most popular and conservative stationarity tests to confirm the nature of the data, namely Dickens-Fuller's (ADF) and Phillips-Peron's (PP) unit root tests. These tests identify the order of integration of series, "Dickey and Fuller, 1981" and "Phillips and Perron, 1988". The ADF and PP tests transform a string error variance into an autocorrelation (Ekanayake, 1999).

#### Cointegration tests

The cointegration test will be conducted to show the long-term equilibrium between the series (Zahoor, Khan, and Hou, 2022). In order to examine if a cointegration vector exists between the series, this research will use the Johansen cointegration test. This test has two types of tests: maximum Eigenvalue and Trace. The cointegration approach involves finding the relation among the variables by investigating the number of cointegration vectors between the series. The Johansen cointegration test argues that the Trace test is more appropriate than the Maximum Eigenvalue test (Awokuse, 2003). The Johansen (1988) and Juselius (1990) approaches simplify the estimation of cointegration vectors between regressand and regressors. Johansen's cointegration test is the contemporary method to avoid the issues of the Engel-Granger method (1987).

#### Short and long-term estimations

For the model estimation in this research, the econometric model estimation of the FMOLS method will be adopted (Jamil and Ahmad, 2010; Govindaraju et al., 2013; Khan and Hou, 2021; Peng et al., 2020). A residual-based test with practical outcomes for cointegrated factors will be adopted using the FMOLS regression approach. When the sample size is acceptable, and the issues of heterogeneity and serial relation among the factors are eliminated, the FMOLS method provides a credible estimate. The FMOLS method will estimate both short- and long-term estimates.

**Empirical analysis**

All the empirical estimations are carried out in Eviews 12 statistical software. The unit root tests of ADF and PP were employed to evaluate the stationarity condition of the factors. Unit root tests are performed for all series at the level form and first difference. Table 2 provides the ADF unit root test results. Table 2 illustrates the outlook of the unit root test in the level form I(0) and first difference I(1) for all variables of interest, namely CO2, Y, RE, and FF. At level form, none of the factors is stationary, Although, at the I(1), the series becomes stationary except for gross domestic product. The results suggest that variables become stationary at a 10 per cent or 5 per cent significance.

**Table 2:** Unit Root Test (ADF) Augmented Dickey-Fuller

Variable		None	Prob.	constant	(s-	Prob.	Trend and	Prob.
		(s-statistic)		statistic)	Prob.	intercept	(s-statistic)	
CO2	I (0)	1.8687	0.9828	-1.1965		0.6627	-1.3449	0.8564
	I (1)	-1.7916*	0.0699	-2.6938*		0.0868	-2.8351	0.1966
Y	I (0)	1.8516	0.9822	-2.3234		0.1715	-1.6449	0.7504
	I (1)	-0.6337	0.4343	-2.1484		0.2283	-3.1543	0.1127
RE	I (0)	-0.7836	0.3682	-1.533		0.5035	-1.1958	0.8933
	I (1)	-1.8425*	0.063	-1.8841		0.3349	-2.1463	0.5006
FF	I (0)	2.3406	0.994	-2.5979		0.1045	-1.5231	0.7987
	I (1)	-2.5102**	0.0139	-3.5802**		0.0124	-4.2333**	0.0116

**Note:** iCO2 represents the carbon dioxide emission; Y represents the gross domestic product; RE represents the renewable energy consumption; FF represents the fossil fuel. ii \*, \*\*, and \*\*\* denote null hypothesis rejection at alpha-10 percentage, five percentages, and one percentage, respectively.

**Source:** Author’s calculations.

Table 3 provides PP unit root test results. Phillips Perron test (1988) also utilizes a more conservative test to analyze the stationarity and identify the order of integration variables (Wang et al., 2016). Table 3 illustrates the finding of the PP test in both levels and the first difference between CO2, Y, RE, and FF. As a result, the series is not stationary at the I(0) but becomes stationary at the I(1), which shows that all factors integrate at I(1).

**Table 3:** Unit Root Test of (PP) Phillips Perron

Variables		None	Prob.	Constant	Prob.	trend and	Prob.
		(s-statistic)		(s-statistic)		intercept	(s-statistic)
CO2	I (0)	3.8612	0.9999	-1.1642	0.6769	-1.061	0.9197
	I (1)	-1.6993*	0.0841	-2.7887*	0.0719	-2.9329	0.167
Y	I (0)	10.7109	1.0000	-3.0184	0.4442	-0.2374	0.989
	I (1)	-0.5161	0.4846	-2.1587	0.2247	-3.2798*	0.089
RE	I (0)	-1.4992	0.1231	-1.268	0.6315	-0.6725	0.9665
	I (1)	-1.7920*	0.0699	-1.8696	0.3414	-2.1134	0.5179
FF	I (0)	2.6562	0.9972	-1.3777	0.5802	-0.7873	0.9561
	I (1)	-2.683***	0.0091	-3.6942***	0.0094	-4.2364***	0.0115

**Note:** iCO2 represents the carbon dioxide emission; Y represents the gross domestic product; RE represents the renewable energy consumption; FF represents the fossil fuel. ii \*, \*\*, and \*\*\* denote null hypothesis rejection at alpha-10 percentage, 5 percentages, and 1 percentage, respectively.

**Source:** Author’s calculations.

Since the unit root test results indicate that all series are stationary at I(1), for further analysis, the Johansen cointegration test will be adopted to check if there is a cointegration vector between CO2, Y, RE, and FF or not. The cointegration test promoted by Johansen and Juselius (1990) and Johansen (1988) is utilized in this research. According to the cointegration test, the Johansen test can assess whether a

cointegrating relation exists among factors. Tables 4 and 5 provide the Johansen test results of Trance and Max Eigen, respectively. The null hypothesis of no cointegration can be rejected if the test statistics exceed the critical value and the probability value is less than 5 per cent.

The finding of the Johansen cointegration test shows that the cointegration test of Trance has found three cointegration vectors among the variables, but the cointegration test of Max-Eigen has found only one cointegration vector among the variables. The bottom line is that both test statistics confirm the existence of a cointegration vector. Therefore, there is a long-run relationship between CO2 emission and its determinants. The FMOLS method will be employed to estimate short- and long-term coefficients for further estimations.

**Table 4:** Cointegration Test (Johansen- Trance)

Unrestricted Cointegration Rank "Trace" test				
Hypothesized		Trace	0.05	
No. of coefficient (s)	Eigen-value	Statistic	Critical Value	Probability**
None*	0.769023	110.3894	69.81889	0.000
At most1*	0.689339	66.42624	47.85613	0.0004
At most2*	0.447932	31.3547	29.79707	0.0328
At most3	0.363006	13.53217	15.49471	0.0967
At most4	7.80E-05	0.002341	3.841466	0.9593

Source: Author's calculations.

**Table 5:** Cointegration Test (Johansen- Max Eigen)

Unrestricted Cointegration Rank "Maximum Eigenvalue" Test				
Hypothesized		Max Eigen	0.05	
No. of CE(s)	Eigen-value	Statistic	Critical-Value	Probability
None *	0.769023	43.96312	33.87687	0.0023
At most 1	0.689339	35.07154	27.58434	0.0045
At most 2	0.447932	17.82253	21.13162	0.1366
At most 3	0.363006	13.52983	14.26460	0.0651
At most 4	7.80E-05	0.002341	3.841466	0.9593

Source: Author's calculations.

Table 6 provides long-run estimations of the fully modified least square method. The findings suggest that economic growth, as income level, has a significant and positive long-term effect on carbon dioxide emissions. However, renewable energy usage and squared income negatively impact CO2 emissions. However, fossil fuels have a negative insignificant effect on CO2. However, the analysis shows that if one unit of economic growth increases, carbon dioxide emissions go up by 0.615629 units. If renewable energy consumption increases, carbon dioxide emissions lessen by 0.494378 units, and if one unit of squared income increases, CO2 emissions decrease by 0.003358 units. However, fossil fuel usage does not have a significant long-run impact on CO2 emissions. The estimations from the FMOLS methodology validate the EKC hypothesis in the long term. The findings of this research imply that adopting renewable energy promotes environmental sustainability without reducing economic growth. Furthermore, it suggested that preferring renewable energy rather than fossil fuels may help avoid adverse environmental effects (Khan, Hou, Zakari, and Tawiah, 2021; Khan et al., 2021).

**Table 6:** Long-Run Estimation

Variable	Coefficient	Standard. Error	T-statistic	Probability
Y	0.615629**	0.250492	2.457684	0.0207
Y2	-0.003358**	0.003908	-0.859259	0.0397
RE	-0.494378***	0.085557	-5.778328	0.0000
FF	0.4267766	0.868956	0.491126	0.6273
R-squared	0.696538	Mean dependent var		15.5436
Adjusted R-squared	0.696153	S.D. dependent var		0.5557
S.E. of regression	0.034466	Sum squared resid		0.032074
Long-term variance	0.002679			

**Note:** <sup>i</sup>CO<sub>2</sub> represents the carbon dioxide emission; Y represents gross domestic product; RE represents renewable energy consumption; FF represents the fossil fuel. <sup>ii</sup> \*, \*\*, and \*\*\* denote null hypothesis rejection at alpha-10 percentage, five percentages, and one percentage, respectively.

**Source:** Author's calculations.

The estimation from FMOLS methodology in the short term is illustrated in Table 7. The empirical results indicate that economic growth (Y) has a significantly positive impact on CO<sub>2</sub> emissions. Unlike the long-term estimations, fossil fuels significantly and positively impact CO<sub>2</sub> emissions in the short term. Nevertheless, Y<sub>2</sub> has a significantly negative impact on CO<sub>2</sub> emissions. Moreover, renewable energy usage has a significantly negative impact on carbon dioxide emissions in the short-run, which indicates its remedial effect on environmental quality that is similar to the long-run estimation result. Moreover, if the economic growth (Y) goes up one unit, carbon dioxide emissions go up by 10.51165 units, and if the Y<sub>2</sub> has increased by one per cent, the carbon dioxide emission decreases by 0.173817, which validates the inverted -U shape of the relationship between the income level and carbon dioxide emissions. If renewable energy goes up by one unit, carbon dioxide emissions will lessen by 0.53627 units; however, if the fossil fuel increases by one per cent, the carbon dioxide emission will increase by 1.731097. On the other hand, the short-run estimation shows that intercept has a statistically significant and negative effect, that without any change in economic growth, renewable energy usage, or fossil fuel usage that the carbon dioxide emission mitigates in China, even though empirical estimations on trend shows the positive and trivial effect on carbon dioxide emission. Similarly, the long-term and short-term estimations of the FMOLS method provide evidence of the existence of the EKC hypothesis. ECT has an expected sign showing that environmental degradation in the model converges by 23.7125% toward its long-run equilibrium level. Nevertheless, short-run coefficients are highly significant and interact with environmental degradation similarly to long-term ones.

**Table 7:** Short-Run Estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(Y)	10.51165**	3.791751	2.772241	0.0111
D(Y <sub>2</sub> )	-0.173817**	0.064295	-2.703444	0.0130
D(RE)	-0.536927***	0.060259	-8.910285	0.0000
D(FF)	1.731097***	0.461017	3.754953	0.0011
ECT(-1)	-0.237125***	0.081873	-2.896251	0.0084
C	-0.068387**	0.024869	-2.74993	0.0117
TREND	0.0043659***	0.001006	3.635164	0.0015
R-squared	0.90532	Mean dependent variable		0.052568
Adjusted R-squared	0.879499	Standard deviation dependent variable		0.04721
S.E. of regression	0.016388	Sum squared resid		0.005909
Long-term variance	0.000108			

**Note:** <sup>i</sup>CO<sub>2</sub> represents the carbon dioxide emission; Y represents the gross domestic product; RE represents the renewable energy consumption; FF represents the fossil fuel. <sup>ii</sup> \*, \*\*, and \*\*\* denote null hypothesis rejection at alpha-10 percentage, five percentages, and one percentage, respectively. **Source:** Author's calculations.

## Conclusion

This paper aims to reconsider the environmental quality in the context of renewable energy and fossil fuel usage in China from 1990 to 2020. The FMOLS method is carried out for long- and short-term estimations. The findings of the empirical analysis show that there is a significant positive relationship between economic growth and carbon dioxide emission. At the further stages of growth, the effect lessens carbon dioxide emissions. In the short-run, fossil fuel usage has a positive significant impact on CO<sub>2</sub> emissions. Besides, the findings suggest a statistically significant and negative impact of renewable energy usage on short- and long-run carbon dioxide emissions.

Several previous researchers have examined the relationship between China's fossil fuel usage, renewable energy usage, and carbon dioxide emissions. (Long, Naminse, Du, and Zhuang, 2015) discovered that fossil fuel usage significantly influences carbon dioxide emissions and economic growth. Changing the structure of fossil fuel energy usage in China is crucial. It should decrease the rate of fossil fuel energy usage and put more value on reducing CO<sub>2</sub> emissions. Nevertheless, more focus should be put on renewable energy usage to decrease the amount of CO<sub>2</sub> emissions in China. On the other hand, (Abbasi, Shahbaz, Zhang, Irfan, and Alvarado, 2022) show that fossil fuel energy usage increases carbon dioxide emissions in China in the short and long term. Although economic growth also increases carbon dioxide emissions in the long run, it will lessen environmental degradation. However, using renewable energy has a negative short-run effect on carbon dioxide emissions. It is suggested that decreasing carbon dioxide emissions will positively affect the quality of China's environment. Moreover, (Chen, Wang, and Zhong, 2019) suggest that long-term economic growth and fossil fuels increase carbon dioxide emissions. The empirical results of different research show similar findings.

Furthermore, as has already been stated, China might achieve a long-term environmental goal by increasing renewable energy consumption as a substitute for fossil fuel consumption. Reduced fossil fuel energy usage should have a direct effect on CO<sub>2</sub> emissions. China should encourage energy-saving technology and improve energy efficiency if it desires a sustainable environment. In the last thirty years, China has imported and begun manufacturing domestically low-carbon technologies (Guan, Klasen, Hubacek, Feng, Liu, He, and Zhang, 2014). The Chinese government develops and operates efficient strategies to maximize renewable energy usage, build structures to replace fossil fuel energy consumption and promote environmental sustainability. Policies are implemented that promote technologies that have low carbon dioxide emissions for production and increase green investment, especially in technologies with low carbon dioxide emissions (Zhang, Zhang, Wu, Deng, Lin, and Yu, 2013). Once the goal is achieved, the formula for sustainable environmental management will gradually decarbonize. The analysis undertaken in a research paper shows that reducing fossil fuels and increasing renewable energy usage are achievable ways to bring sustainable environmental change to China. Its empirical result suggests some policy implications that China should focus more on the usage and growth of renewable energy to reduce carbon dioxide emissions. On the other hand, China must continue to promote renewable energy to decrease air pollution. As well as it should provide financial, legal, and policy advice to implement the "renewable energy law." In addition, China ought to grow the percentage of renewable energy usage while decreasing non-renewable energy use.

Further research could focus on various types of renewable energy sources and different ecological indicators, both in time series and panel data estimations. Additionally, considering their interaction, future studies can focus on the causality between ecological indicators and economic growth within the framework of simultaneous formulations. Finally, it is suggested that the EKC hypothesis can be examined using appropriate econometric methods in the context of other ecological variables used in the current study. New perspectives can be gained in future studies.

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## Oil price fluctuations and airline profitability: The case of Turkish Airlines

### Petrol fiyatlarındaki dalgalanmalar ve havayolu kârlılığı: Türk Hava Yolları örneği

Nalan Gelirli<sup>1</sup> 

Sina Kısacık<sup>2</sup> 

<sup>1</sup> Assist. Prof. Dr., Cyprus Science University, Kyrenia, TRNC, [nalangelirli@csu.edu.tr](mailto:nalangelirli@csu.edu.tr)

ORCID: 0000-0003-2391-4967

<sup>2</sup> Assist. Prof. Dr., Cyprus Science University, Kyrenia, TRNC, [sinakisacik@csu.edu.tr](mailto:sinakisacik@csu.edu.tr)

ORCID: 0000-0002-3603-6510

#### Abstract

This study examines the potential relationship between oil price fluctuations and airline profitability, focusing on Turkish Airlines (THY) from 2001 to 2022. The study uses wavelet analysis to explore the correlation between oil prices and the airline's profit and loss data, considering geopolitical factors and unexpected events that may affect airline operations. THY's financial performance is significantly impacted by oil price fluctuations in the short and medium term, while its long-term profitability remains stable. Strategic planning and intelligent fuel management, including hedging, are imperative to mitigate the effects of volatile oil prices on airline operations. The results of this study provide valuable insights for the airline industry, assisting in better-informed decision-making and contributing to future research. Wavelet analysis proves effective in uncovering complex relationships and trends, offering a comprehensive understanding of the dynamic interactions between oil price changes and airline profitability.

**Keywords:** Oil Prices, Airline Profitability, Turkish Airlines (THY), Wavelet Analysis

**Jel Codes:** L93, Q41, C32

#### Corresponding Author:

Nalan Gelirli,

Cyprus Science University, Kyrenia,  
Turkish Republic of North Cyprus,

[nalangelirli@csu.edu.tr](mailto:nalangelirli@csu.edu.tr)

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#### Öz

Bu çalışma, 2001-2022 yılları arasında Türk Hava Yolları'na (THY) odaklanarak petrol fiyatlarındaki dalgalanmalar ile havayolu kârlılığı arasındaki potansiyel ilişkiyi incelemektedir. Dalgacık analizini kullanan çalışma, jeopolitik faktörleri ve havayolu operasyonlarını etkileyebilecek beklenmedik olayları dikkate alarak petrol fiyatları ile havayolunun kâr ve zarar verileri arasındaki korelasyonu araştırmaktadır. THY'nin finansal performansı kısa ve orta vadede petrol fiyatlarındaki dalgalanmalardan önemli ölçüde etkilenirken, uzun vadede kârlılığı sabit kalmaktadır. Petrol fiyatlarındaki dalgalanmaların havayolu operasyonları üzerindeki etkilerini azaltmak için, riskten korunma da dahil olmak üzere stratejik planlama ve akıllı yakıt yönetimi zorunludur. Bu çalışmanın sonuçları, havayolu endüstrisi için değerli içgörüler sunmakta, daha iyi bilgilendirilmiş karar verme sürecine yardımcı olmakta ve gelecekteki araştırmalara katkıda bulunmaktadır. Dalgacık analizi, karmaşık ilişkileri ve eğilimleri ortaya çıkarmada etkili olduğunu kanıtlayarak petrol fiyatlarındaki değişiklikler ile havayolu kârlılığı arasındaki dinamik etkileşimlerin kapsamlı bir şekilde anlaşılmasını sağlamaktadır.

**Anahtar Kelimeler:** Petrol Fiyatları, Havayolu Kârlılığı, Türk Hava Yolları (THY), Dalgacık Analizi

**JEL Kodları:** L93, Q41, C32

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## Introduction

Civil aviation is a crucial component of contemporary life, providing insights into a country's economic and social development. However, macro-level factors such as wars, economic downturns, high oil prices, and increased competition on a global scale can adversely impact this industry (Ilarslan, 2014). It is also essential to recognize that external elements, such as terrorist attacks, natural calamities, labour strikes, and unexpected public health crises, can disrupt normal operations in the air transport industry, leading to an overall decline in airline performance and long-term development (Xu, McGrory, Wang & Wu, 2021).

Airlines' profitability is heavily influenced by fluctuating oil prices, which account for a significant portion of their operating costs. Airlines must manage these fluctuations to ensure long-term financial stability and sustainability in a highly competitive and cost-sensitive industry. However, macro-level factors in Turkey, such as geopolitical instability, terrorist attacks, natural disasters, labour strikes, economic fluctuations, and unexpected global events, further complicate the impact of oil prices. Understanding the impact of oil price fluctuations on airline profitability can significantly improve strategic planning, risk management, and policy formulation (Özdurak, 2020).

This study aims to explore the relationship between oil price fluctuations and the profitability of Turkish Airlines (THY) from 2001 to 2022 using wavelet analysis. Understanding this relationship is crucial for strategic planning and risk management in the airline industry.

Fuel costs are typically the most significant expense despite the various business models airlines adopt. Although fuel costs account for approximately 20% of total costs for network carriers, it can reach as high as 40% for low-cost airlines. Fuel costs represent around 30-40% of operating expenses in the aviation industry, implying that even minor fluctuations in oil prices can have significant impacts. Consequently, airline companies' fuel costs differ from other expenses since the fuel cost price is externally determined. In contrast, expenses such as personnel, aircraft rentals, and airport taxes can be controlled to some extent. Therefore, the oil price is determined by global political and economic conditions, making it challenging to control costs and plans. In such a scenario, few alternatives are available to airlines to mitigate the adverse impact of increased oil prices.

The aviation industry faces a considerable risk due to the volatile nature of fuel prices. As such, airlines have implemented various measures to mitigate this risk. The first step is to increase fuel efficiency, followed by adjusting ticket prices to reflect the increase in fuel efficiency. Another approach involves stabilizing future fuel prices, which airlines achieve through hedging to ensure that fuel prices remain at a specific level, thereby preventing losses from sudden fuel price increases (Kendirli and Kaya, 2015). Despite these efforts, the increasing cost of jet fuel remains a challenge for airlines in maintaining profitability. Hedging fuel risk offers advantages and disadvantages, where airlines with fuel protection incur higher costs if oil prices fall but can save millions of dollars if prices increase. However, airlines have had mixed results with fuel hedging, and there is no consensus on how best to hedge their exposure to jet fuel (Turner and Lim, 2015). In order to combat the risks posed by fuel price fluctuations, airlines have adopted various strategies to increase their operational efficiency. One such strategy involves using advanced air traffic management technologies, including aviation communication, navigation and surveillance systems (CNS), to select the most efficient altitudes and routes for their flights. This allows airlines to minimize waiting times and departure lanes and optimize fuel consumption. Airlines utilize advanced planning software to calculate the most fuel-efficient routes to aid in this process. The International Air Transport Association (IATA) has suggested that optimizing air traffic control can significantly reduce airline fuel consumption (Pahlevan, Ranjbar & Arumugam, 2009). In addition to these technological solutions, airlines are investing in fleet upgrades and aircraft modifications to improve fuel efficiency, as noted by Turner and Lim (2015).

The 2019 IATA chart portrays the airline industry's profitability through the airline operating margin, and inflation-adjusted oil prices are also presented for each year from 1950 to 2017. Despite a consistent trend of lower profitability associated with higher oil prices, the report suggests that the correlation between these variables is weak. The report reveals that oil prices have contributed only 1,5% to the airline profitability variation in the last 70 years. Furthermore, the pricing strategies of airlines, influenced by factors such as economic strength and market characteristics, significantly influence airline prices. Examining exchange rate fluctuations and hedging methods can amplify or mitigate oil price volatility from one airline to another. Ultimately, it has been argued that oil price variations only account for a small fraction of the long-term profitability of the airline industry, implying that the relationship between these variables is not straightforward.

As a methodology, this study explores the impact of oil price fluctuations on Turkish Airlines' profitability from 2001 through the second quarter of 2022. The financial statements and detailed financial data for Turkish Airlines (THY) have been consistently available since 2001. This availability of comprehensive financial records enables a thorough and accurate analysis of the airline's financial performance over time. By selecting this period, the study can comprehensively examine both short-term and long-term effects of oil price volatility on the airline industry, offering valuable insights into airlines' strategic planning and financial management. This study uses wavelet analysis to uncover hidden patterns and complex relationships between oil prices and airline profitability. This approach makes examining both short-term and long-term effects possible, allowing us to understand the dynamics at work better (Alici & Sevil, 2020).

Following the introduction of its arguments, the study examines the literature regarding the relationship between oil prices and airline profitability. The subsequent sections suggest a case study to analyse how the changes influence THY's profitability in oil prices. In conclusion, the study presents its findings and concludes.

## Literature review

Adrangi and Chatrath (1991) investigated the impact of airline fuel hedging on airlines' financial health. Their study included data from periods with heavy losses and failed consolidations, particularly concerning the use of oil derivatives markets. Their findings indicated limited benefits and the overall impact of fuel hedging on air carriers' financial health was negligible, implying that concerns about the effectiveness of hedging strategies were justified.

Braginskii (2009) investigated the impact of high oil consumption in emerging economies, focusing on BRIC countries (Brazil, Russia, India, and China). Although these countries' economic growth has been impressive in the last two and a half decades, the study's findings suggest that the fluctuations in stock returns of BRIC nations do not have a considerable influence on the volatility of global oil prices. Nonetheless, the growing oil consumption in emerging economies is a cause for concern.

Kristjanpoller and Concha (2016) empirically analysed 56 airline companies using GARCH models to investigate the relationship between fuel prices and airline industry performance. The study found a strong positive correlation between fuel price fluctuations and daily returns in West Texas Intermediate crude oil and Jet Fuel prices. Moreover, given the significant impact of fuel costs on airline expenses, the authors highlighted that both direct and indirect effects of fuel prices exist on the industry's financial performance.

Park et al. (2023) focused on airlines' management, profitability, and riskiness. Their research delved into various aspects of airline operations and the challenges faced in managing profitability amidst fluctuating fuel prices and other operational risks.

Wang and Gao (2020) investigated the influence of oil price dynamics on quarterly earnings and their predictability for a sample of 30 airlines over the period 1994 to 2017. The authors identified that demand-driven oil price shocks have a significant positive effect on airline earnings, leading them to conclude that revenue impacts resulting from changes in air travel demand have a more substantial effect on airline earnings than the cost impacts associated with aviation fuel price changes. Furthermore, they found that supply-driven oil price shocks had a more adverse impact on earnings predictability than demand-driven oil shocks, suggesting that supply-driven oil shocks had a more significant adverse effect on earnings.

Killins (2020) conducted a study investigating the relationship between oil price fluctuations and equity returns of Canadian and US rail and airline companies. The study revealed that airline companies respond distinctly to oil price volatility, with US-based airlines' equity returns adversely impacted by upward movements in West Texas Intermediate (WTI) prices.

When looking at the overall relationship, oil prices have both long-run and short-run asymmetric effects on airline costs: a decrease in oil price stimulates airline profits, whereas its increase does not necessarily have a negative impact and sometimes even causes profitability to improve. However, the asymmetric oil quality affects cements on specific scales. According to the effect of the decline in oil prices, passenger efforts to reduce costs are not strong enough to force sellers to realize all the savings from the lower cost of jet fuel. (Chuang, 2020).

Xu et al. (2021) conducted a study investigating the impact of oil prices and exchange rate fluctuations on the performance of China's major airlines, Air China, China Southern Airlines, and China Eastern Airlines, using the Least Absolute Shrinkage and Selection Operator (LASSO) approach. Their findings

demonstrated that the short-term profit of the airlines was inversely related to increases in oil prices, indicating that Chinese airlines are highly sensitive to oil price movements. Furthermore, the study revealed that exchange rate fluctuations significantly impacted airline performance, suggesting that exchange rate risks should also be considered when analyzing the performance of air transport companies.

Mollick and Amin (2021) found that the impact of oil prices on the stock prices of airline companies is asymmetric, with more significant adverse effects observed during periods of oil price increases compared to decreases. The study employed panel data analysis to investigate the interplay between revenues and costs in the pricing of airline stocks. Specifically, the study examined the stock returns of 33 companies over 30 years to assess the differential effects of occupancy and oil prices on the companies' stock performance in the United States.

Horobet and colleagues (2022) conducted a macroeconomic analysis of the airline industry's exposure to oil price risk in the short and long term. Their study employed a panel ARDL model and PMG estimator using monthly data from 2007 to 2020. The study found that the negative impact of oil price risk on airline stock prices is significant, robust, and pervasive. Furthermore, the article discussed the airline industry's expectations and challenges in dealing with oil price risk post-pandemic. The most noteworthy finding from the study is that airline company stock prices and returns are negatively and significantly exposed to oil prices and price volatility. The industry's performance is further hurt by the combination of exposure to oil price risk with the USD/EUR exchange rate.

### **An overview of significant political and economic events affecting global oil prices between 2000-2022**

The enduring importance of oil as a crucial commodity in various sectors, such as transportation, heating, and manufacturing, has remained consistent despite the increasing prevalence of alternative energy sources. The prices of oil, which are sensitive to shifts in supply and demand, have been volatile, with fluctuations often triggered by disruptions or uncertainties. Geopolitical occurrences can majorly impact the oil supply, resulting in price spikes. Similarly, economic downturns can cause a decrease in demand, leading to lower prices. For airlines, whose main cost component is fuel, the consequences of political and economic changes in oil prices are inevitable and cannot be ignored (Ross, 2022).

Several factors influence the price of crude oil, including:

- Prospects for supply and demand as well as perceived disruptions in the market.
- Crude oil demand tends to increase as the economy grows and decreases as the economy slows.
- OPEC negotiates export quotas for its members to influence global oil supply.
- Crude oil prices are volatile because supply and demand are relatively inelastic, which means they are slow to adjust to price signals, requiring significant price moves to balance the market.

In the spring of 2020, crude oil prices collapsed due to the COVID-19 pandemic and the resulting economic slowdown. Although OPEC and its allies reduced production to stabilize prices, they still fell to 20-year lows (Bajpai, 2022).



**Table 1:** Oil Price Response to Political and Economic Events: A Historical Overview

Quarter-Year	Events	Crude Oil Price (per Barrel)
Q4-2000	Highest price before September 11	\$ 38.73
Q3-2001	September 11 attacks	\$ 31.76
Q4-2001	Bottom price after September 11	\$24.22
Q1-2005	Low spare capacity	\$ 54.71
Q2-2008	Highest price before the worldwide financial crisis	\$ 125.21
Q1-2009	OPEC reduced production objectives by 4.2M barrels per day	\$ 42.89
Q2-2014	Highest price before supply glut price collapse	\$ 95.07
Q1-2015	OPEC production quota unchanged despite low oil price	\$ 44.41
Q4-2019	The price just before the worldwide epidemic	\$ 50.38
Q1-2020	COVID-19 declared a pandemic	\$ 40.34
Q2-2020	The global pandemic reduced oil price	\$ 24.65
Q1-2022	Russia invaded Ukraine	\$ 77.94

Source: Visual Capitalist. (n.d.). Historical oil prices. Retrieved from <https://advisor.visualcapitalist.com/historical-oil-prices/>

### An analysis of Turkish Airlines' losses over the past few years

In 2003, Turkish Airlines (THY) established strategies to expand its product lines and increase its aircraft fleet to achieve strong financial performance. However, the occurrence of subsequent events, such as plane crashes, hijackings, and terrorist attacks in Istanbul, as well as the US air attack and invasion of Iraq, led to a loss in the company's financial performance during the second and fourth quarters of the year.

In the second and fourth quarters of 2003, THY incurred losses of \$70,542,869.47 and \$63,394,762.74, respectively, attributed to plane crashes and hijackings in the first quarter (THY, 2003). In addition, the terrorist attacks in Istanbul led to sudden increases in oil prices in the last quarter, which were compounded by local political events and the US air attack on Iraq on March 19, 2003. These events negatively impacted Turkey's financial markets and economic balances, leading to short-term increases in foreign exchange rates (Yayci, 2019). The sudden rise in oil prices during this period was due to factors such as shrinking supply, rapidly increasing demand, financial speculation, OPEC's manipulation of oil quotas, and the inability of American refineries to meet local demand (Babalı, 2022). The effects of these events continued into 2004, with THY reporting losses of \$70,448,109.01 and \$56,617,676.25 in the first and second quarters, respectively.

Turkish Airlines (THY) expanded its services and improved its operations in 2006. First, THY incorporated its technical maintenance department, THY Technic, which enabled the airline to provide maintenance services to other regional airlines. A 50-50 partnership was also established between THY and Turkish Do&Co to create a catering company. A joint venture between THY and Opet was formed to offer aviation fuel services to its customers.

In 2008, THY joined the global airline alliance Star Alliance and launched regional airline service via Anadolujet. In 2010, THY also established Turkish Ground Services (TGS). As a result of these initiatives, THY's profitability and service quality have increased significantly.

In 2006, Turkish Airlines (THY) was adversely affected by oil prices, exchange rate fluctuations, and global economic developments. Due to these factors, THY declared losses in the first and third quarters of the year. A loss of \$138,965,813.57 was reported in the first quarter, and a loss of \$64,435,475.16 was reported in the third quarter. Oil prices increased during these periods, contributing to the airline's losses (THY, 2006).

From 2006 to 2009, the natural gas crisis between Russia and Ukraine resulted in political instability, significantly impacting oil prices. The third quarter of 2009 saw a sudden increase in oil prices, which caused a loss of \$34,385,234.68 for the company (THY, 2009). The global financial crisis 2008 and the Russia-Georgia war also contributed to the increase in oil prices and caused disruptions in oil shipments. As a result, there was a decline in the number of domestic and international passengers travelling to Turkey (Erdem, Tsiotas and Cubukcu, 2020).

In late 2009, a barrel of oil was \$80, which increased to \$100 by the end of 2010 and rose to \$115 by March 2011. Marginal fluctuations in oil prices can significantly impact airlines' profit margins, particularly in regions such as the Middle East and North Africa, which are home to oil-producing countries. Turkish Airlines was negatively affected by political and social events in the region as well as the earthquake and tsunami in Japan. Consequently, the airline had to suspend some or all of its flights to countries such as Libya, Tunisia, Egypt, and Japan, leading to a loss of income (THY, 2011).

In the first quarter of 2012, high fuel prices increased the airlines' cost base and adversely affected their profitability (THY, 2012).

During the first quarter of 2014, the company experienced a loss due to increased fuel prices. However, from mid-2014 to early 2016, oil barrels experienced one of the most significant historical declines, with prices reaching as high as 108 and 109 dollars in January and February 2014, respectively. This period was marked by one of the three most significant price declines since World War II and one of the most extended-lasting declines since the supply-driven collapse of 1986. Despite the loss incurred in the first quarter of 2014, the airline could report a profit from the second quarter of 2014 to the first quarter of 2016.

In 2016, Turkish Airlines faced numerous challenges due to the unstable political climate in Turkey, which adversely affected the aviation industry. Following the failed coup attempt in July, the Federal Aviation Administration suspended flights between Turkey and the USA, which hurt Turkish Airlines. The airline's strategy of linking the USA to less accessible destinations in Africa and the Middle East was compromised. In addition, Turkish Airlines had to ground 30 aircraft and reported a total loss of \$644.4 million in the year's first half.

2020, the aviation industry faced an unprecedented crisis due to the COVID-19 pandemic. Turkish Airlines, during this period, incurred a core operating loss of US\$ 255 million, as reported by THY (2020). Despite declining passenger revenue, Turkish Airlines managed to increase its cargo revenue. However, the drop in fuel prices did not improve the airline's profitability, as the decrease in passenger demand offset the benefits of lower fuel costs.

The Company employs swap and option-based derivative instruments to mitigate the impact of fuel price fluctuations on jet fuel costs and maintain costs within a specified range or at a fixed rate. In order to decrease the volatility of fuel market fluctuations on profitability and cash flow, it gradually hedges financial risks through crude oil or jet fuel derivative instruments, with contract amounts covering around 50% of the annual jet fuel consumption. It is worth noting that prior to privatization, Turkish Airlines (THY) did not utilize hedging techniques. Following privatization, THY began implementing these methods intermittently, hedging roughly 10% of its annual jet fuel consumption in 2009 using hedging techniques, which limited the effect of fuel price shifts on jet fuel costs, fixed jet fuel prices within a predetermined range, and reduced potential adverse impacts on the fuel market. THY's decision was predicated on the notion that oil prices had hit a low point in 2009 (Battal, Ü., Mühim, S. A., 2016). When oil prices were low, THY employed hedging strategies and realized profitability. Oil barrel prices climbed between 2009 and 2013. By implementing the technique at the right time, THY was able to shield itself from oil price hikes for 10% of its fuel requirements.

## Methodology

This study used Morlet wavelet analysis. The Morlet wavelet is chosen because it balances time and frequency localization, making it particularly suitable for analyzing data with periodic solid components, such as oil price fluctuations. Its ability to capture both short-term and long-term patterns allows for a comprehensive analysis of the dynamic relationships between oil prices and airline profitability, providing deeper insights into the impacts of these fluctuations on financial performance.

The authors apply the wavelet coherence technique to study the relationship between oil prices and the profitability of US airlines over the period since 1986. The wavelet approach directly measures the correlation of any two data series against the frequency of the fluctuations in either series (Polanco-Martínez et al., 2020). The results suggest that the economic linkages of oil prices and airline profitability are time-scale dependent.

In Turkey, a wavelet coherence technique was employed to explore the time-frequency relationship between bank concentrations and non-performing loans. This analytical approach, introduced by Goupillaud, Grossmann and Morlet (1984), allows the decomposition of a one-dimensional time series into two-dimensional time-frequency domains. In light of this, it is imperative to investigate the long-term and short-term causal connections between banking concentration and non-performing loans in Turkey. This multiscale decomposition method provides a natural framework for analyzing frequency-

based behaviour. The results of this study may have important implications for policymakers, financial institutions, and investors in the Turkish banking industry.

The equation for the wavelet function ( $\psi$ ), which belongs to the Morlet wavelet family, is given as:

$$\psi(t) = \pi^{-\frac{1}{4}} e^{-i\omega_0 t} e^{-\frac{1}{2}t^2}$$

Wavelets are characterized by two primary components: time and location, represented by  $k$ , and frequency, represented by  $f$ . The distribution of wavelets across time and location can be manipulated to achieve localization of various frequencies:

$$\psi_{k,f}(t) = \frac{1}{\sqrt{h}} \psi\left(\frac{t-k}{f}\right), k, f \in \mathbb{R}, f \neq 0$$

Continuous wavelets are generated based on the  $p(t)$  time series data, following the approach described below:

$$W_p(k, f) = \int_{-\infty}^{\infty} p(t) \frac{1}{\sqrt{f}} \psi\left(\frac{t-k}{f}\right) dt,$$

The presented equation depicts the coefficient of the degenerate time of origin for the  $p(t)$  time series:

$$p(t) = \frac{1}{C_\psi} \int_0^\infty \left[ \int_{-\infty}^\infty |W_p(a, b)|^2 da \right] \frac{db}{b^2}.$$

The wavelet power spectrum (WPS) provides a means of obtaining more comprehensive information about the magnitude of a given time series:

$$WPS_p(k, f) = |W_p(k, f)|^2$$

Wavelet coherence, utilized in this study, identifies any correlation between two-time series, namely  $p(t)$  and  $q(t)$ . To generate cross wavelet transforms (CWTs), the two-time series are transformed using the following equation, in line with the approach employed in this research:

$$W_{pq}(k, f) = W_p(k, f)W_q(k, f),$$

Torrence and Compo (1998) defined  $W_p(k, f)$  and  $W_q(k, f)$  as the continuous wavelet transform (CWT) of two-time series, denoted by  $p(t)$  and  $q(t)$ , respectively. Additionally, they presented an equation for square wavelets, which is as follows:

$$R^2(k, f) = \frac{|C(f^{-1}W_{pq}(k, f))|^2}{C(f^{-1}|W_p(k, f)|^2) C(f^{-1}|W_q(k, f)|^2)}$$

In wavelet coherence analysis, the parameter  $C$  denotes time, while the range of  $0 \leq R^2(k, f) \leq 1$  represents the data treatment in the time domain. A value of  $R^2(k, f)$  close to 1 indicates that the time series variables are in phase, while a value close to 0 indicates that the variables exhibit poor correlation.

As  $R^2(k, f)$  is a square value, it provides information on the strength of correlation between variables, but not its direction. This is because Torrence and Compo (1998) and Pal and Mitra (2017) developed an

instrument for assessing wavelet coherence that involves deferring signals in the waves of two-time series. The differential phase equation for wavelet coherence is presented below:

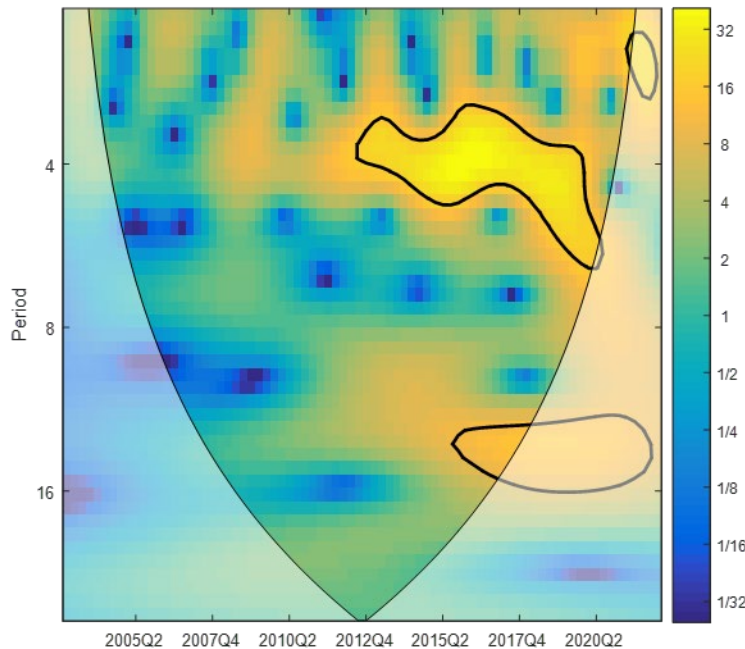
$$\phi_{pq}(k, f) = \tan^{-1} \left( \frac{L \{ C ( f^{-1} W_{pq}(k, f) ) \}}{O \{ C ( f^{-1} W_{pq}(k, f) ) \}} \right),$$

L represents an unrealistic operator, and O shows an actual part operator.

**Empirical findings**

The wavelet coherence analysis (Kirikkaleli & Sowah, 2020) between profit/loss in USD million and oil price revealed high coherence during specific periods, such as the final quarter of 2008, which coincided with a significant escalation in oil prices (Matar et al., 2021). The relationship between oil price fluctuations and airline profitability is crucial for understanding the financial performance of Turkish Airlines. This analysis can provide valuable insights into the impact of oil prices on the airline industry. This could potentially lead to more informed decision-making and strategic planning for airline companies in the future. Fluctuations in oil prices substantially influenced THY's profit/loss fluctuations from 2015 to 2020. The relationship between oil prices and airline profitability is complex and multifaceted. Factors such as fuel hedging, demand for air travel, and competition within the industry also play a significant role in determining the overall impact on an airline's financial performance. The data collection for this study commenced on 12/10/2022. The data were gathered by examining publicly available financial statements online; therefore, approval from an ethics committee was not required.

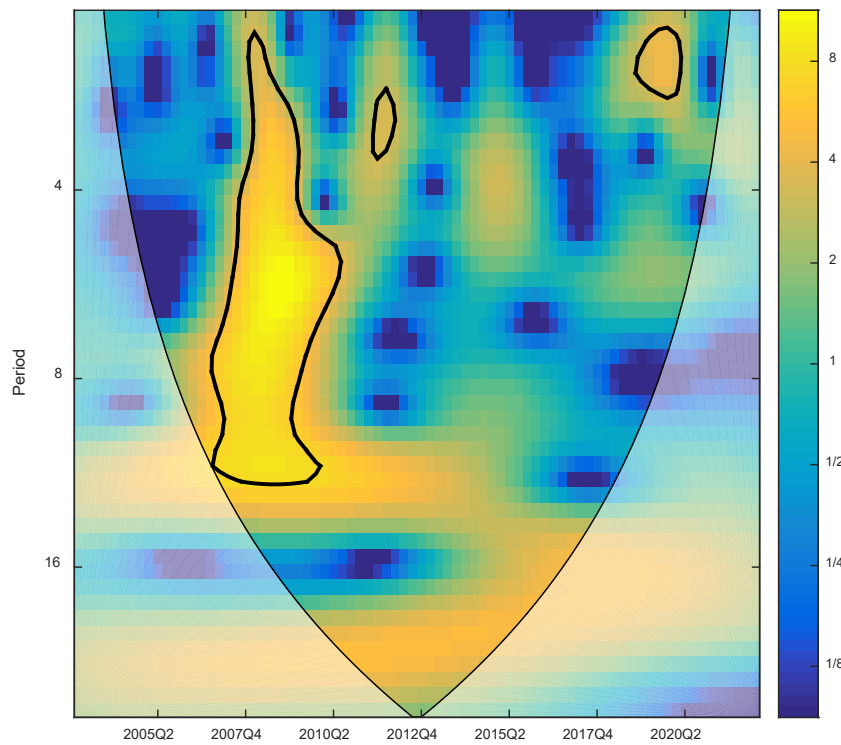
The data analysis depicted in Figure 1 reveals the presence of short-term fluctuations in profit/loss in 2017. The company experienced losses from 2011 to 2014, particularly affecting the first quarter. This trend persisted from 2016 to 2019. The year 2020 was characterized by a significant adverse impact of the pandemic on the company's financial performance, resulting in losses for the entire year.



**Figure 1:** Analysis of THY Profit/Loss Fluctuations from 2001 to Q2 2022

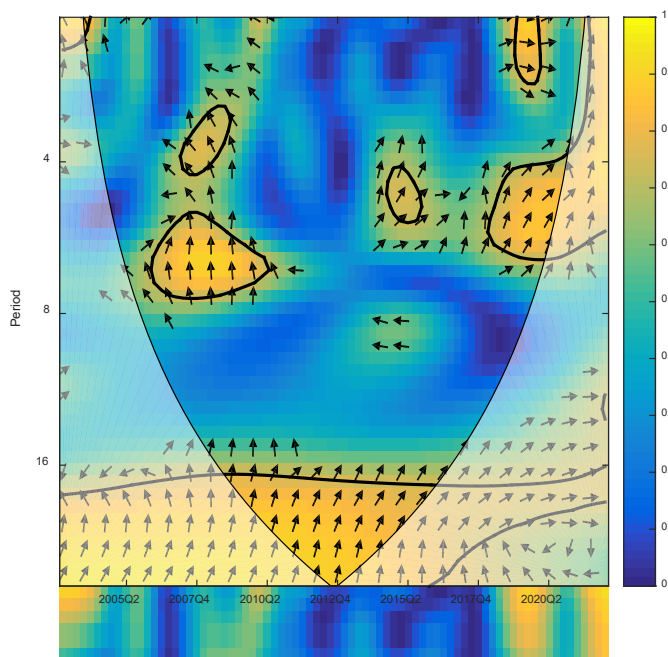
The analysis indicates that oil price fluctuations have a notable impact on the financial performance of THY, particularly in the short and medium term. From 2006 to 2009, significant short and medium-term fluctuations in oil prices were observed, with a notable surge in 2008 impacting global markets and THY's profitability (Aydın & Ari, 2020) and the year 2011 also exhibited significant fluctuations in oil prices. In 2018, there was a short-term escalation in oil prices. The year 2020 showed a significant

adverse impact on THY's financial performance due to the COVID-19 pandemic, which affected oil prices and airline profitability (Kurşuncu & Seçilmiş, 2023).



**Figure 2:** Wavelet Power Spectrum Analysis of Oil Price Trends from 2001 to Q2 2022

In historical context and geopolitical factors, the analysis indicates that oil price fluctuations have a notable impact on the financial performance of THY, particularly in the short and medium term. From 2006 to 2009, significant short and medium-term fluctuations in oil prices were observed, with a notable surge in 2008 impacting global markets and THY's profitability (Aydın & Ari, 2020). The year 2020 showed a significant adverse impact on THY's financial performance due to the COVID-19 pandemic, which affected oil prices and airline profitability (Kurşuncu & Seçilmiş, 2023).



**Figure 3:** Wavelet Coherence Analysis of the Relationship between Profit/Loss in USD Million and Oil Price

The present study uses wavelet coherence analysis to examine the relationship between profit/loss of USD million and oil price. Our results reveal that the wavelet coherence between profit/loss USD million and oil price attained its zenith during the final quarter of 2008, which coincided with the commencement of oil price escalation in the preceding quarter of 2007. The escalation in oil prices considerably impacted the airline industry's profit/loss statement, with the company registering a loss in the initial two quarters of 2011. Moreover, our findings demonstrate that oil price fluctuations substantially influenced profit/loss fluctuations from 2015 to 2020.

THY has employed various strategies to manage fuel price risks, including hedging and improving fuel efficiency. Hedging has helped mitigate the adverse impacts of sudden fuel price increases, although it comes with challenges and mixed results (Sorokin, 2022). Advanced air traffic management technologies and fleet upgrades have also been part of THY's strategy to improve fuel efficiency and reduce costs. The airline has also focused on implementing innovative fuel-saving measures such as new engine designs and lightweight materials in aircraft construction. These initiatives have contributed to a more sustainable operation and improved profitability for Turkish Airlines (Mızrak et al., 2022). The findings suggest a significant correlation between oil price fluctuations and airline profitability. Furthermore, it is essential to consider the potential impact of geopolitical events on oil prices in the future (Kang et al., 2021).

## Results

This study aimed to assess the effects of oil price fluctuations on airline profitability, with a specific focus on Turkish Airlines (THY). To achieve this goal, we utilized Wavelet Analysis as a powerful tool to investigate the relationship between oil price fluctuations and THY's profitability between 2000 and the first quarter of 2022.

The analysis results indicated that oil price fluctuations significantly affect THY's financial performance, impacting the airline's short- and medium-term profitability. However, THY has maintained its profitability in the long run despite the impact of oil price fluctuations.

### 1. Financial Performance and Oil Price Fluctuations

According to the wavelet coherence analysis, there is high coherence during specific periods, particularly the final quarter of 2008, which coincides with significant increases in oil prices. This suggests that oil price fluctuations significantly impact THY's profitability, particularly in the short and medium term.

**Short-term Fluctuations:** Significant short-term fluctuations were observed in profit/loss data in 2017, with notable losses between 2011-2014 and 2016-2019. Due to the COVID-19 pandemic, 2020 resulted in substantial financial losses.

**Medium-term Fluctuations:** From 2006 to 2009, oil prices experienced significant short and medium-term fluctuations, with a notable surge in 2008 impacting global markets and THY's profitability.

**Figure 1:** An analysis of THY Profit/Loss Fluctuations from 2001 to Q2 2022 demonstrates a significant correlation between profit/loss fluctuations and oil prices.

**Figure 2:** A wavelet coherence analysis of oil price trends from 2001 to Q2 2022 highlights periods of high volatility.

**Figure 3:** The wavelet coherence analysis of the relationship between Profit/Loss in USD Million and Oil Price indicates a significant impact from 2015 to 2020.

### 2. Geopolitical and Economic Factors

The historical context indicates that oil price fluctuations significantly impact THY's financial performance, particularly during geopolitical events such as the 2008 financial crisis and the 2020 COVID-19 pandemic. Strategic planning for the airline industry should consider geopolitical and economic factors.

According to the findings, oil price fluctuations significantly affect the profitability of airlines, specifically Turkish Airlines (THY). This study aims to interpret these findings within the context of strategic fuel management and planning within the airline industry. These figures illustrate the correlation between profit/loss and prices and highlight the chosen scale and period based on oil price trends from 2001 to Q2 2022. Figure 1 and Figure 2 are scaled according to the time-frequency localization of wavelets. In Figure 3, the density outside the cone of influence indicates less reliable data, which should be analyzed cautiously.

The findings of this study have important implications for the airline industry. They highlight the crucial role of strategic planning in mitigating the effects of volatile oil prices on operations. This study also emphasizes the importance of intelligent fuel management strategies, including hedging, to ensure long-term and sustainable business models for airlines.

As a result, we are using Wavelet Analysis as an analysis tool, which allows for a comprehensive understanding of the complex relationships between oil price fluctuations and airline profitability. This approach can be used in future research to investigate the impact of external factors on the performance of companies across a range of industries.

## Discussion

The discussion highlights the critical role of strategic planning and intelligent fuel management in mitigating the effects of volatile oil prices on airline profitability. The study's findings are consistent with previous research, which has shown that:

**Fuel Hedging:** Hedging can mitigate the adverse impacts of sudden fuel price increases. However, it comes with challenges and mixed results.

**Technological Advancements:** Investment in advanced air traffic management technologies and fleet upgrades has improved fuel efficiency.

**Global Context:** The impact of geopolitical events on oil prices is significant—similar patterns in different regions emphasise this issue's global nature.

This study aimed to investigate the impact of oil price fluctuations on airline profitability using Turkish Airlines (THY) as a case study. The findings suggest that changes in oil prices significantly affect THY's financial performance in the short and medium term while the airline's long-term profitability remains stable.

Conducting this study in developing countries such as Turkey, which are not oil-rich nations, is crucial to accurately measure the effect of oil price fluctuations on the airline industry. The dynamics of developed countries differ significantly from those of undeveloped countries in this industry, making it challenging to determine the actual impact of oil prices. Thus, examining a country that falls between the two categories is essential to identify the real effect. Therefore, Turkish Airlines should be selected as a case study.

The Wavelet Analysis method used in this study provides a comprehensive approach to analyzing significant signals that can be applied to future research in various sectors. To the best of our knowledge, this is the first study to apply Wavelet Analysis to investigate the impact of oil price fluctuations on airline profitability, and the results demonstrate the effectiveness of this approach in uncovering hidden relationships and trends.

This study contributes to the growing literature on the effects of external factors on company profitability. Future research may explore the use of different analysis tools to develop effective management strategies and provide a deeper understanding of these complex relationships. In conclusion, the findings of this study emphasize the importance of intelligent fuel management strategies, including hedging, to ensure long-term and sustainable business models for airlines facing the challenge of managing high operational costs cost-effectively.

## Limitations and future research directions

Most of the parameters in the wavelet model are driven empirically, such as Daubechies wavelet and mother wavelet choice. When correlations are higher in the dataset, the estimation may be affected by the choice of the mother wavelet. Therefore, the research is open to scholars to propose wavelet model improvement by attempting different mother wavelet parameter choices and testing on other datasets. What is more, considering the revealed impact of oil price changes as information stimulus on different time intervals in the wavelet domain, the impacts of different oil price uncertainty levels and exchange rate dynamics on airline profitability are also areas that can further enrich wavelet analysis and airline finance fields in the context of the studied limitations. Furthermore, considering a potential greenhouse effect on the aviation sector, further investigations can also identify potential changes in the impact of the association of oil price changes with airline finance and business performance between the pre-and post-Kyoto Protocol periods, as well as the effects of recent environmental concerns together with oil price - airline finance - business performance association.

The current study is performed by employing a rich dataset to investigate the impact of oil price fluctuations on the profitability of airline carriers. However, the profitability investigation can be

broadened, and the determinants of profitability can be analyzed in more detail. Additionally, business performance indicators can be used in ways other than just profitability. Moreover, wavelet techniques can be adapted to investigate the impact of oil prices on airline profitability and business performance in other geographical domains by including different sets of airline company financial databases. Similarly, the impacts of other oil price benchmarks, such as Dubai Crude Oil or Brent Crude Oil, could be explored. Although the wavelet analysis model developed in this study has already been utilized in some recent research, the sample is nevertheless limited, and its application to other airline carrier company datasets is highly critical to supporting conclusions more effectively.

## **Conclusion**

Airlines face the crucial challenge of managing high operational costs cost-effectively. The aviation industry, however, exhibits limited capacity to control fuel costs as opposed to other types of expenses. As a result of the intense competition among airline companies, high and constantly fluctuating fuel costs necessitate cost control measures. Elevated oil prices reduce profits as airlines cannot directly pass on the price increase to customers. Supply and demand, production quotas, and refinery capacity determine oil prices. As aviation is highly dependent on oil, most airlines adopt forward-looking fuel policies to secure fuel requirements and prices. Large fuel volumes are purchased upfront or traded through futures markets or currency trading when oil prices fall. Nevertheless, airlines may mitigate the impact of oil prices through management strategies and tools.

This study examines the relationship between oil price fluctuations and Turkish Airlines (THY) profitability between 2000 and the first quarter 2022. Wavelet Analysis was a powerful tool for achieving this goal, enabling the analysis of signals in small areas, which is particularly useful when dealing with significant signals. The Wavelet Analysis method analyses signals in the time domain, allowing low-frequency information in the extended and high-frequency information in the short time interval to be extracted. This technique provides a comprehensive data analysis, making it possible to uncover hidden relationships and trends.

In light of these advantages, the Wavelet Analysis method was chosen to investigate the effect of oil price fluctuations on THY's profitability. The analysis revealed that oil price fluctuations specifically affect the airline's financial performance. Specifically, the findings show that changes in oil prices tend to affect THY's profitability in the short and medium term, but the airline has been able to maintain its profitability in the long run.

The study's contribution sheds light on the importance of oil price fluctuations on the airline industry's performance, particularly in the case of THY. This finding has important implications for the airline industry as it highlights the importance of strategic planning to mitigate the effects of volatile oil prices on their operations.

Overall, applying the Wavelet Analysis method in this study provides a valuable approach to investigating the impact of external factors on company performance. This approach has broad implications for business management and decision-making, as it allows for a more nuanced understanding of the complex relationships between variables.

To summarize, wavelet analysis was used to analyze the complex relationships between oil price fluctuations and airline profitability. Oil price changes significantly impact THY's financial performance in the short and medium term while its long-term profitability remains stable. Strategic planning and intelligent fuel management strategies, including hedging, are essential to ensure long-term and sustainable business models for airlines.

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The authors have no conflict of interest to declare.

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### Author Contributions:

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## The effect of employees' perception of organizational justice on psychological capital and job satisfaction

### Çalışanların örgütsel adalet algısının psikolojik sermaye ve iş tatmini üzerindeki etkisi

Muhammed Ali Yetgin<sup>1</sup> 

#### Abstract

Employees are the most valuable asset for industries. Therefore, the human factor's labour, effort, and management skills are significant added value for corporate sustainability from a sectoral perspective. Employees contribute to the development of corporate culture, the achievement of corporate goals, and, indirectly, the development of the national economy. In this respect, employees' success is essential for achieving the targeted corporate results. Employees' love for their jobs, adoption of the organization they work for, harmony with their colleagues, and trust in their supervisors will affect the success of their work. The organizational justice approach is a significant driving force behind this success. The primary purpose of this study is to measure the effect of employees' perceptions of organizational justice on their job satisfaction and psychological capital levels. The research covers 451 employees in the education, health, finance, industry, and service sectors. The data obtained from the employees were analyzed using SPSS and AMOS programs, and structural equation modelling was used. As a result, a statistically significant and robust relationship was found between employees' perceptions of organizational justice and their perceptions of psychological capital and job satisfaction. When a workplace environment that will enable human capital to flourish in businesses is created, this capital's current value and productivity will increase.

**Keywords:** Organizational Justice, Psychological Capital, Job Satisfaction

**Jel Codes:** M10, M12, M14

#### Öz

Sektörler için çalışanlar en değerli varlıktır. Bu nedenle sektörel açıdan kurumsal sürdürülebilirlik için insan faktörünün ortaya koyduğu emek, çaba ve yönetim becerileri önemli bir katma değerdir. Çalışanlar, kurum kültürünün gelişmesinde, kurumsal hedeflere ulaşmada ve dolaylı olarak ülke ekonomisinin gelişmesine katkıda bulunmaktadır. Bu açıdan çalışanların başarılı olması, hedeflenen kurumsal sonuçları alabilmek açısından önem teşkil etmektedir. Çalışanların işini sevmesi, çalıştıkları kurumu benimsemesi, iş arkadaşları ile uyumu, amirlerine güvenmesi işe yönelik başarıyı etkileyecektir. Bu başarının arkasında örgütsel adalet yaklaşımı önemli bir itici güçtür. Çalışanların örgütsel adalet algılarının, iş tatmini ile psikolojik sermaye algılarına etkisini ölçmek bu çalışmanın temel amacını oluşturmaktadır. Araştırma eğitim, sağlık, finans, sanayi ve hizmet sektörlerinde faaliyet gösteren 451 çalışana kapsamaktadır. Çalışanlardan elde edilen veriler SPSS ve AMOS programları ile analiz edilerek yapısal eşitlik modeli kullanılmıştır. Elde edilen bulgular neticesinde çalışanların örgütsel adalet algıları ile psikolojik sermaye ve iş tatmini algıları arasında istatistiksel olarak anlamlı ve güçlü bir ilişki bulunmuştur. İşletmelerde beşeri sermayenin yeşermesini sağlayacak bir işyeri ortamı oluşturulduğunda bu sermayenin mevcut değeri ve verimliliği artacaktır.

**Anahtar Kelimeler:** Örgütsel Adalet, Psikolojik Sermaye, İş Tatmini

**JEL Kodları:** M10, M12, M14

<sup>1</sup> Assist. Prof. Dr., Karabük University, Karabük, Türkiye,  
[m.ali.yetgin@karabuk.edu.tr](mailto:m.ali.yetgin@karabuk.edu.tr)

ORCID: 0000-0002-8120-4704

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## Introduction

The human factor is inevitably behind the success and stability of businesses and organizations in business processes (Niehoff & Moorman, 1993)-companies achieve their goals with the employees they employ. Employees' efforts toward their jobs and their sense of dedication to their jobs act as catalysts for the success of organizations (Seo, Ko & Price, 2004; Navaie-Waliser, Lincoln, Karuturi & Reisch, 2004; Rad & Yarmohammadian, 2006). Employees' dedication to their jobs, being happy to work, and going to work every morning with positive emotions are advantages for the success of businesses, and these emotional states of employees can be measured by determining their levels of psychological capital and perceptions of job satisfaction. One of the essential igniting factors for employees to have positive feelings toward work is the organizational justice shown by organizations towards employees (Chiok, 2001; Fernandes & Awamleh, 2006). Employees expect fair business management from their organizations. Fair management will implement work-related rewards and incentives by considering employees' perceptions of satisfaction. Protecting the rights of the employees, not showing favouritism in career opportunities, having a fair wage and reward system, and providing equal opportunities for everyone to benefit from corporate opportunities and advantages are among the factors that can ensure the adoption of the perception of organizational justice by employees. This will protect employees against occupational burnout syndrome and prevent their tendency to leave their jobs and concerns about the future (Fatt, Khin & Heng, 2010; Sharma & Kumar, 2020). The management of the organization needs to create a fair recruitment and promotion system for its employees, apply a transparent and fair evaluation system in recruitment and contract renewal, offer fair wages and benefits, be respectful towards employees, listen to and take into account employee feedback, to improve organizational justice perception and psychological capital, to improve employee well-being and organizational performance (Spell & Arnold, 2007; Sharma & Kumar, 2020). Implementing fair systems will affect employees' perceptions of job satisfaction and increase their tendency to believe in success and the quality of work (Navaie-Waliser et al., 2004). By including organizational justice, which examines the treatment of employees, within the subject of the study, individuals' perceptions of fairness towards work will be measured, and the effects of these levels with psychological capital and perceptions of job satisfaction factors will be examined. This study aims to understand employees' future expectations, job satisfaction, and respect for their work organization.

## Literature review

### Organizational justice and psychological capital

Organizational justice is defined in the literature as a concept related to the psychological perception of the time and effort individuals spend on their organizations (Choi & Kim, 2013). Organizational justice is accepted as social norms that determine how rewards and punishments are given in an organization (Greenberg & Cropanzano, 2001), and it is known that as long as this distribution is fair, it will positively affect organizational outcomes (Hobfoll, 2012; Folger & Cropanzano, 1998). Psychological capital is the understanding of the perceptions of employees' hope, optimism, self-efficacy, and resilience about work in an organization (Luthans, Youssef & Avolio, 2007). Studies have shown a strong positive relationship between the perception of organizational justice and psychological capital, and it has been observed that as employees' perceptions of organizational justice increase, their levels of psychological capital also increase (Avey, Luthans, Smith & Palmer, 2010). Employees who work in a fair environment feel safe, which can affect their hope and optimism toward work. When organizations implement fair procedures, employees feel they belong, affecting their self-efficacy and resilience. Fairly distributed rewards affect all components of psychological capital (Estiri, Nargesian, Rafiee & Maleki, 2024). Studies have shown that among the factors, interactional justice, distributive justice, and procedural justice are related to employees' hope and optimism, procedural justice is related to employees' levels of self-efficacy and resilience, and interactional justice is related to employees' perceptions of motivation and job commitment (Banerjee & Banerjee, 2013). It has been determined that well-being has a regulatory role in the effect of all three dimensions of employees' perceptions of justice (distributive, procedural, interactional justice) on their psychological capital levels (Çelik, Turunç & Bilgin., 2015).

A study found that organizational justice and psychological capital affected employees' sense of satisfaction toward work, which made employees happier, more optimistic, and more successful in their work. (Noroozi, Khademolhosseini, Lari & Tahmasebi, 2018); Spell & Arnold, 2007; Avey, Luthans, Smith & Palmer, 2010). When employees have optimistic feelings about work, this ensures stable productivity in the workplace (Estiri et al., 2024; Veenhoven, 2008). Psychological capital is a result of positive organizational behaviour and is defined as an individual's state of positive psychological development (Luthans et al., 2007); organizational justice is the perception of justice and the response to these perceptions in the organizational context (Khan & Usman, 2012), these two explanations show

that the relationship between organizational justice and psychological capital can be understood intuitively because both concepts are interrelated (Totawar & Nambudiri, 2014). Organizational justice has the effects of distribution justice with its outcomes, procedural justice with its decision-making processes, interactional justice with its interpersonal treatment (Cropanzano & Molina, 2015), and the presence of organizational justice with these components will create positive emotions, and this can be described as a psychological resource (Lupsa, Baciú & Virga, 2020; Luthans et al., 2007). In this case, it can be understood that an intuitive connection between both concepts can be predicted. Studies have shown that organizational injustice creates a significant source of stress at work (Jex & Beehr, 1991), reduces employees' loyalty toward their jobs (Hussain & Shahzad, 2022), and results in adverse reactions of psychological capital components (Estiri et al., 2024). The Equity Theory addresses the relationship between organizational justice and employee performance (Malik & Singh, 2020). According to this theory, when employees are not treated fairly, they will not be able to advance in terms of career, their performance towards work will decrease, the managers of the organization will not value them, work efficiency will decrease, work stagnation and expertise in knowledge and skills will not be transferred (Chang, Geng & Cai, 2024; Cropanzano et al., 2001). When the sample models obtained from the literature are examined, the relationship between organizational justice and psychological capital seems appropriate for examination. In this context, according to the research model, it aims to measure the effect of organizational justice on employees' psychological capital. In this context, the hypothesis of the research:

**H<sub>1</sub>:** *Employees' perceptions of organizational justice affect their levels of psychological capital.*

### **Psychological capital and job satisfaction**

Job satisfaction is a self-evaluation of one's job, work experiences, and conditions (Alshetri, 2013). Job satisfaction encourages employees' positive behaviours, helps organizations develop their core competencies, and creates a competitive advantage (Malangwasira, 2013). Job satisfaction includes a person's perceptions and judgments about how well the job meets their needs, so the higher the employee's job satisfaction, the better their performance. Job satisfaction is influenced by culture, individual factors, and organizational environment (Cavanagh, 1992). Job satisfaction is one of the strongest determinants of job performance (Carver, Scheier, Miller & Fulford, 2009). Job satisfaction appeals to employees' emotions (Robbins & Judge, 2012), and psychological capital activated by a positive atmosphere or psychological emotion increases job satisfaction (Brief, Butcher & Roberson, 1995). In studies conducted in the USA, China, and the UK, it has been found that job satisfaction increases employees' motivation and awareness of their performance and decreases their tendency to quit (Christiansen, Wallace, Newton, Caldwell & Mann-Salinas, 2016; Chamberlain, Hoben & Squires, 2016; Diao, 2011). Psychological capital, which is an essential element of positive psychology, affects job satisfaction (Wang & Liesveld, 2015; Erkuş & Findıklı, 2013; Ke, Sun & Li, 2009; Luthans et al., 2007; Luthans, Avolio, Walumbwa & Li, 2005; Saari & Judge, 2004; Luthans, Luthans & Luthans, 2004), because high psychological capital components of employees will reveal that job satisfaction may be high (White, Liebman & Stone, 2018), in a study conducted in this context, it was revealed that all components of psychological capital are compatible with job satisfaction (Xu, Ma & Shang, 2019). A study conducted on both public and private sector employees in Vietnam found that employees' psychological capital impacts job satisfaction, and this relationship between both variables was positive (Ngo, 2021). In job satisfaction, which is considered in terms of individual and organizational factors, "*current working conditions, wages, financial rewards, relations with colleagues, management style, job structure, and promotion opportunities*" are considered as organizational factors. In contrast, "*age, gender, education level, seniority, personality traits, beliefs, values, and basic skill level*" are considered individual factors (Robbins, Judge, Odendaal & Roodt, 2009; Luthans, Avolio, Walumbwa & Li, 2005; Robbins, 2003). Organizational and personal factors are related to job satisfaction (Fang, Shi, Zhang & Gao, 2011; Ivancevich & Matteson, 1996). The research determined that there is a significant and positive relationship between psychological capital and its components and job satisfaction; in addition, the psychological capital scale is a factor with a higher explanatory level in determining job satisfaction than its four components; these findings support the results of other studies (Akçay, 2012). A study concluded that a significant positive relationship exists between the sub-dimensions of psychological capital, optimism, hope, self-efficacy, and psychological resilience and job satisfaction (intrinsic-extrinsic job satisfaction) (Akdemir & Acan, 2017).

In a study conducted in Egypt, it was observed that employees' psychological capital components and job satisfaction had a positive relationship (Badran & Youssef-Morgan, 2015). Other studies have revealed that psychological capital is essential for job satisfaction (Şen & Mert, 2019; Doğan & Aslan, 2018; Chandrasekar & Chidambaram, 2015; Avey, Reichard, Luthans & Mhatre, 2011). A study by Larson and Luthans (2006) found positive relationships between job satisfaction and hope and

resilience. A study in Hungary revealed that psychological capital is significantly related to job satisfaction, success in finding a job, earning a good salary, and career satisfaction (Lehoczky, 2013).

This study investigates the effect of employees' psychological capital levels on their job satisfaction. In this context, the hypothesis of the research is:

*H<sub>2</sub>: Employees' psychological capital levels affect job satisfaction.*

### **Organizational justice and job satisfaction**

Today, organizational justice and attitudes toward employees have gained new meaning and become important issues (Lopez-Cabarcos et al., 2015; Robinson, 2004). Organizational justice ensures fairness among employees (Greenberg, 1990) and is defined as people's internal and external perception of fairness towards organizational roles and tasks (Greenberg, 1990). When employees encounter an unfair work approach, how they retaliate against this injustice and what inappropriate processes are experienced are all revealed (Al-Zu'bi, 2010; Alsalem & Alhaiani, 2007). Unfair treatment and consequences for employees in the workplace will lead to negative emotions and behaviours (Latham & Pinder, 2005). In the results obtained from a study, the importance of organizational justice for businesses was emphasized, and it was seen that organizational justice is a determining factor in job satisfaction (Yeşil & Dereli, 2012).

Job satisfaction expresses employees' views, attitudes, and behaviours toward their workplace and tasks (Hao et al., 2016; Loi et al., 2009; Mosadeghrad, 2003). It represents the general emotional response to job roles (Rasi et al., 2014). Job satisfaction refers to the satisfaction of employees at work (Spector, 1997). Studies have shown that there is a positive relationship between employees' perceptions of organizational justice and job satisfaction (Minibas-Poussard, Le Roy & Erkmén, 2017; Tziner, Oren, Bar & Kadosh, 2011; Hossein, Ali Akbar & Siyed, 2010; Vitell & Singhapakdi, 2008; Colquitt, Conlon, Wesson, Porter & Ng, 2001; Ellickson & Logsdon, 2002; Masterson, Lewis, Goldman & Taylor, 2000; Brief, 1998; Colquitt, Lepine & Wesson, 2015; Moorman, 1991). It has been observed that in institutions and organizations where organizational justice is provided, employees' feelings of satisfaction towards their work increase (Moorman et al. 1998). A study conducted with the participation of 165 people working in the private sector in different fields in Turkey found that organizational justice provided in the workplace positively affects employees' job satisfaction (Ozel & Bayraktar, 2018). One study observed that job satisfaction increased when the hospital management increased organizational justice (Chegini, Janati, Asghari-Jafarabadi & Khosravizadeh, 2019). When evaluated in terms of organizational justice, having a fair wage policy among employees, evaluating performance relatively in the promotion system, giving importance to the principle of efficiency in working time, and making corporate rewards increase the satisfaction of employees (Irving, Coleman & Bobocel, 2005; Lawler, 1977). One study observed that perceptions of distribution justice were related to wage increases (Folger & Konovsky, 1989). As the quality of life increases, this will affect job satisfaction and increase organizational effectiveness (Chen, Zhang, Leung & Zhou, 2010; Kwak, Chung, Xu & Eun-Jun Cho, 2010; Guo & Wang, 2008; Cedwyn & Awamleh, 2006). The results of a study conducted through simple random sampling on a population of 351 employees in the automotive industry in Tangerang, Indonesia, concluded that organizational justice and transformational leadership have a positive and significant effect on job satisfaction (Purwanto, 2020; Chen et al., 2010; Kwak et al., 2010; Guo & Wang, 2008). Data were collected from the logistics sector employees in Jordan. It was found that organizational justice had a significant effect on employees' job satisfaction, distribution justice had no impact on job satisfaction, so delegating authority and sharing it with employees and distributing training programs did not have any effect on job satisfaction, and interactional justice had a high impact on job satisfaction so that managers should encourage teamwork and resolve conflicts fairly (Al-Douri, 2020).

*H<sub>3</sub>: Employees' perceptions of organizational justice affect job satisfaction.*

## **Methodology**

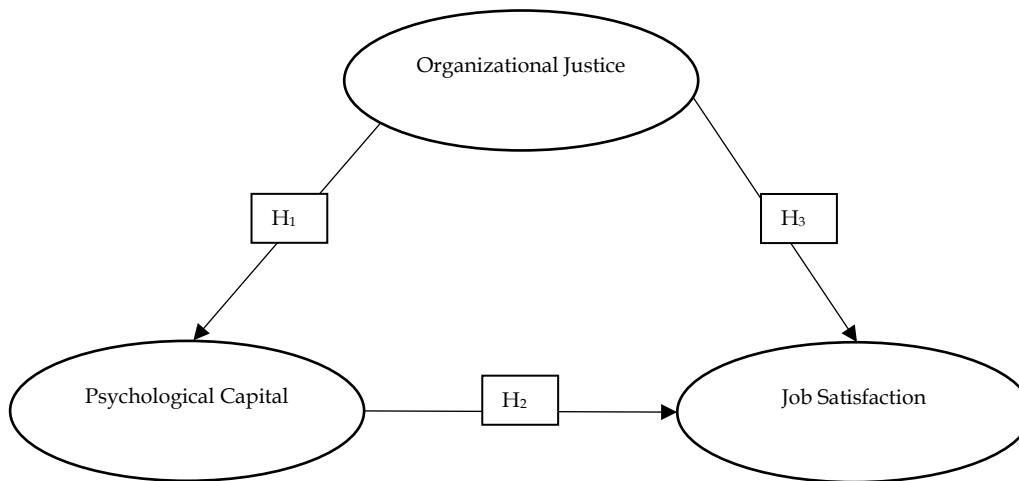
### **Purpose of the study**

Sectors need employees with good command of their subject, who can make decisions, take risks when necessary, and love their jobs. No matter how experienced or knowledgeable an employee is in their career, if they think they are not treated fairly at work and have no hope for the future, this situation poses a problem for an organization. It is essential for effective and sustainable organizational efficiency that organizations establish justice for their employees, that employees have positive emotions such as hope and optimism, and that they are satisfied with their work. During the pandemic period, the closure of some sectors, the increase in debt burdens of some, the subordination of some to large companies, and the relative deterioration in macroeconomic indicators developing in the world as of the third

quarter of 2021 have affected the sectors. These economically and financially troubled processes are still occurring all over the world. Turkey has also been trying to take measures against some of the negativities in macroeconomic indicators for the last two years. These measures are aimed at revitalizing sectors as well as public savings. The primary purpose of this study is to understand the effect of organizational justice perceptions of employees on psychological capital and job satisfaction perceptions. This study will make a significant contribution not only to the literature but also to the sectors due to factors such as the city where the research is applied, the periodic period, the expectation that the sectoral vitality will gain momentum, and the inclusion of employees from the sector immediately. The effectiveness of employees is one of the most essential catalyzing factors in the expected vitality movement of the sectors.

### Research model and hypotheses

The model and hypotheses showing the effect of organizational justice on psychological capital and job satisfaction are given below. See Figure 1.



**Figure 1:** Research Model

The main question of the research is the effect of organizational justice on psychological and job satisfaction. This was developed to examine the relationships between the variables considered in the context. The research hypotheses and sub-hypotheses are listed as follows;

**H<sub>1</sub>:** *Employees' perceptions of organizational justice affect their levels of psychological capital.*

**H<sub>2</sub>:** *Employees' psychological capital levels affect job satisfaction.*

**H<sub>3</sub>:** *Employees' perceptions of organizational justice affect job satisfaction.*

### Data collection and analysis process

The research sample was formed with the voluntary participation of individuals aged 18 working in various sectors. In determining the sample, firstly, the population to be included in the research was defined; thus, the relevant group for the research was chosen. Participants were included in the study by using an appropriate "sampling method" from the population selected to determine the sample.

This study collected data from organizational justice, psychological capital, and job satisfaction questionnaires. The questionnaire was prepared as a five-point Likert scale respectively: (1) strongly disagree, (2) disagree, (3) partially agree/somewhat disagree, (4) agree, and (5) strongly agree were ranked. In addition to this, a questionnaire was prepared based on the participants' demographic characteristics. To collect information on demographic characteristics, the participants were asked about gender, age, education level, employment status, and income level. To determine the sample from the determined population, the participants were included in the study with the convenience sampling method, one of the random sampling methods. The convenient sampling method is the selection of the sample from easily accessible and applicable units due to the limitations in terms of time, money, and labour force. Six hundred twenty-eight questionnaires were distributed to 628 people, and 177 questionnaires were not included in the study for various reasons, such as incomplete answers, unemployed people, and those who marked all the answers in the same option and did not show interest. To determine the required sample size for the research, the "Sample Calculation Formula for Quantitative Variable Research" quoted by Gürbüz and Şahin (2014) from Bartlett, Körtlik and Higgins



(2001) was used. The sample size was calculated to be 451 people at a 95% confidence level. The structural equation was created using SPSS (Statistical Package for the Social Sciences) AMOS (Analysis of Moment Structures) 26 statistical program to evaluate the data obtained in the research. Structural equation models are accepted as the primary method, especially in studies with multiple relationships between dependent and independent variables (Şimşek, 2007).

The “Organizational Justice Scale” developed by Niehoff and Moorman (1993) was used. In this scale, which consists of 20 items, the first nine items measure interactional justice, 10-15 items measure procedural justice, and 16-20 items measure distributive justice. This scale was translated into Turkish and adapted by Polat (2007). Polat (2007) found the internal consistency coefficient of the scale to be 0.96. The job satisfaction measurement tool is the Job Satisfaction Scale, developed by Brayfield and Rothe (1951) as 18 items and converted into a 5-item short form by Judge, Locke, Durham & Kluger, 1998. This scale stands out in that it directly evaluates job satisfaction without any dimensions and is brief. This scale has been frequently used in the national literature since it was translated into Turkish by Bilgin (1995), and the validity and reliability study of the scale was conducted by Keser and Öngen Bilir (2019). The study used the organizational justice perception scale, psychological capital perception, and job satisfaction scales. The job satisfaction scale has five items, the perception of organizational justice scale has three sub-dimensions (interactional justice, distributive justice, procedural justice) and 20 items, and the psychological capital (existed by Luthans, Youssef, and Avolio, 2007) scale has four sub-dimensions (self-efficacy, hope, resilience, and optimism) and 17 items.

### **Findings**

A total of 451 people participated in the study. When the demographic characteristics were analyzed, it was determined that 48% of the 451 participants were male and 52% were female. Although participation was almost equal, the number of female participants was observed to be higher than male participants. When demographic information is analyzed, it is seen that the highest participation rate is among individuals between the ages of 30-39, with a participation rate of 16%. This was followed by individuals between the ages of 18-29 with 12%. When the level of education is analyzed, it is seen that the highest participation rate is among individuals with bachelor's degrees (n=153) and master's degrees (n=151). When household income was analyzed, the highest distribution was between 39001 and 59000, with 11%. Demographic characteristics are presented in Table 1 respectively.

**Table 1:** Demographic Characteristics

Information Type	Info	f	%
<b>Gender</b>	Female	234	51.9
	Male	217	48.1
<b>Age</b>	18-29	155	34.4
	30-39	206	45.7
	40-49	73	16.2
	50-59	17	3.8
<b>Marital Status</b>	Married	200	44.3
	Single	233	51.7
	Widow	15	3.3
	Divorced	3	0.7
<b>Education Status</b>	High School and Lower	48	10.6
	Vocational School	38	8.4
	Undergraduate	153	33.9
	Master's	151	33.5
	PhD	61	13.5
<b>Income (Turkish Lira)</b>	20.000 and lower	73	16.2
	20.001-39.000	122	27.1
	39.001-59.000	141	31.3
	59.001 and above	115	25.5
<b>Sector of employment</b>	Education	187	41.5
	Health	27	6.0
	Finance	88	19.5
	Industry	100	22.2
	Service	49	10.9
	Total	451	100.0

Reliability analysis is necessary to determine the relationship between items and to calculate internal consistency. For reliability analysis, the "Cronbach's Alpha Coefficient" of the study was calculated. "Cronbach's Alpha coefficient" is considered reliable if it is more significant than 0.7, and the closer it is to 1, the higher the internal consistency of the items in the scale. At the same time, subjective judgments carried by "Cronbach's Alpha coefficient" are limited (Kartal & Dirlik, 2016). This study's "Cronbach's Alpha coefficient" was calculated as 0.965. See Table 2.

**Table 2:** Cronbach's Alpha

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.982	0.982	42

In the correlation analysis of the study, statistical hypotheses were formed by taking the correlation values between the dimensions of the research. The correlation coefficient "takes values between +1 and -1. This value cannot be less than -1 or greater than +1" (Taylor, 1990). The numerical data are first interpreted regardless of the sign when interpreting the correlation coefficient. Then, the sign is also interpreted. A positive correlation coefficient indicates that two variables increase together, while a negative correlation coefficient is interpreted as one variable increasing while the other decreases. While a positive coefficient indicates a direct relationship, a negative coefficient indicates an inverse relationship and a correlation coefficient of 0.00 is interpreted as having no relationship between the variables (Taylor, 1990). When interpreting the Pearson correlation coefficient, "0.00-0.25 is considered very weak, 0.26-0.49 is considered weak, 0.50-0.69 is considered moderate, 0.70-0.89 is considered high, and 0.90-1.00 is considered very high" (Mukaka, 2012).

Factor analysis was applied to determine the validity of the scales used in the study. Factor analysis is a statistical tool with two main applications. The first is “Explanatory Factor Analysis (EFA),” which is used to discover and reveal the underlying factor structure of a newly developed scale that may differ culturally, socially, or dynamically in a region (Suhr, 2006). In contrast, “Confirmatory Factor Analysis (CFA)” is used to confirm whether a previously developed and tested scale conforms to the original factor structure and is suitable for use in the current research (Suhr, 2006). While EFA allows researchers to investigate which factors the items load on, CFA aims to verify the model the researcher created using the data (Noar, 2003). For these reasons, CFA was used in this study, and the data were analyzed using SPSS and AMOS programs.

**Explanatory factor analysis (EFA)**

All mean and std. Deviation values of organizational justice, psychological capital, and job satisfaction were calculated. Among the mean values, the item “I will work harder if necessary to accomplish a task” belongs to psychological capital with a value of 3.91. See Table 3.

The reliability coefficient of the job satisfaction factor was calculated as  $\alpha = 0.879$ . Among the variables constituting this factor, the item “Most days, I go to work eagerly” was the highest value among the job satisfaction factors. The item “I find my job unpleasant” among the variables in the factor was found to have the lowest value among the job satisfaction factors. The reliability coefficient of the Interactional Justice factor was calculated as  $\alpha = 0.941$ . Interactional justice has the highest reliability coefficient among the variables in the study. Among the variables that make up this factor, the factor load of the item “My wage is fair” is the highest (0.746) and made the most significant contribution to the factor. The factor loading of the item “My supervisor collects all relevant information to make work-related decisions” is the lowest (0.643) and contributed the least among these items. The reliability coefficient of the Procedural Justice factor was calculated as  $\alpha = 0.926$ . Among the variables constituting this factor, the factor loading of the item “My supervisor is respectful and attentive to me when making a work-related decision” is the highest (0.756) and contributed the most to the factor. This item also has the highest value among all factor loadings. The reliability coefficient of the Distributive Justice factor was calculated as  $\alpha = 0.909$ . The factor “My supervisor discusses the implementation of decisions related to my job with me” contributed less than the other factors. The reliability coefficient of Self-efficacy was  $\alpha = .897$  and the lowest contributing factor was the item “I feel confident when speaking in front of a group of people”, with a factor loading of 0.678. The reliability coefficients of Hope, Psychological Resilience, and Optimism were found to be 0.879, 0.898, and 0.886, respectively. The item “I am a person for the whole of my life” (0.605) belonging to optimism had the lowest value among all factor loadings.

**Table 3:** Findings Result

#	Items	Factor	Mean	Std. Deviation	Cronbach Alpha	Variable
Job Satisfaction						
JS1	I am pretty satisfied with my current job.	0.635	3.63	1.151	0.879	Job Satisfaction (js)
JS2	Most days, I go to work eagerly.	0.679	3.68	1.078		
JS3	Every day at work feels like it will never end.	0.650	3.31	1.135		
JS4	I find my job enjoyable.	0.631	3.50	1.148		
JS5	I find my job unpleasant.	0.625	3.31	1.199		
Organizaional Justice						
IJ1	My work schedule is fair.	0.705	3.43	1.198	0.941	Interactional Justice (ij)
IJ2	My wage is fair.	0.746	3.26	1.310		
IJ3	My workload is fair.	0.695	3.41	1.157		
IJ4	The rewards distributed are fair.	0.696	3.18	1.265		
IJ5	My job responsibilities are fair.	0.743	3.42	1.200		
IJ6	My supervisor is impartial when making decisions about my job.	0.725	3.42	1.176		
IJ7	My supervisor listens to the hesitations of all employees before making work-related decisions.	0.690	3.45	1.166		
IJ8	My supervisor collects all relevant information to make work-related decisions.	0.643	3.49	1.146		

IJ9	My supervisor provides additional information when necessary to explain the decisions made.	0.728	3.46	1.128		
PJ1	Work-related decisions are consistently applied to all affected employees.	0.716	3.46	1.161	0.926	Procedural Justice (pj)
PJ2	Employees have the right to challenge or uphold decisions their immediate supervisor makes.	0.653	3.41	1.206		
PJ3	My supervisor is caring and courteous to me when making work-related decisions.	0.745	3.61	1.214		
PJ4	My supervisor is respectful and attentive to me when making a work-related decision.	0.756	3.66	1.175		
PJ5	My supervisor is sensitive to my personal needs when making decisions about my work.	0.705	3.52	1.189		
PJ6	My supervisor is sincere with me when making decisions about my work.	0.728	3.61	1.125		
DJ1	My supervisor emphasizes my rights as an employee in matters related to my work.	0.691	3.50	1.112	0.909	Distributive Justice(dj)
DJ2	My supervisor discusses the implementation of decisions related to my job with me.	0.685	3.49	1.104		
DJ3	My supervisor explains the reasons for making decisions related to my job.	0.700	3.57	1.053		
DJ4	My supervisor provides logical explanations when making decisions related to my job.	0.707	3.52	1.122		
DJ5	My supervisor clearly explains the decisions made about my job.	0.690	3.57	1.128		
Psychological Capital						
SE1	I consider myself to be a confident person.	0.732	3.76	1.037	0.897	Self-efficacy (se)
SE2	I will work harder if necessary to accomplish a task.	0.733	3.91	1.071		
SE3	I feel confident when speaking in front of a group of people.	0.678	3.74	1.089		
SE4	I know who to turn to for help when things are difficult.	0.738	3.80	0.983		
H1	I choose a path to reach my goal.	0.719	3.80	1.020	0.879	Hope (h)
H2	I have the ability to follow the path I have chosen.	0.730	3.79	1.044		
H3	I believe that the problems I experience will make me mature.	0.636	3.72	1.131		
H4	I feel that my future is promising.	0.654	3.70	1.132		
PR1	I can overcome difficulties.	0.715	3.78	1.045	0.898	Psychological Resilience(pr)
PR2	I can cope with stress.	0.667	3.67	1.089		
PR3	I can cope with negativity in the environment.	0.691	3.68	1.033		
PR4	I make constructive contributions to a problem in my environment.	0.627	3.76	1.044		
PR5	For me, no problem cannot be overcome.	0.664	3.68	1.132		
O1	I approach things with the idea that "it is good in everything."	0.695	3.63	1.146	0.886	Optimism (o)
O2	I look at the good side of the events I experience.	0.652	3.69	1.034		
O3	I am a person for the whole of my life.	0.605	3.65	1.065		
O4	I am satisfied with my life.	0.681	3.64	1.139		

KMO values are accepted as "excellent if between 0.90-1.00, very good if between 0.80-0.89, and good if between 0.70-0.79" (Kaiser & Rise, 1974). In this study, the KMO value was calculated as 0.981, which

indicates an excellent level of factor analysis. In addition to the KMO test, the results of "Bartlett's Test of Sphericity" should also be examined to determine the suitability of the collected data for factor analysis. "Bartlett's Test of Sphericity" evaluates whether the correlation between variables is sufficient and "p-value < 0.01" is considered suitable for factor analysis. The chi-square value compares the expected frequency with the resulting frequency to clarify the relationship between them in data consisting of variables with more than one category. The result of Bartlett's Test of Sphericity given in Table 1 (chi-square = 3478.183 and p <0.01) was statistically significant. The "Explanatory Factor Analysis" results are presented in Table 4.

**Table 4:** KMO Test Result

The measure of Sampling Adequacy for Kaiser-Meyer-Olkin		0.981
	Approximate Chi-Square	17414.774
Bartlett's Test of Sphericity	df	861
	p	0.000

In the study, the covariance matrix of the explanatory factor analysis was created, and the goodness of fit values of the created covariance pattern met the values specified in the literature. To provide better modification incidence fit values, items 1 and 4 from job satisfaction, items 1,2,3,4,5 from interactional justice, 1 from procedural justice, 4 from hope, 5 from Psychological Resilience, and 3 from optimism were removed.

**Table 5:** Goodness of Fit Indices

Category	Index	Reported VA	Level
<b>Parsimonious fit</b>	Chi-square divided by degree of freedom ( $\chi^2/df$ )	2.089	Good Fit = $0 \leq \chi^2 /sd \leq 2$ Acceptable Fit = $2 \leq \chi^2 /sd \leq 3$ (Kline, 1998)
<b>Parsimonious fit</b>	PNFI	0.814	$0.05 \leq$ (Bentler & Bonnet, 1980)
<b>Incremental fit</b>	Tucker Lewis Index (TLI)	0.958	Adequate Fit = $TLI \geq 0.80$ (Forza & Filippini, 1998)
	Incremental Fit Index (IFI)	0.964	Adequate Fit = $IFI \geq 0.90$ (Bollen, 1990)
	Normed Fit Index (NFI)	0.933	$0.8 \leq$ (Bentler & Bonnet, 1980)
	Adjusted Goodness of Fit Index (AGFI)	0.862	
<b>Absolute Fit</b>	Goodness of Fitness Index (GFI)	0.887	$0.8 \leq$ (Awang, 2015)
	Root Mean Square error of approximation (RMSEA)	0.49	$0.08 \leq$ (Hair, et.al., 2010)

The covariance design of the explanatory factor analysis is shown in the figure below. See Figure 2.

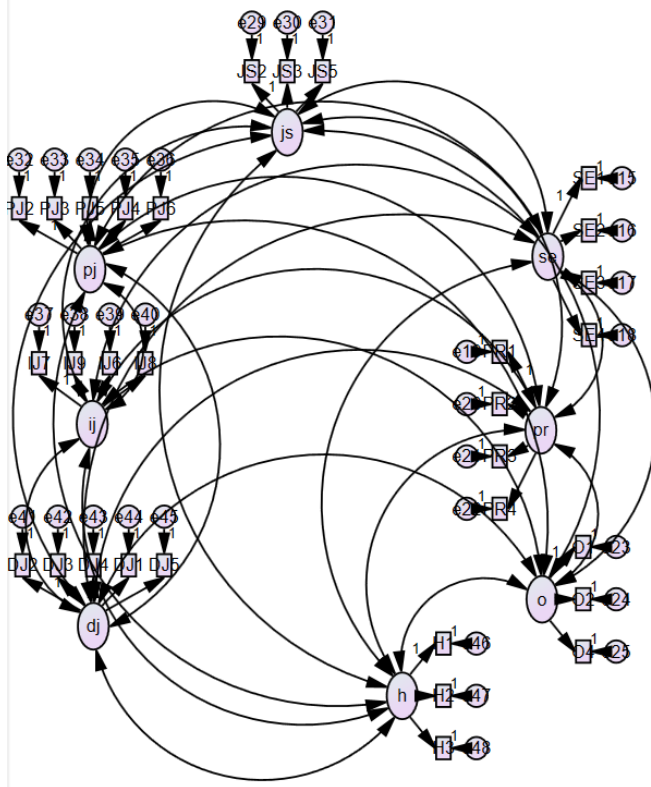


Figure 2: Explanatory Factor Analysis Covariance Matrix

The goodness of fit values for the explanatory factor analysis were within the range of the reference values in the literature, and confirmatory factor analysis was started.

### Confirmatory factor analysis (CFA)

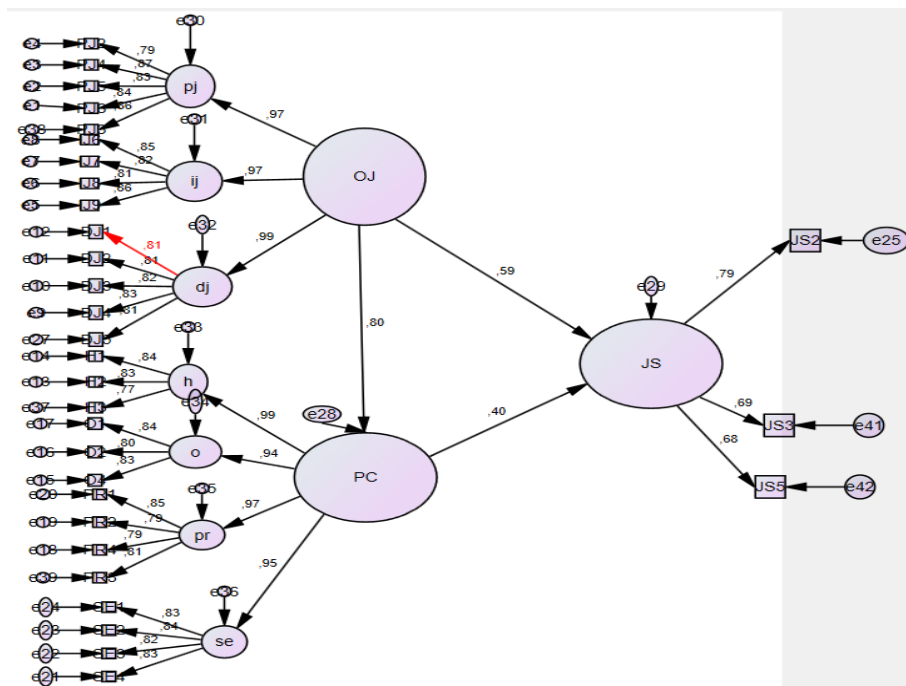


Figure 3: Structural Equation Modeling (SEM)

According to the confirmatory factor analysis results of the study, there is a statistically significant and positive relationship between organizational justice and psychological capital ( $\beta = 0.80$ ;  $p = *** < 0.05$ ). This result shows a strong relationship between organizational justice and psychological capital. A statistically significant and positive relationship was found between organizational justice and job

satisfaction ( $\beta = 0.59$ ;  $p = *** < 0.05$ ). A statistically significant and positive relationship was also found between psychological capital and job satisfaction ( $\beta = 0.40$ ;  $p = *** < 0.05$ ).

The result of the confirmatory factor analysis is shown in the table below.

**Table 6:** Goodness of Fit Indices in Confirmatory Factor Analysis

Category	Index	Reported VA	Level
Parsimonious fit	Chi-square divided by degree of freedom ( $\chi^2/df$ )	2.202	Good Fit = $0 \leq \chi^2 / sd \leq 2$ Acceptable Fit = $2 \leq \chi^2 / sd \leq 3$ (Kline, 1998)
Parsimonious fit	PNFI	0.844	$.05 \leq$ (Bentler & Bonnet, 1980)
Incremental fit	Tucker Lewis Index (TLI)	0.954	Adequate Fit = $TLI \geq 0.80$ (Forza & Filippini, 1998)
	Incremental Fit Index (IFI)	0.958	Adequate Fit = $IFI \geq 0.90$ (Bollen, 1990)
	Normed Fit Index (NFI)	0.926	$0.8 \leq$ (Bentler & Bonnet, 1980)
	Adjusted Goodness of Fit Index (AGFI)	0.851	
Absolute Fit	Goodness of Fitness Index (GFI)	0.873	$0.8 \leq$ (Awang, 2015)
	Root Mean Square error of approximation (RMSEA)	0.52	$0.08 \leq$ (Hair, et.al., 2010)

According to the confirmatory factor analysis test results in Table 6, all fit values were confirmed, and the results met the fit values.

Path analysis is part of SEM and examines the direct and indirect relationships between variables (Hashmi et al., 2020; Hooper et al., 2008; Hu & Bentler, 1999). This analysis is very useful for visualizing complex relationships between variables and determining the strength and direction of these relationships (Gürbüz & Şahin, 2014). The results of the hypotheses according to confirmatory factor analysis are shown in Table 7 below.

**Table 7:** Structural Path Analysis Results (Direct Hypothesis)

Hypothesis	Path	Standardized Beta	P-value	Result
H <sub>1</sub>	PC <--- OJ	0,80	p ***	Accepted
H <sub>2</sub>	JS <--- PC	0,40	p ***	Accepted
H <sub>3</sub>	JS <--- OJ	0,59	p ***	Accepted

As a result of path analysis, a strong relationship was found between organizational justice and psychological capital and between organizational justice and job satisfaction. Employees perceive that perceptions of distributive justice, procedural justice, and interactional justice increase their psychological resilience, hope, self-efficacy, and optimism toward work. Similarly, it is understood that each perception of organizational justice has a high relationship with job satisfaction. The presence of organizational justice increases employees' satisfaction with their jobs, makes them go to work with enthusiasm and find it enjoyable. The study also found a strong relationship between psychological capital and job satisfaction.

### Conclusion

Organizations should attach importance to organizational justice. Employees will be more motivated by organizational justice, which increases the commitment of the employees who keep the institutions alive and eliminates thoughts about leaving the job. This study measured the effect of organizational justice on employees' perceptions of job satisfaction and psychological capital. The fact that the education of the employees is from essential sectoral areas such as health, finance, industry, and service and that the study was conducted in this research is valuable. Employees stated that their perceptions

of hope for work, self-efficacy, psychological resilience, optimism, and job satisfaction increased when decisions were made relatively in the organization and they were included in decision-making processes. In this case, procedural justice was significantly related to psychological capital and job satisfaction. When the employee receives the necessary respect from his/her coworkers and supervisor with interactional justice, it has been observed that psychological capital and job satisfaction perceptions are strongly positively affected by this situation. When employees think that rewards such as salaries, awards, promotions, and bonuses are distributed relatively within the distributive justice framework, this increases their optimism, hope, and job satisfaction. According to the results of a study, there is a strong relationship between job satisfaction and organizational justice perceptions in the same direction and a similar direction to this study (İşcan & Sayın, 2011).

According to the results conducted to reveal whether gender is a significant source of difference in terms of research variables, while there is a statistically significant difference in procedural justice and interactional justice perceptions of men and women, there is no statistically significant difference in distributive justice perceptions. It was observed that male employees' perceptions of organizational justice related to human relations were higher than those of female employees. In job satisfaction, a statistically significant difference was found between men and women according to the findings obtained from the first, third, and fourth items. It was understood that the strongest sub-variable statistically significant for men and women in psychological capital levels was psychological resilience, and it was seen that men's psychological resilience was higher than women's.

In today's world, where artificial intelligence is developing and threats to employment are being discussed, it should not be forgotten that the human factor is more critical than artificial intelligence. Being motivated towards one's work, making decisions, and having emotions are among the main features that distinguish humans from machines. In a changing world, employees may need to specialize in informatics, but it should be indispensable for the sectors where employees can continue their jobs. Ensuring that people's effectiveness in processes increases further, appealing to their emotions and making them essential cornerstones of success, and ensuring their correct and effective use of artificial intelligence elements should be among the responsibilities of the sectors. This study is curious about the employee and the person. It deals with the employee's feelings and perceptions about the job. In this respect, it appeals to today.

### **Limitation and suggestions**

The limitations of this research are those working in the education, health, finance, industry, and service sectors, such as the private sectors in Ankara, the capital of Turkey. Another limitation covers the period in which the research was conducted. No significant difficulties were encountered in conducting the study. However, everyday situations such as not giving correct answers to the surveys and some surveys needing to be returned were encountered.

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The author has no conflict of interest to declare.

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### **Ethics Committee Approval:**

Ethics committee approval was received for this study from the Karabük University Ethics Committee on 29/03/2024, 2024/04(39), and 2024/04(39) document numbers. Karabük University Ethics Committee. The approval of the Ethics Committee of Karabük University was obtained on 29/03/2024 and 2024/04(39).



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## Examining the relationship between exports and economic growth in Türkiye: Fourier Toda-Yamamoto Granger causality test

### Türkiye’de ihracat ile ekonomik büyüme ilişkisinin incelenmesi: Fourier Toda-Yamamoto Granger nedensellik testi

Ömer Fazıl Emek<sup>1</sup> 

#### Abstract

This study aims to investigate the causal relationship between exports and economic growth in Türkiye from 2016:1 to 2023:12, focusing on the validity of the export-led growth hypothesis. The Fourier Toda-Yamamoto Granger Causality Test created by Nazlıoğlu, Gormus and Soytaş (2016) was used with variables including total exports and industrial production index derived from monthly data. The data suggest a bidirectional causation between the two variables, indicating that each one is the cause of the other. The export-led growth hypothesis is confirmed in Türkiye for the relevant timeframes. The results of this study align closely with existing research on the topic compared to other studies, further suggesting that decreasing the reliance on imported intermediate items in Turkish export products will enhance the direct connection between exports and economic growth.

**Keywords:** Economic Growth, Export, Export-Led Growth Strategy, Fourier Toda-Yamamoto Granger Causality Test

**Jel Codes:** B22, C20, F10

#### Öz

Çalışmanın amacı, Türkiye’de 2016:1 ile 2023:12 dönemleri arası ihracat ile ekonomik büyüme arasındaki nedensel ilişkiyi ihracata dayalı büyüme hipotezinin geçerliliği bağlamında incelemektir. Aylık verilerden derlenen toplam ihracat ile sanayi üretim endeksinden oluşan değişkenlerle Nazlıoğlu, Gormus ve Soytaş (2016) tarafından geliştirilen Fourier Toda-Yamamoto Granger Nedensellik Testi uygulanmıştır. Elde edilen bulgular, her iki değişkenin de birbirlerinin nedeni olduğu yani aralarında çift yönlü bir nedenselliğin varlığı tespit edilmiştir. Bu bulgu, Türkiye’de belirtilen dönemlerde ihracata dayalı büyüme hipotezinin geçerli olduğunu göstermektedir. Konu hakkında yapılan diğer çalışmalar karşılaştırıldığında bu çalışmanın bulgusu literatürle büyük oranda örtüşmektedir. Türkiye’de ihracat ürünlerinde ithal ara malının kullanım oranlarının düşürülmesi ihracat ile ekonomik büyüme arasındaki nedensel bağın daha sağlıklı bir zemine oturtulmasına katkı sağlayacaktır.

**Anahtar Kelimeler:** Ekonomik Büyüme, İhracat, İhracata Dayalı Büyüme Stratejisi, Fourier Toda-Yamamoto Granger Nedensellik Testi

**JEL Kodları:** B22, C20, F10

<sup>1</sup> Assoc. Prof. Dr., Mardin Artuklu University, Mardin, Türkiye, [omerfazilemek@artuklu.edu.tr](mailto:omerfazilemek@artuklu.edu.tr)

ORCID: 0000-0003-4429-8892

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## Introduction

The significance of international trade is commonly attributed to the industrial revolution throughout history. During the initial phases of the Industrial Revolution, specific industries profited from large-scale manufacturing, cost advantages due to increased size, and skilled labour progressively became specialized and capable of being exported, contributing to economic growth and development. Initially, these specialized businesses mainly concentrated on iron, coal, and textiles and expanded their global reach. The process of industrialization, which converted the agrarian economies of different nations, is widely recognized as the catalyst for a new socio-economic and cultural paradigm and technological advancements. Consequently, the initial connection between international trade and economic growth emerged during the Industrial Revolution, as numerous industries experienced significant development (Hussain, Haseeb, Kot and Jermisittiparsert, 2020). Following World War II, global trade experienced exceptionally swift expansion. The period that experienced its zenith in the late 1960s and early 1970s also presented specific prospects for developing nations. Developing nations, particularly those in the textile and apparel industry, maximized their utilization of this potential (Schmid and Phillips, 1980). Developing nations have benefited from international trade by formulating export plans centred around specific strategic products they have identified, using their comparative advantages.

An advantage of prioritizing these strategic products is the possibility for the industry to export manufactured goods and earn foreign cash, thus stimulating economic growth, particularly in low-income nations. Furthermore, these sectors make a significant socio-economic impact by boosting employment rates among low-income demographics and offering work prospects for highly trained persons, particularly women. Once again, migrating individuals from rural to urban regions to pursue employment and commercial prospects enhances the flow of capital within the economy and significantly alleviates poverty. This phenomenon enhances the local economy and facilitates the integration of national economies with the global economy (Hussain et al., 2020). The significant achievement of exporting manufactured goods has been closely associated with rapid economic expansion. Manufactured exports have stimulated the generation of foreign currency income to cover the costs of importing capital goods and fostered stronger connections with multinational corporations. Generally, it speeds up economic growth and technological advancement (Radelet, 1999). Chen (2009) contends that the connection between international commerce and economic growth is partially linked to the rise of foreign trade, and its progress has been somewhat synonymous with economic expansion.

A substantial body of literature has been developed to examine the relationship between exports and economic growth. In this regard, four different techniques have been formulated and analyzed. The neoclassical export-led growth hypothesis posits that the causal relationship between exports and economic growth is such that exports lead to economic growth. The reason for this is that higher levels of exports enhance productivity by offering economies of scale. As exports grow, exporters manufacture products of superior quality, leading to increased productivity and production. The alternative perspective posits that there is a causal relationship in which economic growth influences exports – increased productivity results in reduced unit costs, promoting export expansion. The third perspective posits a causal relationship between the two. According to proponents of this perspective, there is a mutually reinforcing relationship between economic growth and exports. According to Velnampy and Achchuthan (2013), exports and economic growth in the fourth and final perspective are influenced by both the development process and technical progress. Given these methodologies, it is challenging to determine the correlation between international commerce and economic growth definitively.

Indeed, the research findings thus far have yielded varying outcomes. Several studies, including Diks and Panchenko (2006), Korkmaz (2014), Bakari and Mabrouki (2017), and Baktemur (2021), provide support for the Neoclassical export-led growth hypothesis. These studies find evidence of a one-way causal relationship between total exports and economic growth. Çetintaş and Barışık (2009) and Iqbal, Tang and Rasool (2023) observe a one-way causal relationship between economic growth and exports, but Doraisami (1996) and Awokuse (2005) identify a two-way causal relationship between exports and economic growth. The significance of the matter for emerging nations, along with the long-standing implementation of Türkiye's foreign trade strategy, has generated interest in its influence on economic progress. The export-oriented economic growth paradigm, initiated by the decisions made on January 24, 1980, has persisted to the present day. To fully understand the effects of this technique, it is necessary to study the correlation between exports and economic growth carefully. Hence, numerous research works have examined the correlation between exports and economic growth in Türkiye.

In the context of this information, this study aims to examine the causality relationship between exports and economic growth in Türkiye and test the validity of the export-led growth hypothesis. For this purpose, the Fourier Toda-Yamamoto Granger Causality Analysis developed by Nazlioglu et al. (2016)



was applied between total exports compiled from monthly data between 2016 and 2023 and industrial production index variables representing economic growth. Although the number of studies on this subject is very high, it is impossible to define the relationship between them clearly. Assessing the influence of exports on economic growth and development will help reduce uncertainty to some degree.

The study's distinctiveness stems from its analysis of the specific examined period. The analysis of this study in 2016 is based on significant advancements that occurred during that year. The Turkish Exporters Assembly's Economy Foreign Trade Report (2017) highlights the substantial influence of some world events in 2016 and subsequent periods on Türkiye's economy and foreign trade. Specifically, the tightening of the monetary policy implemented by the Federal Reserve (FED) has been observed to harm developing nations like Türkiye. In recent years, the Federal Reserve (FED) has begun raising policy interest rates. The election of Donald Trump as the US president and the subsequent uncertain policies have had the greatest impact on this process. Furthermore, significant factors include the monetary policies the Central Bank of the Republic of Türkiye implemented, the attempted coup against the government, and the geopolitical circumstances in surrounding nations. Thus, 2016 marks a pivotal moment in the progression that resulted in substantial alterations in Türkiye's macroeconomic perspective. Several factors, including the migration of Syrians to Türkiye, the COVID-19 pandemic, military activities, and the earthquake on February 6, 2023, have occurred during the following period. Within the framework of these many advancements, this study addresses whether exports remain significant in Türkiye's economic growth trajectory and whether a causal relationship exists between them.

One distinctive feature of this study is incorporating approaches that include Fourier functions. The omission of structural breaks is one of the factors that hinders the attainment of accurate findings in research investigating the causal link between variables. The Fourier Toda-Yamamoto Granger Causality Test addresses a significant gap in current knowledge. It is crucial because it enables the internal identification of structural fractures while avoiding the loss of long-term information in stationary series at varying degrees. The study consists of 84 observations. Given the sample size, it might be contended that the findings derived from the chosen methodology will provide more insightful policy suggestions. The introduction section of this study outlines the significance, objectives, and methods of the research. Then, the theoretical and empirical literature on the subject is reviewed, and previous approaches and studies are compared. In the methodology section, the findings are analyzed, and these findings are discussed in the economic context in the conclusion section.

## Theoretical framework

The correlation between foreign trade and economic growth is a key and crucial topic in economic growth and development theories. Chen (2009) states that classical economics posits that foreign trade impacts economic growth by enhancing resource allocation and efficiency and providing essential raw materials and equipment for economic development. Prominent examples of this notion include Adam Smith and David Ricardo's theory of advantage, John Mueller's "interests of trade development," and Robert Morrison's concept that "trade is the engine of economic growth." According to the Marxist perspective, the relationship is viewed in terms of exchange and production. Marx asserts that the organization and advancement of manufacturing influence the extent and scope of trade. Production expansion fosters market growth, whereas market size promotes production expansion. Nevertheless, these hypotheses only elucidate the link to a certain extent. The uncontrolled and intricate global setting has resulted in the development of alternative theories on the subject. The structuralist school posits that in a developing economy, the industrial sector absorbs excess labour from the agricultural sector, leading to economic growth by expanding export products. The new growth school associates international trade with economic growth and technological advancement, while the new trade school links international trade to economies of scale and knowledge-intensive sectors (Chen, 2009).

Aside from theoretical perspectives on how foreign trade affects economic growth, there has been a discussion on the sectors through which traded goods and services should be supplied. Many emerging nations aim to demonstrate economic progress by focusing on manufacturing. Kaldor argues that high economic growth rates are primarily achieved through the advancement of the manufacturing industry sector, asserting that this sector is the primary driver of growth. Kaldor's law states that industrial growth relies on foreign demand, specifically through exports (Kılavuz and Altay Topcu, 2012). Kaldor's law states that foreign demand reallocates surplus labour from the agriculture and service sectors to the industrial sector, leading to an overall production rise and balanced growth across all three sectors. Verdoorn also mentioned that the rise in production within the industrial sector leads to increased labour productivity. Verdoorn's law posits a direct correlation between the industrial sector's growth rate and the labour force's production level within that sector (Abdioğlu and Yamak, 2016).

Developing nations anticipate an export-focused approach with a well-distributed sectoral balance within the manufacturing sector to provide several benefits. Various perspectives exist regarding the benefits of using an export-driven approach for growth and development. Dawson (2005) states that exports result in earning foreign exchange, used to finance imported goods, capital goods, and technology that contribute to growth. Exporting also leads to competition, economies of scale, and technological progress while creating positive externalities like efficient production and management techniques that aid growth. Doraisami (1996) states that exports play a crucial role in generating foreign cash, enabling the trade of intermediate inputs and capital products internationally. These inputs may involve technology unavailable to local companies, hence enhancing productivity. Iqbal et al. (2023) contend that exports lead to an expansion in market size, compelling producers to offer more suitable expertise. Lal and Rajapatirana (1987) argue that competitive pressures hinder the formation of detrimental domestic monopolies and motivate local producers to enhance quality and lower expenses. Whether exports can contribute to a country's economic growth as a strategic choice will rely on their benefits.

Furthermore, the assistance for exports is not fully developed and without conditions, for there are drawbacks to following such a method. Hossain and Karunaratne (2004) argue that the effects of learning by doing may slow down in later stages and eventually stop if not supported by more technical advances; that reliance on exports in an uncertain world market may not lead to long-term sustainable growth in a developing country. In addition, Bakari and Mabrouki (2017) remind us that instability in the destination country due to higher-than-expected competition, the unpopularity of products in the market, internal conflicts or wars can lead to road accidents. Despite the drawbacks, the need for countries to demonstrate economic growth to thrive in the global environment has prompted them to prioritize exporting. By the late 1970s, most developing economies had abandoned import substitution policies favouring an export-oriented approach to growth and development (Doru and Dabakoğlu, 2021).

Over the years, economists have acknowledged the irrefutable reality of how exports support economic growth. The remarkable economic progress of the newly industrialized countries in East Asia is a prime illustration of this phenomenon. African and Latin American countries have experienced low development rates due to their more self-contained approaches, unlike the successful strategies adopted by other nations. Türkiye was a developing nation that changed its growth strategy to focus on exports. After the 1980s, Türkiye saw an export-oriented growth strategy as a more appropriate policy instrument instead of import substitution policies in its growth target. The connection between this favoured choice in Türkiye and economic development has consistently piqued curiosity. In this study, we have tried to look for clues about the existence of this relationship in Türkiye.

## Literature review

Most research accounts examining the influence of total exports on economic growth have shown a correlation between the two. The outcomes from the causality analysis indicate either a unidirectional or bidirectional causality relationship between them. Simply put, exports are seen as the driving force behind economic growth, based on the thesis derived from the findings. Doraisami (1996) examined the correlation between total exports and economic growth in Malaysia from 1963 to 1993. The Durbin-Watson Cointegration Test (CIDW) and Error Correction Model (ECM) results indicate a positive long-term relationship between total exports and economic growth. The Granger Causality Test shows bidirectional causality between these variables. The results confirm the prevailing belief in Malaysia that exports drive economic growth and that an increase in exports will boost the economy of underdeveloped nations.

Awokuse (2005) analyzed the correlation between total exports and economic growth in South Korea from 1963 to 2001. The Granger Causality Test results indicate a reciprocal causal relationship between total exports and economic growth. The results provide evidence in favour of the export-led growth (ELG) theory for South Korea. Iqbal et al. (2023) studied how exports influenced economic growth in BRICS countries from 2000 to 2018. The panel data analysis using lagged autoregressive frontier test (ARDL), pooled mean group (PMG), and mean group (MG) methods revealed a long-term positive relationship between total exports and economic growth. The Dumitrescu Hurlin panel causality results also indicated a one-way causality from economic growth to total exports.

Vohra (2001) examined the correlation between total exports and economic growth in India, Pakistan, Philippines, Malaysia, and Thailand from 1973 to 1993. The findings of the least squares technique indicate a positive and robust link between total exports and economic growth in nations that have reached a specific degree of economic development. The results suggest that Malaysia, the Philippines,

and Thailand should focus on liberal and free market policies to promote export expansion and attract foreign investment. In contrast, India and Pakistan should refrain from implementing restrictive and regulatory policy measures. A few studies discuss the adverse correlation between exports and economic growth. Nelson, Gladice, Rivel and Yirong (2020) studied the influence of non-oil exports on economic growth in the Republic of Congo from 1985 to 2015. The vector autoregression model (VAR) findings indicate that non-oil exports harm economic growth. The results suggest that heavy reliance on the oil industry impedes other sectors' growth and obstructs the economy's diversification.

Çetintaş and Barışık (2009) investigated the correlation among total exports, total imports, and economic growth in 13 transition nations (Armenia, Belarus, Bulgaria, Czech Republic, Estonia, Hungary, Kazakhstan, Latvia, Lithuania) from 1995 to 2006. The Pedroni and Kao panel cointegration test results indicate a long-term association between the variables. In contrast, the Panel Granger Causality Test shows a one-way causality from economic growth to total exports. Enhanced productivity in manufacturing results in heightened competitiveness in terms of price and quality for countries, ultimately leading to a surge in exports over time. This outcome supports these countries' growth-led export premise. There is a bidirectional causality link between total imports and economic growth. Imports of commodities and technologies are crucial for the rapid economic expansion of newly market-oriented countries. The prevailing consensus in the research is that the absence of critical foreign inputs for industrialization in these nations has adverse consequences on economic growth. As output rises in certain countries, their incomes also increase, resulting in increased imports relative to industrialized nations. Bakari and Mabrouki (2017) analyzed the correlation among total exports, total imports, and economic growth in Panama from 1980 to 2015. The Johanson cointegration test results indicated no link between the variables. The Granger Causality Test indicates a bidirectional connection between total exports and economic growth, as well as between imports and economic growth. The causality results indicate that exports and imports drive economic growth in Panama.

Korkmaz (2014) examined the correlation between overall exports and economic development in Türkiye from 1998 to 2013. Granger Causality research revealed a unidirectional connection between total exports and economic growth. This outcome corroborates the export-oriented growth hypothesis. The significant reliance on imported raw materials and semi-finished products in Türkiye's exports contributes to a rise in imports, current account imbalance, and export growth. It is crucial to decrease reliance on imported raw materials and intermediary goods. Temiz (2010) presents an alternative perspective on the causal relationship between total exports and economic development. Between 1965 and 2009, the Johansen cointegration test indicated a long-term and positive correlation between the two variables. The Granger Causality Analysis revealed that overall exports do not drive economic development in the short term. Baktemur (2021) examined the correlation between overall exports and economic development using a non-linear approach. The results of the non-linear causality test by Diks and Panchenko (2006) for the years 2003-2020 indicate that total exports cause economic growth. A non-linear approach supports the concept that exports drive economic growth.

## Data and methodology

This study uses time series analysis to examine the causal relationship between total exports and economic development in Türkiye from January 2016 to December 2023. The industrial production index was utilized as a representation of economic growth data in the analysis. The logarithms of these series were computed and examined. Details regarding the variables can be found in Table 1.

**Table 1:** Variables and Features

Country/Period	Variables	Abbreviation	Source
Türkiye 2016:1-2023:12	Industrial Production Index	EPI	TCMB
	Total Amount of Exports	EXP	TİM

### Unit root test and findings: Fourier KPSS unit test

Becker, Enders and Lee (2006) created the Fourier KPSS Unit Root Test. This test considers both abrupt and gradual shocks, suggesting that shocks are not temporary. The model has been redesigned and is now exhibited.

$$y_t = X_t' \beta + Z_t' + r_t + \varepsilon_t$$

$$r_t = r_{t-1} + u_t$$

The equation in which the error term (not inclusive of a unit root) is denoted by  $\varepsilon_t$  presents  $u_t$ , showing the residuals of  $u$  that are uncorrelated with the variance but have a similar distribution.

This test is a vector where a trigonometric function,  $Z_t = \left[ \sin\left(\frac{2\pi kt}{T}\right), \cos\left(\frac{2\pi kt}{T}\right) \right]$ , is included. Here,  $T$  refers to time,  $t$  to trend and  $k$  to frequency. To test the null hypothesis of stationarity, residuals are obtained, and test statistics for level stationarity and trend stationarity are calculated.

$$y_t = a_0 + \gamma_1 \sin\left(\frac{2\pi kt}{T}\right) + \gamma_2 \cos\left(\frac{2\pi kt}{T}\right) + e_t$$

$$y_t = a_0 + \beta_t + \gamma_1 \sin\left(\frac{2\pi kt}{T}\right) + \gamma_2 \cos\left(\frac{2\pi kt}{T}\right) + e_t$$

Error terms are derived, and the hypothesis is tested by implementing one of these models. The test statistics is calculated by

$$\tau_\mu(k) = \frac{1}{T^2} \frac{\sum_{t=1}^T \check{s}_t(k)^2}{\check{\sigma}^2}. \text{ Here, this conclusion is obtained:}$$

$$\check{s}_t(k) = \sum_{j=1}^T \check{\varepsilon}_j$$

The absence of a non-linear trend in the data-generating process necessitates using the standard KPSS Unit Root Test. Becker et al. (2006) argue the null hypothesis of no linear trend using the F test statistic.

$$F_i(k) = \frac{(SSR_0 - SSR_1)/2}{SSR_1/(T - q)}$$

$SSR_0$  and  $SSR_1$  denote the sum of residual squares, and  $q$  refers to the number of independent variables. The F test's strength demonstrates the importance of trigonometric variables in the model. If the F test statistic value exceeds the critical values, use the Fourier Kwiatkowski-Phillips-Schmidt-Shin (FKPSS) stationarity test. If the F test statistic value is below the critical values, use the standard Kwiatkowski-Phillips-Schmidt-Shin (KPSS) stationarity test (Naimoğlu and Özbek, 2022; Bayar, 2023). The Fourier KPSS and KPSS stationarity test outcomes for the variables are displayed in Table 2.

**Table 2:** Variables and Features

Variables	Level				
	Frequency	MINSSR	FKPSS	KPSS	F-Test
EPI	1	1.5068	0.443	1.234	25.933
EXP	1	2.831	0.435	1.109	30.47
Variables	First difference				
	Frequency	MINSSR	FKPSS	KPSS	F-Test
EPI	5	1.444	0.079	0.1074*	0.147
EXP	3	1.851	0.178	0.1365*	0.194

**Note:** For the F test, critical values are %1=6.730, %5=4.929, %10=4.133. For Fourier KPSS test, the critical values are %1=0.2700, %5=0.1735, %10=0.1323, for KPSS test, the critical values are %1=0.739, %5=0.463, %10=0.347.

When analyzing Table 2, if the F test statistic exceeds the critical levels, indicating the significance of the trigonometric functions, the results of the Fourier KPSS test will be interpreted. The Fourier KPSS test results indicate that the test statistics for the industrial production index (EPI) and total exports (EXP) exceed the critical values at the 1% significance level. Therefore, the null hypothesis suggesting the stationarity of the series is rejected, and it is concluded that the series are unit-rooted. According to Fourier KPSS Unit Root Tests, the series are non-stationary at their level values.

Both variables in the model were re-tested for stationarity by calculating their initial differences. The F-test statistic value for the variables using trigonometric functions was below the critical values for both variables, indicating insignificance. Thus, the outcomes of the conventional KPSS test will be analyzed. Results of the KPSS test indicate that the test statistic values for both variables are below the critical values. This suggests that the null hypothesis stating that the series is stationary cannot be disproved. Thus, both variables achieve stationarity after the initial difference is taken.

**Causality analysis and findings: Fourier Toda-Yamamoto Granger causality test**

The Granger (1969) Causality Method relies on the VAR model to establish causal relationships between variables. To utilize this test, the series must be stationary. Causality is tested on non-stationary data following differencing. This results in long-term information loss. For the Granger Causality Test, the series must be stationary in the same order (Yurtkuran, 2021). The Toda-Yamamoto (1995) causality technique addressed the shortcomings of the Granger Causality Test. The Toda-Yamamoto (1995) Causality Test is applicable when the time series exhibit varying levels of stationarity. Toda-Yamamoto's (1995) Causality Test does not consider structural discontinuities, according to Akardeniz (2023).

The Fourier Toda-Yamamoto Granger Causality Test, created by Nazlıoğlu et al. in 2016, enables the internal detection of structural changes by incorporating Fourier terms into the VAR model. Fourier terms are incorporated into the VAR model instead of a constant term to account for variations in the dependent variable, as stated by Konat (2021). The equation derived from a single Fourier frequency is as follows:

$$y_t = \alpha_0 + \sum_{k=1}^n \alpha_k \sin\left(\frac{2\pi kt}{T}\right) + \sum_{k=1}^n b_{2k} \cos\left(\frac{2\pi kt}{T}\right) + \beta_1 y_{t-1} + \dots + \beta_{p+d} y_{t-(p+d)} + \varepsilon_t$$

In the equation for the single frequency Fourier Toda-Yamamoto Causality Test, the variable *k* represents the number of frequencies. The null hypothesis states that there is no causal relationship between the series. The Fourier Toda-Yamamoto Test results for the variables are displayed in Table 3.

**Table 3:** Fourier Bootstrap Toda-Yamamoto Causality Test Results

Variables	WALD Test Statistics	Asymptotic Value	Bootstrap p Value	k	p
EXP→ EPI	20.321	0.000	0.000*	1	3
EPI→ EXP	14.624	0.002	0.003*	1	3

**Note:** \* indicates the presence of a causality relationship from the first variable to the second variable at the 1% significance level. Schwarz Information Criterion was used in deciding the *k* and *p* values, and the Bootstrap *p*-value was obtained with 2,000 cycles.

Table 3 displays the results of the Fourier Toda-Yamamoto Causality Test, indicating a bidirectional causation link at the 1% significant level between EPI (industrial production index) and EXP (total amount of exports).

**Conclusion**

Support for liberalization policies worldwide was reflected in Türkiye after the 1980s with the implementation of the decisions on January 24, 1980. These choices, still subject to discussion, involved a series of structural changes aimed at liberalization. One crucial decision was transitioning from an import substitution growth plan to an export-oriented growth strategy. In Türkiye, domestic goods and firms, previously shielded by high taxes on imported products, transitioned to an export-focused strategy to enhance their competitiveness and boost economic growth through increased exports. Decisions like liberalizing foreign exchange controls and imports, scrapping subsidies except for strategic industries, promoting foreign capital, and exempting imported inputs from taxes should have supported Türkiye's export-focused growth plan. The theory discusses the advantages of international trade and suggests implementing it with either an export-oriented or import-oriented strategy, each with its pros and downsides.

In this context, the relationship between the export strategy implemented in Türkiye and economic growth has been extensively studied. This study aimed to investigate the causal relationship between total exports and economic growth in Türkiye. Fourier Toda-Yamamoto Granger Causality Analysis, a variation of the Toda-Yamamoto Granger Causality Test created by Nazlıoğlu et al. (2016), revealed a bidirectional causality relationship between total export volume and economic growth in Türkiye from 2016 to 2023. This discovery corroborates the export-driven growth theory in Türkiye. The findings align with the bidirectional causality studies by Doraisami (1996), Awokuse (2005), Çetintaş and Barışık (2009) and the unidirectional causality studies by Korkmaz (2014), Bakari and Mabrouki (2017), Baktemur (2021) regarding total exports and economic growth, as well as Iqbal et al. (2023) regarding economic growth and exports. In the theoretical literature, alongside the Neoclassical approach, which posits a causal link between exports and economic growth, Doraisami (1996) suggests the possibility of a reverse causation relationship that might result in an expansion of exports. Therefore, the results of this study provide evidence for both the Neoclassical perspective that exports impact economic growth

and the notion that there is a cause-and-effect relationship between economic growth and exports, as Doraisami (1996) proposed.

Furthermore, it is essential to consider the influence of many global and local events while analyzing these data. The monetary tightening strategy implemented by the US Federal Reserve (FED) in 2016 has significantly impacted developing countries like Türkiye. The FED's decision to raise interest rates adversely affected the countries facing foreign exchange shortages. As a result, currency rates have experienced significant surges. Despite the devaluation of the domestic currency, which resulted in lower prices for export commodities in global trade, the high proportion of imported intermediate goods used to produce these items prevented the country from fully capitalizing on this advantage. Various global factors, including economic contractions worldwide, China's influence on global trade, Donald Trump's presidency and its impact on international trade, the COVID-19 pandemic, geopolitical developments in neighbouring countries, and domestic events such as the attempted coup in Türkiye in 2016, the influx of Syrian migrants, military operations, and the February 6 earthquake, have significantly influenced Türkiye's macroeconomic structure. These factors have collectively resulted in significant price hikes due to rising input costs. The production and export industries have played a crucial role in this chain of influence.

Notwithstanding these difficult circumstances, Türkiye's export volume has increased. Exports are crucial in reducing the current account deficit, which is the underlying cause of Türkiye's persistent economic issues. Consequently, measures have been implemented to enhance the resilience of exports over an extended period. The primary policies enacted include various incentives and assistance provided to export sectors as well as tax reductions and exemptions. Furthermore, ongoing efforts are to enhance competitiveness in international trade through technical investments and the development of regulatory laws. Furthermore, Türkiye is a vibrant nation that has consistently expanded its economy across all periods. The findings indicate that exports significantly impact economic growth and development; conversely, economic growth leads to increased exports. The literature and our study demonstrate a high correlation between economic growth and an export-oriented growth strategy. The discussion on Türkiye's path towards liberalization post-1980s and its resulting impacts is still ongoing and inconclusive. Türkiye's export growth heavily relies on imported intermediate products, resulting in trade imbalances as exports rise. Decreasing reliance on imported intermediate goods in export products will strengthen the connection between exports and economic growth and support the implementation of a suitable growth strategy.

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## The mediating roles of customer evaluation and user motivation in the effect of mobile marketing on customer engagement<sup>1</sup>

Mobil pazarlamanın müşteri katılımına etkisinde müşteri değerlemesi ve kullanıcı motivasyonunun aracılık rolleri

<sup>1</sup> This study is derived from the doctoral thesis "A Study on the Mediation Roles of Customer Evaluation and User Motivation in Regard to the Effect of Mobile Marketing Application Related Perception on Customer Engagement," conducted by the first author under the supervision of the second author within the Istanbul Beykent University Institute of Social Sciences Department of Business Administration.

Selin Yıllar<sup>2</sup> 

Cemal Yükselen<sup>3</sup> 

<sup>2</sup> PhD. Student, Istanbul Beykent University, Institute of Graduate Studies, Istanbul, Turkey, [selinyillar@hotmail.com](mailto:selinyillar@hotmail.com)

ORCID: 0000-0003-0845-8035

<sup>3</sup> Prof. Dr., Istanbul Beykent University, Faculty of Economic and Administrative Sciences, Istanbul, Turkey, [cemalyukselen@beykent.edu.tr](mailto:cemalyukselen@beykent.edu.tr)

ORCID: 0000-0001-5871-7280

### Abstract

This study mainly aims to investigate the mediation effects of user motivation and customer evaluation regarding the effect of the perception related to mobile marketing applications on customer engagement. The recommended conceptual model is tested by collecting data from 627 mobile application users living in Istanbul via an online survey. This study reveals that perceived advantage and perceived challenge positively affect the four dimensions of customer engagement, which are co-developing, influencing, augmenting and mobilizing behaviours and also with domain-specific interest, need for cognition and cognition satisfaction, perceived enjoyment, and perceived control positively affect customer engagement, and mediate the relationship of the perception related to the mobile marketing applications with customer engagement. It has significantly contributed to understanding customer behaviours against the technological features of mobile applications.

**Keywords:** Mobile Marketing, Customer Engagement, User Motivation, Customer Evaluation

**Jel Codes:** M30, M310

### Corresponding Author:

Selin Yıllar,

Istanbul Beykent University, Institute of Graduate Studies, Istanbul, Turkey, [selinyillar@hotmail.com](mailto:selinyillar@hotmail.com)

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### Öz

Bu çalışmanın temel amacı, mobil pazarlama uygulamalarına ilişkin algının müşteri katılımına olan etkisinde kullanıcı motivasyonu ve müşteri değerlemesinin aracılık etkilerini araştırmaktır. Önerilen kavramsal model, çevrimiçi anket aracılığıyla, İstanbul'da yaşayan 627 mobil uygulama kullanıcılarından veriler toplanarak test edilmiştir. Bu çalışma, algılanan görece fayda ve algılanan zorluğun, müşteri katılımının dört boyutu olan birlikte geliştirme, etkileme, zenginleştirme ve harekete geçirme davranışlarını olumlu yönde etkilediğini ve aynı zamanda; alana özel ilgi, biliş ihtiyacı ve biliş memnuniyeti ile algılanan keyif ve algılanan kontrolün müşteri katılımını olumlu yönde etkileyerek, mobil pazarlama uygulamalarına ilişkin algının müşteri katılımı ile olan ilişkisine aracılık ettiğini ortaya koymuştur. Müşterilerin mobil uygulamaların teknolojik özelliklerine karşı göstermiş oldukları davranışların anlaşılması açısından önemli bir katkı sağlamaktadır.

**Anahtar Kelimeler:** Mobil Pazarlama, Müşteri Katılımı, Kullanıcı Motivasyonu, Müşteri Değerlemesi

**JEL Kodları:** M30, M310

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## Introduction

Increasing product and service demand, increasing mobile devices in number, and their ever-developing technologies day by day significantly change the way consumers interact with brands (Yang, Tang, Men and Zheng, 2021). Today, in platforms where traditional marketing fails to reach customers, companies use mobile marketing applications to gain essential advantages. In this way, they can actively communicate with their customers. Mobile marketing, compared to other marketing channels, provides a more dynamic shopping environment for their customers thanks to the technological features of the platform (Japutra, Molinillo, Utami and Ekaputra, 2022).

Easy access to mobile applications also increases customer engagement. According to a mobile application trend report in 2023, it is estimated that 6.84 billion smartphone users will exceed 7 billion by the end of 2024 (Exploding Topics, 2024). Besides, 155 billion mobile application download numbers in 2021 reached 257 billion in 2023 (Statista, 2024), 58% of which is constituted by mobile marketing applications (Adjust, 2024). Daily mobile application time has reached almost five hours, an increase of 30% in the last two years. While in the past, it used to be adequate to look at the number of downloads in order to understand if a mobile marketing application is successful, today it is not reasonably possible to make such a comparison since the number of applications put on the market and downloaded is far too much. About 25% of mobile applications are abandoned after a single use, and about 80% of users stop using a new application within 90 days (Commencis, 2022). Thus, a question arises: What are the primary factors that provide continuous use of mobile applications? In order to provide a quality and pleasant application experience to create positive emotional experiences, understanding how mobile marketing applications create perception reaching the customers using their technology and their reaction is essential in terms of figuring out how the customers can develop their experiences while using mobile marketing applications and how the customer engagement can be provided. Therefore, the driving forces of the behaviours that create customer perception and customer engagement are thought to be examined in this regard. A model is formed showing the relationship between the elements that enrich the benefits customers will gain by using these applications and the features that provide the functionality of mobile applications. How customers perceive these elements is tried to be understood. Thanks to the data obtained from experiences with mobile marketing applications, developing complete and quality new mobile marketing applications will be possible.

## Theoretical background

### Mobile marketing application characteristics

For customers to achieve significant efficiency using a mobile marketing application, their experience should give them a feeling of real shopping (Hilken, Ruyter, Chylinski, Mahr and Keeling, 2017). The feeling of realism is significant for the customers to participate actively (Hilken et al., 2017; Lee and Overby, 2004). Virtual store atmosphere should have qualities that will affect the customers in visual and sensory terms, create positive feelings and enable the customers to participate again (Temel and Armağan, 2022). In this regard, mobile marketing application features must comprehensively represent virtual platforms' products and services (Yim, Chu and Sauer, 2017). To this end, it is necessary to present supporting elements such as explanatory information and vivid visuals, logos, video, and music belonging to the company, as well as the product and services, with a specific design.

It is stated that the five components of mobile marketing application features (vividness, interactivity, active control, two-way communication and synchronicity) increase the feeling of realism and are closely related to customer perception (Ho, Nguyen, Cheng and Le, 2022).

“Vividness” is defined as the way of presenting the richness of a virtual platform in visual terms to the perceptions of customers (Coyle and Thorson, 2021; Hwang and Oh, 2020; Yim et al., 2017; Klein, 2003). It is expressed that the supporting features of the application, like quality product images and background music, help to create a clearer product image for customers (Hsieh, Lee and Tseng, 2021; Kim, 2019) and facilitate to integrate the products into the natural environment (Hilken, Heller, Chylinski, Keeling, Mahr and Ruyter, 2018).

“Interactivity” means that users can synchronously change the design features of mobile marketing applications (Arghashi and Yuksel, 2022; Ho et al., 2022; Coyle et al., 2021; Fang, 2017). These features allow customers to explore (Ho et al., 2022; Arghashi et al., 2022), enabling them to participate (Yim et al., 2017) actively. When customers establish real-time physical interactivity using features such as moving images, touch screens, clickable buttons, zoom, drag and rotate, they provide “active control” (Ho et al., 2022; Ou, Pavlou and Davison, 2014; Fang, 2017). This, in turn, enables customers to

concentrate more on virtual platforms and makes their online shopping experiences unique and accurate by turning into an experience similar to physically actual stores (Hilken et al., 2017).

“Two-way communication” is characterized by communication between customers, service providers, and other customers (Fang, 2017). Features like discussion forums and sending e-mail options facilitate two-way communication (Ho et al., 2022; Van Noort, Voorveld and Reijmersdal, 2012). “Synchronicity”, thanks to interactive design features, enables customers to receive instant answers from the related mobile marketing applications with chat and message boxes and effectively contribute through feedback and online reviews. It indicates the extent to which two-way communication is rapidly developing (Ou et al., 2014; Fang, 2017; Van Noort et al., 2012).

### **Perception of a mobile marketing application**

According to cognitive appraisal theory, individuals like the activities they find interesting, providing optimal challenges (Deci and Ryan, 2000). This is because one of the elements that provide internal motivation for individuals is to be successful in challenging activities (Deci et al., 2000). When individuals exhibit the best of their talents to gain pleasant and advantageous results from interactivity, they feel challenged (Novak, Hoffman and Yung, 2000). Individuals who receive positive feedback mostly enjoy challenging activities more than easy ones (Mulcahy, Russell-Bennett and Iacobucci, 2020; Baumann, Lürig and Engeser, 2016). “Perceived challenge” means an individual's personal experience using their talent and skill during the interactivity (Merikivi, Tuunainen and Nguyen, 2017). It is stated that individuals perceiving an online experience as challenging more intensely concentrate on interactivity (Novak et al., 2000).

“Perceived advantage” is a behavioural feature characterized by quality, superior usability, comfort, and consistent results over time (Japutra et al., 2022; Roy, Balaji, Sadequ, Nguyen, and Melewar, 2017). The motivational satisfaction feeling provided by an easy-to-use and perceived mobile marketing application can lead to more positive customer evaluation (Japutra et al., 2022; Moon and Kim, 2001; PeThan, Goh, and Lee, 2014).

### **User motivation**

The conceptual model's “user motivation” aims to understand the emotional and cognitive behaviours of individuals during their use of mobile applications and reveal the effects of emotions (Ho et al., 2022) and experiences that emerge during the customer's interactivity with the mobile application on customer evaluation and engagement.

“Domain-specific interest” is the relationship between the motivational dispositions of an individual and the content of the object and is a motivational tendency appearing with the needs of the individual (Hofer, Wirth, Kuehne, Schramm and Sacau, 2012; Zaichkowsky, 1985). Researches demonstrate that when individuals find a mobile application interesting, it has a positive effect on engagement and leads to downloading and using mobile applications (Kim, Wang and Malthouse, 2015).

Another component, “need for cognition”, forming user motivation means that individuals make an effort to get information (Cacioppo, Petty, Feinstein and Jarvis, 1996), while “cognition satisfaction” means their tendency to enjoy it. It represents an emotional state in which an individual enjoys thinking (Cacioppo and Petty, 1982; Cacioppo et al., 1996).

It is stated that individuals with a high level of need for cognition and cognition satisfaction are liable to solve more challenging, high-effort problems, think abstractly and enjoy it and are interested more in systematic data processing (Cacioppo et al., 1996; Kim 2019).

### **Customer evaluation**

It is considered that components of the customer evaluation variable, “perceived enjoyment” and “perceived control”, will help to understand the decision processes of customers (Japutra et al., 2022). It is stated that many customers use online platforms not only to get information but also to enjoy getting information. While using mobile applications, they also pay attention to emotional and entertainment value. When online customers believe that their purchase is entertaining and enjoyable, they obtain experiential advantages from their shopping activities, and this motivates their shopping activities more (Babin and Attaway, 2000).

“Perceived enjoyment” is the feeling of pleasant experience or joy the individuals experience while using an application (Kim, Kankanhalli and Lee, 2016). For example, an easy-to-use, high-performance system enables more positive results and thus enjoys more interactivity (Moon et al., 2001; Kim et al., 2016; PeThan et al., 2014).

“Perceived control” is the belief that a user has enough resources to control the application (Japutra et al., 2022; Roy et al., 2017). Upon an interaction with a mobile application, if individuals think they have enough resources to achieve their goal and believe they can reach the desired result, these individuals will feel they have control over the situation more (Wang and Hsiao, 2012). When the user feels himself or herself in control, he or she can concentrate more on the application instead of maintaining the control (Japutra et al., 2022; Koufaris, 2002; Wang et al., 2012). Such control can increase the satisfaction obtained from the application in time and provide its continuous use (San-Martin, Prodanova and Catalan, 2016; Roy, Shekhar, Lassar and Roy, 2018b).

### **Customer engagement**

Customer engagement refers to customers' reactions to companies' offers for their services or products (Jacoby, 2002). This study conceptualises customer engagement as a four-dimensional structure (co-developing, influencing, augmenting, and mobilizing) (Jaakkola and Alexander, 2014).

“Co-developing” behaviour is a typical process in which customers contribute and create value together to solve or facilitate the problem of a product or service (Jaakkola and Alexander, 2014). By including the customers in this process, companies can obtain more productive results and better respond to the customers' needs (Hoyer, Chandy, Dorotic, Krafft and Singh 2010).

“Influencing” behaviour comprises customers' positive word-of-mouth communication activities and product and service recommendations (Van Doorn, Lemon, Mittal, Nass, Doreen, Pirner and Verhoef 2010). It mainly develops when the customers are satisfied with the product and service (Currás-Pérez, Ruiz-Mafé and Sanz-Blas, 2013). Customers sharing their favourable experiences with mobile marketing applications in various online platforms can make them more attractive for other users and reveal exploratory behaviours (Eroglu, Machleit and Davis, 2003).

“Augmenting” behaviour is the direct contribution of customers to companies' offers with their time, effort, and knowledge (Jaakkola et al., 2014). Customers share their positive experiences with mobile marketing applications on online platforms when they are satisfied with their shopping experiences, and thereby, they can enable other customers who share the same common interest to create an interactive platform (Brodie, Ilic, Juric and Hollebeek 2013).

“Mobilizing” behaviour means that customers share their knowledge and experiences with other customers, which mobilizes the other customers to be engaged with the companies' products and services (Jaakkola et al., 2014). Perceived enjoyment and perceived control are said to be essential driving forces for customers' sharing intentions with other customers (Japutra et al., 2022; Carlson, Rahman, Voola, and De Vries, 2018).

### **Hypotheses development**

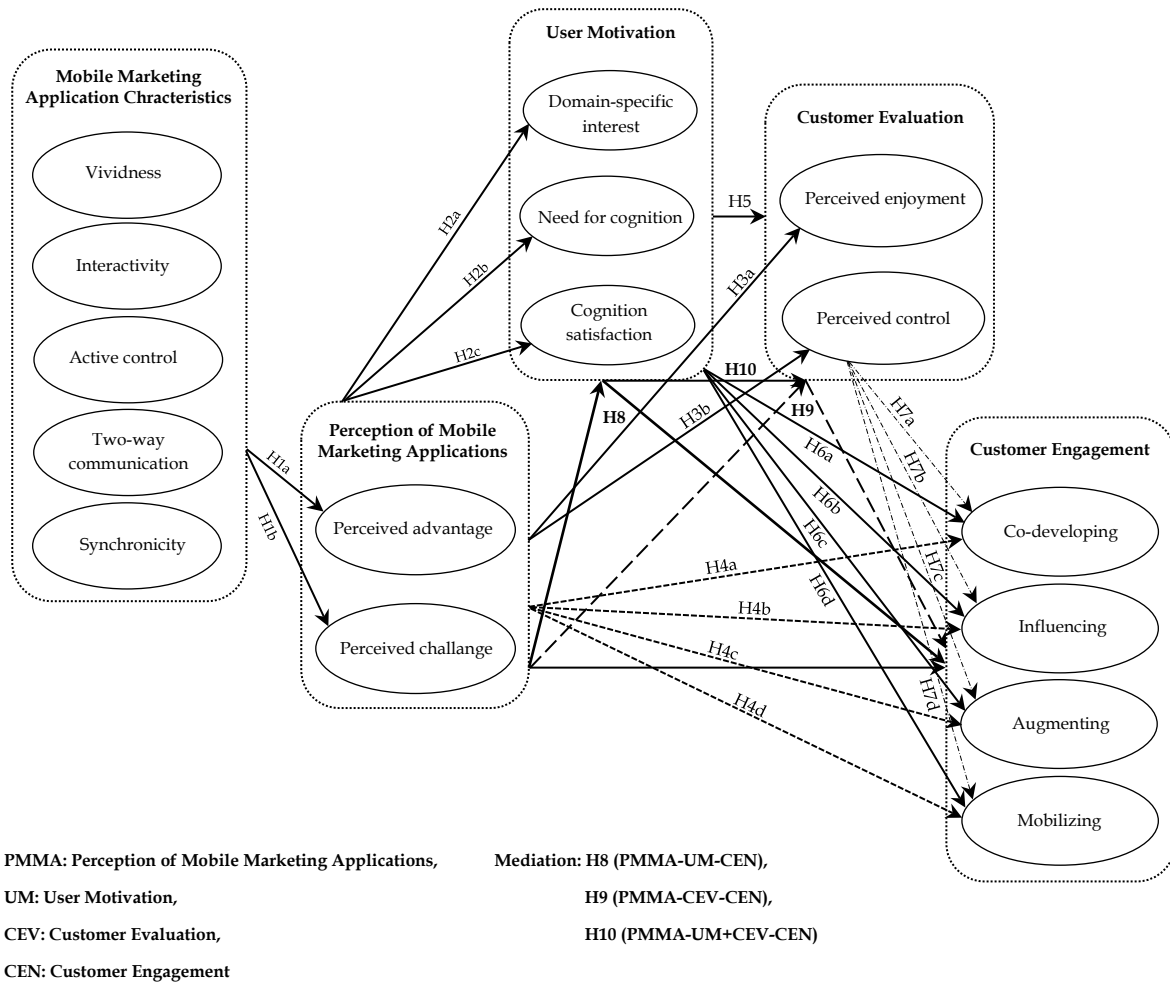
The research model is presented in Fig. 1 as a foundation for developing direct and moderating hypotheses.

#### **Effects of mobile marketing application features on the perception of mobile marketing applications**

When the literature regarding mobile marketing applications is reviewed, it is seen that visual appeal can affect customer perception and behaviours of online shopping (Ho et al., 2022). For this reason, considering that it can affect the attitudes directing the customers to mobile marketing applications and can be the premises for customer engagement, the hypotheses below are defined:

***H1a:** Mobile marketing application features positively affect perceived advantage, one of the components of the perception related to mobile marketing applications.*

***H1b:** Mobile marketing application features positively affect perceived challenge, one of the components of the perception related to mobile marketing applications.*



**Fig. 1:** Research Model and Proposed Hypotheses

Source: Created by the authors

**Effects of the perception related to mobile marketing applications on user motivation**

In general, customers who are closely interested in mobile applications spend time being informed of the content or topics using multiple formats and maintaining communication with other customers and application providers. Individuals with high user motivation are expected to have a high tendency to discover all the potential of mobile applications (Hartmann, Wirth, Schramm, Klimmt, Vorderer, Gysbers, Böcking, Ravaja, Laarni, Saari, Gouveia and Sacau 2016; Wirth, Hartmann, Böcking, Vorderer, Klimmt, Schramm, Saari, Laarni, Ravaja, Gouveia, Biocca and Sacau, 2007). In this framework, the following hypotheses are defined:

**H2a:** The perception related to mobile marketing applications positively affects domain-specific interest, one of the components of user motivation.

**H2b:** The perception related to mobile marketing applications positively affects the need for cognition, one of the components of user motivation.

**H2c:** The perception related to mobile marketing applications positively affects cognition satisfaction, one of the components of user motivation.

**Effects of the perception related to mobile marketing applications on customer evaluation**

It is thought that sensory and intellectual processes, which enable customers to be satisfied, will strengthen the positive emotions regarding the applications during the customers' interaction with mobile applications. Therefore, it is considered that the perception of control to support customers to take pleasure in their shopping experiences, to enable the customers to achieve their goals or to help them overcome a challenge can be affected by perceived advantage and perceived challenge (Ward and Barnes, 2001). Thus, the following hypotheses are determined:

**H3a:** *The perception related to mobile marketing applications positively affects perceived enjoyment, one of the components of customer evaluation.*

**H3b:** *The perception of mobile marketing applications positively affects perceived control, one of the components of customer evaluation.*

#### **Effects of the perception related to mobile marketing applications on customer engagement**

It is stated that the more customers' needs and satisfaction are met due to their interaction with mobile applications, the more they will be satisfied and the higher the possibility of recommending the mobile applications (San-Martin et al., 2016). For this reason, it is indicated that a higher customer perception will result in higher customer engagement. Thus, the following hypotheses are presented:

**H4a:** *The perception related to mobile marketing applications positively affects co-developing, one of the components of customer engagement.*

**H4b:** *The perception related to mobile marketing applications positively affects influence, which is one of the components of customer engagement.*

**H4c:** *The perception related to mobile marketing applications positively affects augmenting, one of the components of customer engagement.*

**H4d:** *The perception related to mobile marketing applications positively affects mobilizing, one of the components of customer engagement.*

#### **Effects of user motivation on customer evaluation**

As long as individuals gain from experiences in mobile marketing applications, they tend to contribute positively to companies through shares such as repurchases, positive recommendations, and evaluations on social media. Customers who take more intrinsic pleasure have a more apparent mental state, and, as a result, more specific virtual shopping experiences tend to actively answer back and support more (Inman and Nikolova, 2017). These manifest themselves through repurchases, sharing positive words on social network sites, recommending such services to other customers and developing a relationship with companies by giving positive feedback/suggestions (Kumar, Rajan, Gupta and Dalla Pozza 2019; Kumar and Reinartz, 2016). In this framework, the hypotheses below are determined:

**H5:** *User Motivation positively affects customer evaluation.*

#### **Effects of user motivation on customer engagement**

Cognitive behaviour is the perception of an individual about products and services. User motivation, which comprises hedonic motives and needs, can enable individuals to show a desire to engage in activities for continuous use (Kim, Kim and Wachter, 2013). It is stated that users spend more time forming an interactive approach to product and service presentations more carefully and more endeavours (Japutra et al., 2022). Thus, the following hypotheses are presented:

**H6a:** *User motivation positively affects co-development, one of the components of customer engagement.*

**H6b:** *User motivation positively affects influencing, one of the components of customer engagement.*

**H6c:** *User motivation positively affects augmenting, one of the components of customer engagement.*

**H6d:** *User motivation positively affects mobilizing, one of the components of customer engagement.*

#### **Effects of customer evaluation on customer engagement**

According to literature, when individuals show the necessary motivation, they can develop positive thoughts for products or services, which can enable them to engage in activities like sharing and creating value (Claffey and Brady, 2014; Yang, Asaad and Dwivedi, 2017; Carlson et al., 2018). The fact that customers enjoy and access the information they need while using mobile applications is among the essential driving forces of individuals' attitudes toward mobile services (Cyr, Head and Ivanov, 2006). It is argued that the positive emotional states of the customers lead them to actively introduce and share their information and experiences (Prentice, Wang and Lin, 2020). The related hypotheses are determined as follows:

**H7a:** *Customer evaluation positively affects co-development, one of the components of customer engagement.*

**H7b:** *Customer evaluation positively affects influencing, one of the components of customer engagement.*

**H7c:** *Customer evaluation positively affects augmenting, one of the components of customer engagement.*

**H7d:** *Customer evaluation positively affects mobilizing, one of the components of customer engagement.*

## Mediation effects of customer evaluation and user motivation regarding the effect of the perception related to mobile marketing applications on customer engagement

It is indicated that individuals with high User Motivation also have a higher degree of attention (Fortin and Dholakia, 2005; Kim, 2019) and mainly, when compared to the individuals with low user motivation, they are focused more while using interactive applications and position the products in the mobile applications in reality better (Kim, 2019).

Most of the customers using current mobile marketing applications take pleasure in using the applications thanks to the excellent and user-friendly user interfaces, and these applications also provide a perception of a challenging experience (Pe-Than et al., 2014). During their interaction with the applications, they can simultaneously respond and thus obtain the perception of control (Roy et al., 2017).

Increasing the perception of mobile marketing applications can also increase customers' developing, influencing, augmenting and mobilizing desires. It is considered that the feeling of enjoyment and control in shopping activities mediates the customers' evaluations regarding the stimuli of the object they are interested in and provides an internal driving force for their behavioural decisions (Brom, Déchtérenko, Frollová, Stárková, Bromová and D'Mello, 2017). Customer evaluation as a mediating variable is critical in customer engagement (Trevinal and Stenger, 2014; Chang, Chen and Huang, 2009). Thus, it is aimed to test the following hypotheses:

**H8:** *User motivation has a mediation effect regarding the effect of the mobile marketing application-related perception on customer engagement.*

**H9:** *Customer evaluation has a mediation effect on the perception of mobile marketing application-related engagement.*

**H10:** *User motivation and customer evaluation have mediation effects regarding the effect of the mobile marketing application-related perception on customer engagement.*

## Research methodology

SPSS program and exploratory factor analysis, reliability analysis, ANOVA, correlation and regression analysis are made for data analysis. However, Baron and Kenny's Model and Hayes Test (Process 3.5) are utilized for the mediation test.

## Measures

The "interactivity" component is measured with 18 questions forming a three-dimensional scale of Liu (2003, 23) and Ho et al. (2022, 6); the "vividness" component with six questions of the scale developed by Yim et al. (2017, 94); "need for cognition" and "domain-specific interest" components with 19-question scale of Vanwesenbeeck, Ponnet and Walrave (2016, 6); "control variables" with the scale of Wang, Malthouse and Krishnamurthi (2015, 222); "perceived advantage", "perceived enjoyment", and "perceived control" components with nine-question scale of Roy et al. (2017, 264); "perceived challenge" component with three-question scale of Novak et al. (2000, 10); "co-developing", "influencing", "augmenting" and "mobilizing", the components forming the four dimensions of "customer engagement", with 16-question scale developed by Roy, Balaji, Soutar, Lassar and Roy (2018a, 285).

## Data collection and sample

The research collects data using an online survey method (2023). The research population comprises users above 18 years old who live in Istanbul and do shopping with mobile marketing applications. Convenience sampling is one of the nonrandom sampling methods used in sample size calculation for analysis. The sample size is determined as follows (Yükselen, 2017, 67):

p: is the rate of the users positively affected regarding customer engagement (0.50); q: 1 - p; Z: 95% confidence level ( $\pm 1.96$ ); e: tolerance ( $\pm 0.04$ ),

$n = p * q * (Z/e)^2 = 0.50 * 0.50 * (1.96/0.04)^2 = 601$  individuals are calculated, and the data of 627 participants are obtained.

The participants answered the questions according to a seven-point Likert scale. Females constitute 61.7%, while males 38.3% of the sample. Participants between the ages of 24-43 constitute 58.9% of the sample. "Associate and Bachelor's Degree" graduates constitute about 42.4% of the participants. When income status is examined, it is observed that 59% have an income of "20.000 TL and lower". When the participants' daily mobile application use frequency is considered, it is determined that 59.1% use mobile applications "lower than four hours" daily (Table 1).

**Table 1:** Demographic Characteristics of the Participants

<b>Gender</b>	Freq.	%	<b>Income*</b>	Freq.	%
Female	387	61.7	<8.500 TL	125	19.9
Male	240	38.3	8.501-20.000 TL	245	39.1
Total	627	100.0	20.001-30.000 TL	131	20.9
<b>Age</b>	Freq.	%	30.001-40.000 TL	53	8.5
18-23	92	14.7	>40.000 TL	73	11.6
24-43	369	58.9	Total	627	100.0
44-58	104	16.6	<b>Daily Mobile App Usage Frequency</b>		
>59	62	9.9		Freq.	%
Total	627	100.0	<2 hours	130	20.7
<b>Education</b>	Freq.	%	2-4 hours	241	38.4
Primary	37	5.9	4-6 hours	159	25.4
High school	128	20.4	>6 hours	97	15.5
Undergraduate	266	42.4	Total	627	100.0
Post-graduate	196	31.3			
Total	627	100.0			

\*Monthly income, based on Turkish Lira (TL); exchange rate at 1TL = 0.031 USD

Source: Created by the authors

## Research results

### Exploratory factor analysis

The conceptual model's mobile marketing application features variable comprises two components with a specific scale structure. This structure is tested with exploratory factor analysis. Kaiser Meyer Olkin value, which measures the adequacy of the sample size, is determined as 0.850, and Bartlett's Test of Sphericity, which indicates if the distribution is suitable to the multivariate normal distribution, is determined as  $\chi^2 = 2803.611$ ,  $p < 0.01$ , which reveals that the conditions are met. The optimal structure is obtained with Eigenvalue > 1; the total explained variance is 60.408%. Since factor loads of five of the question items included in the study fall below 0.50, they are excluded from the structure (see Table 2). Vividness, active control, two-way communication, interactivity, and synchronicity are factors.

The specific scale structure of the mobile marketing application-related perception variable included in the conceptual model comprises two components tested with exploratory factor analysis. Kaiser Meyer Olkin value, which measures the adequacy of the sample size, is determined as 0.771, and Bartlett's Test of Sphericity, which indicates if the distribution is suitable to the multivariate normal distribution, is determined as  $\chi^2 = 2803.611$ ,  $p < 0.01$ , which reveals that the conditions are met. The optimal structure is obtained with Eigenvalue > 1; the total explained variance is 56.738%. Since the factor load of one of the question items included in the study falls below 0.50, it is excluded from the structure (see Table 2).

The specific scale structure of the user motivation variable is composed of two components, and this structure is tested with exploratory factor analysis. Kaiser Meyer Olkin value, which measures the



adequacy of the sample size, is determined as 0.899, and Bartlett's Test of Sphericity, which indicates if the distribution is suitable to the multivariate normal distribution, is determined as  $\chi^2 = 2803.611$ ,  $p < 0.01$ , which reveals that the conditions are met. The optimal structure is obtained with Eigenvalue > 1, and the total explained variance is 54.883%. Factors are named domain-specific interest, need for cognition, and cognition satisfaction.

The specific scale structure of the customer evaluation variable is composed of two components, and this structure is tested with exploratory factor analysis. Kaiser Meyer Olkin value, which measures the adequacy of the sample size, is determined as 0.843, and Bartlett's Test of Sphericity, which indicates if the distribution is suitable to the multivariate normal distribution, is determined as  $\chi^2 = 2803.611$ ,  $p < 0.01$ , which reveals that the conditions are met. The optimal structure is obtained with Eigenvalue > 1; the variance explained is 73.201%. Factors are named as perceived enjoyment and perceived control.

The specific scale structure of the customer engagement variable is composed of four components, and this structure is tested with exploratory factor analysis. Kaiser Meyer Olkin value, which measures the adequacy of the sample size, is determined as 0.933, and Bartlett's Test of Sphericity, which indicates if the distribution is suitable to the multivariate normal distribution, is determined as  $\chi^2 = 2803.611$ ,  $p < 0.01$ , which reveals that the conditions are met. The optimal structure is obtained with Eigenvalue > 1, and the total explained variance is 68.917%. Factors are named as mobilizing, influencing, augmenting, and co-developing.

**Table 2: Measurement Items**

Variables	Number of Items		Factor Loading	Cronbach's Alpha
	Initial	Final		
<b>Mobile Marketing Application Characteristic</b>	<b>18</b>	<b>13</b>		<b>0.787</b>
<b>Vividness</b>	<b>6</b>	<b>4</b>		<b>0.733</b>
The retail mobile app was very clear.*			0.494	
The retail mobile app was very detailed.			0.633	
The retail mobile app was very vague. ---second-order construct, "Interactivity"			0.683	
The retail mobile app was very vivid.			0.724	
The retail mobile app was very sharp.			0.711	
The retail mobile app was very well-defined.			0.716	
<b>Active control</b>	<b>4</b>	<b>3</b>		<b>0.611</b>
I felt that I had a lot of control over my experience with the retail mobile app.			0.815	
While I used the retail mobile app, I could freely choose what I wanted to see.			0.808	
While I used the retail mobile app, I had absolutely no control over what I could do on the retail mobile app. ---second-order construct, "Interactivity"			0.702	
While I used the retail mobile app, my actions decided which kind of experiences I had.*			0.481	
<b>Two-way communication</b>	<b>4</b>	<b>2</b>		<b>0.740</b>
The retail mobile app facilitated two-way communication between the retailer and their consumers.			0.701	
The retail mobile app gave consumers the opportunity to talk to the retailer.			0.806	
The retail mobile app did not at all encourage visitors to talk back. ---second-order construct, "Interactivity".			0.706	
The retail mobile app made me feel the retailer wants to listen to their customers.*			-0.033	
<b>Synchronicity</b>	<b>4</b>	<b>2</b>		<b>0.651</b>
The retail mobile app processed my input very quickly.			0.731	
I was able to get information from the retail mobile app very rapidly.			0.742	
When I clicked on the retail mobile app, I felt I was getting the instantaneous information I expected.*			-0.164	
The retail mobile app was very slow in responding to my requests.*			0.025	
<b>Interactivity</b> ---second-order construct		<b>2</b>		<b>0.690</b>
<b>Perception of Mobile Marketing Applications</b>	<b>6</b>	<b>5</b>		<b>0.779</b>
<b>Perceived challenge</b>	<b>3</b>	<b>2</b>		<b>0.839</b>
Using the m-commerce app challenges me to perform to the best of my ability.*			-0.434	
Using the m-commerce app provides a good test of my skills.			0.885	
I find that using the m-commerce app stretches my capabilities to my limits.			0.816	
<b>Perceived advantage</b>	<b>3</b>	<b>3</b>		<b>0.775</b>
Using m-commerce apps is more convenient than other retail technologies.			0.731	
M-commerce apps offers consistent results over time.			0.722	
It is easier to use m-commerce apps compared to other retail technologies.			0.744	
<b>User Motivation</b>	<b>19</b>	<b>19</b>		<b>0.876</b>
<b>Domain-specific interest</b>	<b>8</b>	<b>8</b>		<b>0.869</b>
I am generally interested in the topic of retail mobile apps.			0.726	
Retail mobile apps corresponded very well with what I normally prefer.			0.597	
I have felt a strong affinity to the theme of retail mobile apps for a long time.			0.734	
There was already a fondness in me for the topic of retail mobile apps before I was exposed to them.			0.765	
Whenever I made a purchase, I would decide to deal with it via retail mobile apps.			0.583	
Things like those in retail mobile apps have often attracted my attention in the past.			0.798	
I just love to think about the topic of retail mobile apps.			0.771	
In the past, I have spent a lot of time dealing with the topic of retail mobile apps.			0.676	
<b>Need for cognition</b>	<b>11</b>	<b>8</b>		<b>0.834</b>
I enjoy thinking of solutions to problems. ---second-order construct, "Cognition satisfaction"			0.664	
I prefer solving a complex question that is difficult and requires thought, compared to a question that is important but does not require thought.			0.506	
I like situations where I can achieve something by thoroughly thinking things through. ---second-order construct, "Cognition satisfaction"			0.709	
I love it when my life is full of difficult tasks that I have to solve.			0.772	
It is especially fun for me if I have completed an important task that requires a lot of thinking.			0.524	
I prefer complex problems over simple problems.			0.752	
I like to do tasks in which one has to think a great deal.			0.763	
I often say to myself that people should think long and carefully to find the best solution to a problem.			0.542	
I am someone who enjoys thinking.			0.501	
I like to think about a problem, even when I know that my thinking will change nothing about the problem.			0.575	
When I put my mind to solving a difficult problem, I usually succeed. ---second-order construct, "Cognition satisfaction"			0.596	
<b>Cognition satisfaction</b> ---second-order construct		<b>3</b>		<b>0.658</b>
<b>Customer Evaluation</b>	<b>6</b>	<b>6</b>		<b>0.857</b>
<b>Perceived enjoyment</b>	<b>3</b>	<b>3</b>		<b>0.916</b>
I have fun interacting with m-commerce apps.			0.893	
Using m-commerce apps provides me with a lot of enjoyment.			0.903	
I enjoy using m-commerce apps.			0.846	
<b>Perceived control</b>	<b>3</b>	<b>3</b>		<b>0.663</b>
When using m-commerce apps, I feel in control.			0.656	
When using m-commerce apps my attention is focused totally on using it.			0.774	
I have the necessary means and resources to use m-commerce apps.			0.740	
<b>Customer Engagement</b>	<b>16</b>	<b>16</b>		<b>0.928</b>
<b>Co-developing</b>	<b>3</b>	<b>3</b>		<b>0.745</b>
I proactively communicate with the m-commerce apps about potential service-related problems.			0.556	
I make constructive suggestions to the m-commerce apps about how to improve its services.			0.728	
I let the m-commerce apps know of ways that can better serve my needs.			0.666	
<b>Influencing</b>	<b>3</b>	<b>3</b>		<b>0.824</b>
I said positive things about this m-commerce apps and its employees to others.			0.725	
I recommend this m-commerce apps and its employees to others.			0.747	
I encourage friends and relatives to use this m-commerce apps in the future.			0.721	
<b>Augmenting</b>	<b>4</b>	<b>4</b>		<b>0.787</b>
I post photographs of my activity with the m-commerce apps on social media.			0.761	
I would write blogs about my positive experience with the m-commerce apps.			0.595	
The m-commerce apps provides opportunities to share my experience with others via social media.			0.685	
I engage in forwarding the promotions offered by this m-commerce apps to others.			0.541	
<b>Mobilizing</b>	<b>4</b>	<b>4</b>		<b>0.898</b>
I assist other customers if they need my help.			0.690	
I give advice to other customers regarding the services of the m-commerce apps.			0.607	
I teach other customers to use services correctly.			0.759	
I help other customers if they seem to have problems.			0.822	
I am willing to stand to protect the reputation of the m-commerce apps.			0.682	
I am willing to clarify other customers or outsiders misunderstanding regarding the m-commerce apps.			0.706	

Notes: \*Factor loadings are below 0.50. (Source: Created by the author)

**Reliability and validity analysis**

Considering the correlation values between all variables included in the scale, Cronbach’s Alpha is used to measure reliability, and when the data are assessed, it is above 0.7 for all the variables (Table 2). Accordingly, each factor group is internally consistent, and the reliability of the entire scale is high (Nunnally, 1978; Hair, Sarstedt, Matthews, and Ringle 2016).

Table 3 demonstrates the correlation coefficients between the variables forming the conceptual model. The correlations between the variables are positively significant, with a significance level of 1% (Schober, Schober, and Schwarte, 2018).

**Table 3:** Correlation Analysis

Variable	Correlation Matrix				
	1	2	3	4	5
1. Mobile Marketing Application Characteristics	1				
2. Perception of Mobile Marketing Applications	0.506**	1			
3. User Motivations	0.453**	0.578**	1		
4. Customer Evaluation	0.581**	0.683**	0.614**	1	
5. Customer Engagement	0.445**	0.612**	0.594**	0.614**	1

**Notes:** \*\*The correlation is significant at 0.01 (2-tailed).

**Source:** Created by the authors

**Hypotheses testing**

The effect of mobile marketing application features on the components of application-related perception is separately tested with simple regression analysis.

Based on the primary variable, the correlation coefficient between mobile marketing application features and “perceived advantage”, one of the components of mobile marketing application-related perception, is R=0.560, indicating a moderate correlation. The determination coefficient is 0.314, and mobile marketing application features explain 31.4% of the “perceived advantage”. However, the correlation coefficient between mobile marketing application features and another perception component of mobile marketing applications, “perceived challenge”, is R=0.343, indicating a weak correlation. The determination coefficient is 0.117, and mobile marketing application features explain 11.7% of the “perceived challenge” (Table 4). ANOVA results indicate that the effect is positively significant. H1a and H1b hypotheses are supported.

Based on the primary variable, the correlation coefficient between the perception related to mobile marketing applications and “domain-specific interest”, one of the components of user motivation, is R=0.682, indicating a strong correlation. The determination coefficient is 0.465, and the perception of mobile marketing applications explains 46.5% of the “domain-specific interest”. The correlation coefficient between the perception related to mobile marketing applications and the “need for cognition”, one of the components of user motivation, is R=0.297, indicating a weak correlation. The determination coefficient is 0.088. The perception related to mobile marketing applications explains 8.8% of the “need for cognition”. The correlation coefficient between the perception related to mobile marketing applications and another component of user motivation, “cognition satisfaction”, is R=0.338, indicating a weak correlation. The determination coefficient is 0.114. The perception related to mobile marketing applications explains 11.4% of the “cognition satisfaction” (Table 4). ANOVA results indicate that the effect is positively significant. H2a, H2b and H2c hypotheses are supported.

Based on the main variable, the correlation coefficient between the perception related to mobile marketing applications and “perceived enjoyment”, one of the components of the customer evaluation, is R=0.636, indicating a strong correlation. The determination coefficient is 0.404, and the perception related to mobile marketing applications explains 40.4% of the “perceived enjoyment”. The correlation coefficient between the perception related to mobile marketing applications and “perceived control”, one of the components of the customer evaluation, is R=0.583, indicating a moderate correlation. The determination coefficient is 0.340, and the perception related to mobile marketing applications explains 34% of the “perceived control” (Table 4). ANOVA results indicate that the effect is positively significant. H3a and H3b hypotheses are supported.

**Table 4:** Structural Parameter Estimates

Hypotheses	Path Relationships	Model				
		Std. Beta	Std. Error	t-value	p-value	R <sup>2</sup>
H1a: supported	MMAC → Perceived advantage	0.799	0.047	16.917	0.000	0.314
H1b: supported	MMAC → Perceived challenge	0.743	0.082	9.115	0.000	0.117
H2a: supported	PMMA → Domain-specific interest	0.689	0.030	23.293	0.000	0.465
H2b: supported	PMMA → Need for cognition	0.289	0.037	7.786	0.000	0.088
H2c: supported	PMMA → Cognition satisfaction	0.260	0.029	8.975	0.000	0.114
H3a: supported	PMMA → Perceived enjoyment	0.761	0.037	20.582	0.000	0.404
H3b: supported	PMMA → Perceived control	0.550	0.031	17.947	0.000	0.340
H4a: supported	PMMA → Co-developing	0.665	0.041	16.061	0.000	0.292
H4b: supported	PMMA → Influencing	0.658	0.041	15.961	0.000	0.290
H4c: supported	PMMA → Augmenting	0.620	0.045	13.670	0.000	0.230
H4d: supported	PMMA → Mobilizing	0.625	0.042	14.994	0.000	0.265
H5 : supported	UM → Customer engagement	0.825	0.042	19.439	0.000	0.377
H6a: supported	UM → Co-developing	0.910	0.058	15,573	0.000	0.280
H6b: supported	UM → Influencing	0.903	0.058	15,526	0.000	0.278
H6c: supported	UM → Augmenting	0.855	0.064	13.387	0.000	0.223
H6d: supported	UM → Mobilizing	0.823	0.060	13.827	0.000	0.234
H7a: supported	CEV → Co-developing	0.650	0.044	14.712	0.000	0.257
H7b: supported	CEV → Influencing	0.726	0.042	17.337	0.000	0.325
H7c: supported	CEV → Augmenting	0.675	0.047	14.479	0.000	0.251
H7d: supported	CEV → Mobilizing	0.637	0.044	14.559	0.000	0.253

**Notes:** MMAC: Mobile Marketing Application Characteristics, PMMA: Perception of Mobile Marketing Applications, UM: User Motivation, CEV: Customer Evaluation.

**Source:** Created by the authors

Based on the main variable, the correlation coefficient between the perception related to mobile marketing applications and “co-developing”, one of the components of customer engagement, is R=0.541, indicating a moderate correlation. The determination coefficient is 0.292, and the perception related to mobile marketing applications explains 29.2% of the “co-developing”. The correlation coefficient between the perception of mobile marketing applications and another customer engagement component, “influencing”, is R=0.538, indicating a moderate correlation. The determination coefficient is 0.290, and the perception related to mobile marketing applications explains 29% of the “influencing”. The correlation coefficient between the perception of mobile marketing applications and the third component, “augmenting”, is R=0.480, indicating a moderate correlation. The determination coefficient is 0.230, and the perception related to mobile marketing applications explains 23% of the “augmenting”. The correlation coefficient between the perception of mobile marketing applications and the last component, “mobilizing”, is R=0.514, indicating a moderate correlation. The determination coefficient is 0.265, and the perception of mobile marketing applications explains 26.5% of the “mobilizing” (Table 4). ANOVA results indicate that all the effects are positively significant, and H4a, H4b, H4c and H4d hypotheses are supported.

Based on the primary variable, the correlation coefficient between user motivation and customer evaluation is R=0.614, indicating a strong correlation. The determination coefficient is 0.377; user motivation explains 37.7% of the customer evaluation (Table 4). ANOVA results indicate that the effect is positively significant. The H5 hypothesis is supported.

Based on the primary variable, the correlation coefficient between user motivation and “co-developing”, one of the components of customer engagement, is R=0.529, indicating a moderate correlation. The determination coefficient is 0.280, and user motivation explains 28% of the “co-developing”. The correlation coefficient between user motivation and “influencing”, one of the components of customer engagement, is R=0.528, indicating a moderate correlation. The determination coefficient is 0.278, and the user motivation explains 27.8% of the “influencing”. The correlation coefficient between user motivation and “augmenting”, one of the components of customer engagement, is R=0.472, indicating a moderate correlation. The determination coefficient is 0.223, and user motivation explains 22.3% of the “augmenting”. The correlation coefficient between user motivation and “mobilizing”, one of the components of customer engagement, is R=0.484, indicating a moderate correlation. The determination coefficient is 0.234, and the user motivation explains 23.4% of the “mobilizing” (Table 4). ANOVA results indicate that all the effects are positively significant. H6a, H6b, H6c and H6d hypotheses are supported.

Based on a main variable, the correlation coefficient between the customer evaluation and “co-developing”, one of the components of customer engagement, is  $R=0.507$ , indicating a moderate correlation. The determination coefficient is 0.257, and customer evaluation explains 25.7% of the “co-developing”. The correlation coefficient between customer evaluation and “influencing”, one of the components of customer engagement, is  $R=0.570$ , indicating a moderate correlation. The determination coefficient is 0.325, and customer evaluation explains 32.5% of the “influencing”. The correlation coefficient between customer evaluation and “augmenting”, one of the components of customer engagement, is  $R=0.501$ , indicating a moderate correlation. The determination coefficient is 0.251, and the customer evaluation explains 25.1% of the “augmenting”. The correlation coefficient between the customer evaluation and “mobilizing”, one of the components of customer engagement, is  $R=0.503$ , indicating a moderate correlation. The determination coefficient is 0.253; customer evaluation explains 25.3% of the “mobilizing” (Table 4). ANOVA results indicate that all the effects are positively significant. H7a, H7b, H7c and H7d hypotheses are supported.

**Mediation analysis**

For the H8 and H9 hypotheses, Baron and Kenny’s (1986) and Hayes’ (2018; Model 4) mediation analyses and to examine the H10 hypothesis, Hayes’ (2018; Model 6) and multiple mediation tests are conducted (Table 5). The results indicate that the effect of user motivation and customer evaluation on customer engagement is significant.

**Table 5:** Results of Mediation Analysis

Relationship	Indirect Effect	SE	t-value	R <sup>2</sup>	Bias Corrected Confidence		Direct Effect	Type
					LLCI	ULCI		
PMMA → UM → CEN	0.2189	0.0279	11.1922	0.423	0.1630	0.1630	0.4230	Partial Mediation
PMMA → CEV → CEN	0.2644	0.0428	8.8216	0.378	0.2011	0.3337	0.3776	Partial Mediation
PMMA → UM + CEV → CEN	0.0817	0.0427	6.8154	0.490	0.0489	0.1202	0.2912	Partial Mediation

**Notes:** PMMA: Perception of Mobile Marketing Applications, UM: User Motivation, CEV: Customer Evaluation, CEN: Customer Engagement, LLCI: Lower Limit Confidence Interval, ULCI: Upper Limit Confidence Interval, SE: Standart error,  $p<0.001$ .

**Source:** Created by the authors

The regression coefficient showing the direct effect of the perception related to mobile marketing applications on customer engagement is  $B=0.642$ . After the user motivation is included in the model, it becomes  $B=0.423$ ; when analyzed along with the direct effect of customer evaluation, however, the regression coefficient value is  $B=0.378$ . According to the analysis result, due to being  $p<0.05$ , both user motivation and customer evaluation have partial mediation effects; for H8 and H9, hypotheses are confirmed.

Analysis result reveals that regarding the direct effect of the perception related to mobile marketing applications on customer engagement, the significance level is  $p<0.05$ . When user motivation and customer evaluation show a mediation effect, it is still  $p<0.05$ , meaning a significant effect. Since there is no “zero” between the lower and upper limits,  $BootLLCI=0.0489$  and  $BootULCI=0.1202$ , of the 95% confidence interval, user motivation and customer evaluation together have a partial mediation effect regarding the effect of the perception related to the mobile marketing applications on the customer engagement, and H10 hypothesis is accepted.

**Discussion**

**Managerial implications**

The findings of the research provide various contributions to the current literature. First of all, it is asserted that the components “vividness”, “interactivity”, “active control”, “two-way communication”, and “synchronicity”, examined in the scope of mobile marketing application features, enabling the feeling of realism experienced in virtual environment, namely the interactivity similar to the physical stores to be offered to customers can change and develop customer engagement behaviour and is consistent with existing literature (Fang, 2017; Hilken et al., 2017, 2018; Arghashi et al., 2022; Ho et al., 2022). These emerging cognitions significantly affect the experience of the customers in a virtual environment, which, in turn, allows companies to gain value from customer interaction behaviour. Since former studies on mobile applications focus on acceptance (Wang, 2020; Lim, Xie and Haruvy, 2022) more than user behaviour (Agrebi and Jallais, 2015), the findings obtained are very important.

Secondly, the correlations between “perceived advantage” and “perceived challenge” and the enjoyment and control perception of customers are confirmed, and it is presented that by analyzing various behavioural forms of customer engagement and the driving forces of each behaviour separately,

this relation can affect and increase co-developing, influencing, augmenting and mobilizing behaviours. These findings support the customer participation behaviours Van Doorn et al. (2010) suggested. At the same time, a new perspective is presented by examining the effects of mobile marketing application features on the "perceived advantage" and "perceived challenge" variables. This study, by indicating a mediation effect of "perceived enjoyment" in regard to the effect on "augmenting", one of the customer engagement behaviours, and to the examination of "perceived advantage" and "perceived challenge" as the driving forces of each participation behaviour, expands the scope of the studies by Japutra et al. (2022).

Thirdly, the current study indicates that by analyzing mediation effects of the "perceived enjoyment" and "perceived control" components, in case the perception related to mobile marketing applications increases the feeling of perceived enjoyment and perceived control, it can increase co-developing, influencing, augmenting and mobilizing desires of the customers (Moon et al., 2001; Kim et al., 2016). These results provide an essential contribution since previous studies individually analyzed the mediation role of perceived enjoyment (Pe-Than et al., 2014; Brom et al., 2017) and perceived control (Roy et al., 2017; Uphill, Rossato, Swain and O'Driscoll, 2019). It is determined that while using mobile applications, customers enjoy getting information and pay regard to the emotional and entertainment value of shopping. It has been proven to affect customers' behavioural decisions (Babin et al., 2000).

Finally, it is presented that "domain-specific interest", "need for cognition", and "cognition satisfaction" components representing personal tendencies and context-specific motivations of the customers affect the perceived enjoyment and perceived control of the customers, positively affect customer engagement and have mediation effects in terms of increasing customer engagement. The more customers benefit from their experiences in mobile marketing applications, the more they tend to reciprocate the benefits they receive, allowing them to contribute positively to companies (Kumar et al., 2016; Kumar et al., 2019). Supporting the arguments by Kim (2019) and Ho et al. (2022), this study presents the effect of the perception related to mobile marketing applications on user motivation by examining and empirically verifying with a new understanding. Besides, by adding the "cognition satisfaction" component to the conceptual model, the study by Ho et al. (2022) is expanded.

#### **Limitations and directions for further studies**

It is necessary to consider that the findings included in the study are obtained with some limitations. The study was conducted only with the participation of respondents living in Istanbul. Besides, the scales in the study comprise all mobile applications in general, and their types and intended uses are considered the same. For this reason, it should be taken into consideration that future studies can be conducted with different sample groups and mobile applications divided according to their intended use, and thus, the generalizability of the current study can be increased.

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## Entrepreneurial competencies in the success of enterprises: A bibliometric analysis of the publications in the field

### Girişimlerin başarısında girişimcilik yetkinlikleri: Alandaki yayınların bibliyometrik analizi

Nezahat Koçyiğit<sup>1</sup> 

Esra Yıldız<sup>2</sup> 

Turgut Emre Akyazı<sup>3</sup> 

<sup>1</sup> Assoc. Prof., Necmettin Erbakan University, Konya, Türkiye, [nkocyyigit@erbakan.edu.tr](mailto:nkocyyigit@erbakan.edu.tr)

ORCID: 0000-0003-3332-3642

<sup>2</sup> Assist. Prof., Karamanoğlu Mehmetbey University, Karaman, Türkiye, [eyildiz@kmu.edu.tr](mailto:eyildiz@kmu.edu.tr)

ORCID: 0000-0002-5168-3708

<sup>3</sup> Lect. Dr., Aksaray University, Aksaray, Türkiye, [emreakyazi@aksaray.edu.tr](mailto:emreakyazi@aksaray.edu.tr)

ORCID: 0000-0003-2800-7530

#### Corresponding Author:

Turgut Emre Akyazı,

Aksaray University, Aksaray, Türkiye, [emreakyazi@aksaray.edu.tr](mailto:emreakyazi@aksaray.edu.tr)

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#### Abstract

There has been an acceleration in competence-based management in recent years, which has, in turn, influenced entrepreneurial success by strengthening entrepreneurial competencies. This study aims to analyse and predict the future of the research on entrepreneurial competencies using bibliometric methods. For this purpose, VOSviewer software was used for co-word analysis. Bibliometric methods such as citation analysis and co-author analysis were used to analyse the studies related to entrepreneurial competencies. It was found that most publications were published in 2019 based on a search in the Web of Science database between 1995 and 2023. The analysis of 1403 publications revealed that 460 proceeding papers, 10 early access and 210 book chapters were involved in the search. After reducing the set to include articles, 914 papers were evaluated. Results show that the authors most cited over the years are Lans Thomas, Al Mamun Abdullah, Mulder Martin, and Obschonka. Furthermore, it was found that Spain had the highest number of published works, followed by China and the USA respectively. Study findings also revealed that entrepreneurial competencies are more related to core, emotional, and network competencies and sustainable development, creativity, innovation, social capital, and higher education.

**Keywords:** Entrepreneurship, Entrepreneurial Competencies, Performance, Bibliometric Analysis, VOSviewer

**Jel Code:** L26

#### Öz

Yetkinliğe dayalı yönetimde son yıllarda bir hızlanma yaşanmakta ve bu da girişimci yeterlilikleri güçlendirerek girişimcilik başarısını etkilemektedir. Bu çalışmanın amacı girişimcilik yetkinlikleri üzerine yapılan araştırmaları bibliyometrik yöntemler kullanarak analiz etmek ve geleceğe yönelik tahminlerde bulunmaktır. Bu amaçla eş kelime analizi için VOSviewer yazılımı kullanılmıştır. Girişimcilik yetkinlikleri ile ilgili çalışmaların analizinde atıf analizi ve ortak yazar analizi gibi bibliyometrik yöntemlerden yararlanılmıştır. Web of Science veri tabanında 1995-2023 yılları arasında yapılan taramaya göre en fazla yayının 2019 yılında yapıldığı belirlenmiştir. 1403 yayının analizi sonucunda 460 bildiri, 10 erken erişim ve 210 kitap bölümünün yer aldığı tespit edilmiştir. İncelenen yayınlar yalnızca makaleleri içerecek şekilde daraltıldıktan sonra 914 makale değerlendirilmiştir. Sonuçlar, yıllar içinde en çok alıntı yapılan yazarların Lans Thomas, Al Mamun Abdullah, Mulder Martin ve Obschonka olduğunu ortaya koymuştur. Ayrıca en fazla eserin yayımlandığı ülkenin İspanya'nın olduğu, onu sırasıyla Çin ve ABD'nin takip ettiği belirlenmiştir. Araştırma bulguları ayrıca girişimci yetkinliklerin temel, duygusal ve ağ yetkinlikleri, sürdürülebilir kalkınma, yaratıcılık, yenilikçilik, sosyal sermaye ve yüksek öğrenimle daha fazla ilişkili olduğunu ortaya koymuştur.

**Anahtar Kelimeler:** Girişimcilik, Girişimcilik Yetkinlikleri, Performans, Bibliyometrik Analiz, VOSviewer

**JEL Kodları:** L26

## Introduction

An understanding of prioritising entrepreneurship development, vital in shaping a country's economy and entrepreneurial behaviours, has become increasingly common today. Entrepreneurship remains the only source of consistent economic growth and job creation in today's artificial intelligence and automation era. Many countries are taking various initiatives to develop entrepreneurship in their economies. Also, entrepreneurs create SMEs through which they offer new products and services and achieve greater economic freedom (Amjad, 2022). Supporting the growth and creation of SMEs is one of several trends in creating entrepreneurship in different environments (Bismala & Handayani, 2022).

The competence-based management has accelerated in recent years and influenced entrepreneurial success by strengthening entrepreneurial competencies. Thus, developing entrepreneurial competencies that include attitudes and behaviours is paramount for entrepreneurs aiming to obtain higher performance. In other words, entrepreneurial competencies are the entrepreneur's traits, attitudes, behaviours, skills, and knowledge. There are six dimensions of entrepreneurial competencies identified in the literature. These six competency areas are opportunity, relationship, conceptual, organising, strategic, and commitment competencies.

Entrepreneurship remains the only source of consistent economic growth, job creation, new products and services, and greater economic freedom. The competence-based management has accelerated in recent years and influenced entrepreneurial success by strengthening entrepreneurial competencies. In today's conditions, transforming a business idea into an enterprise and keeping that enterprise alive requires essential competencies. What competencies are needed should be discussed through entrepreneurship competency models. Studies on entrepreneurship competence worldwide can be conducted using qualitative and quantitative research methods. So, this study aims to highlight the new trends and concepts integrated into entrepreneurial competencies by analysing studies in the field. It aims to guide studies on entrepreneurship competencies by examining previous research. This will enable researchers to understand better what has been studied, who was involved in these studies, which countries are leading on this topic and which variables are associated with it. Also, by understanding existing research and its findings, new insights can be gained into how best to develop entrepreneurial competencies through further investigation. First, the conceptualization of entrepreneurial competencies and previous studies is described. Second, the data collection and the procedures involved in bibliometric analysis related to subject research are presented. Bibliometric methods were used to analyse citations, co-authorship, and co-words to examine publications related to entrepreneurial competencies. Unlike a systematic literature review, the bibliometric study evaluates research using mathematics and statistics. It provides descriptive statistics on the field and identifies the main themes through the authors' keywords. Bibliometric analysis introduces an objective approach to the assessment of scientific material. The final aim is to achieve numerical measurement indicators about research performance and provide guidance for studies related to entrepreneurship competencies by examining the research already conducted in the Web of Science database. Discussions to be made on these indicators should be inspired by the experience and knowledge of the researchers in the field. Quantitative findings on country, author, university, weak and robust research areas and literature gaps are achieved with bibliometric analysis. These can be used as a first step in research. The co-word analysis uses a software tool for constructing and visualizing bibliometric networks, VOSviewer, with the keywords "entrepreneur\*" and "competent\*". Bibliometric methods such as citation analysis and co-author analysis were used to analyse the research published in articles related to entrepreneurial competencies. Finally, the literature review and bibliometric analysis findings are discussed, and the conclusions are presented.

It is evident that there is a growing interest in researching entrepreneurial competencies, and most publications were made in 2019, according to the research results in the Web of Science database between 1995 and 2023, according to the data obtained in March 2023. From this date on, upon scanning with the exact keywords in 2023, 382 more studies of the article type were identified. The most cited ones are included in this research. The analysis of 1403 publications has revealed interesting results. According to the type of publications, results show that most studies include articles. Respectively, articles are followed by proceeding papers (460), early access (10) and book chapters (210). The lack of book chapters and books shows that the entrepreneurial and competencies field has not yet formed a mature methodology. Then, it came out that entrepreneurial competencies research primarily focused on the subject area of business and management. After reducing the set to include only articles, 914 papers were evaluated. According to the analysis results, the authors most cited over the years are Lans Thomas, Al Mamun Abdullah, Mulder Martin, and Obschonka, Martin. There are collaborations between Al Mamun, Man, Mitchelmore and Bird and with Lans, Mitchelmore and Chandler. Upon

evaluating the publications by country, it was found that Spain had the most significant number of published works, followed by China and then the USA, respectively. According to findings, entrepreneurial competencies are more related to core competencies, emotional competencies, network competence, sustainable development, creativity, innovation, social capital and higher education. In the future, implications can be made for developing entrepreneurial competencies in the context of entrepreneurial success.

## **Literature review**

People who launch and develop a business possess specific entrepreneurial characteristics proven by organizing resources and capitalizing on opportunities (Bird, 1995; Mitchelmore & Rowley, 2010). Competencies, which are divided into various types according to their areas of use for entrepreneurs, who are responsible for the success of a business and the most important actors in the economy of a society, have become the main priority. In other words, competencies have become a popular approach to determining the characteristics of entrepreneurs (Bird, 1995; Man et al., 2002; Schmitt-Rodermund, 2004; Baron & Markman, 2003; Martin & Staines, 1994; Kravis & Lipsey, 1992; Lumpkin & Dess, 1996; Barney, 1991; Chaston, 1997; Feurer & Chaharbaghi, 1994).

Entrepreneurial skills consist of creative problem-solving, thinking strategically, negotiation skills, and the ability to manage the business and make intuitive decisions under uncertainty (Hasan et al., 2019). Entrepreneurial competencies are characterized as high-level attributes that include the entrepreneur's personality traits, skills, and knowledge and are thought to be necessary for successfully carrying out a job role (Man et al., 2002). Self-efficacy and learning, risk-taking tendency, employability, personal initiative, and development can be listed here (Fagadar et al., 2021).

Entrepreneurial competencies have been conceptualized as an analysis of the inherent qualities of individuals who have recently started working for a company. These traits include the need for success, inventiveness, autonomy, propensity for taking risks, locus of control, and self-efficacy (Rauch & Frese, 2007). Evaluating opportunities, taking initiative and risks, connecting with potential suppliers and buyers, and convincing investors for a project mean that an entrepreneur is competent (Lans et al., 2011).

According to the definition of Man et al. (2002), entrepreneurial competencies, which are the capability of the entrepreneur to execute the job role effectively, include six dimensions: organizing, opportunity, commitment, strategic, relationship, conceptual and commitment competencies. Opportunity competency is defined as an entrepreneur's skill to identify and select the right business opportunities. Relationship competencies include trust and cooperation, communication, persuasive ability and interpersonal skills. Conceptual competency is understanding complex information and market opportunities to improve businesses. Organizing competencies include internal and external resources such as materials, budget and human resources. Strategic competencies refer to an entrepreneur's skill to develop a business vision, and commitment competencies refer to the effort or hard work entrepreneurs need to manage their business successfully (Johari et al., 2023).

Even though SMEs have limited resources in terms of technology, finance, skills, and information, the success of their operations over the long term depends on various other factors, including integration and relationships with suppliers and customers. Studies conducted in recent years have repeatedly demonstrated the direct and indirect impact that entrepreneurial competencies have on the long-term performance of SMEs (Man et al., 2008).

According to resource-based view theorists, entrepreneurial competencies effectively provide added value, obtain resources, and develop existing resources (Mitchelmore & Rowley, 2010). Since entrepreneurial knowledge, skills, and abilities are usually rare and values that competitors cannot imitate, they can provide a sustainable competitive advantage to the organization (Tehseen & Ramayah, 2015).

Many studies have been carried out in the literature that demonstrate the meaningful connection between entrepreneurial competencies and organizational success (Ahmad et al., 2010; Umeze & Ohen, 2015; Vijaya et al., 2015).

The study of Hamzah and Othman (2023) aimed to assess the influence of locus of control on entrepreneurial competency in a small business setting. They predicted how this could generate positive outcomes regarding business growth, quality of life, and sustainable entrepreneurial intention.

Rehman et al. (2023) used resource-based theory to examine the impact of the management control system package on business performance through the mediating role of entrepreneurial competencies and the interaction role of business strategy in small and medium-sized enterprises. The results revealed

that all management control system package elements significantly and positively influence entrepreneurial competencies.

Aftab et al. (2022) found positive moderation in the relationship between entrepreneurial competencies and SME performance in Pakistan's emerging environmental dynamism market.

Ismail's study (2022) looked into the mediating role of entrepreneurial innovations on entrepreneurs' competencies in small and medium enterprises in Tanzania. It showed that entrepreneurs' competencies positively affect entrepreneurial innovation and SMEs' sustainability.

Kisubi et al. (2022)'s results of studies show that SME performance can be improved by enhancing entrepreneurial competencies.

Minimol (2021) aimed to explore entrepreneurial competencies and the dimensions and factors that makeup them through a survey among small and medium entrepreneurs. In this study, the scale was used, including all four dimensions of entrepreneurial competency, and was found useful for small and medium entrepreneurs, policymakers, and training programmes for entrepreneurs in future research.

Kocyiğit and Celik (2021) found that entrepreneurial competencies and their subdimensions (opportunity, relationship, conceptual, organizational, strategic, and commitment) positively affect firm performance.

In their paper, Meiri and Zouaoui (2020) formulate five hypotheses to determine which competencies contribute the most to micro, small, and medium business growth. According to their findings, competencies were related to management, opportunities, and business-related technical and functional competencies.

Through the mediation of positive psychology capital, Hasan et al. (2019) discovered that entrepreneurial learning significantly affects students' entrepreneurial competence.

The study conducted by Al Mamun et al. (2019) in Malaysia shows that entrepreneurial competency, entrepreneurial skills and networking positively affect entrepreneurial performance.

Al Mamun and Fazal (2018) found that innovativeness, proactiveness, autonomy, and creativity positively influenced entrepreneurial competencies. In addition, they found that entrepreneurial competencies and autonomy positively affected micro-enterprise performance and mediated the relationships between creativity, innovativeness, autonomy, and micro-enterprise performance.

Another study revealed a strong correlation between work performance and entrepreneurial competencies in Kenya's public transportation industry (Kimeu, 2017).

According to Sarwoko et al. (2013), who examined the impact of entrepreneurs' competencies on firm performance, entrepreneurial traits foster the development of competencies, which in turn impacts firm performance.

The primary aim of Lans et al.'s (2010) research chapter is to shed more light on self-awareness concerning the mastery and improvability of entrepreneurial competence. According to the results, entrepreneurial competence overall is seen as subject to at least some development. The owner-managers in their study assessed the competencies of networking and leadership the highest, reflecting the most significant potential for improvement. Many of their studies underline the importance of studying entrepreneurial competence development in existing small businesses over time.

## **Methodology**

This section will discuss the research procedures used to develop the methodology. This study aims to review publications on research on entrepreneurial competencies. An appropriate bibliometric method was used for data collection to achieve this purpose. First, a literature review was carried out on the Web of Science, a widely used database that includes records from journals related directly to topics related to entrepreneurial competencies. Data was collected in February-March 2024. No ethics committee approval was needed since the study data comprises secondary data collected from relevant literature using online academic databases.

The Web of Science database is a leading academic research resource. This database contains the most up-to-date scientific articles and other publications worldwide. One of the main reasons for choosing Web of Science is that it provides access to many scientific articles from non-commercial international peer-reviewed journals.

Once all related information was obtained, bibliometric methods, such as citation and co-citation analysis, allowed us to identify influential authors within a field and measure their impact by looking

at citations. These metrics provided valuable insights into how different fields interact with each other through collaborative work between authors or institutions, highlighting key developments within a particular area of study over periods.

In this study, to reach all studies related to entrepreneurship and competence, the search string ("entrepreneur\*", "competent\*") was used within the topics, abstracts, and keywords of the studies on the Web of Science database and examined by bibliometric analysis.

Then, the file (in TXT format), including all the bibliometric information of the sample articles from the Web of Science, was exported. This file was processed using VOSviewer software for a detailed bibliometric analysis (van Eck & Waltman, 2010). Vosviewer is a powerful bibliometric visualization tool that allows users to explore and analyse the structure of scientific literature, enabling them to gain insights into research trends and patterns. Vosviewer enables researchers to quickly visualize large amounts of data from various sources such as Scopus, Web of Science Core Collection, PubMed Central or any other source in which citation information is available. The main features offered by Vosviewer include creating maps based on co-citation analysis, clustering documents based on their content, and exploring collaboration networks among authors or institutions.

### Bibliometric analysis

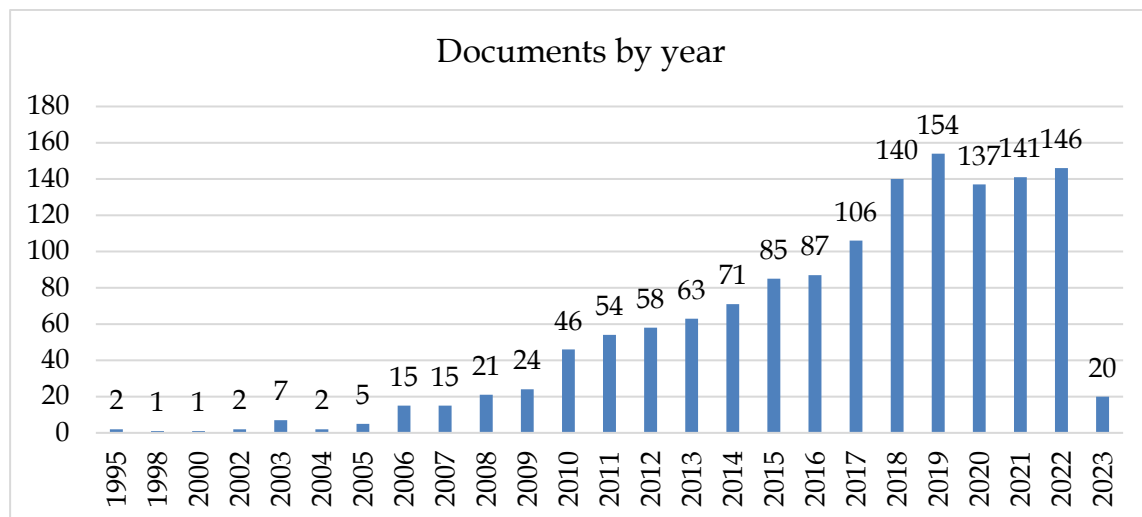
Unlike a systematic literature review, a bibliometric study evaluates research using mathematics and statistics. It provides descriptive statistics on the field and identifies the main themes through the authors' keywords.

The final aim is to achieve numerical measurement indicators of research performance. Discussions to be made on these indicators should be inspired by the experience and knowledge of the researchers in the field. The bibliometric methods, such as co-citation analysis, citation analysis, co-author analysis, bibliographical coupling, and co-word analysis, present a workflow for conducting bibliometric studies with guidelines for researchers (Zupic and Čater, 2015). Quantitative findings on country, author, university, weak and robust research areas and literature gaps are achieved with bibliometric analysis. These can be used as a first step in research.

### The statistical analysis of annual indicators of entrepreneurial competencies publications

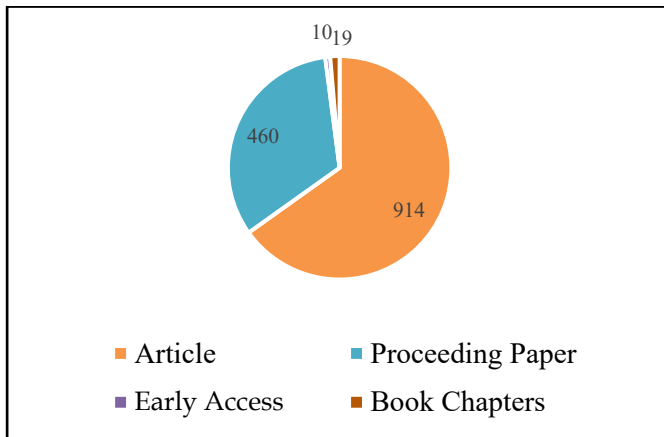
The statistical characteristics of publications on entrepreneurial competencies are explored in detail in the following:

The initial foregrounded 1403 documents. The progress of the field during this period is seen in Figure 1.



**Figure 1:** Progress in Entrepreneurial Competencies Field

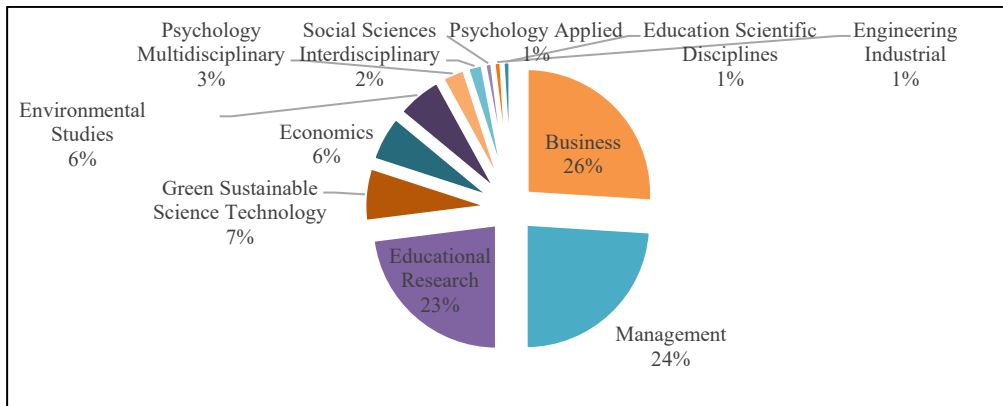
As seen in Figure 1, it was determined that the first study was published in 1995 and that entrepreneurial competencies research has gained momentum over the last few years. This indicates that entrepreneurial competencies research has received much attention in recent years. The most significant number of publications on entrepreneurial competencies were made in 2019.



**Figure 2:** Types of Publications

As seen in Figure 2, there are 1403 publications related to entrepreneurial competencies research in Web of Science. The distribution of the types of publications is shown in Figure 2, including articles (914), proceeding papers (460), early access (10), and book chapters (210). The lack of book chapters and books shows that the entrepreneurial and competencies field has not yet formed a mature methodology.

Then, the pattern of documents by subject areas within the Web of Science database was analysed to highlight the importance of entrepreneurial competencies concepts and studies in the field. The authors study entrepreneurial competencies mostly in business and management, as shown in Figure 3.



**Figure 3:** Share of Entrepreneurial Competencies Articles Published Under Prominent Categories

As seen in Figure 3, entrepreneurial competencies research has focused primarily on business and management. Then, refining the results reduced the number to 914 works, exclusively articles in the Web of Science database as of March 2023. Leading countries, productive authors and the most frequent keywords were identified.

Many authors have done research in the field of entrepreneurial competencies. The authors' names most cited are shown in the analysis (Table 1). Accordingly, Lans Thomas, Al Mamun Abdullah, Mulder Martin and Obschonka, Martin are the most cited authors.

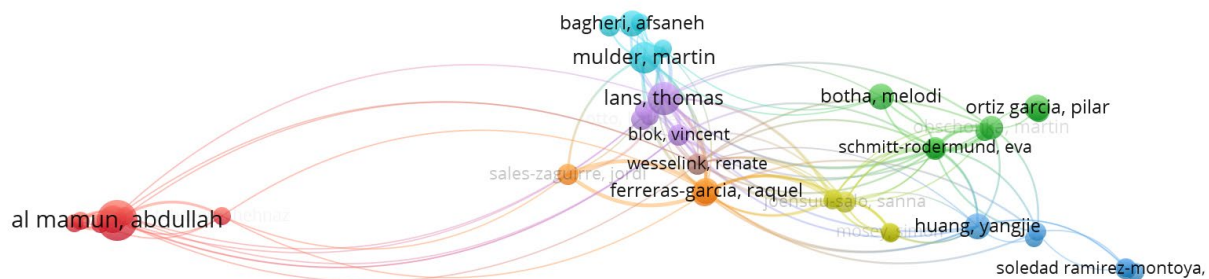


**Table 1:** The Ten Most Cited Authors in Entrepreneurship Competencies and the Number of Texts

Author	Documents	Title of the Most Cited Article	Total Citations
Al Mamun, Abdullah	15	Effect of Entrepreneurial Orientation on Competency and Micro-Enterprise Performance	123
Lans, Thomas	11	Learning Apart and Together: Towards an Integrated Competence Framework for Sustainable Entrepreneurship in Higher Education	555
Mulder, Martin	10	Analyzing, Pursuing and Networking: Towards a Validated Three-Factor Framework for Entrepreneurial Competence from a Small Firm Perspective	321
Agarwal, Sucheta	7	Sustainable Competencies of Social Entrepreneurship for Sustainable Development: Exploratory Analysis from a Developing Economy	115
Fazal, Syed Ali	7	Entrepreneurial Knowledge, Skills, Competencies and Performance: A Study of Micro-Enterprises in Kelantan, Malaysia	58
Ferreras-Garcia, Raquel	6	Entrepreneurial Competences in a Higher Education Business Plan Course	51
Serradel-Lopez, Enric	6	Nascent Entrepreneurship and the Developing Individual: Early Entrepreneurial Competence in Adolescence and Venture Creation Success During the Career	51
Agrawal, Vivek	5	Sustainable Competencies of Social Entrepreneurship for Sustainable Development: Exploratory Analysis from a Developing Economy	53
Obschonka, Martin	5	Nascent Entrepreneurship and the Developing Individual: Early Entrepreneurial Competence in Adolescence and Venture Creation Success During the Career	350
Biemans, Harm J. A.	4	Identification Of Competencies for Professionals in Open Innovation Teams	34

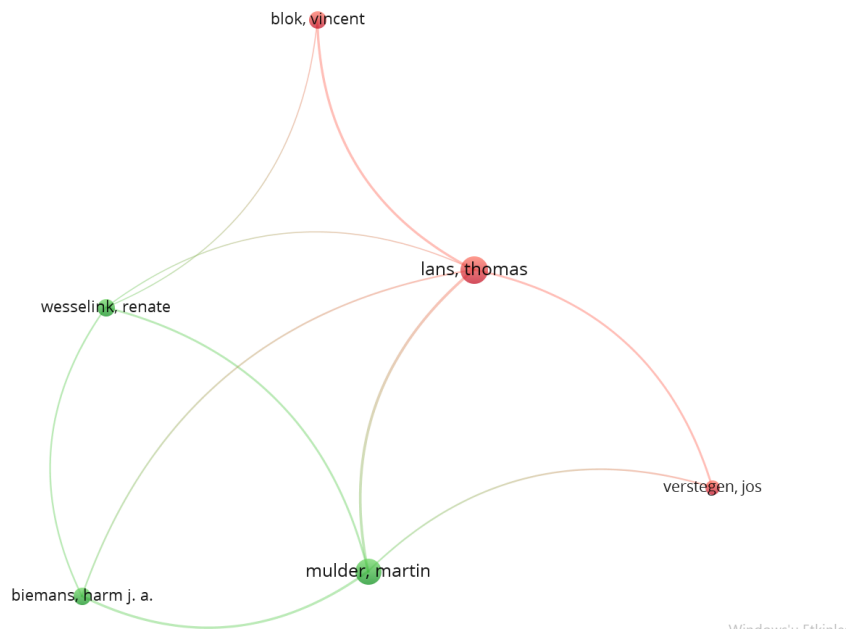
Then, the file (in TXT format), including all the bibliometric information of the sample articles from the Web of Science, was exported. This file was used in the VOSviewer software to conduct detailed bibliometric analysis (van Eck and Waltman, 2010). VOSviewer is a powerful bibliometric visualization tool that allows users to explore and analyze the structure of scientific literature, enabling them to gain insights into research trends and patterns. VOSviewer enables researchers to quickly visualize large amounts of data from various sources such as Scopus, Web of Science Core Collection, PubMed Central or any other source in which citation information is available. The main features offered by VOSviewer include creating maps based on co-citation analysis, clustering documents based on their content, and exploring collaboration networks among authors or institutions.

Figure 4 shows the frequency of the citations. Given the size of the clusters, Al Mamun, Lans, Mulder, and Ferreras were the most cited authors. In general, the map of the authors under each group is related to each other within themselves. This shows that they are in a close relationship. Authors such as Lans Mulder are fundamental in entrepreneurial competencies. Authors like Al Mamun have new work in the field of entrepreneurial competencies. Although his works are new, many citations show they are high quality.



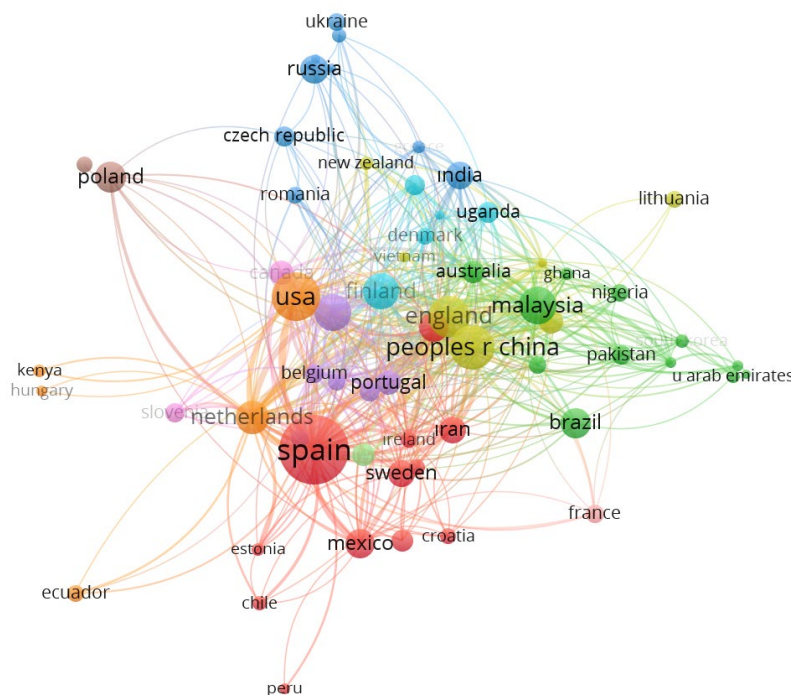
**Figure 4:** Citations of Authors

Many authors contributed essential to developing the entrepreneurship’s success field, studying entrepreneurial competencies. Figure 5 shows the authors with the most connections between them. In Figure 5, the colours and line thicknesses indicate the connection power of authors that study together.



**Figure 5:** Co-authorship Network Map of Various Authors Who Carried Out Analysis on Entrepreneurial Competencies

Figure 6 depicts a chart of collaboration between critical authors who have published on entrepreneurial competencies. The size of the circles varies according to the number of manuscripts published by each author. The colours indicate the working group.



**Figure 6:** Top Countries in Entrepreneurial Competencies

Figure 6 shows a combination of all types of countries, including developing (such as Malaysia, China, and Nigeria) countries and developed (such as the US, England, Spain and Sweden). This shows that entrepreneurial competence is essential in all types of countries regardless of their level of development and resources. Understanding which countries have higher publication rates can help inform future research initiatives and collaborations between national institutions. By accessing this information, researchers can better understand where their work would best fit or who they should collaborate with to expand upon existing knowledge bases.



Considering the connections between the authors and the highest number of publications in Figure 8, it is evident that there is an intense concentration around these authors. The majority of them have weak connections with each other, but they are still connected to some degree. This suggests that while many authors may be relatively isolated from one another, those who have published more often tend to share common interests and collaborate on similar projects.

### **Limitations and recommendations for future research**

One limitation of the study is that the focus on the articles yielded by search queries in the Web of Science Database and other sources such as books, reports or proceeding papers are not included. Also, bibliometric analysis has limitations, such as the possibility of missing relevant articles due to the selection of databases and the data quality. On the other hand, these data and the implications of these research findings can be helpful in interdisciplinary studies. Future research should focus on the effect of entrepreneurial competencies on performance and efficiency.

### **Conclusion and discussion**

This study aims to guide studies related to entrepreneurship competencies by examining the research already conducted in the Web of Science database. This will enable researchers to understand better what has been studied, who was involved in these studies, which countries are leading on this topic, and which variables are associated with it. By understanding existing research and its findings, new insights can be gained into how best to develop entrepreneurial competencies through further investigation.

In order to accomplish this goal, the data within Web of Science database journals related to entrepreneurship competencies were first analysed. Also, factors such as authorship patterns and country-level contributions were evaluated when considering previous work on this subject matter to assess current gaps in knowledge about entrepreneurial competency development accurately. Additionally, any potential biases or limitations associated with past studies that may affect their relevance for future investigations were also considered. This research provides theoretical implications. In addition, due to the small number of publications on this issue, it is a research area with great potential to search and publish. The results show that entrepreneurial competencies have a close relationship with entrepreneurship success. In addition, when ventures try to improve their performance in SMEs, it is closely connected with entrepreneurial competencies.

In this study, competence, entrepreneurial competencies, and behaviours were highlighted. For this purpose, a bibliometric analysis of research on entrepreneurial competencies was conducted, analysing 1403 results (including articles, proceeding papers, data papers, and review articles) identified from the Web of Science database. The results refinement reduced the number to 914 works, exclusively articles. Leading countries, productive authors and the most frequent keywords were identified.

Results show that the authors most cited over the years are Lans Thomas, Al Mamun Abdullah, Mulder Martin, and Obschonka. Furthermore, it was found that Spain had the highest number of published works, followed by China and the USA respectively. Study findings also revealed that entrepreneurial competencies are more related to core, emotional, and network competencies and sustainable development, creativity, innovation, social capital, and higher education. Research results are similar to those of other studies in the relevant literature.

Manickam and Rozan (2023) used the Scopus database in their study and expanded to scientific mapping using VOSviewer to provide a complete view of research trends about entrepreneurial competencies. According to the results, the overall number of articles has climbed consistently from 2017 to 2021. They found that researchers from India, Malaysia, and the United Kingdom significantly contributed to the research on entrepreneurial competencies.

The study by Pennetta et al. (2023), based on a systematic literature review and strengthened by a bibliometric study, aimed to define and classify the wide range of known entrepreneurial abilities with terms such as skills and competencies. The results contribute to the entrepreneurship research by shedding light on the inconsistent use of non-standardised terminologies. It also provides an entrepreneurial model and updated skills map to guide scholars to frame research in the post-COVID era with more clarity.

Reis et al. (2021) aimed to identify the core entrepreneurial competencies and map the current literature by sampling them in the Scopus and Web of Science databases. The research identified a list of 98 entrepreneurial competencies by contributing to understanding the entrepreneurial competencies helping create and develop entrepreneurship education.

In this research, the findings suggest that future research can focus on topics and highlight the competencies listed below;

- sustainable development,
- creative,
- innovation,
- emotional competencies,
- core competencies,
- network competence,
- communication,
- higher education and entrepreneurial success in the context of entrepreneurship or small and medium enterprises.

Some of the core competencies that reflect corporate culture and values, show how businesses want to be recognized by competitors and customers and cover the entire business are as follows (Gürel, 2010):

- Being open to innovation, change and continuous learning,
- Analytical thinking,
- Risk-taking,
- Being proactive,
- Using resources effectively.

Network competencies mean competencies related to good communication and interactions with others. An entrepreneur's critical success factor is networking with employees, business partners, family, friends and customers. It is the ability to work together with others. In addition, developing long-term trust relationships and working as a team are also within the scope of network competence (Soh, 2003).

Entrepreneurs with emotional competencies effectively build personal power when they face difficulties maintaining their businesses. These competencies include self-control, tolerance, determination, emotional intelligence, self-awareness, and motivation (Vijay and Ajay, 2011).

When entrepreneurs have network competence, communication and innovation competence, their firm performance can tend to improve. Entrepreneurial competencies related to innovation have a significant impact depending on how much they influence business success (e.g. a proactive approach to advancing the business in new markets and producing new products).

The research concludes that entrepreneurial competencies are related to higher education. Therefore, policymakers and educators can use this information to design and implement entrepreneurship education programs focusing on developing competencies.

Finally, once all relevant information from earlier works is gathered, a comprehensive review should be conducted to identify critical areas where more exploration could lead us towards a greater understanding of developing entrepreneurs' skill sets. This review process would include assessing different theories regarding entrepreneurial capabilities and evaluating possible implications from empirical evidence provided by past studies. With all necessary components put together, a clear path forward can then be established, allowing us to move ahead confidently while continuing to explore ways to build upon current approaches to fostering successful business owners throughout society today.

**Peer-review:**

Externally peer-reviewed

**Conflict of interests:**

The authors have no conflict of interest to declare.

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### Author Contributions:

Idea/Concept/Design: N.K. Data Collection and/or Processing: N.K., E.Y., T.E.A. Analysis and/or Interpretation: N.K., E.Y. Literature Review: E.Y., T.E.A. Writing the Article: N.K., E.Y. Critical Review: E.Y., T.E.A., Approval: N.K., E.Y., T.E.A.

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## Sürdürülebilirlik uyum raporu ilkelerinin finansal olmayan kilit performans göstergelerine etkisi

### Impact of sustainability compliance report principles on non-financial key performance indicators

Ali Aykut Peker<sup>1</sup> 

<sup>1</sup> Öğr. Gör. Dr., Aksaray Üniversitesi,  
Aksaray, Türkiye,  
[aykutpeker@aksaray.edu.tr](mailto:aykutpeker@aksaray.edu.tr)

ORCID: 0000-0002-4894-7434

#### Öz

Çalışmanın amacı, sürdürülebilirlik ilkeleri uyum raporu ilkelerinin finansal olmayan kilit performans göstergelerine etkisinin tespit edilmesidir. Bu amaç kapsamında, BİST sürdürülebilirlik endeksinde yer alan 75 şirket üzerinde çalışma gerçekleştirilmiştir. Şirketlerin 2022 yılına ait sürdürülebilirlik uyum raporları, finansal raporları ve faaliyet raporları içerik analizi tekniği ile incelenmiştir. Elde edilen veriler sayısallaştırılarak SPSS paket programı ile analiz edilmiş, korelasyon ve regresyon analizleri gerçekleştirilmiştir. Çalışmanın sonucunda; sürdürülebilirlik uyum raporu genel ilkeler, çevresel ilkeler ve sosyal ilkeler ile finansal olmayan kilit performans göstergeleri arasında ilişkiler tespit edilmiştir. Kurumsal yönetim ilkeleri ile finansal olmayan kilit performans göstergeleri arasında bir ilişki tespit edilememiştir. İlişkisi tespit edilen çevresel, sosyal ve genel ilkelerin finansal olmayan kilit performans göstergelerini pozitif yönlü anlamlı düzeyde etkilediği belirlenmiştir.

**Anahtar Kelimeler:** Sürdürülebilirlik Raporu, Sürdürülebilirlik İlkeleri Uyum Çerçevesi, Finansal Olmayan Kilit Performans Göstergeleri

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#### Abstract

The study aims to determine the impact of sustainability and compliance report principles on non-financial key performance indicators. Within the scope of this purpose, the study was conducted on 75 companies in the BIST sustainability index. Sustainability compliance reports, financial reports, and annual reports of the companies for 2022 were analyzed using content analysis. The data obtained were quantified and analyzed with the SPSS package program, and correlation and regression analyses were performed. As a result of the study, relationships were found between triple-bottom-line reporting general principles, environmental principles, social principles, and non-financial key performance indicators. No relationship was found between corporate governance principles and key non-financial performance indicators. It has been determined that environmental, social, and general principles have a significant positive effect on non-financial key performance indicators.

**Keywords:** Sustainability Report, Sustainability Principles Compliance Framework, Non-Financial Key Performance Indicators

**JeI Codes:** M40, M41, M42

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## Extended Abstract

### Impact of sustainability compliance report principles on non-financial key performance indicators

#### Literature

#### Research subject

The subject of the study, sustainability, is the impact of reporting on business financial and non-financial performance.

#### Research purpose and importance

The study aims to determine the impact of sustainability and compliance report principles on non-financial key performance indicators. From the perspective of information users, financial reports only provide information on the commercial activities of enterprises. In today's world, especially investors, businesses demand non-financial information such as environmental, social, and corporate governance. Sustainability reports published by enterprises meet the demands of information users. This study aims to determine how sustainability reports, which meet the demands of information users, affect the non-financial indicators of enterprises.

#### Contribution of the article to the literature

When the literature was examined, it was determined that studies were determining the effect of sustainability principles on business performance. However, no study has been found that determines the impact of these principles on non-financial financial indicators. In this context, the study is thought to contribute to the literature in this aspect.

#### Design and method

#### Research type

The type of study is a research article.

#### Research problems

The problem of the study is whether sustainability principles affect key non-financial performance indicators of businesses.

#### Data collection method

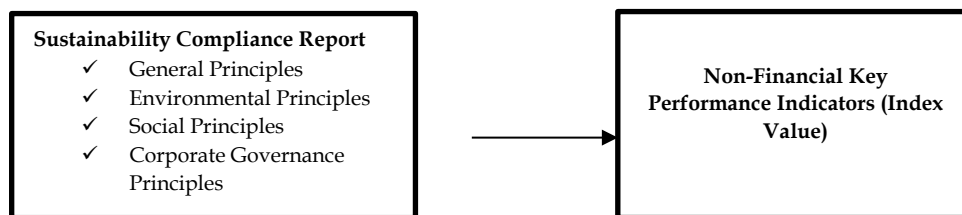
Within the scope of the purpose of the research, applications were carried out on companies traded on the BIST Sustainability Index. The companies' General, environmental, social, and corporate governance principles were analyzed through BIST Sustainability Index sustainability compliance reports. In addition, non-financial key performance indicators were obtained by analyzing companies' annual and financial reports. The content analysis technique analyzed companies' annual and financial sustainability reports in the research.

#### Quantitative/qualitative analysis

Correlation and regression analyses were carried out for the digitized data in the study.

#### Research model

The research model is shown in the section below.



#### Research hypotheses

The hypotheses formed within the framework of the research model are shown below.

H<sub>1</sub>= The general principles in the sustainability compliance report significantly positively affect companies' non-financial key performance indicators.

H<sub>2</sub>= Environmental principles in the sustainability compliance report positively and significantly affect companies' non-financial key performance indicators.

H<sub>3</sub>= Social principles in the sustainability compliance report positively and significantly affect companies' key non-financial performance indicators.

H<sub>4</sub>= Corporate governance principles in the sustainability compliance report significantly positively affect companies' key non-financial performance indicators.

#### Findings and discussion

#### Findings as a result of the analysis

According to the study's findings, the companies subject to the analysis partially comply with the principles included in the sustainability compliance reports, even at the lowest level. There is a relationship between general principles, environmental principles, social principles, and non-financial key performance indicators in sustainability principles. No relationship was found between non-financial key performance indicators and corporate governance principles. In addition, it has been determined that environmental, social, and general principles have a significant positive effect on non-financial key performance indicators.

**Hypothesis test results**

<b>HYPOTHESIS TEST RESULTS</b>	<b>Accept/Reject</b>	<b>Explain</b>
H <sub>1</sub> = The general principles in the sustainability compliance report significantly positively affect companies' non-financial key performance indicators.	Accept	Sig.(p) value is less than 0.05, positive beta value.
H <sub>2</sub> = Environmental principles in the sustainability compliance report positively and significantly affect companies' non-financial key performance indicators.	Accept	Sig.(p) value is less than 0.05, positive beta value.
H <sub>3</sub> = Social principles in the sustainability compliance report positively and significantly affect companies' key non-financial performance indicators.	Accept	Sig.(p) value is less than 0.05, positive beta value.
H <sub>4</sub> = Corporate governance principles in the sustainability compliance report significantly positively affect companies' key non-financial performance indicators.	Reject	The relationship could not be determined.

**Conclusion, recommendation, and limitations****Results of the article**

Businesses that want to gain a sustainable competitive advantage over their competitors should focus more on general, environmental, and social principles rather than corporate governance principles when sharing their non-financial information with information users. As mentioned in the previous sections, sustainability reports, which were partially made mandatory in Turkey with the communiqué published in 2020, were analyzed through the PDP.

**Suggestions based on results**

For future academic studies, it may be suggested that sustainability reports of different years be compared and the impact of these reports on financial/non-financial performance be determined.

**Limitations of the article**

When the reports of 75 companies in the BIST sustainability index are analyzed, it is seen that the companies published these reports only in 2022, so only data from 2022 could be used in this study. This situation can be considered as a limitation of the study.

## Giriş

Küreselleşmeyle birlikte artan rekabet ortamında rakiplerine karşı sürdürülebilir rekabet avantajı sağlamak isteyen işletmeler için sürdürülebilirlik muhasebesi ve raporlaması, kuruluşların günlük olarak uğraştığı en önemli konulardan biri haline gelmiştir (Lodhia ve Sharma, 2019, s. 309). Sürdürülebilirlik muhasebesi ve raporlaması, sosyal ve çevresel konuların yönetimine ve raporlanmasına verilen kurumsal bir yanıt olarak ifade edilebilir (Lodhia ve Hess, 2014, s. 43). Sürdürülebilirlik muhasebesi ve raporlaması, kurumsal itibarı korumakta ve bir kuruluşun itibar riskini yönetmek için kullanılacak stratejilerin ana hatlarını oluşturmaktadır (Hogan ve Lodhia, 2011, s. 269). 1990'lı yılların ortasında John Elkington tarafından Amerika'nın sürdürülebilir performansını ölçmek amacıyla ileri sürülen sürdürülebilirlik muhasebesi, işletme performansının "3 P" olarak adlandırılan Planet (Çevre), People (Sosyal) ve Profit (Kâr) bağlamında değerlendirilmesi gerektiğini savunmaktadır (Elkington ve Rowlands, 1999, s. 42). Başka bir ifadeyle işletmeler ve/veya sorumlu yöneticiler çeşitli uygulamaları ile insanlara, gezegenlere ve işletme kârlılığına değer katmalıdırlar (Hultberg ve Pal, 2023, s. 3). Sürdürülebilirlik muhasebesi ve raporlaması, klasik finansal bilgiler ışığında işletme performansını ölçmekten ziyade, işletmeye ait sosyal ve çevresel boyutlarında raporlama kapsamına dâhil edilmesi gerektiğini savunmaktadır (Arslan ve Kısacık, 2017, s. 25). Bir başka ifade ile sürdürülebilirlik muhasebesi ve raporlaması, işletmeler için uzun vadeli stratejik hedeflere ulaşabilmeleri ve rekabet avantajı elde edebilmeleri adına, işletmeler bağlamında ekonomik refahın yanı sıra sosyal adalet ve çevresel kaliteye de odaklanması gerektiğini savunmaktadır (Mok, vd., 2022, s. 363).

Kilit Performans Göstergeleri (KPG), kısaca işletmelerin performansını ölçen göstergeler şeklinde tanımlanabilir. KPG'ler, şirketlerin performanslarını ölçmelerinin yanı sıra aynı zamanda stratejik hedeflerine ulaşabilmeleri adına kullandıkları üst düzey göstergelerdendir. KPG'ler, performansı temsil ettiğinden dolayı genel manada finansal bir unsur olarak değerlendirilmektedir. Fakat KPG'ler, uzun vadeli stratejik hedeflere ulaşmaya yardımcı olmak için önemli bir oranda finansal olmayan göstergeleri de bünyesinde barındırmaktadır. (Cavlak, 2021, s. 81). Finansal olmayan bilgilerin doğası gereği, açıklamalar hazırlanırken yalnızca yönetmelik ve/veya yönergeler değil, aynı zamanda kurumsal diyalog yoluyla paydaş bilgi ihtiyaçlarının da dikkate alınması gerekmektedir (Hussainey ve Salama, 2010, s. 230). Günümüz şartlarında şirketlerin faaliyetleri ve performansları yatırımcılar, çalışanlar, tüketiciler, tedarikçiler ve diğer paydaşlar grupları tarafından sürekli olarak inceleme altındadır (Lehner ve Harrer, 2019, s. 365). Paydaş gruplarının çoğunluğu firmaların sürdürülebilir kalkınmaya katkılarını önemsemekte ve finansal olmayan bilgileri şirketlerden talep etmektedirler (Mio vd., 2020, s. 2466). Finansal olmayan açıklamalar, düzenlenmiş ve çeşitli tebliğlerle zorunlu kılınmış olmasına rağmen bir nebze de olsa hala şirketlerin kendi kararlarına bağlıdır. Bu bağlamda paydaş gruplarının şirketlerden talep ettiği çeşitli bilgilere finansal olmayan kilit performans göstergeleri vasıtasıyla cevap verilebileceği düşünülmektedir (Zarzycka ve Krasodomska, 2022, s. 140).

İşletmelerin sürdürülebilirliklerini sağlamaları amacıyla faaliyet sonuçlarını yani performanslarını ölçmeleri gerekmektedir. Bu ölçümün etki bir şekilde yönetilebilmesi adına önemli kriterlerden bir tanesi kilit performans göstergeleridir. KPG'ler üst düzey yöneticilere, kuruluşları hakkında nasıl performans gösterdikleri, performans ile ortaya konulan hedefler arasında uyum olup/olmadığı hususunda çeşitli bilgiler sunmayı amaçlamaktadır. KPG'ler üst düzey (tepe yönetim) ve düşük düzey (orta ve alt kademe) olarak sınıflandırılabilir. Üst düzey KPG'ler işletmenin genel performansı hususunda bilgi sunarken, düşük düzey göstergeler ise süreçlere yönelik performans değerlendirmesi gerçekleştirilmektedir.

Çalışmanın amacı, sürdürülebilirlik uyum raporu açıklamalarının finansal olmayan kilit performans göstergelerine etkisinin tespit edilmesidir. Bu amaç kapsamında BİST Sürdürülebilirlik Endeksi'nde işlem gören 75 şirket üzerine araştırma gerçekleştirilmiştir. Türkiye'de 02.10.2020 tarihli 31262 sayılı Resmî Gazete'de yayımlanan Kurumsal Yönetim Tebliği'ne göre, halka açık şirketlerin yıllık faaliyet raporlarına ek olarak "Sürdürülebilirlik İlkeleri Uyum Çerçevesi" kapsamında sürdürülebilirlik uyum raporu yayınlaması gerektiği belirtilmiştir. Tebliğde, halka açık şirketlerin çevresel, sosyal ve kurumsal yönetim ilkelere ait bilgileri "uy ya da açıkla" prensibiyle (kısmen zorunluluk haline getirilerek) bilgi kullanıcıları ile paylaşması gerektiği belirtilmiştir. Sürdürülebilirlik İlkeleri Uyum Raporu'nun amacı; borsada işlem gören şirketlerin çevresel, sosyal ve kurumsal yönetim konusundaki farkındalığını artırmak, borsada sürdürülebilirlik endeksi oluşturmak ve yatırımcılara yönelik çeşitli bilgiler sunarak bu bağlamda ürünler geliştirilmesini sağlamaktır. Literatür incelendiğinde sürdürülebilirlik uyum raporu ile finansal olmayan göstergeler bağlamında çalışmanın olmaması bu çalışmanın önemini ortaya koymakla birlikte literatürde yer alan boşluğun da dolduracağı düşünülmektedir.

## Literatür taraması

Sürdürülebilirlik uyum raporu ve sürdürülebilirlik raporları çerçevesinde ulusal ve uluslararası yayınlara yönelik literatür taraması aşağıdaki kısımda gösterilmektedir.

Apak (2023) çalışmasında, sürdürülebilirlik uyum raporunda yer alan çevresel ilkelerin, şirketlerin finansal performansına olan etkisini tespit etmeyi amaçlamıştır. Çalışmanın sonucunda, çevresel ilkelerin şirketlerin finansal performansını anlamlı düzeyde pozitif yönlü etkilediği tespit edilmiştir.

Koçyiğit vd. (2023) çalışmasında, sürdürülebilirlik ilkeleri uyum çerçevesinde açıklanması öngörülen bilgilerin, şirketlerin sürdürülebilirlik raporlarında yeterli seviyede açıklanıp/açıklanmadığının tespit edilmesi amaçlanmıştır. Çalışmanın sonucunda, sürdürülebilirlik endeksinde yer alan şirketlerin sürdürülebilirlik raporlarının yeterli seviyede açıklandığı ve uygulandığı tespit edilmiştir.

Açıköz (2022) çalışmasında, sürdürülebilirlik raporlarının firmaların piyasa performansına olan etkisinin tespit edilmesi amaçlanmıştır. Çalışmanın sonucunda, sürdürülebilirlik raporlarının piyasa performansı hususunda firmalara herhangi bir avantaj sağlamadığı tespit edilmiştir.

Alpay ve Varıcı (2022) çalışmasında, sürdürülebilirlik raporlarının, şirketlerin kazanç yönetimi üzerindeki etkisini tespit etmeyi amaçlamışlardır. Çalışmanın sonucunda, çevresel ilkeler ile kazanç yönetimi arasında negatif yönlü bir ilişki tespit edilmiştir.

Amosun vd. (2022) çalışmasında, sosyal ve çevresel muhasebe olarak da adlandırılabilen sürdürülebilirlik raporlarının, işletme performansı üzerindeki etkisini tespit etmeyi amaçlamışlardır. Çalışmanın sonucunda, sürdürülebilirlik raporlarının işletme performansını anlamlı düzeyde pozitif yönlü etkilediği tespit edilmiştir.

Emir ve Kıymık (2021) çalışmasında, Borsa İstanbul'da metal eşya, makine endeksinde yer alan şirketlerin sürdürülebilirlik düzeyleri ile işletme performansı arasındaki ilişkiyi tespit etmeyi amaçlamışlardır. Çalışmanın sonucunda, sürdürülebilirlik düzeyinin şirketlerin finansal performansını anlamlı düzeyde pozitif yönlü etkilediği tespit edilmiştir.

Olatunji ve Olaoye (2021) çalışmasında, bankacılık sektöründe faaliyetlerini sürdüren şirketlerin sürdürülebilirlik raporlarının, şirketlerin finansal performansına olan etkisini tespit etmeyi amaçlamışlardır. Çalışmanın sonucunda, sürdürülebilirlik raporlarının bankaların finansal performansını anlamlı düzeyde pozitif yönlü etkilediği tespit edilmiştir.

Güngör (2019) çalışmasında, BİST 100 endeksinde yer alan şirketlerin sürdürülebilirlik faaliyetleri ile firma değerleri arasındaki ilişkiyi tespit etmeyi amaçlamıştır. Çalışmanın sonucunda, şirketlerin sürdürülebilirlik faaliyetleri ile firma değeri arasında bir ilişki tespit edilememiştir.

Süklüm ve Hiçyorulmaz (2019) çalışmasında, sürdürülebilirlik endeksinde yer alan şirketlerin sürdürülebilirlik raporlarının teorik olarak incelenmesi amaçlanmıştır. Çalışmanın sonucunda, şirketlerin sürdürülebilirlik raporlarında özellikle çevresel konularda yeterli bilgileri yeterli seviyede açıkladığı tespit edilmiştir.

Düzer ve Önce (2018) çalışmasında, şirketlerin sürdürülebilirlik düzeyleri ile işletme performansı arasındaki ilişkinin tespit edilmesi amaçlanmıştır. Çalışmanın sonucunda, şirketlerin sürdürülebilirlik düzeylerinin işletme performansı üzerinde anlamlı düzeyde pozitif yönlü bir etkisinin olduğu tespit edilmiştir.

Hourneaux vd. (2018) çalışmasında, sürdürülebilirlik raporlarının işletme performansına olan etkisini tespit etmeyi amaçlamışlardır. Çalışmanın sonucunda sürdürülebilirlik raporlarının işletme performansını anlamlı düzeyde pozitif yönlü etkilediği tespit edilmiştir.

Özkan vd. (2018) çalışmasında, sürdürülebilirlik raporları kapsamında yapılan açıklamaların işletme karlılığına olan etkisinin tespit edilmesi amaçlanmıştır. Çalışmanın sonucunda, çevresel ve sosyal ilkelerin işletme karlılığını anlamlı düzeyde pozitif yönlü etkilediği tespit edilmiştir.

Literatür taraması incelendiğinde, sürdürülebilirlik raporları ile yapılan çalışmaların teorik çalışmalar ve/veya sürdürülebilirlik raporlarının işletme performansına olan etkisini tespit etmeye yönelik çalışmalar olduğu belirlenmiştir. Bu çalışma ile sürdürülebilirlik uyum raporları ilkelerinin işletmelerin finansal olmayan performansına olan etkisinin tespit edilmesi amaçlanmıştır. Bu bağlamda literatürde bu kapsamda bir çalışmanın olmaması hem çalışmanın önemini ortaya koymakta hem de literatürde yer alan bu boşluğu dolduracağı düşünülmektedir.

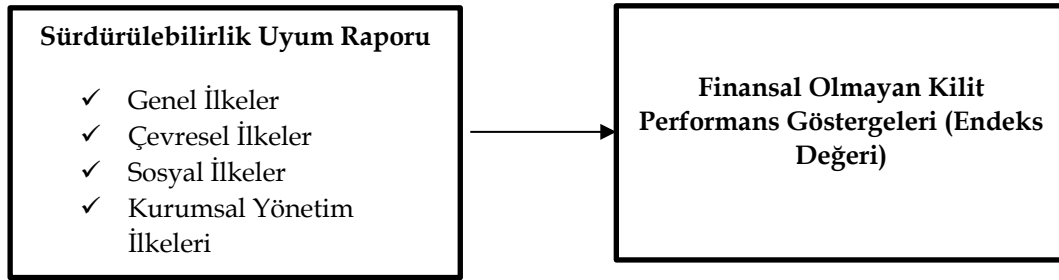
## Araştırmanın metodolojisi

### Araştırmanın amacı ve yöntemi

Araştırmanın amacı, sürdürülebilirlik uyum raporu açıklamalarının finansal olmayan kilit performans göstergelerine etkisinin tespit edilmesidir. Araştırmanın amacı kapsamında BİST Sürdürülebilirlik Endeksinde işlem gören şirketler üzerine uygulamalar gerçekleştirilmiştir. BİST Sürdürülebilirlik Endeksi sürdürülebilirlik uyum raporları vasıtasıyla şirketlerin genel ilkeleri, çevresel ilkeleri, sosyal ilkeleri ve kurumsal yönetim ilkeleri incelenmiştir. Ayrıca finansal olmayan kilit performans göstergeleri ise şirketlerin faaliyet ve finansal raporları analiz edilerek elde edilmiştir. Araştırmada, şirketlerin sürdürülebilirlik, faaliyet ve finansal raporları içerik analizi tekniği ile incelemeye tabii tutulmuştur.

### Araştırmanın modeli ve hipotezleri

Araştırmanın modeli Şekil 1’de gösterilmiştir.



### Şekil 1: Araştırmanın Modeli

Araştırmanın modeli çerçevesinde oluşturulan hipotezler aşağıda gösterilmiştir.

**H<sub>1</sub>:** Sürdürülebilirlik uyum raporunda yer alan genel ilkeler, şirketlerin finansal olmayan kilit performans göstergelerini anlamlı düzeyde pozitif yönlü etkiler.

**H<sub>2</sub>:** Sürdürülebilirlik uyum raporunda yer alan çevresel ilkeler, şirketlerin finansal olmayan kilit performans göstergelerini anlamlı düzeyde pozitif yönlü etkiler.

**H<sub>3</sub>:** Sürdürülebilirlik uyum raporunda yer alan sosyal ilkeler, şirketlerin finansal olmayan kilit performans göstergelerini anlamlı düzeyde pozitif yönlü etkiler.

**H<sub>4</sub>:** Sürdürülebilirlik uyum raporunda yer alan kurumsal yönetim ilkeleri, şirketlerin finansal olmayan kilit performans göstergelerini anlamlı düzeyde pozitif yönlü etkiler.

### Veri toplama aracı

Araştırma kapsamında, sürdürülebilirlik endeksinde yer alan 75 şirket üzerine uygulamalar gerçekleştirilmiştir. Şirketlerin sürdürülebilirlik, faaliyet ve finansal raporlarına Kamuyu Aydınlatma Platformu (KAP) vasıtasıyla ulaşılmıştır. Sürdürülebilirlik ilkeleri Uyum Çerçevesi 2020 yılında yayımlanan tebliğ ile şirketler için “uy ya da açıkla” prensibiyle zorunluluk haline getirilmiştir. Yayımlanan bu güncel tebliğ ile şirketler, sürdürülebilirlik raporlarını yayımlamaya başlamış fakat KAP’da sadece 2022 yılına ait sürdürülebilirlik raporlarının açıklandığı tespit edilmiştir. Bu bağlamda çalışmada sadece 2022 yılı verileri kullanılabilmiştir. Finansal olmayan kilit performans göstergeleri endeks değeri ise, şirketlerin 2022 yılına ait faaliyet ve finansal raporlarına ulaşılarak elde edilmiştir.

### Verilerin analizi

Sermaye Piyasası Kurulu tarafından belirlenen şablon çerçevesinde, şirketlerin “uy ya da açıkla” prensibiyle kamuya paylaştığı bilgilerin, evet için “3”, kısmen için “2”, hayır için “1, ilgisiz için “0” puan verilerek verilerin sayısallaştırma işlemi gerçekleştirilmiştir. Sermaye Piyasası Kurulu tarafından belirlenen format çerçevesinde Sürdürülebilirlik Uyum Raporu Tablo 1’de gösterilmektedir.

Tablo 1: Sürdürülebilirlik Uyum Raporu

A. Genel İlkeler		Evvet	Hayır	Kısmen	İlgisiz	Açıklama
A1. Strateji, Politika ve Hedefler						
A1.1	Ortaklık yönetim kurulu tarafından öncelikli çevresel, sosyal ve kurumsal yönetim (ÇSY) konuları, riskleri ve fırsatları belirlenmiştir.					
A1.2	Ortaklık yönetim kurulu tarafından ÇSY politikaları (Örn: Çevre Politikası, Enerji Politikası, İnsan Hakları ve Çalışan Politikası vb.) oluşturulmuş ve kamuya açıklanmıştır.					
A1.2	ÇSY politikaları kapsamında belirlenen kısa ve uzun vadeli hedefler kamuya açıklanmıştır.					
A2. Uygulama/İzleme						
A2.1	ÇSY politikalarının yürütülmesinden sorumlu komiteler ve/veya birimler ile ÇSY konularıyla ilgili ortaklıktaki en üst düzey sorumlular ve görevleri belirlenerek kamuya açıklanmıştır.					
A2.1	Sorumlu komite ve/veya birim tarafından, politikalar kapsamında gerçekleştirilen faaliyetler yıl içinde en az bir kez yönetim kuruluna raporlanmıştır.					
A2.2	ÇSY hedefleri doğrultusunda uygulama ve eylem planları oluşturulmuş ve kamuya açıklanmıştır.					
A2.3	ÇSY Kilit Performans Göstergeleri (KPG) ile söz konusu göstergelere yıllar bazında ulaşma düzeyi kamuya açıklanmıştır.					
A2.4	İş süreçlerine veya ürün ve hizmetlere yönelik sürdürülebilirlik performansını iyileştirici faaliyetler kamuya açıklanmıştır.					
A3. Raporlama						
A3.1	Faaliyet raporlarında ortaklığın sürdürülebilirlik performansına, hedeflerine ve eylemlerine ilişkin bilgi anlaşılabilir, doğru ve yeterli bir şekilde verilmiştir.					
A3.2	Ortaklık tarafından, faaliyetlerinin Birleşmiş Milletler (BM) 2030 Sürdürülebilir Kalkınma Amaçlarından hangileri ile ilişkili olduğuna ilişkin bilgi kamuya açıklanmıştır.					
A3.3	ÇSY konularında aleyhte açılan ve/veya sonuçlanan, ÇSY politikaları açısından önemli nitelikteki ve/veya faaliyetleri önemli ölçüde etkileyecek davalar kamuya açıklanmıştır.					
A4. Doğrulama						
A4.1	Ortaklığın ÇSY Kilit Performans ölçümleri bağımsız üçüncü tarafça doğrulanmış ve kamuya açıklanmıştır.					
B. Çevresel İlkeler						
B1	Ortaklık, çevre yönetimi alanındaki politika ve uygulamalarını, eylem planlarını, çevresel yönetim sistemlerini (ISO 14001 standardı ile bilinmektedir) ve programlarını kamuya açıklamıştır.					
B2	Çevre yönetimine ilişkin bilgilerin verilmesinde hazırlanan çevresel raporlara ilişkin olarak raporun kapsamı, raporlama dönemi, raporlama tarihi, raporlama koşulları ile ilgili kısıtlar kamuya açıklanmıştır.					
B3	A2.1'de verilmiştir.					
B4	Menfaat sahipleri (Yönetim kurulu üyeleri, yöneticiler ve çalışanlar gibi) bazında performans teşvik sistemleri kapsamında ödüllendirme kriterlerine dahil edilen çevresel hedefler kamuya açıklanmıştır.					
B5	Öncelikli olarak belirlenen çevresel sorunların iş hedeflerine ve stratejilerine nasıl entegre edildiği kamuya açıklanmıştır.					
B6	A2.4'te verilmiştir.					
B7	Operasyon süreci dahil ortaklık değer zinciri boyunca tedarikçi ve müşterileri de kapsayacak şekilde çevresel konuların nasıl yönetildiği, iş hedeflerine ve stratejilere nasıl entegre edildiği kamuya açıklanmıştır.					
B8	Çevre konusunda ilgili kuruluşlar ve sivil toplum kuruluşlarının politika oluşturma süreçlerine dahil olup olunmadığı ve bu kurum ve kuruluşlarla yapılan iş birlikleri kamuya açıklanmıştır.					
B9	Çevresel göstergeler (Sera gazı emisyonları (Kapsam-1 (Doğrudan), Kapsam-2 (Enerji dolaylı), Kapsam-3 (Diğer dolaylı), hava kalitesi, enerji yönetimi, su ve atık su yönetimi, atık yönetimi, biyoçeşitlilik etkileri) ışığında çevresel etkileri ile ilgili bilgileri dönemsel olarak karşılaştırılabilir bir şekilde kamuya açıklanmıştır.					
B10	Verileri toplamak ve hesaplamak için kullanılan standart, protokol, metodoloji ve baz yıl ayrıntıları kamuya açıklanmıştır.					
B11	Önceki yıllarla karşılaştırmalı olarak rapor yılı için çevresel göstergelerinin artış veya azalışı kamuya açıklanmıştır.					
B12	Çevresel etkilerini azaltmak için kısa ve uzun vadeli hedefler belirlenmiş, bu hedefler ve geçmiş yıllarda belirlenen hedeflere göre ilerleme durumu kamuya açıklanmıştır.					
B13	İklim krizi ile mücadele stratejisi oluşturulmuş ve planlanan eylemler kamuya açıklanmıştır.					
B14	Ürünler ve/veya hizmetlerin çevreye potansiyel olumsuz etkisini önlemek veya bu etkileri minimuma indirmek amacıyla program ya da prosedürler oluşturulmuş ve kamuya açıklanmıştır.					
B14	Üçüncü tarafların (örn. tedarikçi, alt yüklenici, bayi vb.) sera gazı emisyon miktarlarında azaltım sağlamaya yönelik aksiyonlar alınmış ve bu aksiyonlar kamuya açıklanmıştır.					

B15	Çevresel etkileri azaltmaya yönelik girişim ve projelerin sağladığı çevresel fayda/kazanç ve maliyet tasarrufları kamuya açıklanmıştır.				
B16	Enerji tüketimi (doğal gaz, motorin, benzin, LPG, kömür, elektrik, ısıtma, soğutma vb.) verileri Kapsam-1 ve Kapsam-2 olarak kamuya açıklanmıştır.				
B17	Raporlama yılında üretilen elektrik, ısı, buhar ve soğutma hakkında kamuya açıklama yapılmıştır.				
B18	Yenilenebilir enerji kullanımının artırılması, sıfır veya düşük karbonlu elektriğe geçiş konusunda çalışmalar yapılmış ve kamuya açıklanmıştır.				
B19	Yenilenebilir enerji üretim ve kullanım verileri kamuya açıklanmıştır.				
B20	Enerji verimliliği projeleri yapılmış ve enerji verimliliği projeleri sayesinde elde edilen enerji tüketim ve emisyon azaltım miktarı kamuya açıklanmıştır.				
B21	Su tüketimi, varsa yer altından veya yer üstünden çekilen, geri dönüştürülen ve deşarj edilen su miktarları, kaynakları ve prosedürleri kamuya açıklanmıştır.				
B22	Operasyonlar veya faaliyetlerinin herhangi bir karbon fiyatlandırma sistemine (Emisyon Ticaret Sistemi, Cap & Trade veya Karbon Vergisi) dâhil olup olmadığı kamuya açıklanmıştır.				
B23	Raporlama döneminde biriken veya satın alınan karbon kredisi bilgisi kamuya açıklanmıştır.				
B24	Ortaklık içerisinde karbon fiyatlandırması uygulanıyor ise ayrıntıları kamuya açıklanmıştır.				
B25	Ortaklığın çevresel bilgilerini açıkladığı platformlar kamuya açıklanmıştır.				
<b>C. Sosyal İlkeler</b>					
<b>C1. İnsan Hakları ve Çalışan Hakları</b>					
C1.1	İnsan Hakları Evrensel Beyannamesi, Türkiye'nin onayladığı ILO Sözleşmeleri ve diğer ilgili mevzuatı kapsayacak şekilde Kurumsal İnsan Hakları ve Çalışan Hakları Politikası oluşturulmuş, politikanın uygulanmasıyla ilgili sorumlular belirlenmiş ve politika ile sorumlular kamuya açıklanmıştır.				
C1.2	Tedarik ve değer zinciri etkileri de gözetilerek adil iş gücü, çalışma standartlarının iyileştirilmesi, kadın istihdamı ve kapsayıcılık konularına (cinsiyet, ırk, din, dil, medeni durum, etnik kimlik, cinsel yönelim, cinsiyet kimliği, ailevi sorumluluklar, sendikal faaliyetler, siyasi görüş, engellilik, sosyal ve kültürel farklılıklar vb. konularda ayırım yapılmaması gibi) çalışan haklarına ilişkin politikasında yer verilmiştir.				
C1.3	Belirli ekonomik, çevresel, toplumsal faktörlere duyarlı kesimlerin (düşük gelirli kesimler, kadınlar vb.) veya azınlık haklarının/fırsat eşitliğinin gözetilmesi konusunda değer zinciri boyunca alınan önlemler kamuya açıklanmıştır.				
C1.4	Ayrımcılığı, eşitsizliği, insan hakları ihlallerini, zorla çalıştırmayı ve çocuk işçi çalıştırılmasını önleyici ve düzeltici uygulamalara ilişkin gelişmeler kamuya açıklanmıştır.				
C1.5	Çalışanlara yapılan yatırım (eğitim, gelişim politikaları), tazminat, tanınan yan haklar, sendikalaşma hakkı, iş/hayat dengesi çözümleri ve yetenek yönetim konularına çalışan haklarına ilişkin politikasında yer verilmiştir.				
	Çalışan şikâyetleri ve anlaşmazlıkların çözümüne ilişkin mekanizmalar oluşturularak uyumsuzluk çözüm süreçleri belirlenmiştir.				
	Çalışan memnuniyetinin sağlanmasına yönelik olarak raporlanan dönem içinde yapılan faaliyetler kamuya açıklanmıştır.				
C1.6	İş sağlığı ve güvenliği politikaları oluşturulmuş ve kamuya açıklanmıştır.				
	İş kazalarını önleme ve sağlığın korunması amacıyla alınan önlemler ve kaza istatistikleri kamuya açıklanmıştır.				
C1.7	Kişisel verilerin korunması ve veri güvenliği politikaları oluşturulmuş ve kamuya açıklanmıştır.				
C1.8	Etik politikası oluşturulmuş ve kamuya açıklanmıştır				
C1.9					
C1.10	Çalışanlara ÇSY politikaları ve uygulamaları konusunda bilgilendirme toplantıları ve eğitim programları düzenlenmiştir.				
<b>C2. Paydaşlar, Uluslararası Standartlar ve İnisiyatifler</b>					
C2.1	Müşteri şikâyetlerinin yönetimi ve çözümüne ilişkin müşteri memnuniyeti politikası düzenlenmiş ve kamuya açıklanmıştır.				
C2.2	Paydaşlarla yürütülen iletişim (hangi paydaş, konu ve sıklık) hakkında bilgiler kamuya açıklanmıştır.				
C2.3	Raporlamalarda benimsenen uluslararası raporlama standartları açıklanmıştır.				
C2.4	Sürdürülebilirlik ile ilgili benimsenen prensipler, imzacı veya üye olunan uluslararası kuruluş, komite ve ilkeler kamuya açıklanmıştır.				
C2.5	Borsa İstanbul'un ve/veya uluslararası endeks sağlayıcıların sürdürülebilirlik endekslerinde yer almak için geliştirmelerde bulunulmuş, çalışmalar yürütülmüştür.				
<b>D. Kurumsal Yönetim İlkeleri</b>					
D1	Sürdürülebilirlik alanındaki tedbirler ve stratejilerin belirlenmesinde menfaat sahiplerinin görüşlerine başvurulmuştur.				
D2	Sosyal sorumluluk projeleri, farkındalık etkinlikleri ve eğitimler ile sürdürülebilirlik konusu ve bunun önemi hakkında farkındalığın artırılması konusunda çalışmalar yapılmıştır.				

**Kaynak:** (Sermaye Piyasası Kurulu, 2024)



Tablo 1 incelendiğinde, sürdürülebilirlik uyum raporu temelde 4 ilkeden oluşmaktadır. Bu ilkeler; genel ilkeler, çevresel ilkeler, sosyal ilkeler ve kurumsal yönetim ilkeleri olarak sınıflandırılmıştır. Genel ilkeler; işletmelere yönelik strateji, politika, hedef, uygulama ve raporlama olarak belirlenmiştir. Çevresel ilkeler, işletmelere yönelik çevresel hedefler, stratejiler ve kısaca çevresel uygulamalar hakkında bilgi sunmaktadır. Sosyal ilkeler, işletmelere yönelik insan hakları, çalışan hakları ve paydaşlar hakkında bilgi sunmaktadır. Kurumsal yönetim ilkeleri ise, işletmelerin yönetim faaliyetleri hususunda çeşitli bilgiler sunmaktadır.

Finansal olmayan kilit performans göstergeleri endeks değeri için Zarzycka ve Krasodomska (2022) çalışmasında kullandığı doğrusal regresyon analizinden yararlanılmıştır. Zarzycka ve Krasodomska (2022) çalışmasında endeks değerine ulaşabilmek amacıyla aşağıda yer alan modeli kullanmışlardır.

$$ENDEKS = bo + b1\text{Çalışanlar} + b2\text{Çevre} + b3\text{Müşteri} + b4\text{Yatırım} + b5\text{Raporlama Standartları} + b6\text{Finansal Olmayan Raporlama Deneyimi} + b7\text{Ödeme Gücü} + b8\text{Net Kar Marjı} + b9\text{Büyüklik}$$

Zarzycka ve Krasodomska (2022) çalışmasında; Endeks değeri bağımlı değişken iken; çalışanlar, çevre, müşteri, yatırım, raporlama standartları, finansal olmayan raporlama deneyimi bağımsız değişken; ödeme gücü, net kar marjı ve büyüklik ise kontrol değişkenleridir. Endeks değerine ulaşabilmesi amacıyla yapılan puanlama sistemi Tablo 2’de gösterilmiştir.

**Tablo 2:** Finansal Olmayan Kilit Performans Endeks Değeri

Değişkenler	Puanlama Sistemi	Raporlar
Çalışanlar	Çalışanlar ile ilgili bilgi varsa “1 puan”, yoksa “0 puan”	Faaliyet Raporları
Çevre	Çevre ile ilgili bilgi varsa “1 puan”, yoksa “0 puan”	Faaliyet Raporları
Müşteriler	Müşteriler ile ilgili bilgi varsa “1 puan”, yoksa “0 puan”	Faaliyet Raporları
Yatırımlar	Yatırımlar ile ilgili bilgi varsa “1 puan”, yoksa “0 puan”	Faaliyet Raporları
Raporlama Standartları	Raporlama Standartları kullanılıyorsa “1 puan”, kullanılmıyorsa “0 puan”	Finansal Raporlar
Finansal Olmayan Raporlama Deneyimi	Finansal olmayan raporlama kullanılıyorsa “1 puan”, kullanılmıyorsa “0 puan”	Finansal ve Faaliyet Raporları
Ödeme Gücü	Toplam Borç/ Toplam Varlık	Finansal Raporlar
Net Kar Marjı	Net Kar/ Net Satışlar	Finansal Raporlar
Büyüklik	Toplam Varlıkların Logaritması	Finansal Raporlar

Kamu Aydınlatma Platformu Sürdürülebilirlik Endeksi’nde yer alan şirket sayısı 80’dir. Sürdürülebilirlik uyum raporuna ulaşamayan şirketler analiz dışında bırakılmış ve 75 şirket üzerinden çalışma gerçekleştirilmiştir. Analize tabii tutulan şirketlerin listesi Ek 1’de gösterilmiştir.

## Araştırmanın bulguları

Kamu Aydınlatma Platformu Sürdürülebilirlik Uyum Raporu vasıtasıyla elde edilen genel ilkelere ait skorlara yönelik frekans dağılımı Tablo 3’de gösterilmektedir.

**Tablo 3:** Genel İlkelere Ait Skorlara Yönelik Frekans Dağılımı

Genel İlkeler Skorları	Frekans	Yüzde	Genel İlkeler Skorları	Frekans	Yüzde
1,50	1	1,3	2,67	11	14,7
2,17	3	4,0	2,75	7	9,3
2,25	1	1,3	2,83	9	12,0
2,33	2	2,7	2,92	11	14,7
2,50	1	1,3	3,00	26	34,7
2,58	3	4,0	<b>Toplam</b>	<b>75</b>	<b>100,0</b>

Tablo 3 incelendiğinde, analize tabii tutulan şirketlerin %34,7’si 3,00 skor ile sürdürülebilirlik uyum raporu genel ilkelere tam uyum sağladığı tespit edilmiştir. Bu şirketleri sırasıyla %14,7 ile 2,92 skora sahip işletmeler ve yine %14,7 ile 2,67 skora sahip işletmeler takip etmektedir. Sürdürülebilirlik uyum raporu genel ilkelere uyum skoru en düşük olan işletmenin skorunun ise 1,50 olduğu belirlenmiştir. Genel ilkelere ait skorlara yönelik genel bir değerlendirme yapıldığında ise, skorların genel itibariyle 2’nin üstünde olduğu, bu bağlamda işletmelerin sürdürülebilirlik uyum raporu genel ilkelere en düşük seviyede bile “kısmen” uyum sağladığı söylenebilir.

Kamu Aydınlatma Platformu Sürdürülebilirlik Uyum Raporu vasıtasıyla elde edilen çevresel ilkelere ait skorlara yönelik frekans dağılımı Tablo 4’de gösterilmektedir.

**Tablo 4:** Çevresel İlkeler Ait Skorlara Yönelik Frekans Dağılımı

Çevresel İlkeler Skorları	Frekans	Yüzde	Çevresel İlkeler Skorları	Frekans	Yüzde
1,50	1	1,3	2,46	3	4,0
1,83	2	2,7	2,50	4	5,3
1,88	1	1,3	2,54	2	2,7
1,92	1	1,3	2,58	6	8,0
2,08	2	2,7	2,63	8	10,7
2,17	1	1,3	2,67	2	2,7
2,25	1	1,3	2,71	7	9,3
2,29	1	1,3	2,75	2	2,7
2,33	8	10,7	2,88	3	4,0
2,38	2	2,7	2,96	4	5,3
2,42	3	4,0	3,00	11	14,7
<b>Toplam</b>				<b>75</b>	<b>100,0</b>

Tablo 4 incelendiğinde, araştırmaya katılan şirketlerin %14,7'sinin çevresel ilkelere ait skorlarının 3,00 olduğu tespit edilmiştir. Başka bir ifadeyle 11 şirket çevresel ilkelere tam uyum sağladığını belirlenmiştir. Bu şirketleri sırasıyla %10,7 ile 2,63 ve 2,33 skorlara sahip işletmeler takip etmektedir. En düşük çevresel ilke skoruna sahip şirketin skoru ise 1,50'dir. Çevresel ilkelere yönelik genel bir değerlendirme yapıldığında ise, araştırmaya katılan şirketlerin çoğunluğunun skorunun 2'den yüksek olduğu, bu durumun ise şirketlerin çevresel ilkelere en düşük seviyede bile kısmen uyum sağladığı ifade ettiği söylenebilir.

Kamu Aydınlatma Platformu Sürdürülebilirlik Uyum Raporu vasıtasıyla elde edilen sosyal ilkelere ait skorlara yönelik frekans dağılımı Tablo 5'de gösterilmektedir.

**Tablo 5:** Sosyal İlkeler Ait Skorlara Yönelik Frekans Dağılımı

Sosyal İlkeler Skorları	Frekans	Yüzde	Sosyal İlkeler Skorları	Frekans	Yüzde
1,88	1	1,3	2,65	2	2,7
2,06	1	1,3	2,71	1	1,3
2,35	1	1,3	2,76	2	2,7
2,41	1	1,3	2,82	5	6,7
2,47	2	2,7	2,88	8	10,7
2,53	1	1,3	2,94	8	10,7
2,59	1	1,3	3,00	41	54,7
<b>Toplam</b>				<b>75</b>	<b>100,0</b>

Tablo 5 incelendiğinde, araştırmaya katılan şirketlerin %54,7'sinin sosyal ilkelere ait skorlarının 3,00 olduğu belirlenmiş dolayısıyla bu şirketlerin sosyal ilkelere tam uyum sağladıkları tespit edilmiştir. Bu şirketleri sırasıyla %10,7 ile 2,94 ve 2,88 sosyal ilke skoruna sahip işletmeler takip etmektedir. En düşük sosyal ilke skoruna sahip şirketin skoru ise 1,88'dir. Sosyal ilkelere ait skorlara yönelik genel yorum yapıldığında ise, şirketlerin %54,7 sinin tam uyum sağladığı geriye kalan şirketlerin skorlarının ise genel itibarıyla 2'nin üstünde olduğu tespit edilmiştir. Bu bağlamda şirketler sosyal ilkelere en düşük seviyede bile kısmen uyum sağladıkları söylenebilir.

Kamu Aydınlatma Platformu Sürdürülebilirlik Uyum Raporu vasıtasıyla elde edilen kurumsal yönetim ilkelere ait skorlara yönelik frekans dağılımı Tablo 6'da gösterilmektedir.

**Tablo 6:** Kurumsal Yönetim İlkelerine Ait Skorlara Yönelik Frekans Dağılımı

Kurumsal Yönetim İlkeleri Skorları	Frekans	Yüzde	Kurumsal Yönetim İlkeleri Skorları	Frekans	Yüzde
2,00	8	10,7	3,00	64	85,3
2,50	3	4,0	<b>Toplam</b>	<b>75</b>	<b>100</b>

Tablo 6 incelendiğinde, araştırmaya katılan şirketlerin %85,3'nün 3,00 ortalama ile kurumsal yönetim ilkelere ait skorlara sahip olduğu tespit edilmiştir. Bu bağlamda şirketlerin büyük bir çoğunluğunun kurumsal yönetim ilkelere tam uyum sağladığı söylenebilir.

Araştırma değişkenlerine yönelik tanımlayıcı istatistik bilgileri Tablo 7'de gösterilmiştir.

**Tablo 7:** Değişkenlere Yönelik Tanımlayıcı İstatistik Bilgileri

Değişkenler	En Düşük	En Yüksek	Ortalama	Standart Sapma
Genel İlkeler	1,50	3,00	2,7911	0,26684
Çevresel İlkeler	1,50	3,00	2,5694	0,32401
Sosyal İlkeler	1,88	3,00	2,8800	0,21784
Kurumsal Yönetim İlkeleri	2,00	3,00	2,8733	0,31935
Finansal Olmayan Kilit Performans Endeksi	1,39	2,42	1,7979	0,24296

Tablo 7 incelendiğinde, sürdürülebilirlik uyum raporu ilkelerinin ortalamalarının 2'nin üstünde olduğu belirlenmiştir. Daha önceki frekans dağılımı kısmında da bahsedildiği gibi analize katılan şirketlerin, sürdürülebilirlik uyum raporlarına en düşük seviye kısmen uyum sağladığı ve çoğunlukla tam uyum sağladıkları söylenebilir. En yüksek ortalamaya sosyal ilkeler sahipken, bu ilkeyi kurumsal yönetim ilkeleri, genel ilkeler ve çevresel ilkeler takip etmektedir. Ayrıca yine Tablo 7'de görüldüğü gibi şirketlerin finansal olmayan kilit performans endeks değerlerinin ortalamasının 1,79 olduğu belirlenmiştir. Analize tabii şirketlerin sürdürülebilirlik uyum raporlarında yer alan ilkelere en alt seviyede bile kısmen uyum sağladığı belirlenmiştir.

Araştırmanın analiz aşamasına geçilmeden önce elde edilen verilerin güvenilirliğini tespit edebilmek adına Cronbach's Alpha değeri ve bu verilerin normal dağılıp/dağılmadığını tespit edebilmek adına Çarpıklık-Basıklık değerleri Tablo 8'de gösterilmiştir.

**Tablo 8:** Değişkenlere Yönelik Güvenilirlik ve Çarpıklık-Basıklık Değerleri

Değişkenler	Cronbach's Alpha	Çarpıklık	Basıklık
Sürdürülebilirlik Uyum Raporu İlkeleri	0,866	-0,770	0,856
Finansal Olmayan Kilit Performans Göstergeleri Endeksi	0,884	0,316	-0,359

Tablo 8 incelendiğinde, Cronbach's Alpha değerleri 0,866 ve 0,884 olarak tespit edilmiştir. Cronbach's Alpha değerinin 0,80'den yüksek çıkması durumunda elde edilen verilerin güvenilir olduğu ve analiz aşamasına geçilebileceği belirtilmiştir (Kılıç, 2016: 47). Çarpıklık-Basıklık değerinin ise -1,00 ile +1,00 arasında olması durumunda verilerin normal dağılıma sahip olduğu belirtilmiştir (Cevahir, 2020). Tablo 8 incelendiğinde değişkenlere yönelik çarpıklık-basıklık değerlerinin belirlenen aralıkta yer aldığı ve verilerin normal dağılıma sahip olduğu tespit edilmiştir.

Araştırmanın amacı kapsamında değişkenlere yönelik korelasyon analizi gerçekleştirilmiştir. Korelasyon analizi sonuçları Tablo 9'da gösterilmiştir.

**Tablo 9:** Değişkenlere Yönelik Korelasyon Analizi

	1	2	3	4	5	
1. Genel İlkeler	r	1				
	p					
2. Çevresel İlkeler	r	0,753**	1			
	p	0,000				
3. Sosyal İlkeler	r	0,740**	0,572**	1		
	p	0,000	0,000			
4. Kurumsal Yönetim İlkeleri	r	0,650**	0,473**	0,704**	1	
	p	0,000	0,000	0,000		
5. Finansal Olmayan Kilit Performans Göstergeleri Endeksi	r	0,465**	0,318**	0,444**	0,198	1
	p	0,000	0,005	0,000	0,089	

Tablo 9 incelendiğinde, sürdürülebilirlik uyum raporu genel ilkeleri ile çevresel, sosyal, kurumsal yönetim ilkeleri ve finansal olmayan kilit performans göstergeleri endeksi arasında p değerlerinin 0,05'den düşük çıkması nedeniyle ilişki olduğu tespit edilmiştir. Benzer şekilde çevresel ilkeler ile sosyal, kurumsal yönetim ilkeleri ve finansal olmayan kilit performans göstergeleri endeksi ilişki olduğu belirlenmiştir. Sosyal ilkeler ile kurumsal yönetim ilkeleri ve finansal olmayan kilit performans göstergeleri arasında ilişki olduğu tespit edilmiştir. Buna karşılık kurumsal yönetim ilkeleri ile finansal olmayan kilit performans göstergeleri arasında p değerinin 0,05'den yüksek çıkması nedeniyle bir ilişki tespit edilememiştir. Bu bağlamda araştırmanın hipotezlerinden "H<sub>4</sub>= Sürdürülebilirlik uyum raporunda yer alan kurumsal yönetim ilkeleri, şirketlerin finansal olmayan kilit performans göstergelerini pozitif yönlü anlamlı düzeyde etkiler" hipotezi korelasyon analizi sonucunda reddedilmiştir.

Korelasyon analizi ile ilişkisi tespit edilen değişkenlerin, etkilerinin tespit edebilmesi amacıyla regresyon analizi gerçekleştirilmiştir. Tablo 10'da değişkenlere yönelik regresyon analizi sonuçları gösterilmektedir.

**Tablo 10:** Değişkenlere Yönelik Regresyon Analizi

Bağımlı Değişken		Finansal Olmayan Kilit Performans Göstergeleri Endeksi	
Bağımsız Değişkenler		Sig.(p)	B
Genel İlkeler		0,034	0,329
Çevresel İlkeler		0,010	0,362
Sosyal İlkeler		0,042	0,250

Tablo 10 incelendiğinde, sürdürülebilirlik uyum raporu ilkeleri, finansal olmayan kilit performans göstergeleri endeksini %30,9 oranında etkilediği tespit edilmiştir. ANOVA değerinin 0,05'den düşük çıkması ise bağımsız değişkenlerden en az bir tanesinin bağımlı değişkeni etkilediğini ifade etmektedir. Hangi değişken/değişkenlerin finansal olmayan kilit performans göstergeleri endeksini etkilediği tespit edebilmek adına sig.(p) değerleri 0,05'den düşük çıkan değişkenlerin sonuçları incelenmiştir. Bu bağlamda sürdürülebilirlik uyum raporu genel, çevresel ve sosyal ilkelerin sig. (p) değerlerinin 0,05'den düşük çıkması nedeniyle finansal olmayan kilit performans göstergelerini anlamlı düzeyde etkilediği tespit edilmiştir. Bu anlamlı etkinin pozitif yönlü olup olmadığının tespit edilmesi adına Beta değerleri incelenmiş ve değişkenlerin beta değerlerinin pozitif çıkması nedeniyle etkilerin pozitif yönlü anlamlı düzeyde olduğu belirlenmiştir. Bu bağlamda araştırmanın H<sub>1</sub>, H<sub>2</sub> ve H<sub>3</sub> hipotezleri kabul edilmiştir. Sürdürülebilirlik ilkelerinde yer alan genel ilkeler, çevresel ilkeler ve sosyal ilkeler ile finansal olmayan kilit performans göstergeleri arasında ilişkiler tespit edilmiştir. Finansal olmayan kilit performans göstergeleri ile kurumsal yönetim ilkeleri arasında ise bir ilişki tespit edilememiştir. Ayrıca ilişkisi tespit edilen çevresel, sosyal ve genel ilkelerin finansal olmayan kilit performans göstergelerini pozitif yönlü anlamlı düzeyde etkilediği belirlenmiştir. Bu bağlamda rakiplerine karşı sürdürülebilir rekabet avantajı elde etmek isteyen işletmelerin, finansal olmayan bilgilerini bilgi kullanıcıları ile paylaşırken kurumsal yönetim ilkelerinden ziyade genel, çevresel ve sosyal ilkelere daha fazla odaklanması gerektiği söylenebilir.

Araştırmanın amacı kapsamında geliştirilen hipotez sonuçlarının genel görünümü Tablo 11'de gösterilmiştir.

**Tablo 11:** Hipotez Test Sonuçlarının Genel Görünümü

HİPOTEZLER	KABUL/RET	AÇIKLAMA
H <sub>1</sub> = Sürdürülebilirlik uyum raporunda yer alan genel ilkeler, şirketlerin finansal olmayan kilit performans göstergelerini pozitif yönlü anlamlı düzeyde etkiler.	Kabul	Sig.(p) değeri 0,05'den düşük, pozitif beta değeri
H <sub>2</sub> = Sürdürülebilirlik uyum raporunda yer alan çevresel ilkeler, şirketlerin finansal olmayan kilit performans göstergelerini pozitif yönlü anlamlı düzeyde etkiler.	Kabul	Sig.(p) değeri 0,05'den düşük, pozitif beta değeri
H <sub>3</sub> = Sürdürülebilirlik uyum raporunda yer alan sosyal ilkeler, şirketlerin finansal olmayan kilit performans göstergelerini pozitif yönlü anlamlı düzeyde etkiler.	Kabul	Sig.(p) değeri 0,05'den düşük, pozitif beta değeri
H <sub>4</sub> = Sürdürülebilirlik uyum raporunda yer alan kurumsal yönetim ilkeleri, şirketlerin finansal olmayan kilit performans göstergelerini pozitif yönlü anlamlı düzeyde etkiler.	Ret	İlişki tespit edilememiştir.

## Sonuç ve öneri

Günümüz rekabet koşullarında işletmeler açısından sadece finansal bilgilerin bilgi kullanıcıları ile paylaşılması işletmeler açısından sürdürülebilir rekabet avantajı sağlama bağlamında çeşitli problemleri de beraberinde getirmektedir. İşletmeler açısından sadece finansal bilgilerin değil aynı zamanda çevresel, sosyal ve kurumsal yönetim ilkeleri gibi çeşitli ilkelerin de bilgi kullanıcıları ile paylaşılması bir nevi zorunluluk haline gelmiştir. Sürdürülebilirlik raporlaması olarak adlandırılan ve işletmelere sürdürülebilir rekabet avantajı sağlamak amacıyla yayınlanması gereken raporlar, Türkiye'de 2020 yılında yayımlanan kurumsal yönetim tebliğiyle "uy ya da açıkla" prensibiyle kısmen zorunluluk haline getirilmiştir. Sürdürülebilirlik ilkeleri uyum raporları adı verilen bu raporlarda, işletmelere ait genel ilkeler, çevresel ilkeler, sosyal ilkeler ve kurumsal yönetim ilkeleri SPK tarafından belirlenen şablon çerçevesinde ilgililer ile paylaşılmaya başlanmıştır. Literatür taramaları incelendiğinde sürdürülebilirlik uyum raporlarının işletme performansına etkisini tespit eden birçok çalışmaya rastlamak mümkündür. Fakat işletmeler açısından bu raporların sadece finansal performansa etkisinin değil finansal olmayan performansa olan etkisinin de tespit edilmesi gerekmektedir. Bu

çalışmada, sürdürülebilirlik raporlarının işletmelerin finansal olmayan performanslarına etkisini tespit edebilmek adına kilit performans göstergelerinin kullanılması tercih edilmiştir. Performans göstergeleri deyince ilk olarak akla finansal performans gelse de kilit performans göstergeleri bünyesinde finansal olmayan göstergeleri de barındırmaktadır. Finansal olmayan bilgilerin doğası gereği işletmeler ile bilgi kullanıcıları arasında yönetmelik, yönerge vb. zorunluluklardan ziyade kurumsal diyalog ile ilişki kurulması gerektiği söylenebilir. Bu bağlamda bu çalışmada finansal olmayan bilgiler, işletmelerin faaliyet ve finansal raporlarının incelenmesi sonucunda elde edilen kilit performans göstergeleri ile tespit edilmiştir.

Çalışma sonucunda elde edilen bulgulara göre; analize tabii şirketlerin sürdürülebilirlik uyum raporlarında yer alan ilkelere en alt seviyede bile kısmen uyum sağladığı belirlenmiştir. Sürdürülebilirlik ilkelerinde yer alan genel ilkeler, çevresel ilkeler ve sosyal ilkeler ile finansal olmayan kilit performans göstergeleri arasında ilişkiler tespit edilmiştir. Finansal olmayan kilit performans göstergeleri ile kurumsal yönetim ilkeleri arasında ise bir ilişki tespit edilememiştir. Ayrıca ilişkisi tespit edilen çevresel, sosyal ve genel ilkelerin finansal olmayan kilit performans göstergelerini pozitif yönlü anlamlı düzeyde etkilediği belirlenmiştir. Bu bağlamda rakiplerine karşı sürdürülebilir rekabet avantajı elde etmek isteyen işletmelerin, finansal olmayan bilgilerini bilgi kullanıcıları ile paylaşırken kurumsal yönetim ilkelerinden ziyade genel, çevresel ve sosyal ilkelere daha fazla odaklanması gerektiği söylenebilir.

Türkiye’de 2020 yılında yayımlanan tebliğ ile daha önceki kısımlarda bahsedildiği gibi kısmen zorunluluk haline getirilen sürdürülebilirlik raporları KAP vasıtasıyla incelenmiştir. BİST sürdürülebilirlik endeksinden yer alan 75 şirketin raporları incelendiğinde, şirketlerin sadece 2022 yılında bu raporları yayınladığı görülmekte dolayısıyla bu çalışmada sadece 2022 yılına ait veriler kullanılabilmiştir. Bu durum ise çalışmanın kısıtı olarak değerlendirilebilir. Bundan sonraki akademik çalışmalar için farklı yıllara ait sürdürülebilirlik raporlarının karşılaştırılması ve bu raporların finansal/finansal olmayan performansa etkisinin tespit edilmesi öneri olarak sunulabilir.

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## Appendix (Ekler)

## Appendix 1: (Ek 1:) Analize Tabi Tutulan Şirketler

AG ANADOLU GRUBU HOLDİNG A.Ş.	BRİSA BRIDGESTONE SABANCI LASTİK SANAYİ VE TİCARET A.Ş.	LOGO YAZILIM SANAYİ VE TİCARET A.Ş.	TÜPRAŞ-TÜRKİYE PETROL RAFİNERİLERİ A.Ş.
AGESA HAYAT VE EMEKLİLİK A.Ş.	COCA-COLA İÇECEK A.Ş.	MARGÜN ENERJİ ÜRETİM SANAYİ VE TİCARET A.Ş.	TÜRK HAVA YOLLARI A.O.
AKBANK T.A.Ş.	ÇİMSA ÇİMENTO SANAYİ VE TİCARET A.Ş.	MAVİ GİYİM SANAYİ VE TİCARET A.Ş.	TÜRK TELEKOMÜNİKASYON A.Ş.
AKÇANSA ÇİMENTO SANAYİ VE TİCARET A.Ş.	DOÇAN ŞİRKETLER GRUBU HOLDİNG A.Ş.	MİGROS TİCARET A.Ş.	TÜRK TRAKTÖR VE ZİRAAT MAKİNELERİ A.Ş.
AKENERJİ ELEKTRİK ÜRETİM A.Ş.	DOĞUŞ OTOMOTİV SERVİS VE TİCARET A.Ş.	MLP SAĞLIK HİZMETLERİ A.Ş.	TÜRKİYE GARANTİ BANKASI A.Ş.
AKFEN GAYRİMENKUL YATIRIM ORTAKLIĞI A.Ş.	ENERJİSA ENERJİ A.Ş.	NATUREL YENİLENEBİLİR ENERJİ TİCARET A.Ş.	TÜRKİYE HALK BANKASI A.Ş.
AKİŞ GAYRİMENKUL YATIRIM ORTAKLIĞI A.Ş.	ENKA İNŞAAT VE SANAYİ A.Ş.	NETAŞ TELEKOMÜNİKASYON A.Ş.	TÜRKİYE İŞ BANKASI A.Ş.
AKSA AKRİLİK KİMYA SANAYİİ A.Ş.	EREĞLİ DEMİR VE ÇELİK FABRİKALARI T.A.Ş.	OTOKAR OTOMOTİV VE SAVUNMA SANAYİ A.Ş.	TÜRKİYE SİNAİ KALKINMA BANKASI A.Ş.
AKSA ENERJİ ÜRETİM A.Ş.	ESENBOĞA ELEKTRİK ÜRETİM A.Ş.	PEGASUS HAVA TAŞIMACILIĞI A.Ş.	TÜRKİYE ŞİŞE VE CAM FABRİKALARI A.Ş.
AKSİGORTA A.Ş.	FORD OTOMOTİV SANAYİ A.Ş.	PETKİM PETROKİMYA HOLDİNG A.Ş.	TÜRKİYE VAKIFLAR BANKASI T.A.O.
ALBARAKA TÜRK KATILIM BANKASI A.Ş.	GALATA WIND ENERJİ A.Ş.	PINAR SÜT MAMULLERİ SANAYİİ A.Ş.	ÜLKER BİSKÜVİ SANAYİ A.Ş.
ANADOLU ANONİM TÜRK SİGORTA ŞİRKETİ	GLOBAL YATIRIM HOLDİNG A.Ş.	POLİSAN HOLDİNG A.Ş.	VESTEL BEYAZ EŞYA SANAYİ VE TİCARET A.Ş.
ANADOLU EFES BİRACILIK VE MALT SANAYİİ A.Ş.	HACI ÖMER SABANCI HOLDİNG A.Ş.	SASA POLYESTER SANAYİ A.Ş.	VESTEL ELEKTRONİK SANAYİ VE TİCARET A.Ş.
ANADOLU HAYAT EMEKLİLİK A.Ş.	İSKENDERUN DEMİR VE ÇELİK A.Ş.	ŞEKERBANK T.A.Ş.	YAPI VE KREDİ BANKASI A.Ş.
ARÇELİK A.Ş.	İŞ YATIRIM MENKUL DEĞERLER A.Ş.	ŞOK MARKETLER TİCARET A.Ş.	ZORLU ENERJİ ELEKTRİK ÜRETİM A.Ş.
ASELSAN ELEKTRONİK SANAYİ VE TİCARET A.Ş.	KARSAN OTOMOTİV SANAYİİ VE TİCARET A.Ş.	TAT GIDA SANAYİ A.Ş.	
AYDEM YENİLENEBİLİR ENERJİ A.Ş.	KEREVİTAŞ GIDA SANAYİ VE TİCARET A.Ş.	TAV HAVALİMANLARI HOLDİNG A.Ş.	
AYGAZ A.Ş.	KİMTEKS POLİÜRETAN SANAYİ VE TİCARET A.Ş.	TEKFEN HOLDİNG A.Ş.	
BİM BİRLEŞİK MAĞAZALAR A.Ş.	KOÇ HOLDİNG A.Ş.	TOFAŞ TÜRK OTOMOBİL FABRİKASI A.Ş.	
BİZİM TOPTAN SATIŞ MAĞAZALARI A.Ş.	KORDSA TEKNİK TEKSTİL A.Ş.	TURKCELL İLETİŞİM HİZMETLERİ A.Ş.	



## The relationship between the Istanbul Stock Market and Türkiye's foreign trade

### Borsa İstanbul ve Türkiye'nin dış ticareti arasındaki ilişki

Selma Aytüre<sup>1</sup> 

Meltem Keskin<sup>2</sup> 

<sup>1</sup> Assoc.Prof.Dr., Ankara, Türkiye,  
[selma\\_ayture@hotmail.com](mailto:selma_ayture@hotmail.com)

ORCID: 0000-0003-0184-5040

<sup>2</sup> Assoc. Prof. Dr., Yıldırım Beyazıt University  
Institution, Ankara, Türkiye,  
[meltemkeskin@aybu.edu.tr](mailto:meltemkeskin@aybu.edu.tr)

ORCID: 0000-0002-8536-4940

#### Abstract

International trade is a significant indicator determining all countries' competitiveness and welfare levels, whether developed or developing. Stock markets are indicators of capital markets and economies. In this context, it may be significant to determine the relationship levels of international trade and the stock market. Purpose of the study: To examine the relationship and level between international trade potential in Türkiye and the BIST 100 Index (XU100) in the period 2013:01-2023:12. For this purpose, the reflection of Türkiye's exports and imports on BIST 100 was evaluated using Johansen Cointegral and Granger Causality Analysis methods. According to the findings, it has been determined that exports and imports are related to BIST 100 performance in the short and long term and cause BIST 100 performance. Exports positively affect BIST 100 performance in the short and long term, while imports negatively affect BIST 100 performance in the short and long term.

**Keywords:** XU100, Türkiye, International Trade

**Jel Codes:** F23, F30, F36

#### Corresponding Author:

Assoc.Prof.Dr. Meltem Keskin,

Yıldırım Beyazıt University Institution,  
Ankara, Türkiye, [meltemkeskin@aybu.edu.tr](mailto:meltemkeskin@aybu.edu.tr)

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#### Öz

Uluslararası ticaret ister gelişmiş ister gelişmekte olsun tüm ülkelerin rekabet gücünü ve refah seviyesini belirleyen önemli bir göstergedir. Borsalar ise sermaye piyasalarının ve ekonomilerin indikatörüdür. Bu bağlamda, uluslararası ticaretin ve borsanın ilişki düzeylerini belirlemek önemli olabilmektedir. Çalışmanın amacı; Türkiye özelinde uluslararası ticaret potansiyel ile Borsa İstanbul'da işlem gören, işlem hacmi ve piyasa değeri en yüksek 100 hissenin oluşturduğu BIST 100 Endeksi (XU100) arasında ilişki ve düzeyi 2013:01-2023:12 döneminde incelemektir. Bu amaç doğrultusunda Türkiye ihracat ve ithalatının BIST 100 'de yansımaları Johansen Eşbütünel ve Granger Nedensellik Analizi yöntemlerinden yararlanılarak değerlendirilmiştir. Bulgulara göre ihracat ve ithalatın kısa ve uzun dönemde BIST 100 performansı ile ilişkili olduğu ve BIST 100 performansına neden olduğu tespit edilmiştir. İhracat BIST 100 performansı üzerinde kısa ve uzun dönemde pozitif yönde anlamlı etkiye sahip iken, ithalat BIST 100 performansı üzerinde kısa ve uzun dönemde negatif yönde anlamlı etkiye sahiptir.

**Anahtar Kelimeler:** BIST100, Türkiye, Uluslararası Ticaret

**JEL Kodları:** F23, F30, F36

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## Introduction

International trade has an extraordinary power in the modern world, as it did during the Trading Colonies in BC. Moreover, trade is a significant financial resource for export/import countries and the healthy continuation of international capital markets. In particular, efforts to eliminate national customs borders after the second half of the 20th century increased the speed of international trade. With the services provided by financial technologies, the world is taking rapid steps towards a single giant market. In this situation, the international trade of products and services also enables companies to compete freely in a competitive environment. This contributes to the company's reliability and recognition while increasing the number of international potential buyers/sellers. This increases the market values of companies. Stock exchanges are among the primary institutions that compare those with excess funds and those needing funds in the capital markets. When viewed from this perspective, the existence of a relationship between the developments in international trade in goods and services and the stock market is worth analyzing.

In international trade, it is widely accepted that exports increase income, but imports have a narrowing effect on national income due to resource leakage (Nicita, 2013). In addition, thanks to their commercial transactions, such as export or import, companies benefit from trade opportunities through the international business network and ensure that their stocks are preferred by many national/international investors on the stock exchanges where they are listed. In addition, if exports are dependent on imports, that is if they are treated as production inputs, it will positively impact the stock market and contribute to national growth. A positive impact on the stock market will deepen the capital markets and prevent market vulnerabilities. Thus, national economic indicators will be positively affected, advantageous, and reliable in international markets (Köylü, 2018: 390). It is mentioned in the literature that the stock market index also increases in periods when the economy achieves a stable growth process. Economic stability will likely also emerge between the country's exports and imports and the stock market. In this context, the literature review summarising the studies on the relations between the stock market and exports and imports constituted the second part of the study. Based on the literature in the second part, variables and methods were selected in the third part, and the stock market and export and import relations in Türkiye were researched using statistical analysis. In the conclusion part, inferences were made specifically for the Turkish economy.

The international competitiveness of Turkish capital markets is significant. Borsa Istanbul is one of the institutions mediating the transfer of funds to the Turkish capital market. Within Borsa Istanbul, indices with different features are calculated to monitor market transactions and evaluate the assets underlying financial products and standard investment instruments. One of these indices is BIST 100. The index consists of 100 shares and includes one hundred shares among real estate investment trusts and capital investment trusts traded on the Structured Products, Investment Products, Collective, Star and Main Markets (Keskin and Yücel, 2019: 166).

This study examines the relationship between Türkiye's international trade and the companies' shared values, consisting of the hundred shares with the highest trading volume and market value in Borsa Istanbul. The relationships between Türkiye's exports and imports and BIST 100 index return rates were analyzed in this context. The short/long-term relationships between BIST 100 performance and exports and imports between 2013-2023 were examined to determine whether they were the cause of XU100 performance. For this purpose, Johansen Cointegration and Granger Causality analyses were used. It has been determined that exports and imports are related to BIST 100 performance in the short/long term.

## Literature review

Many studies have been conducted using foreign trade data when the literature is examined. Some studies examine the relationship between foreign trade and exchange rates, interest rates, inflation, oil and gold prices. Some of them are as follows:

Wilson and Takacs (1979) examined the effects of exchange rates on the foreign trade of ten economically developed countries between 1957 and 1977 using the Junz-Rhomberg method. They concluded that the effects of exchange rate changes on foreign trade differ significantly in periods when interest rates are fixed. In their study, Buckle and Pope (1985) investigated the relationship between New Zealand inflation and trade rates between 1974 and 1985 using the RBNZ and BHP methods. They found that export prices were more inflationary than imports. In their study, Perée and Steinherr (1989) tested the relationship between exchange rate and foreign trade in the United States (USA) between 1960 and 1985. They concluded that this relationship was strong in the mid-term period. In and Menon (1996) tested the relationship between exchange rates and foreign trade in seven OECD countries with the

Cointegration test and Granger Causality analysis. As a result, they have found relevance in countries including the USA, Germany, France, England, Italy, Japan and Canada.

Chen, Tsaur and Liu (1989) modelled the relationship between inflation and trade in China. In the study, they concluded that the trade balance value deteriorated in periods when imports were flexible. Baldemir and Gökalp (1999) determined no cointegration relationship between the exchange rate and Turkish foreign trade through cointegration and Granger Causality tests in their study covering 1980-1997. Arize, Osang and Slottje (2000) examined the effects of the exchange rate on foreign trade using Johansen Cointegration analysis in 13 underdeveloped countries between 1973 and 1996 and concluded that the exchange rate affected foreign trade. In their study, Kara and Nelson (2003) tested the relationship between the exchange rate and inflation with foreign trade in the United Kingdom between 1964 and 2001. They concluded that the variables were closely related to imports. Yamak and Korkmaz (2005) tested inflation, exchange rate and foreign trade balance in Türkiye in 1995-2004 using Granger Causality and impulse-response functions. As a result, they detected strong correlations between the variables.

Reyes (2007) examined the relationship between the exchange rate pass-through and inflation in developing economies between 1989 and 2004. With correlation analysis, he found that the variables greatly impacted each other. Peker (2008) analyzed the real exchange rate and foreign trade relationship in Türkiye between 1992 and 2006. He determined that even a 1% change in the exchange rate negatively affects the foreign trade balance. Vergil and Erdoğan (2009) examined the exchange rate and Turkish foreign trade between 1998 and 2005 using the ARDL Cointegration test method. It was found that there is a long-term relationship between the variables. Ordu (2013) examined the relationship between the exchange rate and Turkish foreign trade in 1989–2012. He found that the increase in imports affects the demand in the domestic market, and the increase in exports is associated with economic growth. In their study, Hüseyin and Kutlu (2019) analyzed the var model, Türkiye's foreign trade, inflation and exchange rate balance. They found that inflation and real exchange rates changed the foreign trade balance in the 2003-2019 period. Aytekin and Okyay (2022), Türkiye between 2004-2019; It has been concluded that exchange rate, inflation and foreign trade figures affect each other, especially in the long term. Hepaktan, Çinar and Dündar (2011). They analyzed the effect of the exchange rate on foreign trade in Türkiye between 1982 and 2011 using Johansen Cointegration and Granger Causality methods. They concluded that the effect of the exchange rate on foreign trade is strong.

Şenol and Koç (2021) examined the impact of exchange rate risks on company performances using panel data analysis between 2007 and 2019. The study concluded that exchange rate risk reduces the profitability of businesses but does not affect firm value.

Barakalı and Elmas (2022) used panel data analysis to examine the effect of exchange rate risk on BIST30 in 2016-2021. They found that the effect of companies' foreign currency positions on market value was significant and positive.

Gürbüz, Kılıç and Bekereci (2023) studied the relationship between syndicated loans used in Türkiye in the 2013 – 2022 period and foreign trade volume, real exchange rate and BIST 100 index were examined with Johansen Cointegration and Granger Causality test. While there is a bidirectional causality between foreign trade volume and real exchange rate, a unidirectional causality relationship was found between the BIST100 index and syndicated loans.

Ani, Nzewi and Abere (2024) tested the exchange rate changes and stock market performance of manufacturing companies in the Nigerian Stock Exchange with regression analysis in the 2013-2023 period. The study concluded that the exchange rate has non-significant negative effects on market performance.

Studies examining the relationship between the stock market and foreign trade are included in the literature. Some of these studies are as follows:

**Table 1:** Studies Evaluating Relations between the Stock Market and Export/Import

Author	Subject	Data Set Period	Method	Result
Fung, Lo & Leung (1995)	Evidence for the relationship between international trade and the stock market.	S.Korea, Hong Kong, Singapore and Taiwan (1975-1991)	VAR & Granger Causation	Foreign trade data affects the stock market.
Dvorak (2001)	Effects of foreign trade on local stock markets.	10 advanced and 10 developing countries (MSCI index) (1990-2000)	Mathematical Analysis.	When the total transaction volume is controlled in developed countries, foreign trade does not have any effect on market volatility.
Nielsen (2010)	Stock returns and export and import.	Denmark, Netherlands, France and England (1970-2010)	Correlation, Simple regression and Time series analysis	It has been concluded that import and export data can help estimate stock value.
İkizlerli & Ülkü (2012).	Evidence of a relationship between foreign trade and the emerging stock market.	ISE indices and MSCI World index (1997-2008)	The impulse response functions (IRFs) Mathematical analysis.	Evidence has been found on political risks and the dynamics of foreign trade in stock markets.
Ülkü (2015)	The interaction between trading and stock market returns.	Türkiye, Greece, Hungary, Poland, Czech Republic, Slovenia and Romania (1997-2011)	Vector Auto Regression (VAR)	In many countries, foreign trade and investment have a positive simultaneous relationship with domestic returns.
Coşkun, Kiracı & Muhammed (2016)	Relationship between macroeconomic data and stock prices.	Türkiye (1992-2012)	Granger Causality test	A one-way causality relationship was determined between the BIST industrial production index and foreign trade.
Hasanujzaman (2016)	The effect of export growth on the stock market.	Bangladesh (2004-2013)	VAR	The stock market reacts positively to exports.
Brzeszczyński & Ibrahim (2019)	Effect on domestic and international trade performance in stocks.	America, Europe and Australasia (1998 - 2011)	Mathematical Analysis	When comparing fair value transactions using trading signals, it was concluded that stocks are very profitable.
Sadeghzadeh (2019)	The impact of Turkish imports and exports on the stock market.	Türkiye (1989-2018)	DOLLS Granger Causality test	It has been concluded that exports and imports affect the stock market in the short term.
Akmeşe, Demiroğlu & Akmeşe (2023)	Foreign trade and stock market relationship	Türkiye (2013- 2023)	ARDL	There is a cointegration relationship between data.
You (2024)	International trade and stock market connection.	Composite Index, S&P500, STOXX, FTSE 100, UK, Hang Seng Composite, Nikkei 225, SASX 200, Africa All Share, Bovespa Index & Nifty 50 index (2000 -2021)	DYCI (Diebold-Yilmaz Connectedness Index) VAR	Imports and exports affect stock markets.

As seen in the literature, while exports or imports impact the stock market, some studies have shown that they do not. Some of the reasons for this are; There may be changes depending on the country of application, the period in which the study was conducted, or the analysis method. After the pandemic that occurred in 2019, habits started to change. Technological changes have entered our lives at an accelerated pace. One of the areas where these changes were most intense was finance. Today, when the world is a single market, it is the BIST 100 index where the companies with the highest market value are traded in Borsa Istanbul, in the markets combined with fintech. Whether there is a relationship

between the recognition abroad and the shared values of the 100 companies traded in Borsa Istanbul is considered a subject worth examining.

## Method and findings

The data set for the study was obtained from the official websites of Borsa Istanbul (2024) and TÜİK (2024). "Since all data used in this article were obtained from public web pages, this is a study that does not require an ethics committee decision."

The study examined the short- and long-term relationships between the BIST 100 index and Türkiye's exports and imports calculated in US Dollar currency to determine whether they caused the BIST 100 performance. Cointegration and causality analyses were used for this purpose. Before the Cointegration analyses, the normal distributions of the series were checked, and their single normal distributions were ensured by making logarithmic transformations. When the years 2022 and 2023 are included, the correlation between import and export variables is 0.84 (0.83 when the logarithms of the variables are taken), and the multiple normal distribution cannot be achieved in the model tests (J-B joint test statistics are significant at 0.05 and 0.01 levels). Data for 2021 (correlation between exports and imports 0.62) were included in the model.

Since the series must be stationary at the same level (integrated to the same degree) to perform the Cointegration analysis, the Extended Dickey-Fuller (ADF) (Dickey and Fuller, 1979) unit root test was applied, and it was observed that all of the series contained unit roots at the same level, but were stationary at the first difference. In the unit root test, all three models without a constant term, with a constant term and with a constant term and trend were tested and reported in Table 2.

The Wald lag exclusion test (VEC Lag Exclusion Wald Tests) was used to determine the appropriate lag length in the Cointegration analysis. Since the null hypothesis in the test is that "the relevant delay should be excluded", when  $p > 0.05$ , the hypothesis is accepted, and the relevant delays are excluded. When  $p$  and the relevant delay are accepted.

Since heteroscedasticity, autocorrelation, and multiple norm distribution must be ensured for the validity of the model test, the White test (White VEC Residual Heteroskedasticity) is used for the heteroscedasticity problem, the LM test (VEC Residual Serial Correlation LM Test) (Cox & Solomon, 1988) and multiple normal are used for the autocorrelation problem. The Urzua RC multiple normal distribution test (VEC Residual Normality Test / Urzua RC) (Urzúa, 1996) was applied for the distribution condition. The White test (White VEC Residual Heteroskedasticity), which performs the heteroscedasticity problem, tests the null hypothesis that "the series have common variance", and the hypothesis is accepted when  $p > 0.05$  for the chi-square test statistic. LM test (VEC Residual Serial Correlation LM Test) tests the null hypothesis of "there is no serial relationship/correlation" for each delay within the specified delay range, and the hypothesis is accepted when  $p > 0.05$  for the LM test value (White, 1980). The Urzua RC test (VEC Residual Normality Test/ Urzua RC) calculates that the series are jointly normally distributed by the square root of covariances method, using the Jarque Berra test statistic (Bera & Jarque, 1980). The null hypothesis, "residuals of the series show normal distribution", is tested separately for each component. However, when the Joint test result is  $p > 0.05$ , it is understood that the series jointly show normal distribution (multiple normal distribution is achieved).

Johansen Cointegration test was performed to determine the number of cointegration equations, and Trace and Max-Eigen test results were taken into account to determine the number of vectors. Johansen (1988) recommends trace test and maximum eigenvalue tests to determine the number of cointegration vectors and emphasizes that these calculated test statistics should be compared with the obtained critical values or  $p$  values should be taken into account (Johansen 1988). In the tests, cointegration numbers are determined for models without a constant term, with a constant term, and with a constant term and trend, as well as testing the null hypothesis of "there is no cointegration" (Johansen, 1995). The null hypothesis is tested separately for Trace and Max-Eigen statistics. When the values of these tests exceed the critical values ( $p < 0.05$ ), the hypothesis of no cointegration relationship is rejected.

In the final stage of the study analysis, the prediction model was tested by considering the linear vector error corrected (VECM) Cointegration model. Since only the effects of exports and imports on BIST performance were examined in this study, the Cointegration equality of both independent variables with the BIST variable was taken into account, and vector error corrected (VEC) Granger Causality/ Block Exogeneity Wald test was performed to question whether exports and imports were the cause of BIST 100 performance. When BIST 100 is the dependent variable in the test, the null hypothesis for each independent variable regarding which independent variables should be excluded from the model is "the relevant independent variable should be excluded". The null hypothesis is rejected when the chi-

square test statistic is  $p < 0.05$ . It is understood that the relevant independent variable should remain in the model and cause the dependent variable.

Table 2 shows the descriptive statistics of the series included in the model.

**Table 2:** Descriptive Statistics of the Series

Seri	Kısaltma	Log	Min.	Maks.	Ort.	SS	J-B(p)
BIST 100 <sup>3</sup>	BIST	LNBIŞT	618.8	1857.65	975.127	246.123	3.888(0.143) <sup>a</sup>
Export <sup>1</sup>	EXPORT	LNEXP	8978291	22233318	14310770	2325968	5.985(0.050) <sup>a</sup>
Imports <sup>1</sup>	IMPORT	LNIMP	13393633	29064822	19434526	2778337	.

<sup>1</sup>: According to the general trading system, Thousand US Dollars, <sup>2</sup>: BIST 100 month-end closing value, J-B: Jarque-Bera

<sup>a</sup>: After logarithmic transformation

Extended Dickey-Fuller (ADF) unit root test was used to determine the stationarity of the logarithmically transformed series. Table 3 gives the unit root test results.

**Table 3:** Unit Root Statistics of the Series

Serial	Model	Unfixed	Fixed	Stable+Trending
LNBIŞT	At the level	0.995	-0.349	-2.622
	1st difference	-9.371**	-9.435**	-9.504**
LNEXP	Level	0.468	-2.567	-5.525**
	1st difference	-15.961**	-15.921**	-9.141**
LNIMP	Level	0.433	-2.295	-2.180
	1st difference	-16.138**	-16.081**	-16.112**

\*: 5% significant at the level \*\*:.1% significant at the level

According to the ADF unit root test results in Table 3, it was determined that the series were stationary in their first differences [I(1)] in the constant term and trend model. Table 4 shows the results of the Wald delay exclusion test (VEC Lag Exclusion Wald Tests) performed to determine the appropriate delay length.

**Table 4:** Delay Length Determination Results

Delay	Joint (p)
Dlag1	31,688 (0,000)
Dlag2	25,025 (0,002)
Dlag3	13,891 (0,126)
Dlag4	8,473 (0,487)
Dlag5	16,055 (0,066)
Dlag6	7,318 (0,603)

Appropriate delay length has been tested for up to 11 delays, and the first 6 delays are shown in the table.

According to the Wald error-corrected delay length exclusion test results in Table 4, the hypothesis that the first two delays should be excluded was rejected ( $p > 0.05$ ), and the hypotheses that the subsequent delays should be excluded ( $p < 0.05$ ) were accepted. Accordingly, the most appropriate delay lengths are delays 1 and 2.

Table 5 shows the heteroscedasticity, autocorrelation and multiple normal distribution results in the vector error correction model (VECM) cointegration model.

**Table 5:** Heteroscedasticity, Autocorrelation and Multiple Normal Distribution Results

	Statistics	p	Conclusion
Heteroscedasticity (White VEC Residual Heteroskedasticity)	240.037	0.076	There is no heteroscedasticity problem
Autocorrelation (VEC Residual Serial Correlation LM Test)	16.516	0.057	There is no autocorrelation problem (Lag 2)
Multiple normal distribution (VEC Residual Normality Test / Urzua RC)	23.683	0.527	Residuals are normally distributed

The model has no heteroscedasticity problem ( $\chi^2=240.037$ ;  $p>0.05$ ), no autocorrelation problem (LM-Stat=16.516;  $p>0.05$ ) and multiple normal distribution condition is met (Joint J-B=23.863;  $p>0.05$ ). ) was detected.

In Table 6, the Johansen Cointegration test was performed to determine the number of cointegration equations, and Trace and Max-Eigen test results were considered to determine the number of vectors. Johansen (1988) recommends a trace test and maximum eigenvalue test to determine the number of cointegration vectors and emphasizes that these calculated test statistics should be compared with the obtained critical values, or p values should be considered. Table 6 shows the Trace and Max-Eigen test results for determining Johansen Cointegration vector numbers and ranking unconstrained cointegration.

**Table 6:** Co-Integration Vector Numbers and Ranks Test Results

	- No S No T	- S Yes T Yes	Linear S Yes No T	Linear S Yes T Yes	Quadratic S Yes T Yes		
Trace	0	0	0	1	1		
Max-Eigen	0	0	0	1	1		
<b>H0 Hypothesis</b>	<b>Eigenvalue</b>	<b>Statistics</b>	<b>p</b>	<b>H0 Result</b>	<b>Statistics</b>	<b>p</b>	<b>H0 Result</b>
There is no cointegration	0.256	50.091	0.008	Denial	31.174	0.008	Denial
Most 1	0.132	18.916	0.286	Acceptance	19.387	0.197	Acceptance
Most 2	0.037	3.982	12.517	0.745	12.517	0.745	Acceptance

S: Constant term T: Trend

According to the Johansen Cointegration test results, it was determined that the hypothesis of no cointegration was rejected ( $p<0.05$ ) and that there was one cointegration equation in the linear constant term and trend model and the quadratic constant term and trend model. Since the study searched for a linear relationship, a linear vector error corrected (VECM) Cointegration model with constant terms and trends using second lags was considered. Vector error-corrected short- and long-term forecast results are given in Table 7. Since the effect of exports and imports on BIST performance was examined in the research, only the BIST variable and cointegration equality were considered.

**Table 7:** Short and Long-Term Forecast Results with Vector Error Correction

Forecast Period	Coefficient	SH	t
<b>Long Term</b>			
LNEXP	30.133	11.556	2.607**
LNIMP	-25.971	4.135	-6.281**
<b>Short Term</b>			
COINTEQ	-0.374	0.090	-4.138**
D(LNBIST(-1))	0.342	0.105	3.257**
D(LNBIST(-2))	0.098	0.107	0.923**
D(LNEXP(-1))	6.525	5.024	1.298
D(LNEXP(-2))	14.581	4.799	3.038**
D(LNIMP(-1))	-7.151	2.523	-2.834**
D(LNIMP(-2))	-5.551	2.353	-2.358*
C	0.086	0.165	0.516
R <sup>2</sup>	0.216		
ΔR <sup>2</sup>	0.160		
F	3.830		

\*: Significant at 10% level    \*\*: Significant at 5% level    \*\*\*: Significant at 1% level

The fact that the error correction coefficient (COINTEQ) is negative (between 0 and -2) and significant shows that the variables are cointegrated, and the inverse of the coefficient (1/coefficient) gives information about how long it will take for shocks to occur in the short term to balance. In other words, shocks experienced in the short term are balanced in the long term. When the test results in Table 6 were examined, it was determined that the error correction coefficient of the estimated model was negative and statistically significant (Cointeg=-0.374;  $p<0.05$ ). According to the cointegration coefficient, shocks occurring in the short term in export and import variables balance in the long term (after approximately 3 months) ( $1/0.374=2.673$ ). When long-term equations are examined, a 1% increase in exports increases the BIST 100 performance by 30.13% ( $B = 30.133$ ). A 1% increase in imports reduces BIST 100 performance by 25.97% ( $\beta=-0.611$ ). When short-term relations are examined, it has been determined that

the first and second delays lead to a positive increase in BIST 100 performance, exports lead to an increase in BIST 100 in the first and second delays, and imports cause a decrease in BIST 100 performance in both delays.

The results of the vector error corrected (VEC) Granger Causality / Block Exogeneity Wald test used in the Causality/externality relationship between variables are shown in Table 8. In test statistics, the null hypothesis (H0) is "Variable X is not the cause of Y / should be excluded". In this case, when the p-value of the X2 statistic is less than 0.05 ( $p < 0.05$ ), it is understood that the independent variable is the cause of the dependent variable and can be included in the model.

**Table 8:** VEC Granger Causality/Block Exogeneity Wald Test Results

	X <sup>2</sup>	sd	p
<b>When LNBIST is the dependent variable:</b>			
D(LNEXP)	9.292	2	0.009
D(LNYURT)	9.750	2	0.008
All	15.891	4	0.003

According to the exogeneity tests in Table 8, it is seen that the null hypothesis, which states that both export and import variables are exogenous and the dependent variable is not caused, is rejected at the 0.05 level. Therefore, it is consistent that both independent variables are included in the model, and exports and imports are the reasons for BIST 100's performance.

## Conclusion

Stock exchanges are among the capital market institutions that are the reasons that affect market indicators and the results of economic performance for countries. Developments in trade in goods and services constitute significant elements of globalization markets, and the existence of stock market relations can be considered worth examining. For this reason, there are studies in the literature on variables that affect country stock markets, determine stock market indices and/or affect the stock market index. The effects and levels of foreign trade on the stock market may vary from country to country or period. In today's world, where financial technologies are rapidly changing and being used, the relationship level of the companies with the highest market value and transaction volume in BIST 100 consists of 100 stocks with the highest market value and transaction volume in BIST 100 with the index code.

This study analysed the direction and degree of mutual impact of Türkiye's exports and imports on Borsa Istanbul. For this purpose, the relationship level between the periods 2013:01-2023:12 was examined with Causality and Cointegration tests in the BIST 100 index used in Borsa Istanbul, and its code is XU100, in the context of the stocks that are among the top hundred in terms of capital structure of Türkiye. It has been seen that foreign purchases and sales in both the short and long term are related to the BIST 100 performance and also cause the BIST 100 performance. However, it was determined that exports had a significant positive effect on BIST 100 performance in the short and long term, while imports had a significant negative effect.

Especially in developing economies, developments in international trade are likely to have the power to influence investor decisions. It is also expected that there will be relations between developments in trade in goods and services and exports and purchases, which reflect production. In this context, Türkiye's international trade determines the general economic conjuncture and affects the stock market index. This result is consistent with Fung et al. (1995), Dvorak (2001) and Hasanujzaman (2016) in the opposite direction; Coskun et al. (2016), Akmeşe et al. It can be said that it is similar to the studies conducted by You (2023) and You (2024).

## Suggestions

Some strategic suggestions can be taken into consideration to strengthen Türkiye's capital market and stock market by increasing its exports: diversifying into innovative value-added sectors, organizing logistics networks at effective costs, branding by strengthening international marketing strategies, providing digital transformation incentives in trade, expand exports through economic diplomacy by developing trade agreements; providing financial incentives using tax policies; efficient use of human resources; It is considered that strategies such as green and sustainable production may be a way to strengthen Türkiye's market and stock market by contributing to its exports.



As a result, increased foreign trade may positively affect the stock market. It can be said that this study is beneficial for individual investors and brokerage firm representatives who will invest in the stock market to also consider foreign trade data.

## Limitations and future research

The subject discussed in this study was researched for businesses in the BIST 100 index. However, in future studies, the factors affecting Türkiye's foreign trade and exports can be examined based on different sectors and indices and tested with Türkiye's various macroeconomic indicators. Thus, the findings will enrich the literature.

## Ethical Text

In this article, journal writing rules, publishing principles, research and publication ethics rules, and journal ethics rules have been followed. The authors declare that the study included in the article is among the studies that do not require ethics committee permission.

## Peer-review:

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## Marka ve olumsuz duygular: 1993-2023 yılları arası WoS makalelerinin bibliyometrik analizi

### Brand and negative emotions: A bibliometric analysis of WoS articles between 1993-2023

Özcan Özbilek<sup>1</sup> 

#### Öz

Bu çalışma, 1993-2023 yılları arasında tüketicilerin duygusal tepkilerini ele alan literatüre genel bir bakış sunmak amacıyla yapılan bibliyometrik bir analize odaklanmaktadır. İncelenen makaleler Web of Science (WoS) veri tabanında yer alan makalelerden oluşmaktadır. Araştırma, makale başlıkları, yazarlar, anahtar kelimeler, özetler ve diğer önemli bilgiler üzerinden kapsamlı bir analiz gerçekleştirmiştir. Ayrıca, araştırmaların gerçekleştirildiği ülkeler, yayınlandığı dergiler ve bu unsurlar arasındaki ilişkiler detaylı bir şekilde incelenmiştir. 1993-2023 yılları arası kapsayan bibliyometrik analiz sonuçlarına göre, negatif duygular ve marka konusundaki araştırmaların bir artış trendinde olduğu görülmüştür. Özellikle, olumsuz duygular ve marka ilişkisine odaklanan çalışmaların sayısında belirgin bir artış yaşanmıştır. Ayrıca, en fazla atıf alan makalelerin çoğunluğu ABD'den gelmektedir. Türkiye'nin bu alandaki katkısı ise sınırlıdır.

**Anahtar Kelimeler:** Olumsuz Duygular, Marka, Bibliyometrik Analiz, Web of Science (WoS)

**JeI Kodları:** M30, M31, I30

#### Abstract

This study focuses on a bibliometric analysis to provide a comprehensive overview of the literature on consumers' emotional responses from 1993 to 2023. The examined articles constitute a Web of Science (WoS) database collection. The research thoroughly analyses article titles, authors, keywords, abstracts, and other relevant information. Additionally, detailed examinations were conducted on the countries where the research was carried out, the journals in which it was published, and the relationships among these factors. The bibliometric analysis covering 1993 to 2023 revealed an increasing trend in research on negative emotions and brands. Notably, there has been a significant rise in studies focusing on the relationship between negative emotions and brands. Moreover, most of the most cited articles originate from the United States, indicating a limited contribution from Turkey in this field.

**Keywords:** Negative Emotions, Brand, Bibliometric Analysis, Web of Science (WoS)

**JeI Codes:** M30, M31, I30

<sup>1</sup> Doktora Öğrencisi, Sakarya Üniversitesi, Sakarya, Türkiye,

[ozcanozbilek54@gmail.com](mailto:ozcanozbilek54@gmail.com)

ORCID: 0000-0003-2492-9116

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## Extended Abstract

### Brand and negative emotions: A bibliometric analysis of WoS articles between 1993-2023

#### Literature

Emotions play a crucial role in decision-making for consumers, both positively and negatively. The increasing influence of technology and social media has heightened the importance of negative emotions alongside positive emotions. (Murray, 2013; Ou and Verhoef, 2017: 113; Özbilek and Okutan, 2020: 159; Zeelenberg et al., 2008: 18). Positive emotions align with people's expectations and events, while negative emotions arise when there is a deviation between expectations and results (Khatoun & Rehman, 2022: 720; Bagozzi et al., 1999: 186). However, negative emotions have not received sufficient attention in marketing literature compared to positive emotions (Haase et al., 2022: 2; Babin et al., 2013: 472). Research in marketing has predominantly focused on positive emotions, such as brand love and brand loyalty (Batra et al., 2012; Carrol and Ahuvia, 2006; Bergkvist and Bech-Larsen, 2010; Kressmann et al., 2006; Laroche et al., 2013).

Various studies have explored negative emotions, including differences between genders Babin et al., 2013, establishing negative relationships with brands, and the impact of negative emotions on switching to rival brands or purchasing ethical products (Fournier and Alvarez, 2013; Romani et al., 2012; Ou and Verhoef, 2017; Jin et al., 2020, Manthiou et al., 2020; Bachleda and Fathi, 2016).

Studies have also examined the weight of negative word-of-mouth compared to positive word-of-mouth (Bachleda and Fathi, 2016), the transformation of brand love into brand hatred, and the effects of brand hatred on consumer behaviour (Kucuk, 2008a). Several studies have investigated avoidance behaviours resulting from negative emotions, including the causes and reasons behind consumer exit from a brand (Bryson et al., 2013; Zarantonello et al., 2016; Knittel et al., 2016; Odoom et al., 2019; Khan et al. 2019; Kucuk 2008b).

#### Research purpose and importance

Bibliometric analysis is superior to other analyses regarding the size and content of the studies in the database compared to systematic literature searches or meta-analyses. (Donthu et al, 2021:287) The fact that there are 3175 studies in the Web Of Science search on brand loyalty from positive emotions, while there are 180 studies in the search on negative emotions and brand shows us that the subject of negative emotions and brand is still in the background and is still a virgin and developing area and emphasises the importance of this bibliometric study in this field.

#### Contribution of the article to the literature

This research is unique in that it investigates the studies on brand and negative emotions in the WoS database in the R-based Bibliometrix analysis programme, the content of these studies and their relationship with each other, as well as foreseeing possible new emerging topics in this field according to the investigated database sample in the background.

#### Design and method

Bibliometric analysis is the process of a comprehensive review of the literature by applying mathematical and statistical methods to publications and other means of communication (Pritchard, 1969: 349). This analysis covers all publications, focusing on a specific topic or area, and is used as a computer-assisted review methodology to identify critical research, authors and the relationship between them (Han et al., 2020: 110). Bibliometric analysis aims to examine the quantitative aspects of the production, dissemination and use of recorded information (Tague-Sutcliffe, J., 1992: 1). As Bibliometrix is an R-based package, the proposed tool is flexible, rapidly upgradeable and can be integrated with other statistical R packages. Therefore, it is flexible and improvable in an ever-changing field such as bibliometrics. With parameters that can be changed during the analysis (for example, by offering the possibility to adjust the sample size at the same time as choosing one of the abstract-author and other criteria in thematic maps, such as bigram-trigram, etc.), it allows researchers to reach the hidden results in the databases they use (Aria & Cuccurullo, 2017: 960). The bibliometric analysis retrieved data from the Web of Science (WoS) database on 14 November 2023. Search terms Subject = (Brand\*) and Subject = (Negative Emotions\*) and Language: (English), Organised by type: (Article). Indexes: SCI-EXPANDED, SSCI, A&HCI, period: 1993-2023

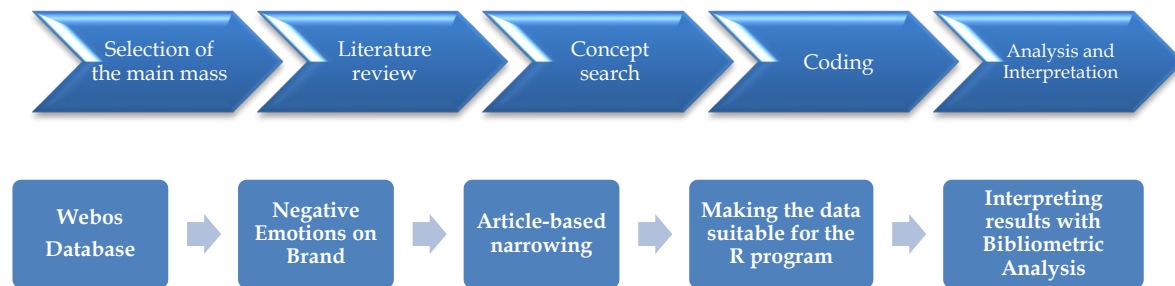
#### Research problems

The study aims to examine negative emotions and brands (taking into account the studies scanned in the Web of Science database), which researchers have recently shown great interest in, using the bibliometric analysis method. In order to achieve the aim of the study, the questions whose answers are sought for analysing the studies on brand hatred by bibliometric method are stated as follows;

- ❖ Which is the most cited article related to the concept of 'negative emotions brands' in the Web of Science database journals between 2009 and 2023?
- ❖ What is the number of publications on the 'negative emotions and brand' concept in the studies in the Web of Science database?
- ❖ What has changed in the number of publications on the 'negative emotions and brand' concept in the Web of Science database journals over the years?
- ❖ Who are the most cited researchers in the 'negative emotions and brand' concept in the Web of Science database journals?
- ❖ How is the historical development of the studies in the field of 'negative emotions and brand' concept in the studies in the Web of Science database?
- ❖ Which of the studies in the Web of Science database has the highest productivity in the studies in which articles related to the concept of 'negative emotions and brand' are published?
- ❖ Which countries and universities are the most productive in the studies on the concept of 'negative emotions and brand' in the Web of Science database?

- ❖ What are the most frequently mentioned words in the articles on 'negative emotions and brand' published in the Web of Science database?
- ❖ What are the most frequently used words in the Web of Science database articles related to 'negative emotions and brand'?
- ❖ In which universities and countries are the responsible authors who wrote the articles published on the concept of 'negative emotions and brand' in the Web of Science database studies, and what is the relationship between them?

Accordingly, the research subject is determined and searched in the database using various criteria. After the data is analysed, it is loaded and transformed into the R data framework. The research model is based on the work of Aria and Cuccurullo (2017). In the first, the topic to be researched is determined, and this topic is searched in the database using various criteria. Once the data has been retrieved for analysis, it is loaded and transformed into the R data frame. In the first stage, data is loaded and transformed. In the second stage, a document x attribute matrix is created. This extracts and extracts terms from the text fields of a bibliographic data frame. These include the abstract, title, author's keywords and others. Normalisation is then carried out. This calculates the strength of association between objects of a bibliographic network. The following steps involve data reduction (conceptual structure), network matrix construction (calculates the most frequent bibliographic matching, co-citation, collaboration and co-occurrence networks), and mapping (draws a conceptual structure map of a scientific domain using MCA and Clustering) (Aria and Cuccurullo, 2017: 963).



**Figure 1:** The Research Model

**Findings and discussion**

Bibliometrics is a scientific field that analyzes articles and works to measure the influence of authors, works, and countries in a particular discipline. It reveals changing trends, influence networks, and the prominence of topics within the discipline. An analysis of articles on negative emotions and brands showed an increasing number of publications between 1993 and 2023. The main subject shifted from understanding negative emotions and brands to sub-branches such as brand switching, negative word-of-mouth, and brand hate. S. Kim from Texas University wrote the most articles, while R. Bagozzi.

Initially, the focus was on understanding negative emotions and brands, but later, articles started exploring sub-branches such as brand switching, negative word-of-mouth, and brand hate. Most articles on a particular topic are written by authors from US universities, followed by Italy and France. The Journal of Business Research and the Journal of Product and Management are the leading journals, with 12 articles each, followed by Psychology & Marketing and Sustainability, with seven articles each. US universities take the lead in the universities where authors of the most cited articles work, with Michigan having the most authors, followed by Penn State University, Univ. Ghent, and Univ. Washington. The countries with the highest published articles are the USA, China, France, Germany, the UK, South Korea, Australia, and Spain, while Turkey ranks 32nd. The analysis of thematic maps reveals that price injustice and perceived price are prominent issues in the niche category, along with social networks. Analyzing trigrams in abstracts reveals negative emotions perceived, artificial intelligence, online brand community, and negative emotions in the niche category. The US collaborates with many countries in cross-country cooperation. The collaboration networks of authors mainly focus on consumer, service, loyalty, and satisfaction topics.

## Giriş

Duygular, insanlar için her zaman önemli ve belirleyici etkenlerden olmuştur. Özellikle seçenekler arasında kararsız kaldığında duygular seçimleri belirleyen etkenlerden olmaktadır. Tüketim deneyimi özelinde ise, bir alışveriş sürecinde olumlu duygular kadar, olumsuz duyguların da (hatta bazen daha fazla) etkili olabileceği yadsınmaz. Örneğin, İsrail'in Filistin'deki hastaneleri bombalaması ve on binlerce Filistinlinin saldırılarda hayatını kaybetmesi sonucunda, birçok ülkede İsrail'e destek veren şirketlerin ürünlerine (fiyat, kalite vb. diğer özelliklere bakılmaksızın) bir tepki olarak tamamen kaçınma ve kitlesel boykot eğilimi gözlemlenmektedir.

Duygular, insanların karar verme süreçlerinde hızlandırıcı bir etkiye sahip olup, kafa karışıklığını azaltabilen önemli faktörler arasındadır. Pazarlama literatüründe, duyguların tüketici davranışlarını şekillendirme potansiyeli giderek daha fazla araştırmaya konu olması, özellikle olumsuz duyguların marka ilişkilerine etkisinin anlaşılması için yapılan araştırmalar duyguların öneminin giderek arttığı bir göstergesidir. Olumsuz duyguların olumlu duygulara nazaran tüketicilerin markalara yönelik ilişkilerinde öneminin giderek artması hem bu konuda daha fazla araştırmaya ihtiyaç duyulmasına hem de yapılan araştırmaların daha önemli hale gelmesine sebep olmaktadır. Bu sebeple genel olarak duyguların özelinde ise olumsuz duyguların tüketici davranışları ve marka ilişkileri üzerindeki etkisinin daha detaylı şekilde incelenmesi, markaların stratejik yönetimi ve pazarlama stratejilerinin belirlenmesi açısından kritik bir öneme sahiptir.

Alışveriş deneyimlerinde de tüketiciler farklı seçenekler arasından tercih yaparken ve bir ürünü satın alırken pozitif duyguların etkisi olduğu gibi, olumsuz duygular da önemli bir rol oynamaktadır (Baumeister, Bratslavsky, Finkenauer, Vohs, 2001; Knittel, Beurer, Berndt, 2016; Lee, Motion, Conroy, 2009; Romani, Grappi, Dalli, 2012). Araştırmalar, bir marka hakkında olumsuz duygulara maruz kalan tüketicilerin, pozitif duygulara maruz kalan tüketicilere kıyasla daha fazla etkilendiğini ve özellikle riskten kaçınma amaçlı olumsuz duygulara daha fazla önem verdiklerini göstermektedir. Ancak, tüketimle ilişkili duygular üzerine yapılan literatür genellikle olumlu duygulara odaklanmıştır, bu nedenle bu alanda yeni araştırmalara ihtiyaç duyulmaktadır.

Bu doğrultuda, bu çalışmanın amacı, olumsuz duyguların ve marka ile ilgili konuların 1993-2023 yılları arasında Web of Science (WoS) veri tabanında yer alan makaleler üzerinden bibliyometrik analizini gerçekleştirerek, tüketicilerin duygusal tepkilerini ele alan literatüre genel bir bakış sunmak ve bu alandaki bilgiye katkıda bulunmaktır. Bu bağlamda, bibliyometrik analiz, makale başlıkları, yazarlar, araştırmalardaki anahtar kelimeler, özetler ve diğer önemli bilgiler üzerinden yapılmıştır. Ayrıca, araştırmaların gerçekleştirildiği ülkeler, yayınlandığı dergiler ve bu unsurlar arasındaki ilişkiler de detaylı bir şekilde incelenmiştir. Bu analiz, akademik literatürdeki bilgiyi daha kapsamlı bir şekilde anlamamıza ve gelecekteki araştırmalara yön vermeye yardımcı olacaktır.

## Kavramsal çerçeve

### Negatif duygular ve marka literatürü (Negative emotions and brand)

Tüketiciler bir otomobil satın alırken ne isterler sorusunun çeşitli cevapları olabilir. Bu cevaplar arasında güvenlik, hız, yol tutuşu ve viraj alma yeteneği gibi somut özellikler olsa da aslında satın aldıkları şey araba anahtarlarını ellerinde tutmanın getirdiği özgürlük duygusunu yaşama isteğidir (Rapaille, 2006: 37-38). Duygular, insanlar için olumlu ya da olumsuz yönde harekete geçirici bir etkiye sahip olan, kafa karışıklığını kolayca azaltan ve karar vermeyi hızlandırabilen unsurlardır (Ou ve Verhoef, 2017: 113; Murray, 2013). Bir duyguya tepki olarak insanlar kendilerini bir şeyler yapmak zorunda hissedebilirler. Örneğin korku duygusu oluşturan fiziksel bir karşılaşmada, insanları kendisini korumasını sağlamak için savaş ya da kaç arasında seçim yapmaya zorlarken; güvensizlik hissettiğinde olumlu öz kimliğini desteklemek için en son model akıllı telefonu satın almasına neden olabilir (Murray, 2013). Bu bağlamda duygular, karar verme seçeneklerini azaltma konusunda karar vericiye yardımcı olur (Zeelenberg, Nelissen, Breugelmans, Pieters, 2008: 18). Bu tüketim deneyimlerini motive etme, şekillendirme ve sürdürülmesini sağlama gibi görevlerinden dolayı duyguları anlamlandırmak pazarlama faaliyetleri açısından oldukça önem arz etmektedir. (Khatoun ve Rehman, 2022: 720).

Duyguların tüketim deneyimindeki önemi ve tüketici davranışlarını şekillendirme potansiyeli üzerine artan bir farkındalıkla birlikte, pazarlama ve tüketici araştırmacıları hem olumlu hem de olumsuz duyguların tüketici davranışlarını nasıl etkilediğini anlamak için daha fazla ilgi göstermektedirler. Son yıllarda, tüketim duyguları konusu pazarlama ve tüketici araştırmacıları arasında giderek daha fazla ilgi çekmektedir. Tüketici psikolojisi literatürü, alışveriş davranışlarında olumlu duyguların (örneğin marka aşkı, marka sadakati, marka deneyimi) önemini vurgulasa da,

nispeten az sayıda araştırmacı özellikle olumsuz duygulara ve bunun sonucunda ortaya çıkan etkilere odaklanmıştır. Pazarlama uyaranları, ürünler ve markaların tüketiciler üzerinde yarattığı duygulara dair yapılan araştırmalar, bu alandaki çalışmaların sayısının artmasına ve duygularla ilgili konuların çeşitlenmesine zemin hazırlamıştır (Babin, Griffin, Borges, Boles, 2013: 471; Haase, Wiedmann, Labenz, 2022: 1). Duygular genellikle olumlu ve olumsuz olmak üzere iki temel kategoriye ayrılır. Olumlu bir şekilde değerlendirilen fizyolojik veya psikolojik deneyimler, olumlu bir değerlendirmeye birleştiğinde olumlu duyguları ortaya çıkarır. Buna karşılık, kişi hoş olmayan bir durumla karşılaştığında veya hedefinden saptığını hissettiğinde olumsuz duygular meydana gelir. Bu duygular bir skalaya yerleştirildiğinde, bir ucunda zevk veya mutluluk, diğer ucunda ise üzüntü veya umutsuzluk gibi duygular bulunacaktır. Tüketici-marka ilişkisi literatüründe, olumlu duygular hep öne çıkarılırken tüketicilerin markalara yönelik olumsuz duyguları genellikle göz ardı edilmiştir (Khatoon ve Rehman, 2022: 720). Muhtemelen duyguları ruh hallerinden ve tutumlardan ayıran en önemli faktör, duyguların ortaya çıkma şeklidir. Duyguların belirli bir referansı olduğu söylenir (örneğin, yeni bir deterjan giysilerdeki çim lekelerini çıkardığında tüketici memnun olurken; bir restoranda kötü hizmetten dolayı öfkelenebilir). Spesifik olarak, duygular, kişinin refahı ile ilgili bir şey için yaptığı değerlendirmelere yanıt olarak ortaya çıkar (Bagozzi, Gopinath ve Nyer, 1999: 186).

Duyguların tüketici davranışlarına olan etkileri ve özellikle marka ilişkilerindeki olumsuz duyguların önemi, teknolojinin ve sosyal medyanın yaygınlaşmasıyla daha da belirgin hale gelmiştir. İnternetin bilgisayarlardan cep telefonlarına nüfuz etmesiyle birlikte, eğlence, iş, alışveriş ve diğer işlemlerin çoğu artık cep telefonları üzerinden gerçekleştirilir hale gelmiştir. Bu durum, insanların mobil olmasına ve sosyal medya kullanımının artmasına yol açmıştır. Gideren artan sosyal medya kullanımı, doğal olarak tüketiciler arasında bilgi paylaşımını da artmıştır. Ancak, bu durum pazarlama alanında olumlu duyguların yanı sıra olumsuz duyguların (yorumlar, şikayetler, nefret gibi) da geçmişte hiç olmadığı kadar öne çıkmasına sebep olmuştur. Özellikle marka, şirket ve hizmetlere yönelik olumsuz yorum ve duygusal paylaşımların, olumlu duygulardan daha fazla önem kazandığı gözlemlenmektedir (Özbilek ve Okutan, 2021: 159). Bu durum, pazarlama alanında duyguların anlaşılmasına yönelik yeni araştırmaların önemini ve ihtiyacını artırmıştır. Yapılan bazı araştırmalar, insanlar için bir ürün veya hizmet hakkında olumsuz paylaşımın, olumlu bir paylaşımından daha fazla önem taşıdığını desteklemektedir. Bunun sonucu olarak, marka yöneticileri ve araştırmacıların tüketicilerin marka hakkındaki olumsuz davranışlarını anlamak için daha fazla çaba ve araştırma yapmaları gerekmektedir (Haase vd., 2022: 2). Bununla birlikte, yapılan araştırmalar içinde olumlu duygular hakkındaki araştırmaların ve tüketicilerin markalara yönelik olumsuz duygularını genellikle göz ardı edildiği anlamına gelmektedir (Babin vd., 2013: 472). Aslında, negatif (olumsuz) marka ilişkileri pozitif ilişkilerden daha yaygın ve daha keskin, markalar için etkileri yönünden daha büyük sonuçlara sebep olabilir; negatif ve pozitif ilişkiler için kategoriler arasında genellikle %55/%45'lik bir bölünme görülmektedir (Fournier ve Alvarez, 2013: 254). Olumsuz duygular, kaçınma davranışının güçlü bir itici gücüdür. Bu yüzden olumsuz duyguların tüketiciler markalar arasındaki ilişkiyi etki ve sonuçları yönünden anlamak, marka yönetimi açısından çok önemlidir (Babin vd., 2013: 472). Olumsuz duygularla ilgili dikkatler genellikle öfke, nefret, hiddet ve üzüntü gibi duygulara yoğunlaşmıştır. Hizmet pazarlaması literatürü genellikle öfke ve hiddet duygularına odaklanırken, marka araştırmaları ise daha geniş bir duygu yelpazesini ele almaktadır. Ancak literatürde ise hor görme, tikslenme, hayal kırıklığı, korku ve diğer (daha az tartışılan) duyguların da markalar, şirketler, ürünler ve hizmet başarısızlıkları gibi çeşitli bağlamlarda önemli olduğunu göstermektedir (Haase vd., 2022: 1). Olumsuz marka ilişkileri hem tüketicilere hem de ilgili şirketlere de zarar verebilir. Şirketlerin fırsatçılık anlayışları, etik veya görgü kurallarını ihlal etmeleri, firma için doğrudan mali kayıplara dönüşebilir. Şirket politikaları, değerleri bu ihlaller nedeniyle sürdürülen düşmanca marka karşıtı ilişkiler şirketlerin başına bela olur ve zararlı etkiler doğurur (Fournier ve Alvarez, 2013:254).

Benzer şekilde bazı marka araştırmaları, olumsuz duyguların ve duygu-marka davranışı bağlantısını belirleme yönelik araştırmalar konusunda eksiklikler olduğunu belirtmektedir (Romani vd., 2012: 56). Negatif ilişkilerin anlaşılmasındaki eksiklikler, negatif duyguların pozitif duygular üzerindeki etkisinin göz önüne alındığında özellikle önemlidir. Birçok psikolojik çalışma, olumsuz bilgilerin olumlu bilgilere göre daha akılda kalıcı, daha tanıdık, daha belirgin ve daha derinlemesine işlendiğini ve paylaşılma olasılığının daha yüksek olduğunu vurgulamaktadır (Fournier ve Alvarez, 2013: 254). Öte yandan, olumlu duygulardan farklı olarak, olumsuz duygusal deneyimlere sahip tüketiciler, olumsuz bir döngüyü kırmak ve duygusal refahlarını artırmak için olumlu algılanan sadakat niyetleriyle güçlü bir bağa sahip olan değer, marka ve ilişki sermayesine daha fazla önem verirler. Markalar müşterilerin olumsuz duygusal deneyimlerini azaltmak için müşteriler hakkında 'Müşteri her zaman haklıdır' gibi olumlu bir bakış açısına sahip olmaları gerekir. Böylece müşteriler tarafından algılanan bu değer onların



müşteri sermayesine sadakat niyetleriyle güçlendirmesinin yanında marka ve ilişki sermayesini de olumsuz duyguların yarattığı etkilerinde azaltılmasında etkili olmaktadır (Ou ve Verhoef, 2017: 113).

Özellikle hizmet pazarlaması üzerine yapılan çalışmalar, düşmanca marka karşıtı ilişkilerin, şirketler için ciddi sorunlara ve zararlı etkilere ve kötü niyetli marka ilişki davranışını da teşvik etmektedir. Tüketiciler tarafından algılanan adaletsizlik -verilen değer ile alınan değer arasındaki fark- ve müşteriler tarafından markaya yapılan şikayetlerin kayıtsız kalması tüketicilerin zihninde marka hakkındaki olumlu imajın kolaylıkla nefret dolu ve intikamcı çağrışımlara dönüşmesine sebep olmaktadır. Bu nedenle, negatif ilişkileri yönetmek aslında marka değeri gelişimi için markalarla olumlu bağlantılar geliştirmekten daha önemli olabilir. Çünkü negatif duyguların yayılması pozitif duygulara göre hem daha hızlı hem daha kolay olabilmektedir (Baumeister vd., 2001: 323; Fournier ve Alvarez, 2013: 256).

Bununla birlikte, tüketicilerin duygusal deneyimlerinin ve bu deneyimlerin marka ilişkilerine etkisinin anlaşılması hem olumsuz duyguların yönetimi hem de marka değeri gelişimi açısından kritik bir öneme sahiptir. Duyguların tüketici davranışlarında kullanımıyla ilgili araştırmalarda ilerleme sağlanamamasının nedeni, duyguların yapısı ve içeriği hakkındaki belirsizliklerdir (Laros ve Steenkamp, 2005: 1438). Geçmişte, duygular araştırmacılar tarafından dikkate alınmamış veya önemsenmemiş olabilir, çünkü duygular nesnel olarak ölçülemez, istikrarsız ve öngörülemez olarak algılanmışlardır. Ancak günümüzde, duygular çeşitli sözel (örneğin, derecelendirme ölçekleri aracılığıyla) ve sözel olmayan yollarla (örneğin Yüz tarama yöntemleri, Beyin dalgası tarama yöntemleri) güvenilir bir şekilde ölçülebilir hale gelmiştir. Dahası, duyguların davranışlar üzerindeki etkisi aslında daha önce düşünülenlerden daha basit ve sistemli olduğu ortaya çıkmıştır. Aslında duygular sonuçları açık, istikrarlı ve oldukça öngörülebilirdir. Bu durum, farklı duygusal etkilerin karar verme üzerinde bütüncü bir açıklaması için fırsatlar yaratmıştır (Zeelenberg vd., 2008: 18). Duyguların insanlar için önemli olması, markalara yönelik olumsuz duygularla tüketici deneyimlerini analiz etmeyi uygun hale getirir. Geçmişte pek çok marka araştırması, markalar için somut ve ürünle ilgili bilgilere odaklanmış olsa da son yıllarda markalaşma giderek daha soyut ve somut düşünceler hakkında odaklanmıştır. Bu araştırma alanları, tüketici-marka ilişkisinde göz ardı edilen yönleri ortaya çıkarmaya yardımcı olmaktadır (Rodrigues ve Borges, 2021: 275).

Konu ile ilgili daha önce yapılan çalışmalara kısaca bakıldığında ise; akademik araştırmalardan elde edilen kanıtlar, tüketim deneyimindeki olumsuz duyguların pazarlamacılar için istenmeyen sonuçlara yol açtığını ve olumsuz duygulardan kurtulmanın olumlu sonuçlara yol açtığını da doğrulamaktadır. Yani aslında olumsuz duyguların farklı sonuçlar doğurabileceği koşulları daha iyi anlayabilmemiz için çok daha fazla çalışmaya ihtiyaç vardır (Chaudhuri, 1997: 91). Her biri bireyi farklı şekilde etkileyen duyguları inceleyen mevcut yaklaşımların çoğu, sevinç hissini üzüntü hissinden farklı olduğunu ve öfkeli olduğumuzda algılarımızın, düşüncelerimizin ve eylemlerimizin korktuğumuzdaki veya korktuğumuzdaki davranışlarımızdan farklı olduğunu kabul etmektedir. Davranışlardaki bu farklılıkları açıklarken, bazı yaklaşımlar birey tarafından değerlendirilen durumdaki farklılıklara, bazıları tepki özelliklerindeki farklılıklara, bazıları da öznel deneyimlerdeki farklılıklara bakmışlardır (Izard, 1977: 100).

Duygular ile ilgili yapılan ilk araştırmalarda araştırmacılar sekiz tane temel duyguyu kabul ederken Plutchik (1980), daha sonra kimi araştırmacılar ise yaptıkları çalışmalarda Laros ve Steenkamp (2005) olumlu duyguları 125 tane ve olumsuz duyguları yaklaşık 172 tane olarak belirlemişlerdir. Negatif duygular konusunda çeşitli araştırmalara gelindiğinde ise olumsuz duyguların kadın ve erkek arasındaki farkları (Babin vd., 2013), Markalarla kötü ilişkiler kurmayı teorik anlamda açıklayan (Fournier ve Alvarez, 2013), markalara karşı olumsuz duyguların kavramsallaştırılmasına yönelik 18 maddelik bir "Marka Negatif Duygu Ölçeği" geliştirerek yaptıkları çalışmada marka ile olumsuzluk yaşayan tüketicilerin genelde rakip markalara geçmeyi araştıran (Romani vd., 2012), bunun yanında olumsuz duyguların olumlu bağı güçlendirdiğini (Verhoef ve Ou, 2017), olumsuz duyguların her zaman olumsuz sonuçlara yol açmadığını ve olumsuz duygular da mutlaka olumsuz sonuçlar ortaya çıkarmayabileceği sonucuna (Jin, Lin, McLeay, 2020), tüketicinin kafa karışıklığının olumsuz duygular üzerinde önemli bir etkiye sahip olduğu ve bunun sonucu olarak etik gıda ürünleri satın alma niyetlerini etkilediğini gösteren (Manthiou, Hickman, Klaus, 2020) bu araştırmalardan bazılarıdır.

Yine olumsuz duyguların ne uçlarından ve markaya en fazla zarar veren duygu olan marka nefretiyle ilgili yapılan araştırmalara bakıldığında ise negatif duygu aktarımı olan kişisel negatif elektronik ağızdan ağıza (negative electronic Word of Mouth-NeWOM) ve olumsuz kişisel ağızdan ağıza (personel Word of Mouth-pWOM) kaynakların elektronik ağızdan ağıza (WOM) olan güven üzerindeki etkisini inceleyen ve yani olumsuz nWOM), olumlu WOM'lardan daha ağır geldiğini gösteren (Bachleda ve Fathi, 2016), olumsuz duyguların markalar için zararlı olduğu ve en uç markalar için olumsuz

duygulardan olan markan nefretine yol açtığıyla ilgili eğer firmalar tarafından tüketicilerin olumsuz duygularına dikkat edilmediğinde ve gerekli önem alınmadığında, marka aşkının nasıl nefrete dönüştüğü zincirleme olarak bu da markadan intikam ve marka kaçınma davranışı şeklinde nasıl ortaya çıktığını (Kucuk, 2008a), olumsuz duygulardan kaynaklı tüketici tatminsizliği köken ülke gibi öncüllerin lüks markalarda marka nefreti üzerinde etkili olduğunu (Bryson, Atwal, Hultén, 2013), en uç olumsuz duygulardan olan marka nefretine etkisini duyguları aktif ve pasif davranışa neden olan duygular olarak iki farklı grup altında toplayıp incelemiş ve bunların ve marka nefretinin sonuçlardan olan şikâyet etme, olumsuz ağızdan ağıza iletişim, protesto etme-kaçınma ve gibi olumsuz davranışlara neden olduğunu bulmuşlardır (Zarantonello, Romani, Grappi, Bagozzi, 2016). Olumsuz duyguların davranışa dönüşmesi sonucu meydana gelen kaçınma davranışını Y Kuşağı tüketicileri arasında inceleyen (Knittel vd., 2016), olumsuz duygulardan meydana gelen kaçınma ve protokollerini incelemek için teorik olarak temellendirilmiş bir ölçek geliştiren ve kaçınma davranışının nedenlerini inceleyen (Odoom, Kosiba, Djamgbah, Narh, 2019), olumsuz duygularına sebep olduğu kaçınma da kitle ile imajın önemli olduğu ayrıca sosyal medyanın da kaçınma davranışında etkili olduğu araştırmasında bulan (Khan, Ashraf, Malik, 2019), tüketici çıkışı (markayı bırakması ile ilgili-brand exit), tüketici çıkışının ve tüketici sesinin tüketicinin gücü olduğunu ve sebeplerini araştıran (Kucuk, 2008b) olumsuz duygularla ilgili yapılan çeşitli araştırmalara örnek verilebilir.

## Bibliyometrik analiz

Bibliyometri, daha objektif ve güvenilir analizler sağlayarak araştırmacılara ve akademik dünyaya mevcut araştırmaların "büyük resmini" sunar. Bibliyometri, kavramsal gelişmelerin ve verilerin ezici hacmi, büyük bir bilgi kütesine yapılandırılmış bir analiz yapılmasına, zaman içindeki değişen paradigmaları ve bu paradigmalardaki kaymaları belirlenmesine, en üretken akademisyenleri ve kurumları tespit edilmesine de imkân sağlar (Aria ve Cuccurullo, 2017: 959).

Bibliyometrik analiz, matematik ve istatistiksel yöntemlerin yayınlara ve diğer iletişim araçlarına uygulanarak literatürün kapsamlı bir şekilde incelenmesi sürecidir (Pritchard, 1969: 349). Bu analiz, belirli bir konu veya alana odaklanarak tüm yayınları kapsar ve temel araştırmaları, yazarları ve aralarındaki ilişkiyi tanımlamak için bilgisayar destekli bir inceleme metodolojisi olarak kullanılır (Han, Kang, Kim, Kwon, 2020: 110). Bibliyometrik analiz, kayıtlı bilginin üretimi, yayılması ve kullanımının niceliksel yönlerini incelemeyi amaçlamaktadır (Tague-Sutcliffe, 1992: 1). Başlangıçta yazar veya alıntı bilgilerine dayalı olan bibliyometrik analiz, günümüzde başlıklar, anahtar kelimeler ve soyut verilere dayalı ağ analizi ve sosyometrik analiz gibi birçok analizi içermektedir (Han vd., 2020: 110). Bibliyometri, günümüzde bilimsel ve teknolojik araştırmaların çıktılarını sadece bilimsel literatürden değil, aynı zamanda patentlerden elde edilen verilerle de ölçmek için kullanılan bir dizi özel ölçüm ve gösterge için yaygın bir terimdir (Okubo, 1997: 9). Tarihsel olarak, bibliyometrinin kökenleri Batı'da bulunmaktadır ve bibliyografyaların istatistiksel çalışmalarından türemiştir. Bibliyometri terimi, oldukça yeni olsa da kullanımı ve uygulanması 1890'lara kadar izlenebilir. Campbell'ın (1896) yayınlarda konu dağılımını incelemek için istatistiksel yöntemler kullandığı çalışması, muhtemelen bibliyometrik çalışmalarda ilk girişimdir (Sengupta, 1992: 75). İstatistiksel bibliyografi terimi ise ilk olarak E. Wyndham Hulme tarafından 1922'de Cambridge Üniversitesi'nde Bibliyografya alanında iki konferans verdiğinde kullanılmıştır. 1962'de Raisig tarafından atıf çalışmaları üzerine eleştirel bir denemede yapılsa da (Pritchard, 1969: 348), bibliyometri terimi ise ilk olarak 1969 yılında Alan Pritchard tarafından "In Statistical Bibliography or Bibliometrics?" isimli makalede kullanılmıştır (Pritchard, 1969: 349).

Pritchard'ın, Hulme'un "istatistiksel bibliyografya" terimini kullanmasından elli yıl sonra, bibliyometri teriminin ortaya çıkması, yeni bir nicel araştırma alanının doğuşunu göstermiştir. Pritchard, bibliyometriyi, matematiksel ve istatistiksel yöntemlerin kitaplara ve diğer iletişim araçlarına uygulanması olarak tanımlamıştır (Okubo, 1997: 8). Bibliyometrik terimi, diğer bilimsel alanlarla yakın ilişkisi olan "*biyometri*", "*ekonometri*" ve "*scientometrics*" gibi benzer terimlerle ilişkilendirilmiş ve bilim dünyasında kabul görmüştür. Pritchard, bu terimin yazılı iletişim süreçlerini nicelleştirmeyi amaçlayan tüm çalışmalarda açıkça kullanılacağını ve bilgi bilimi alanında hızla yayılacağını ummuştur (Pritchard, 1969: 349).

Günümüzde bibliyometrik analiz, birçok farklı alanda kullanılmaktadır (Okubo, 1997: 9):

- *Bilim tarihi*: Araştırmacılar, bibliyometriyi kullanarak elde ettikleri sonuçların tarihsel hareketlerini izleyerek bilimsel disiplinlerin gelişimini açıklamaktadır.
- *Sosyal bilimler*: Bilimsel literatürün incelenmesiyle birlikte, bibliyometri sosyal bilimlerde bilimsel toplulukların ve belirli bir toplumdaki yapılarının yanı sıra araştırmacıların motivasyonları ve ağlarının analizini sağlayarak kullanılmaktadır.

• *Bilim politikası*: Bibliyometri, üretkenliği ve bilimsel kaliteyi ölçmek için göstergeler sağlayarak Ar-Ge'yi değerlendirmek ve yönlendirmek için bir temel sağlamaktadır.

• *Dokümantasyon*: Bibliyometri, dergi sayısını sayarak ve belirli bir bilim alanındaki bilgileri analiz ederek dergilerin miktarını ve çeşitliliğini belirleyerek kullanılmaktadır.

Bibliyometrik yaklaşımlar, bilimin elde edilen sonuçlarla tasvir edilebildiği ve bilimsel literatürün bu sonuçların kurucu tezahürü olduğu fikrine dayanmaktadır (Okubo, 1997: 8).

Bibliyometrik ve alıntı analizi literatürü oldukça geniştir ve sadece alıntı analiziyle ilgili olarak, bunun var olma nedeni konusunda çeşitli amaçları bulunmaktadır. Bu amaçları özetlemek gerekirse (Day, 2014: 67):

- Bir disiplinindeki bir eserin veya akademisyenin etkisini göstermek,
- Bir eserin veya bilim adamının başka bir eser veya bilim adamı üzerindeki etkisini göstermek,
- Bilim adamlarının alıntı yapma davranışlarını göstermek (genel olarak anlaşılır),
- Etki ağlarını göstermek (sosyolojik çalışmalar veya politika kararları nedeniyle),
- Disiplinlerdeki temel veya ikincil konuları, etkileri ve yazarları gösterme,
- Bir disiplinindeki eserlerin büyük ve küçük yapımcılarını ve alıntı ilişkilerini gösterme,
- Araştırma disiplinlerini, alt alanlarını ve birbirleriyle ilişkilerini gösterme.

Zaman içinde bibliyometri'nin kullanımı tüm disiplinleri kapsayacak şekilde genişletilse de bibliyometrik analiz karmaşıktır ve bibliyometrik analiz için genellikle ticari lisanslar altında bulunan birçok analiz ve haritalama yazılım aracı kullanılırdı. Günümüzde açık kaynaklı ve ücretsiz yazılımların çıkması sonucu bibliyometrik analizde kullanılan yazılım ve araçlar eskisine nazaran hem daha fazla çeşitli hem de daha kolay hale gelmesi bibliyometrik analize olan ilgiyi arttırmıştır. Bibliyometrik analiz sayesinde çeşitli tekniklerin birleşimi daha detaylı, etkili ölçümler sağlar ve sonuçlar, kavramlar arasındaki ilişkileri tasvir etmek ve analiz araçlarını genişletmek için bu sayede çeşitli biçimlerde sunulabilir (Okubo, 1997: 9).

## Yöntem

### Araştırma modeli

Ham verileri toplamak için Web of Science, Scopus dijital kitaplığından dışa aktarılan veri tabanları kullanılmıştır. Web of Science hakemli makalelerin en yetkili veri tabanlarından. Araştırma çerçevesine dayanarak, analiz sorgusu aşağıdaki gibi oluşturulmuştur. Araştırma modeli Aria ve Cuccurullo (2017) temel alınarak oluşturulmuştur. Buna göre ilk önce evren araştırma yapılacak konu belirlenir ve bu konu çeşitli kıstaslarla veri tabanında arandıktan sonra analiz yapılmak üzere veri alındıktan sonra, bu veri yükleme ve R veri çerçevesine dönüştürme işlemi yapılır. İlk Aşama veri yükleme ve dönüştürme, Tanımlayıcı bibliyometrik analiz (Bibliyometrik analizin ana sonuçlarını özetler), ikinci aşama Belge x Nitelik matrisi oluşturma-bir bibliyografik veri çerçevesinin metin alanlarından (özet, başlık, yazarın anahtar sözcükleri ve diğerleri) terimleri ayıklar ve çıkarır, normalleşme (bir bibliyografik ağın nesnelere arasındaki ilişkilendirme gücünü), Veri Azaltma (kavramsal yapı), Ağ matrisi oluşturma (en sık kullanılan bibliyografik eşleştirme, ortak alıntı, işbirliği ve birlikte oluşum ağlarını hesaplar), haritalamadan oluşmaktadır (MCA ve kümeleme kullanarak bilimsel bir alanın kavramsal yapı haritasını çizer) (Aria ve Cuccurullo, 2017: 963).



Şekil 1: Markalara Karşı Olumsuz Duyguların Sistemik Bibliyometrik Literatür İncelemesi Araştırma Modeli

## Evren ve örneklem

Bibliyometrik yöntemler, yazılı yayınları analiz etmek için bilimin çeşitli yönlerinde yaygın olarak kullanılmaktadır (Bao, Kusadokoro, Chitose, Chen, 2023: 62). Toplanan veriler Web of Science (WoS) veri tabanından alınmıştır.

Araştırma sorgusu aşağıdaki gibi oluşturulmuştur:

*Sorgu* = (“negative emotions” and “brand”) şeklinde olmuştur.

Arama terimleri Konu = (Negative Emotions\*) Ve Konu = (Brand\*) Ve Dil: (İngilizce), Türlerine göre düzenlenmiştir: (Makale). Endeksler: SCI- EXPANDED, SSCI, A&HCI. Zaman aralığı: 1993–2023. Veri alma, 14 Kasım 2023’de uygulanmış ve ilk olarak 180 çalışma bulunmuştur aranmıştır. Bunlar 1993-2023 yılları arasında yazılmış İngilizce çalışmalardır. Başlık, yazar adı, yayın yılı, dergi, yazar anahtar kelimeleri ve özet bibliyometrik verileri çekilmiştir ve sonuçta ortaya çıkan 2.703 referans, daha ileri analizler için veri kümesi olarak kullanılmıştır.

## Veri toplama ve metodoloji

Veri analizi ve görselleştirme R ve R Studio programları kullanılarak hem bibliyometrik analiz kodları yazılmak suretiyle hem de biblioshine arayüzü yardımıyla R/R studio’nun eklentisi olan Bibliometrix programı kullanılarak yapılmıştır.

Veri setleri Web of Science (WoS) veri tabanından elde edilmiştir. “Web of Science, birçok bilimsel alandaki bilgiler için önde gelen 1900’den günümüze küresel ölçekte bilimsel içerik, etki ve iş birliklerine ilişkin dikkate değer bir veri hazinesi içermektedir (Uzzi, 2023; Bao vd., 2023: 62). WoS’ta 2,2 milyardan fazla alıntılanan referans bulunurken, 1864’e kadar uzanan 196 milyondan fazla tarihsel kayıtlar, 34 bin fazla hakemli dergiler, 300 binden fazla konferans dokümanı, 134 binden fazla çeşitli konularda kitaplar, 14,5 milyondan fazla veri setleri ve çalışma, 109 milyondan fazla patent ve patent belgeleri, 6 milyondan fazla buluşlar, 2,5 milyondan fazla çalışmaların ön baskıları ve 254 çeşit konu kategorisi içermektedir (WoS, 2023).

WoS’ta yer alan veri tabanlarından biri olan WoS Çekirdek Koleksiyonu, araştırmacılara bibliyometrik analiz platformuna aktarılabilen geniş miktarda yetkili dergi ve yayın kaynağı ve bunların yeterli göreceli bilgisini sağlar. WoS Çekirdek Koleksiyonu 6 Atıf Dizini içerir (Science Citation Index Expanded (SCI-Expanded), Sosyal Bilimler Atıf Dizini (SSCI), Sanat ve Beşerî Bilimler Atıf Dizini (A&HCI), Konferans Bildirileri Atıf Dizini-Bilim (CPCI-S), Konferans Bildirileri Atıf Dizini-Sosyal Bilimler ve Beşerî Bilimler (CPCI-SSH) ve Yükselen Kaynaklar Atıf Dizini (ESCI) ve 2 Kimyasal Dizin (Current Chemical Reactions (CCR-Expanded) ve Index Chemicus (IC) içerir (Li vd., 2019: 2826). Bibliyometrik analiz için HistCite, Gephi, VOSviewer, BibExcel, Biblioshiny, BiblioMaps CiteSpace, SciMat, Bibliometrix ve R programları gibi çeşitli programlar kullanılabilir (Şimşek, Desticioğlu Taşdemir, Koç, 2023: 612).

Bibliometrix paket programı R programlama dili/ortamı üzerinde çalışan bir paket programdır. R, istatistiksel bilgi işlem ve grafikler için bir dil ve ortamdır. Çok çeşitli istatistiksel ve grafiksel teknikler sağlar ve oldukça genişletilebilir. R, istatistiksel işlemlere olanak sağlamasının yanı sıra, nesne yönelimli ve işlevsel bir programlama dilidir; bu sayede analizlerinizi otomatik hale getirebilir ve yeni fonksiyonlar oluşturmaya imkân sağlar. Bibliometrix, R tabanlı bir paket program olduğu için, önerilen araç esneklik, hızla yükseltilebilir ve diğer istatistiksel R paketleriyle entegre edilebilir. Bu nedenle, bibliyometri gibi sürekli değişen bir alanda esnek ve geliştirilebilir ve analiz sırasında değiştirilebilir parametreler ile (örneğin tematik haritalarda özet-yazar ve diğer kıstaslardan birisini seçerken aynı zamanda örnek büyüklüğünü de ayarlama bigram-trigram vb gibi ayarlama olanağı sunarak) araştırmacılara kullandıkları veri tabanlarındaki gizli kalmış sonuçlara ulaşma olanağı verir (Aria ve Cuccurullo, 2017: 960). Yapılan analizde Bibliometrix programındaki arayüzünde her analizinde ona özgü içeriğinde “options” seçeneği altında bulunan çeşitli parametreler örneğin Co-occurrence Network analizi yaparken *Field* başlığı altında *Keywords*, *Author’s Words*, *Titles*, *Abstracts*, *Subject Categories* (WoS) başlıklarından birini seçerek yine N-Gram altında *Unigram*, *Bigram*, *Trigram* şeklinde örnek büyüklüklerini belirleyerek yada *Text Editing*, *Methods Parameters*, *Graphical Parameters*’lerdeki çeşitli alt başlıklarında bulunan seçenekler ile analizde farklı bakış açıları ile analizde yönleri keşfetmek ve ulaşmak da mümkündür. Ve çalışmada bu şekilde ayrıca standart analiz farklı yönlerini keşfetmek için kullanılan parametreler olduğunda şeklin altında ayrıca parantez içerisinde belirtilmiştir.

### Araştırma soruları

Çalışmanın amacını, araştırmacıların son dönemlerde yoğun ilgi gösterdiği negatif duygular ve marka (*Web of Science veri tabanında taranan çalışmalar dikkate alınarak*) bibliyometrik analiz yöntemi ile incelemektir. Çalışmanın amacına ulaşmak için, marka nefreti ile ilgili çalışmaların bibliyometrik yöntemle analiz edilmesi için cevapları aranılan sorular şu şekilde belirtilmiştir;

2009-2023 yılları arasında Web of Science veri tabanındaki dergilerde ‘negatif duygular markalar’ kavramı ile ilgili makalelerin en fazla atf alan makale hangisidir?

❖ Web of Science veri tabanındaki çalışmalarda ‘negatif duygular ve marka’ kavramı alanında çalışmalarda yayın sayısı nedir?

❖ Web of Science veri tabanındaki dergilerde ‘negatif duygular ve marka’ kavramı alanında yıllara göre yayın sayısındaki değişim nedir?

❖ Web of Science veri tabanındaki dergilerde ‘negatif duygular ve marka’ kavramı alanında en fazla atf alan araştırmacılar kimlerdir?

❖ Web of Science veri tabanındaki çalışmalarda ‘negatif duygular ve marka’ kavramı alanında yapılan çalışmaların tarihsel olarak gelişimi nasıldır?

❖ Web of Science veri tabanındaki çalışmalarda ‘negatif duygular marka’ kavramı ile ilgili makalelerin yayınlandığı çalışmalarda üretkenliği en fazla olan hangisidir?

❖ Web of Science veri tabanındaki çalışmalarda ‘negatif duygular ve marka’ kavramı ile ilgili en üretken ülkeler ve üniversiteler hangileridir?

❖ Web of Science veri tabanındaki yayınlanan ‘negatif duygular ve marka’ ile makalelerde en sık geçen kelimeler hangileridir?

❖ Web of Science veri tabanındaki çalışmalarda ‘negatif duygular ve marka’ kavramı ile ilgili yayınlanan makalelerde en çok kullanılan kelimeler nelerdir?

❖ Web of Science veri tabanındaki çalışmalarda ‘negatif duygular ve marka’ kavramı ile ilgili yayınlanan makaleleri yazan sorumlu yazarlar en çok hangi üniversite ve ülkelerde bulunmaktadır ve bunların arasındaki ilişki nasıldır?

### Analiz ve bulgular

Bu çalışma 1993-2023 yılları arasında yayınlanmış olana, WoS veri tabanında bulunan negatif duygular ve marka üzerine yapılan araştırmaların bibliyometrik analizidir. Bibliyometrik analiz benzer şekilde, ancak daha basit bir dille, literatürdeki bibliyografik referanslarda niceliksel analizin uygulanması olarak tanımlanmıştır (Osareh, 1996: 150). “Negatif duygular ve marka” ile ilgili hazırlanan makalelerin bibliyometrik analizinde (Tablo 1), 1993-2023 yıllarına ait toplam 180 makale Web of Science (WoS) veri tabanı üzerinden elde edilmiştir.

### Genel analiz

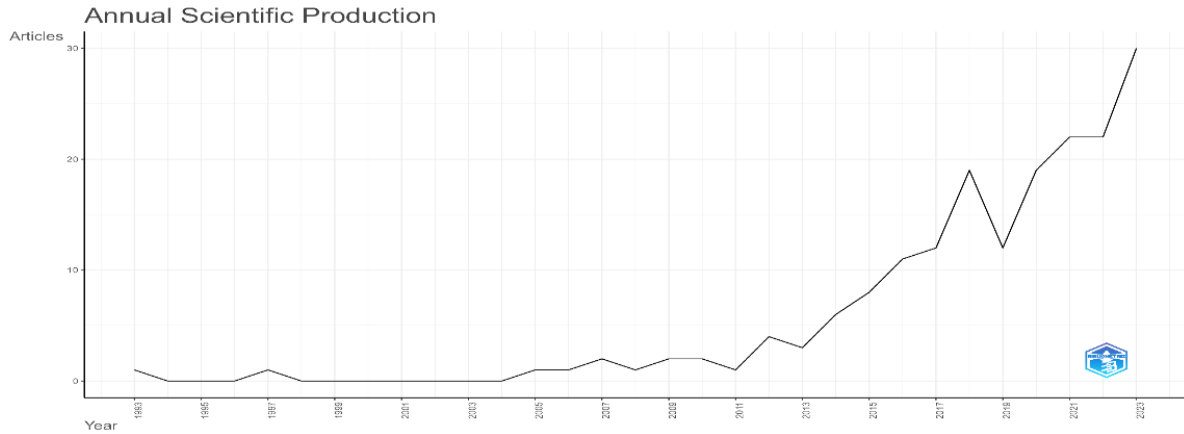
Buna göre yapılan analizde çıkan çalışmalar ile ilgili genel sonuçlar ise Tablo 1’de gösterilmiştir.

**Tablo 1:** Analiz Edilen Yayınlarla Ait Genel Bilgiler

Veriler ile İlgili Temel Bilgiler			
Konu	Sonuç	Konu	Sonuç
Zaman Aralığı	1993:2023	<b>Yazarların İş birlikleri</b>	
Kaynaklar (Dergiler, Kitaplar)	108	Tek Yazılmış Dokümanlar	11
Çalışmalar	180	Doküman Başına İş birliği Oranı	3,1
Yıllık Gelişim Oranı %	%12	Uluslararası İş birliği %	33,33
Dokümanların Ortalama Yaşı	5,51	<b>Doküman Türleri</b>	
Doküman Başına Ortalama Alıntı	23,7	Makale; Dergi	151
Referanslar	10418	Makale; Kitap Bölümü	3
<b>Doküman İçerikleri</b>		Makale; Erken Erişim	8
Anahtar Kelimeler (ID)	634	Makale; Bildiri Sunum	1
Yazarların Anahtar Kelimeleri (DE)	703	Bildiri	14
<b>Yazarlara Ait Bilgiler</b>		Makale-İnceleme	3
Yazarlar	526		
Tek Yazarlı Doküman Sayısı	13		

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

WoS'tan "negatif duygular ve markalarla" ilgili olarak 1993-2023 yılları arasında İngilizce olarak yazılmış makalelerin indirilmek suretiyle elde edilen veri tabanı açık kaynak R programı 4.4 versiyonu üzerinde çalışan açık kaynak Bibliometrix 4.0 paket programıyla analiz edilmiştir. Buna göre veri tabanında (makale de yer yer *yerel veri tabanı* olarak kullanılabilir) makalelerin yazılma tarihleri 1993-2023 yılları arasındadır ve 108 dergide toplam 180 adet negatif duygular ve marka ile ilgili çalışma yapılmış olup bu çalışmaların yaş ortalaması 4,51'dir. Doküman başına ortalama atıf sayısı 23.70 iken, doküman başına yıllık toplam atıf sayısı 3444 tür. Yayınlanan çalışmaların 151 tanesi dergi için yazılmış makale, 3 tanesi kitap bölümü olarak yazılmış makale 8 tanesi erken erişim makalesi geri kalanı ise bildiri ve inceleme şeklindedir. Yine tek yazarlı dokümanların sayısı 11 iken, doküman başına iş birliği oranı %3,1 ve uluslararası yazar iş birliği oranı ise %33,33'tür. Elimizdeki veri tabanındaki çalışmaların 151 tanesi makale, 3 tanesi kitap bölümü, 8 tanesi erken erişim makalesi, 1 tanesi makale-bildiri, 14 tanesi ise bildiri 3 tanesi ise inceleme (review) makalesinden oluşmaktadır.



**Şekil 2:** Yıllık Bilimsel Üretim

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

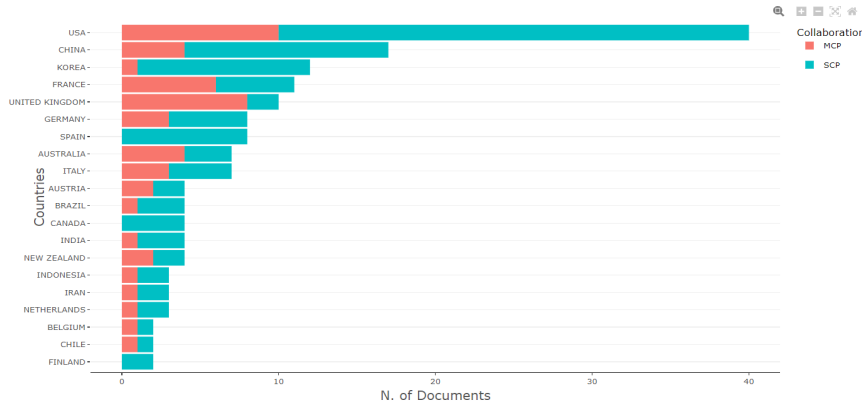
Şekil 2'de olumsuz marka duygularıyla ilgili yıllara göre yazılan makalelere bakıldığında 2008-2011-2013 ve 2019 yılları hariç genelde her yıl bir önceki yıla göre bir artış olduğu görülmektedir. Yıllık artış oranı %12 ve en fazla makale yazılan yıl 2023 yılı olmuştur. Bu bilgi markalar hakkında negatif duyguların gittikçe önemsenen bir konu haline geldiğini göstermektedir.

**Tablo 2:** Ülkelerin Bilimsel Yayın Üretimi

Ülke	Makale Sayısı	Sıralama
ABD	141	1
Çin	60	2
Fransa	37	3
Almanya	37	4
İngiltere	33	5
Güney Kore	32	6
Avustralya	24	7
İspanya	24	8
İtalya	23	9
Hollanda	18	10
Türkiye	3	32

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

Tablo 2'de ülkelerin bilimsel yayın üretiminde 141 tane makale ile ABD ilk sırayı alırken, ABD'yi 60 makale ile Çin, 37'şer makale ile Fransa ve Almanya, 33 makale ile İngiltere ve 32 makale ile Güney Kore, 24'er makale ile Avustralya ve İspanya'yı, 23 makale ile İtalya ve 18 makale ile Hollanda 10.cu sırada yerini almıştır. Türkiye ise 3 makale ile 32. sırada yerini almıştır



**Şekil 3.** Ülkelere Göre Makaleler (Tek Yazarlı ve Çok Yazarlı Olarak) Sorumlu Yazarların Ülkeleri

**Kaynak:** WoS veri tabanı kullanılarak R programında Yazar tarafından hazırlanmıştır.

Şekil 3'te sorumlu yazarların ülkelerine bakıldığında tek ve çok yazarlı makalelerde ABD başı çekerken çok yazarlı makalelerde İngiltere ikinci sırada yer almaktadır. İngiltere'yi Fransa, Çin ve Avustralya izlemektedir.

En fazla makale yazan yazarlar ve çalıştıkları üniversiteler Bibliometrix programı farklı tablolar halinde çıktı vermiştir. Bunlar yazar tarafından tek tablo haline getirilerek Tablo 3'te gösterilmiştir. Buna göre en fazla üretken yazar ABD'de Texas Üniversitesinden, S. Kim adlı yazar olmaktadır. Bunu olumsuz duygular ile markalar ve marka nefreti ile ilgili çalışmaları bulunan Milano Üniversitesinden, İtalya'dan Silvia Romani takip ederken bunu tüketici duyguları özellikle duyguların sürdürülebilirlikteki rolü, kurumsal sosyal sorumluluk ve tüketici etiği ile ilgili alanlarda çalışmaları bulunan Neoma Üniversitesi Fransa'dan Paolo Antonetti adlı yazar bulunmaktadır. Ve beş numarada ise insan duyguları, karar verme sosyal kimlik, etik, eylem teorisi ve pazarlamanın daha birçok dalında araştırmalarıyla tanınan pazarlama alanına en fazla katkı sağlayan ve pazarlama alanında en çok alıntı yapılan Amerikalı pazarlama teorisyeni akademisyen Richard P. Bagozzi bulunmaktadır. İlk 10'da tablonun geneline bakıldığında ise en fazla makale yazan ilk 10 yazar içinde ABD'deki üniversitelerden akademisyenler çoğunluktadır. Buna göre ABD üniversitelerinin ağırlığı 6 makale ile hissedilmekteyken bunu 3 makale ile İtalya ve İtalya'daki üniversitelerden akademisyenler takip ederken ilk 10 da tek makale ile Fransa ve Fransa üniversiteleri yerini almaktadır. Türkiye'den ise Yozgat Bozok Üniversitesi'nden R. Kurtoglu, T. Ozboluk ve P. Hacıhasanoğlu tarafından hazırlanan bir makale yer almaktadır.

**Tablo 3:** En Üretken Yazarlar ve Çalıştıkları Üniversiteler

	Yazarlar	Makale Sayıları	Ülke
1	Kim, S.	3	Texas Üniversitesi ABD
2	Ma, L.	3	Texas Üniversitesi ABD
3	Romani, Silvia	3	Milano Üniversitesi İtalya
4	Antonetti, Paolo	2	NEOMA Üniversitesi Fransa
5	Bagozzi, Richard P.	2	Michigan Üniversitesi ABD
6	Brand, Ann E.	2	Campbell Üniversitesi ABD
7	Bui, M.M.	2	Loyola Marymount Üniversitesi ABD
8	Dalli, Daniele	2	Pisa Üniversitesi İtalya
9	Ford, John B.	2	Old Dominion Üniversitesi ABD
10	Grappi, Silvia	2	Modena Üniversitesi İtalya
11	Kurtoglu R; Ozboluk T, Hacıhasanoğlu P.	1	Yozgat Bozok Üniversitesi Türkiye

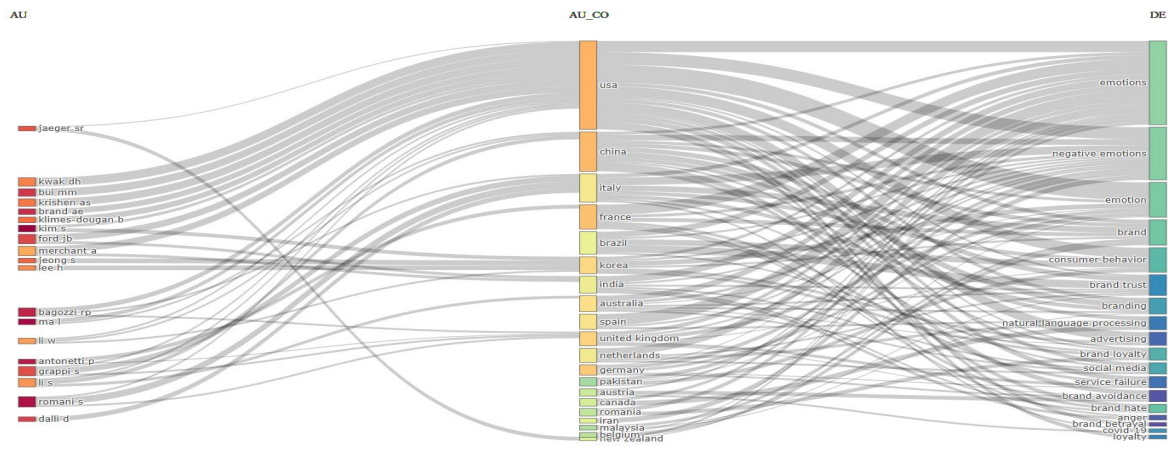
**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

Tablo 4'te olumsuz duygular ve marka yazını içinde en etkili dergilere bakıldığında ise ilk sırada Journal of Business Research dergisi ve Journal of Product and Brand Management dergileri 12'şer makale ile ilk sırada yerlerini alırken onları Psychology&Marketing ve Sustainability dergileri 7'şer makale sıralamada yerlerini almışlardır.

**Tablo 4:** En Etkili Dergiler

Dergiler	Makale Sayıları
Journal of Business Research	12
Journal of Product and Brand Management	12
Psychology & Marketing	7
Sustainability	7
International Journal of Research in Marketing	4
Asia Pacific Journal of Marketing and Logistics	3
British Food Journal	3
European Journal of Marketing	3
Food Quality and Preference	3
Frontiers in Psychology	3

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

**Şekil 4:** Üç Bölge Tablosu (Parametreler: Yazarlar, Anahtar Kelimeler- Referanslar)

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

Şekil 4'teki diyagramlardaki kutucuların büyüklükleri ve bağların büyüklükleri iki öge arasındaki ne kadar büyük ise ilişki oranı o kadar artmaktadır. Buna göre "olumsuz duygular ve marka" hakkında yapılan çalışmalara en fazla katkıyı sağlayan ülkeler Amerika, Çin, İtalya, Fransa, Brezilya, Kore ve Hindistan olmaktadır.

En fazla atıf alan yazarlara ait tablo ise R programında Bibliometrix programı yardımıyla WoS veri tabanından "Negative Emotions and Brand" alanında en fazla atıf alan çalışmalar filtrelenerek Tablo 5 oluşturulmuştur. Buna göre en fazla 702 atıf ile en fazla atıf alan yazarlar Bagozzi ve Dholakia'nın (2006), "International Journal of Research In Marketing" adlı dergide yayınlanan "küçük grup marka topluluğu katılımcılarının davranışlarını ve davranışlarının belirleyicileri" üzerine yaptıkları çalışmadır. Sıralamada 261 alıntı sayısı "cinsiyet farklılıklarının dört ana teorisi tartışarak 2000'den 2013'e kadar pazarlama, psikoloji ve biyotıp alanları ile ilgili yapılan" yaptıkları çalışma ile ikinci olan Meyers ve Loken (2015)'i, "psikolojide duygular, ergenlerde duygusal ve davranışsal sorunlar ve ebeveynlerle olan duygu sosyalleşmesi üzerine" yaptıkları çalışma ile Klimes - Dougan vd. (2007), turistlerin yer bağlılığı memnuniyetin duygulara bağlı olarak değişen konaklama hizmeti tavsiyelerini inceleyen Hosany vd. (2017) 185 atıf ile dördüncü olurken, Zarantonello vd. (2016) Avrupa'da iki nicel çalışma yürütmüş ve ilk çalışmada bir marka nefreti ölçeği geliştirerek bu ölçeğin davranışsal sonuçlar üzerindeki etkileri test edilmiş ve ikinci çalışmada ise yazarlar, marka nefretinin nedenlerine bağlı olarak marka nefretinin ve davranışsal sonuçlarının nasıl değiştiğiyle ilgili çalışmalarını 170 alıntı ile 5.ci sırayı almışlardır. Spinelli vd. (2015) ise yaptıkları çalışmada ürünün duyusal özellikleri ve ambalaj/markalaşmanın ortaya çıkardığı miktarları araştırdığı çalışmasıyla 7.ci sırayı alırken, Vidal vd. (2016)'nin yiyeceklerle ilgili duygusal deneyimler hakkında yaptığı çalışmada ise 12.260 tweeti analiz ettiği çalışmasıyla 8.ci sırayı, Dunn ve Hoegg (2014) ise tüketicinin korkuya bağlı etkisindeki rolü incelediği çalışma ile 9.cu sırayı, Esch vd. (2012) bildirimsel ve deneysel bilgileri kullanarak marka değerlendirmeleri üzerine Fonksiyonel manyetik rezonans görüntüleme (fMRI) çalışması ile 10. sırayı almıştır.

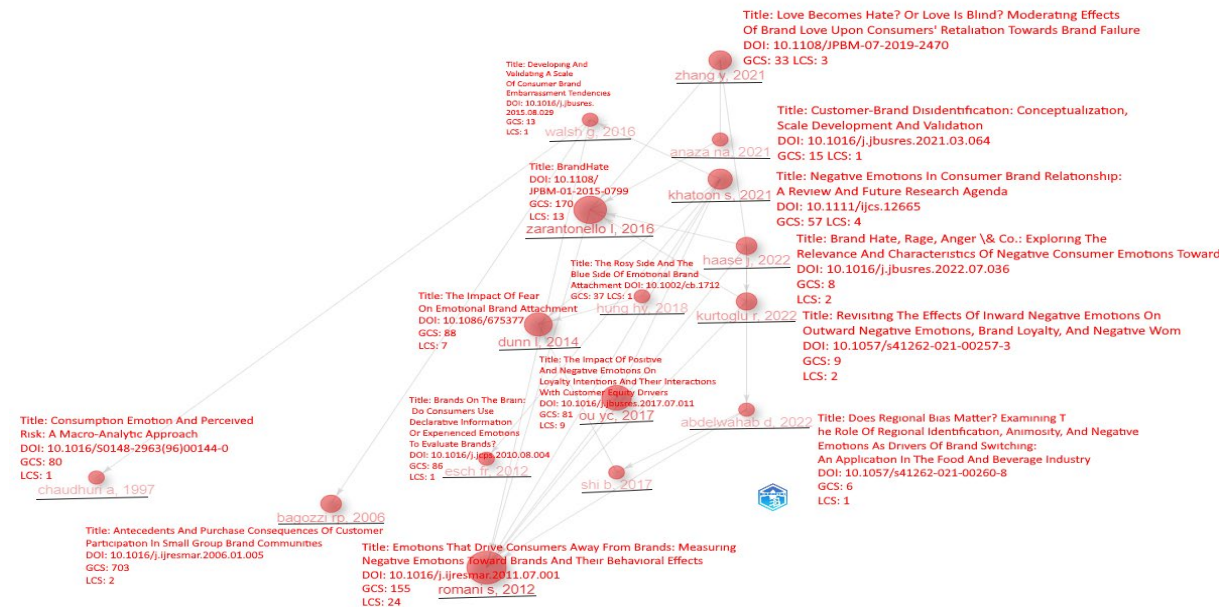


**Tablo 5:** En Fazla Atıf Alan Yazarlar

Yazar(lar)	Yayın Başlığı	Yayınlandığı Kaynak	Atıf	Yıl
Bagozzi, R. & Dholakia, U.	Antecedents and purchase consequences of customer participation in small group brand communities.	International Journal of Research in Marketing, 23, 45-61.	703	2006
Meyers-Levy, J. & Loken, B.	Revisiting gender differences: What we know and what lies ahead.	Journal of Consumer Psychology, 25: 129-149.	261	2015
Klimes-Dougan, B, Brand, A. E., Zahn-Waxler, C., Usher, B., Hastings, P. D., Kendziora, K. & Garside, R. B.	Parental emotion socialization in adolescence: Differences in sex, age and problem status.	Social Development 16(2), 326-342.	217	2007
Hosany, S., Prayag, G., Van der Veen, R., Huang, S. & Deesilatham, S.	Mediating Effects of Place Attachment and Satisfaction on the Relationship between Tourists' Emotions and Intention to Recommend.	Journal of Travel Research, 56, 1079 - 1093.	185	2017
Zarantonello, L., Romani, S., Grappi, S. & Bagozzi, R.	Brand hate.	Journal of Product & Brand Management. 25(1): 11-25.	170	2016
Romani, S., Grappi, S. & Dalli, D.	Emotions that drive consumers away from brands: Measuring negative emotions toward brands and their behavioral effects.	International Journal of Research in Marketing, 29(1), 55-67.	155	2012
Spinelli, S., Masi, C., Zoboli, G.P., Prescott, J., Monteleone, E.	Emotional responses to branded and unbranded foods.	Food Quality and Preference, 42, 1-11.	117	2015
Vidal, L., Ares, G. & Jaeger, S.R., Dunn, L. & Hoegg, J.	Use of emoticon and emoji in tweets for food-related emotional expression. The impact of fear on emotional brand attachment	Food Quality and Preference, 49, 119-128. Journal of Consumer Research, 152-168. 41(1),	102 88	2016 2014
Esch, F.R., Möll, T., Schmitt, B., Elger, C.E., Neuhaus, C. and Weber, B.	Brands on the brain: Do consumers use declarative information or experienced emotions to evaluate brands?.	Journal of Consumer Psychology, 22: 75-85.	86	2012

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

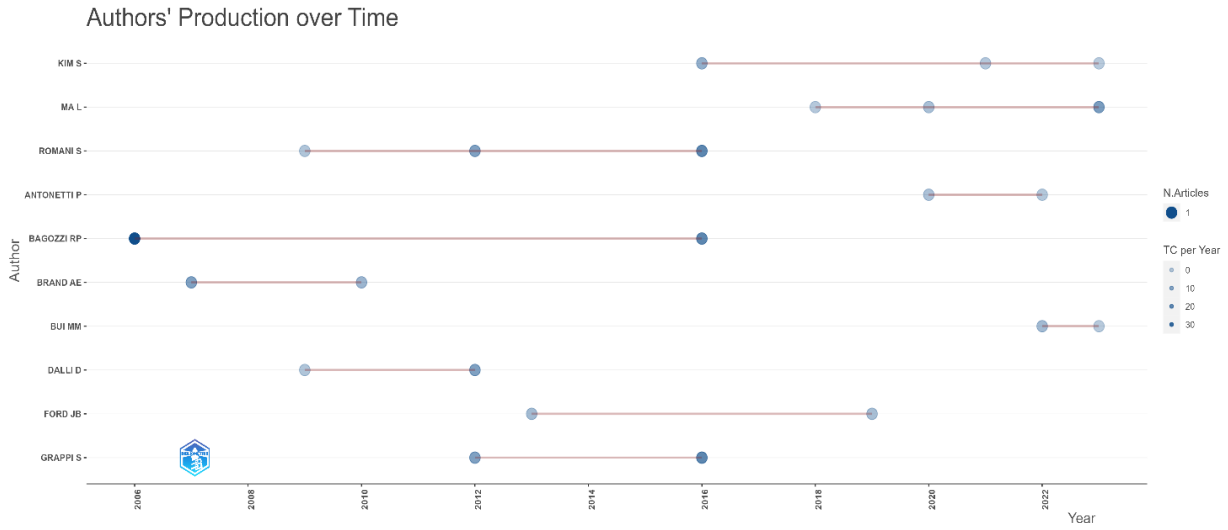
Şekil 5'deki histogram'a bakıldığında ise analizini yapılan "Negative emotions and brand" WoS veri tabanında ilk yazılan makalenin A.Chaudhuri tarafından 1997 yılında, Journal of Business Research dergisinde yayınlanan "Consumption emotion and perceived risk: A macro-analytic approach" adlı makalesiyken onu RP. Bagozzi'nin 2006 yılında yayınlanan "Emotions that drive consumers away from brands: measuring negative emotions toward brands and their behavioral effects" isimli makalesi izlemektedir.

**Şekil 5:** Histogram (Parametreler; number of nodes: 50, label:5 node: 6)

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

Şekil 5'e göre özellikle 2016 yılından sonra konu ile her yıl bir makale yayınlanmıştır. Bu ise konunun yükselen bir grafiğe sahip olduğunu göstermektedir. Grafikteki makalelerin başlıklarına bakıldığında ise ilk yıllarda konunun ana hatları -negative emotions and brand-olumsuz duygular ve marka'nın anlaşılması ile ilgili makalelerin yerini son yıllarda olumsuz duyguların alt dallarına örneğin marka

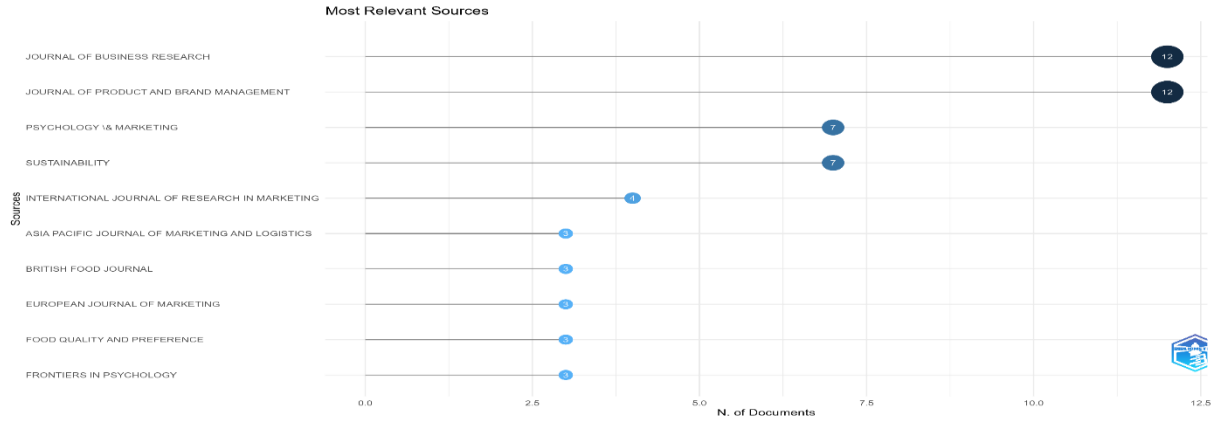
değiştirme-brand switching, negatif ağızdan ağıza- negative Word of Mouth- nWOM, brand hate - marka nefreti'ne doğru evrildiği görülmektedir.



Şekil 6: En Fazla Yayın Yapan Yazarlar-Yıllara Göre

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında hazırlanmıştır.

Şekil 6'da ise zaman içinde en fazla yayın yapan 10 yazarın yayın sayıları görülebilir. Kabarcık boyutu, yazarlar tarafından yılda üretilen belge sayısını gösterir. Çizgiler, zaman içindeki üretim aralığını (zaman çizelgesi) temsil eder. Alıntı sayısı fazlalığı ise balonun renginin yoğunluğunu belirler; daha derin renk daha yüksek alıntılarını gösterir (Omotehinwa, 2022: 5). Buna göre en fazla alıntılanan ve en uzun süreli makale üreten R. Bagozzi olurken onu S. Romani ve S. Kim izlemektedir.

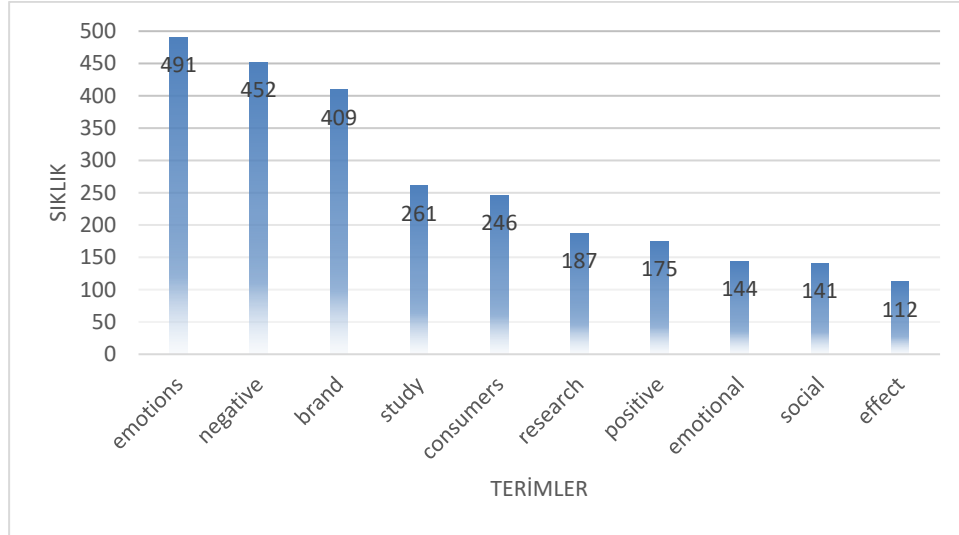


Şekil 7: En Fazla Alıntılanan Kaynaklar-Dergiler

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında hazırlanmıştır.

Şekil 7'de ise en fazla alıntılanan kaynaklar-dergiler görülmektedir. Buna göre en fazla yayın yapılan dergi Journal of Business Research ve Journal of Product and Management 12'şer makale ile başı çekerken onları Psychology & Marketing ve Sustainability 7'şer makale ile izlemiştir.

## Eser içeriklerine göre analizler



Şekil 8: Özetlere Göre Kelime Bulutu (Parametre: Abstract)

**Kaynak:** Yazar tarafından hazırlanmıştır.

Şekil 8’de R programında Bibliometrix arayüzüyle yaptığımız negatif duygular ve marka analizinde özetlere göre en fazla tekrar edilen kelimelerden oluşan kelime bulutu görülmektedir. Özetlere göre en fazla tekrar eden kelimelerde ise ilk sırada emotions-duygular’ı, sırasıyla negative- olumsuz, brand-marka, consumers-tüketiciler takip etmektedir. Buna göre en fazla tekrar edilen ilk üç kelime (parametre olarak abstract seçildiğinde) emotions, negative, brand olmaktadır.

Şekil 9’da ise başlıklara göre makalelerde en fazla kullanılan anahtar kelimeler ve kullanım sayıları görülmektedir. Buna göre “emotions” kullanımında ilk sırayı alırken bunu “brand” devamında “negatives” ve “customer” kelimeleri gelmektedir.



Şekil 9: Başlıklara ve Özetlere Göre Kelime Bulutu (Parametre: Titles -Word Cloud)

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

Tablo 6’ de en fazla tekrar eden kelimeler ise başlıklara, anahtar kelimelere ve özetlere göre sıralanmış şekilde gösterilmiştir: Başlıklara göre kelime bulutlarına bakıldığında en fazla tekrar edilen kelimeler için anahtar kaynağı makalelerin özetlerini seçilerek yaptığımız analizde en fazla “emotions” kelimesi gelmektedir.

**Tablo 6:** Başlıklara Göre Kelime Sıklıkları

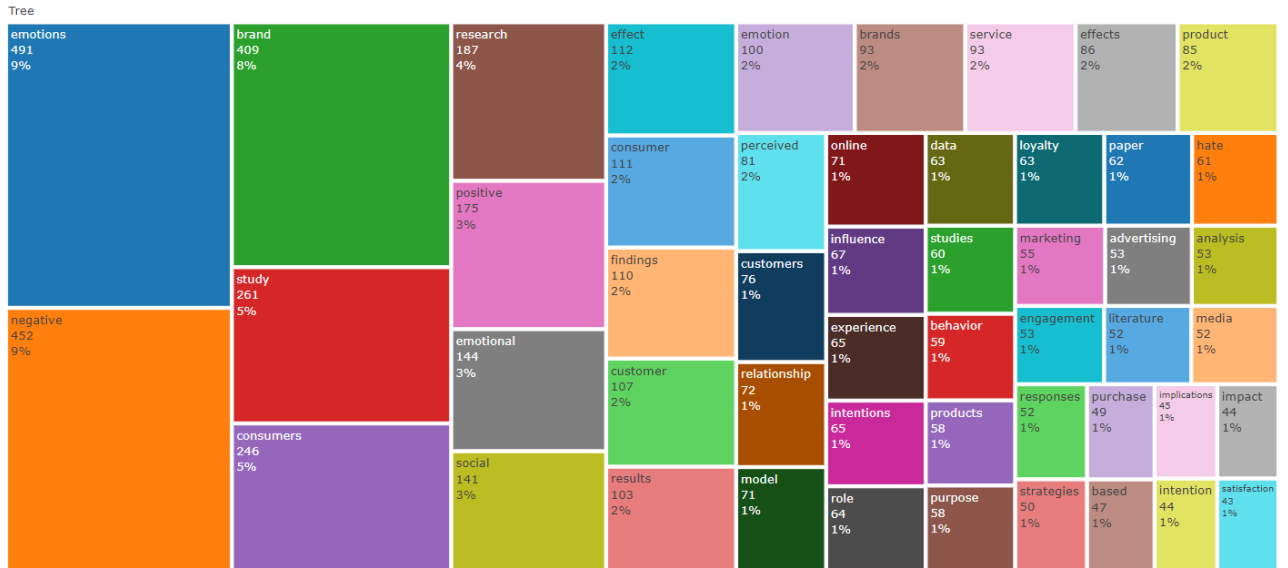
Kelime	Sıklık	Kelime	Sıklık	Kelime	Sıklık	Kelime	Sıklık
emotions	491	impact	33	emotions	33	brand	55
negative	452	satisfaction	29	negative emotions	21	emotions	55
brand	409	behavior	27	emotion	13	negative	37
study	261	antecedents	24	brand	10	consumers	22
consumers	246	consumption	23	brand hate	8	social	22
research	187	responses	21	consumer behavior	7	effects	21
positive	175	consumers	20	brand loyalty	6	emotional	21
emotional	144	emotions	20	social media	6	consumer	20
social	141	model	19	branding	5	customer	20
effect	112	brand	18	covid-19	5	impact	17
<i>Abstract</i>		<i>Keyword Plus</i>		<i>Authors Keywords</i>		<i>Titles</i>	

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

(Parametreler tablonun en alt satırında Abstract, Keyword Plus, Authors Keywords, Titles şeklinde belirtilmiştir.)

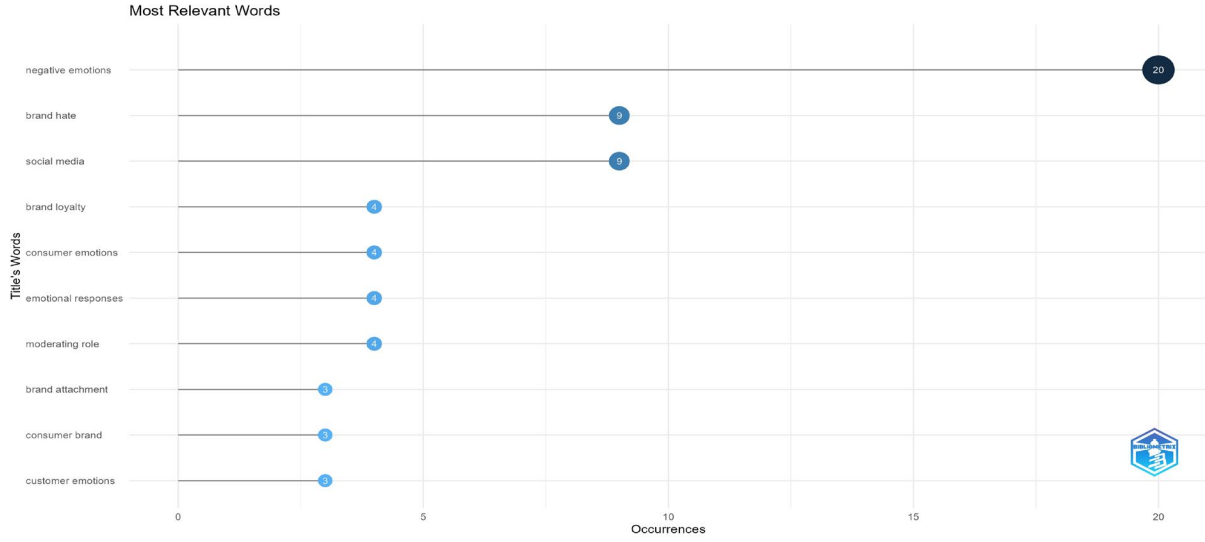
Emotions'ı sırasıyla negative, brand, study ve consumers takip ederken, parametreyi makalelerin anahtar kelime bölümü olarak seçildiğinde ise çıkan sonuçlara göre impact'i sırasıyla satisfaction, behavior, antecedents, consumption takip etmiş, anahtar kaynağı başlıklar seçildiğinde ise en fazla tekrar edilen kelimeler sırasıyla emotions, negative emotions, emotion, brand, brand hate, consumer behavior olurken anahtar kelime kaynağını başlıklar seçildiğinde ise en fazla tekrar edilen ilk 5 kelime sırasıyla brand, emotions, negative, consumers, social, effects olmuştur.

Özetlere göre kelime ağacı ise Şekil 10'da gösterilmiştir. Buna göre en fazla 491 kez ve %9 oran ile geçen kelime emotions olurken onu 452 kez ve %9 oran negative, brand kelimesi ise 40 kez ile takip etmiştir.

**Şekil 10:** Özetlere Göre Kelime Ağacı (Parametre: Abstract)

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

Şekil 11'de özetlere göre en sık kullanılan kelimelerin ilk sırasında negative emotions gelirken onu brand hate, social media, brand loyalty takip etmektedir.



**Şekil 11:** Özetlere Göre En Fazla Geçen Kelimeler (Parametre: Abstract)

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

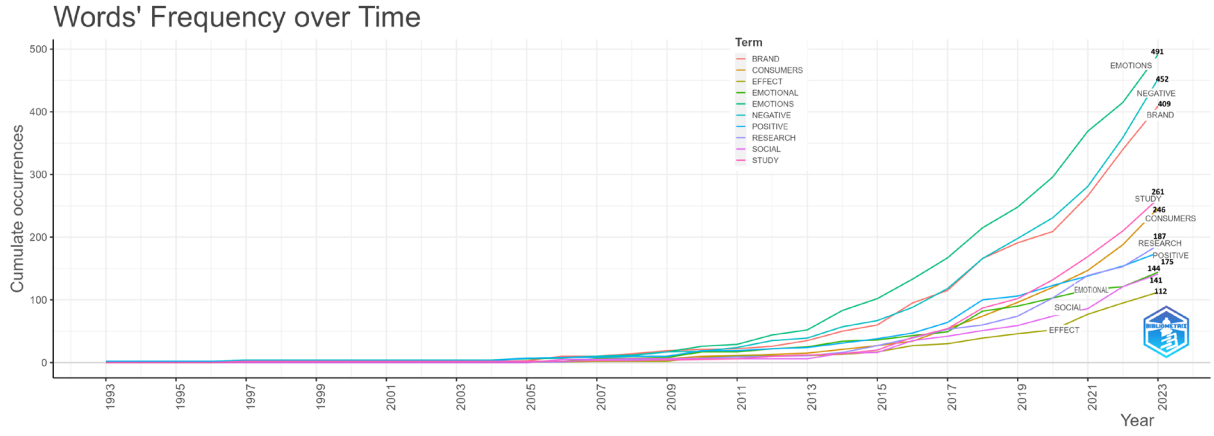
Şekil 11'e bakıldığında çoğu kelime içinde duygu ya da duygular ile alakalı görünürken social media ve brand attachment (marka bağlılığı) ve tüketici markası içinde duygu geçmeyen kelimeler olmaktadır.

Tablo 7'de makalelerde en sık kullanılan kelimelere bakıldığında ise ilk sırada emotions gelirken onu negative ve brand takip etmektedir. Özetlere göre en fazla geçen kelimeler ise beklentilere uygun olarak ilk sırada negative emotions gelirken onu brand hate (yine olumsuz duygulardan olan marka nefreti) izlemektedir.

**Tablo 7:** Son 10 Yılda En Sık Kullanılan Kelimeler (Parametre: Abstract)

Yıl	Duygular	Negatif	Marka	Tüketiciler	Araştırma	Pozitif	Duygusal	Sosyal	Etki
2023	491	452	409	246	187	175	144	141	112
2022	415	359	340	188	153	154	121	121	95
2021	369	281	266	147	139	138	116	86	77
2020	296	231	209	120	103	123	103	74	52
2019	248	198	191	96	74	106	90	59	46
2018	215	166	166	74	60	100	82	51	39
2017	167	118	115	54	53	64	49	42	30
2016	133	88	95	34	39	47	43	35	27
2015	102	67	60	27	27	38	36	16	17
2014	83	57	50	21	16	31	34	15	13
<b>Artış Oranı</b>	5.7	7.9	8.18	11.6	11.68	5.6	4.2	9.4	8.6
<b>Artış Oran Sırası</b>	7	6	5	2	1	8	9	3	4

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

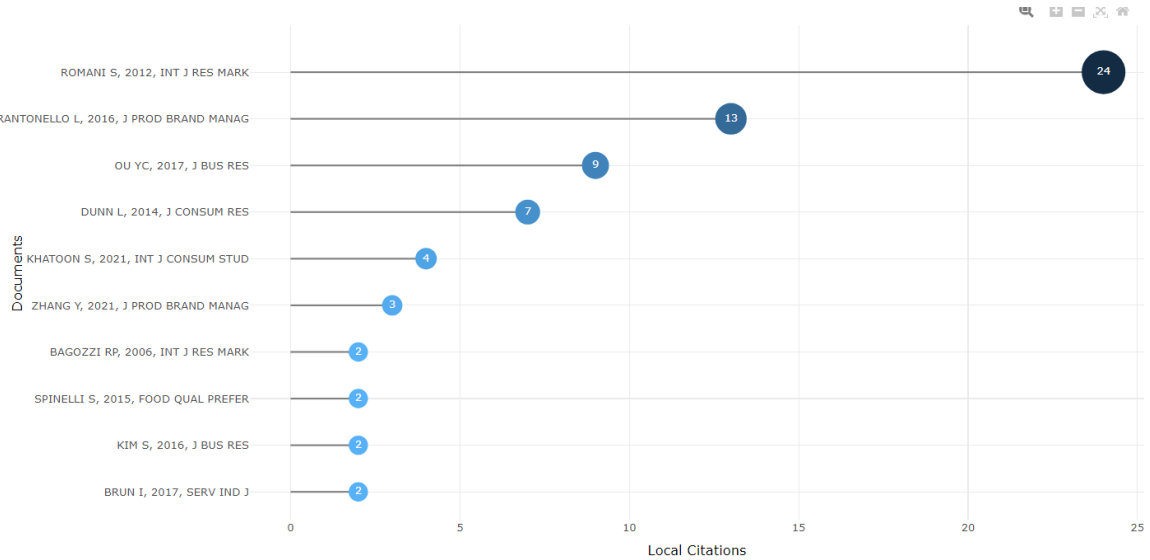


Şekil 12: Bütün Makalelerde Kullanılan Anahtar Kelimelerin Oranı (Parametre: Abstract)

Kaynak: WoS veri tabanı kullanılarak R programında Yazar tarafından hazırlanmıştır.

Şekil 12'de makalelerdeki yıllara göre kelimelerin kullanım oranı gösterilmektedir. Buna göre kullanım oranları en fazla kelimeler ise emotinal, positive, brand görülmektedir.

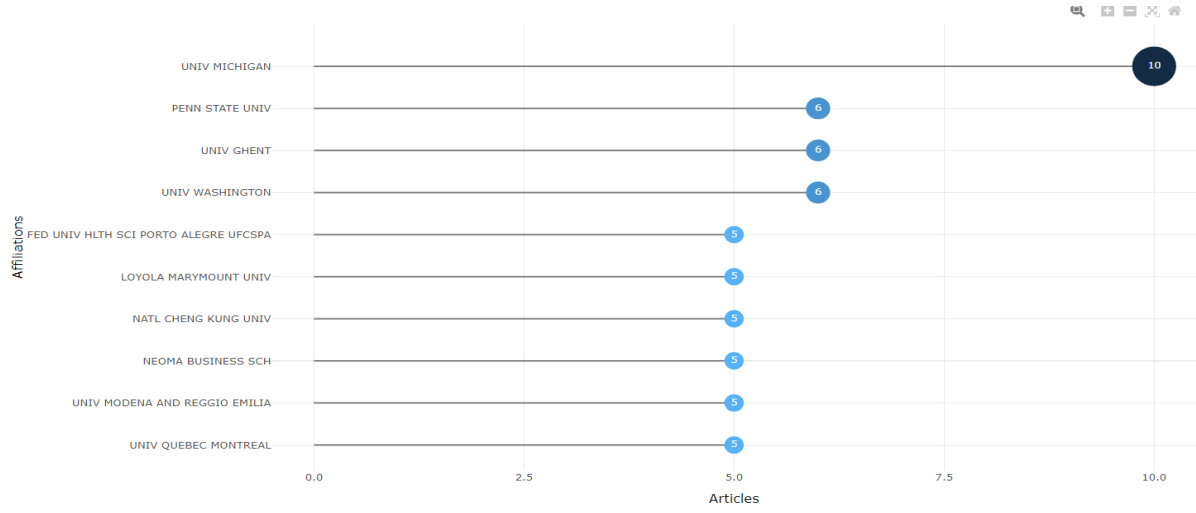
### Yazarlara göre analizler



Şekil 13: Yazarların Kullanılan Veri tabanında Diğer Çalışmalardan Alıntılanma Sayısı

Kaynak: WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

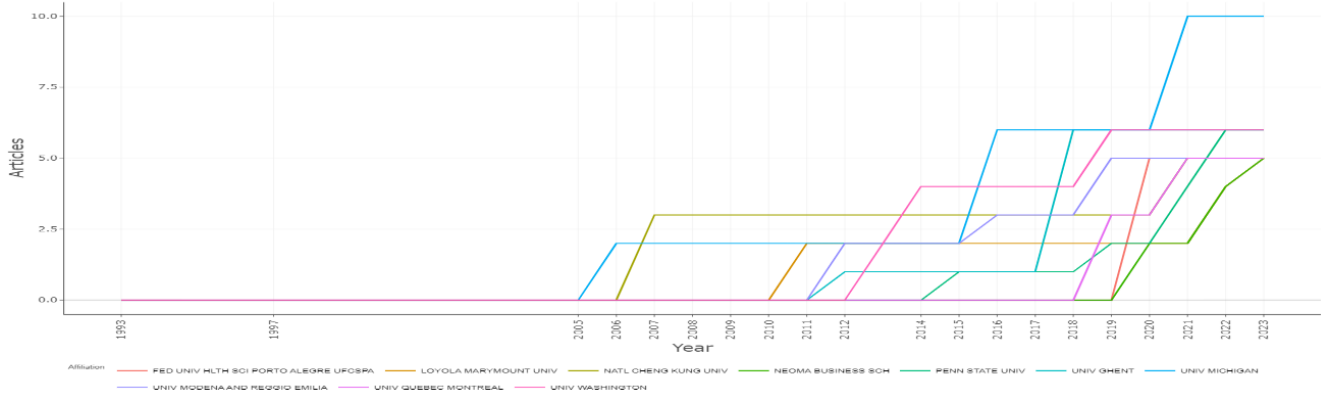
Şekil 13'de yerelde (kullandığımız veri tabanı içerisinde) alıntılanma sayısına bakıldığında ise en fazla alıntılanan yazarlar S. Romani 24 alıntılanma sayısı ile birinci olurken onu 17 alıntılanma ile L. Zarantonello izlemektedir. Yerelde (kullandığımız veri tabanı içerisinde) en fazla alıntılan S.Romani 2012 yılında yazdığı *International Journal of Research in Marketing* dergisinde yayınlanan "Emotions that drive consumers away from brands: Measuring negative emotions toward brands and their behavioral effects" isimli makale iken, onu 2016 yılında yazdığı *Journal of Product&Brand Management* dergisinde yazdığı "Brand hate" isimli makale ile L. Zarantonello takip etmiştir.



**Şekil 14:** En Fazla Alıntı Yapılan Makale Yazarlarının Çalıştığı Üniversiteler

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

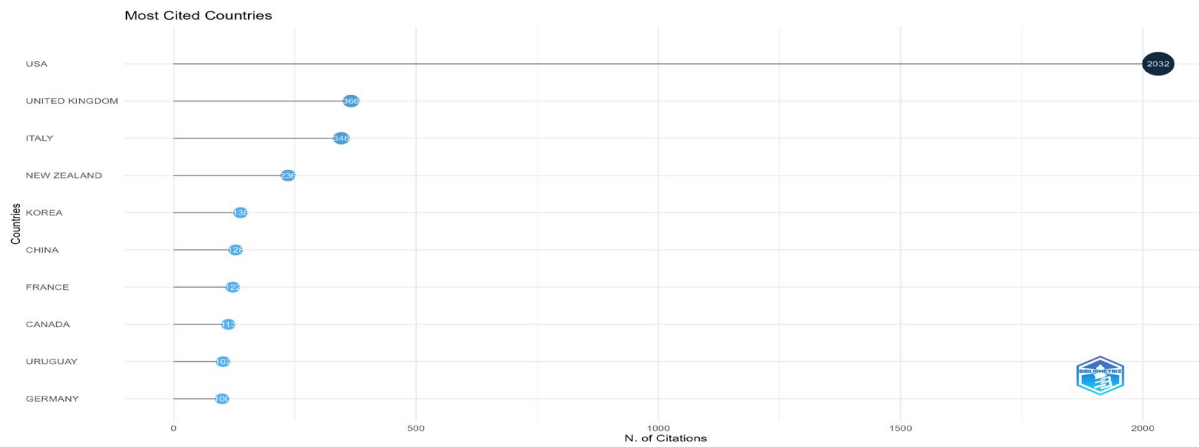
Şekil 14'de en fazla alıntı yapılan makalelerin çalıştığı üniversiteler ise ABD üniversiteleri burada başı çekmiştir. Buna göre Michigan Üniversitesi 10 yazarı ile ilk sırayı alırken onu Penn State Üniversitesi, Ghent Üniversitesi ve Washington Üniversitesi her biri 6'şar alıntı ile takip etmektedir.



**Şekil 15:** En Üretken Üniversiteler

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

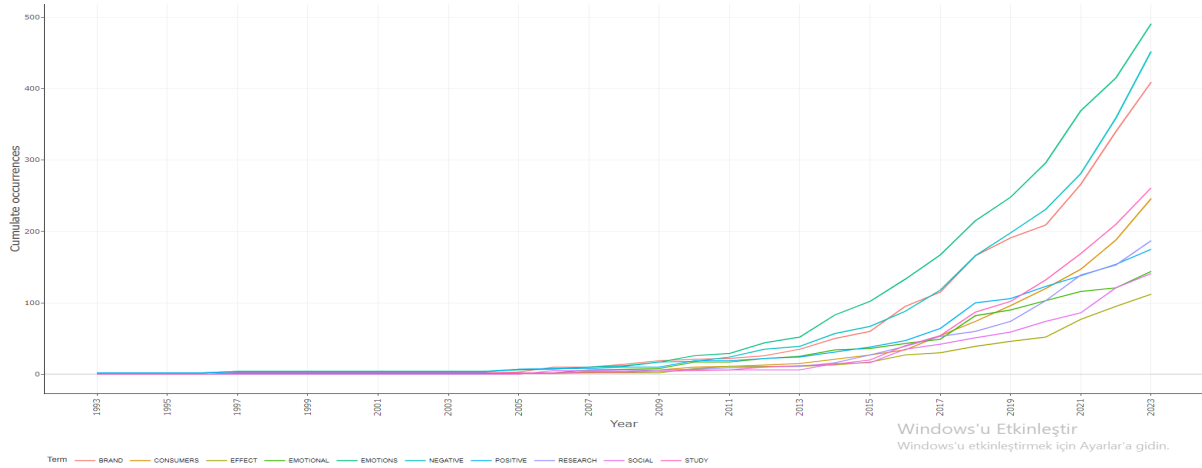
Şekil 15'te de en üretken üniversiteler gösterilmiştir. Buna göre ilk olumsuz duygular ve marka ile ilgili makale Michigan Üniversitesi akademisyenleri tarafından 2005 yılında yazılırken, onları Nat. Cheng Kung Üniversitesi akademisyenleri izlemektedir.



**Şekil 16:** En Fazla Alıntılanan Ülkeler

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında hazırlanmıştır.

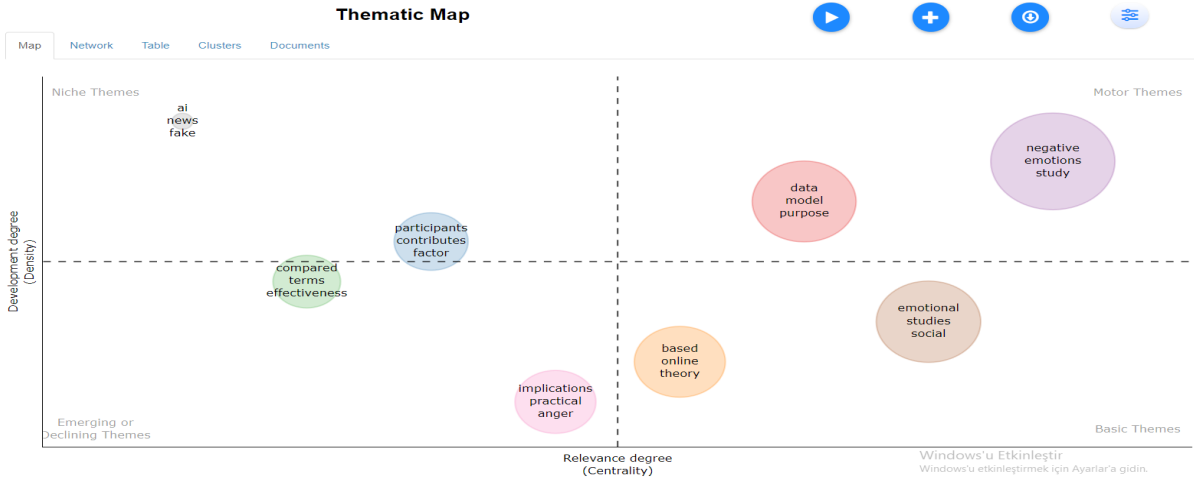
Şekil 16' da ise en fazla makaleleri ülke olarak alıntılananlar görülmektedir. Buna göre yazılan makale sayısına bağlı olarak ilk sırada yer alan ABD'yi ikinci sırada İngiltere, İtalya ve Yeni Zelanda takip etmektedir.



Şekil 17: Yıllara Göre İlk 5 Ülkede Yazılan Makale Sayıları (Parametre: Abstract)

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

Şekil 17'de "olumsuz duygular ve marka" ile ilgili yazılan makalelerin özetlerindeki anahtar kelimelere göre sıralandığında ilk 5 ülkedeki en sık rastlanan kelimelerin yıllara göre en büyük artışı sırasıyla emotions, emotion, negative ve positive'de olmuştur.

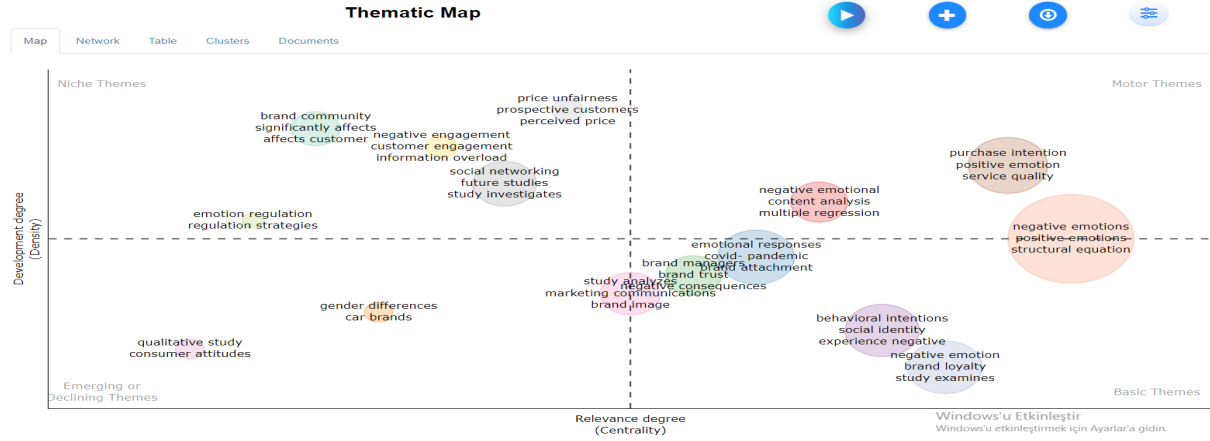


Şekil 18: Tematik Gelişimi-Thematic Evolution (Parametre: Abstract, Unigrams)

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

Şekil 18'de tematik gelişimi (thematic evolution) kısmından parametre olarak "abstract" ve "unigram" seçilerek yapılan analizde çalışmaların tematik haritalanmasını, bir coğrafi harita gibi görebiliriz. Buna göre tematik harita dört bölüme ayrılmıştır. *Sol alt köşe* ortaya çıkan ya da azalan makale anahtar kelimeleri burada karşılaştırmalı terimler ve verimlilik baloncuğu ile öneriler, pratik ve sınırlılık/öfke baloncuğu bulunmaktadır. *Sağ alt köşede* ise temel/dayanak, online ve teorisinin olduğu baloncuk ile duygular, çalışmalar ve sosyal anahtar kelimelerinin bulunduğu baloncuk bulunmaktadır. *Sağ üst köşede* motor theme-itici güç temaları kısmında ise negative, duygular, çalışma anahtar kelimelerinin olduğu baloncuk ile veri, model, amaç anahtar kelimelerin olduğu baloncuk bulunurken, *sol üst kısımdaki* niş tema kısmındaki baloncukta ise yapay zekâ, sahte ve haberler ve diğer baloncukta ise katılımcılar, katkı ve faktör anahtar kelimelerinin yazıldığı kutucuk bulunmaktadır. Genel olarak bu şekle bakıldığında ise daha yeni konular olan yapay zekâ kısmının niş kısmında olması ve motor temalar kısmında negatif ve duygular anahtar kelimeleri hala güçlü ve artan şekilde işlenen konular olmaya devam etmektedir.



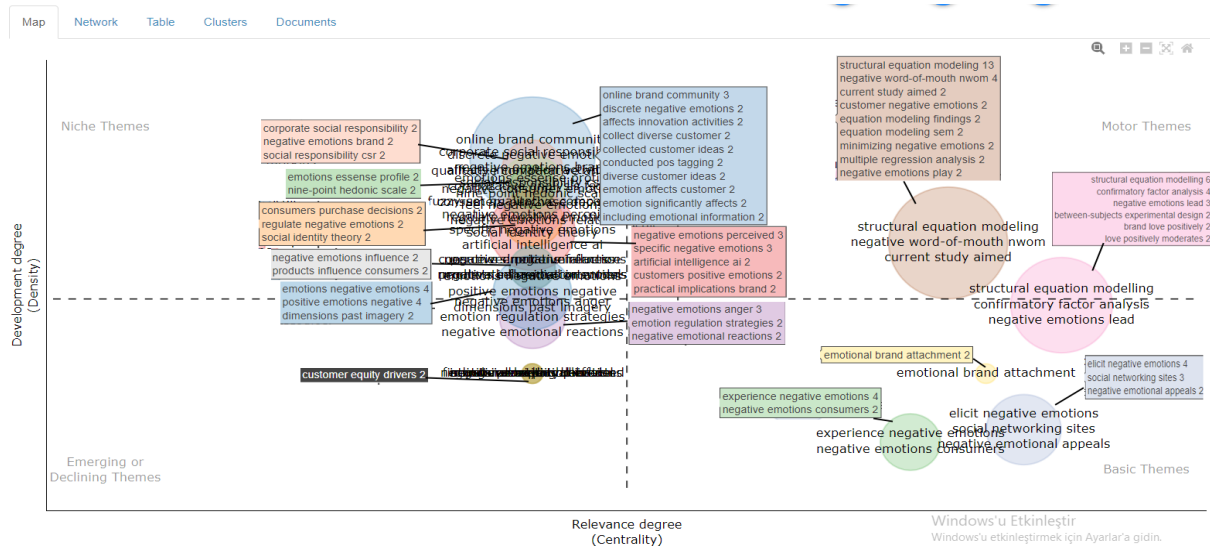


Şekil 19: Tematik Gelişim-Zaman Dilimi (Thematic Evolution-Time Slice) (Parametreler: Abstract, Bigrams)

Kaynak: WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

Şekil 19’da ise “tematik gelişim-thematic evolution” kısmından Zaman dilimi-Time Slice seçilerek, parametreleri ise abstract ve bigram şeklinde ayarlanarak yapılan analizde ortaya çıkan tematik haritada çalışmalar içinde niş kısmında en fazla çalışılardan en sık rastlanan kelimeler social networking, future studies, study investigate baloncugunu price fairness, prospectives customers, perceived price baloncugu takip etmektedir. Yine bu grafikte dikkat çeken diğer şey ise hem motor themes, hem de basic themes kısmında olan baloncuktaki negative emotions, positive emotions ve structure equations dir. Yine basic themes kısmındaki baloncukta covid pandemic ile emerging or declining kısmındaki baloncukta yer alan gender differences, car brand baloncugu da önemlidir. Özellikle car brand-araba markalarının tüketicilerin negative emotions ile ilgili araştırmalarda çıkması araba markalarıyla ilgili tüketicilerin yoğun sorun yaşadığını düşünülebilir.

Şekil 20’de R programı eklentisi olan Bibliometrix arayüzündeki sağ kısımda Options kısmında bulunan Fields’dan Abstract ve ngram’da bulunan trigram parametrelerini seçerek daraltığımızda bizlere biraz daha yapılan araştırmaların konu başlıklarıyla ilgili bilgi edinmeye yardımcı olduğunu düşünülen 3 kelimelik gruplar karşımıza çıkmaktadır. Bu ise daha çok yapılan çalışmaların içeriğiyle ilgili daha fazla bilgiyi bize sunmaktadır. Buna göre temel temalar kısmında olumsuz duygular ve tüketici ana unsur olurken niş temalar kısmında karşımıza corporate social responbility, negative emotions brand, social responbility, emotions negative emotions, positive negative emotions, negative emotions influence çıkmaktadır. Yani olumsuz duygular ile ilgili gelecekte karşımıza çıkması muhtemel konular şekle göre işletmelerin sosyal sorumluluğu, (tüketicilerin) pozitiften negatif duyguya geçişlerinin olma ihtimalini olduğu aklı gelmektedir.

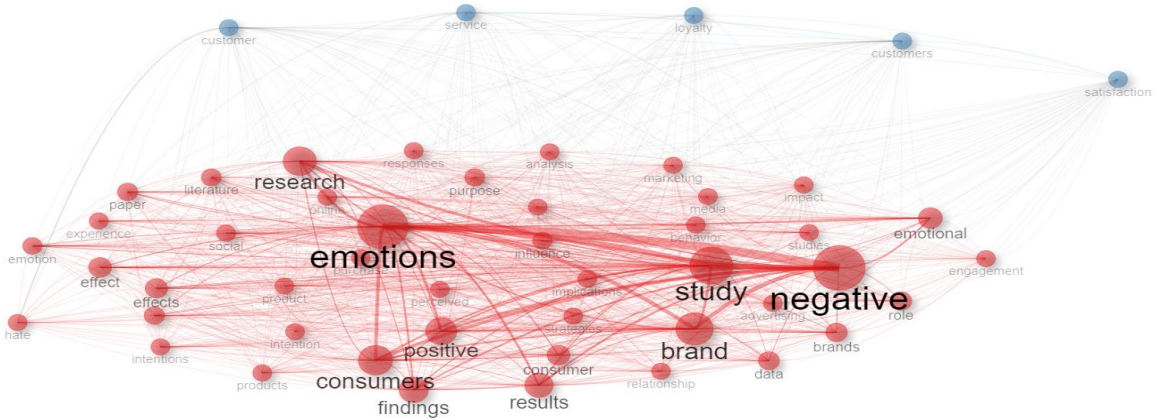


Şekil 20: Tematik Gelişim-Thematic Evolution (Parametreler: Abstracts-Trigrams)

Kaynak: WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar iki farklı grafik birleştirilerek hazırlanmıştır.

## İş birliği ağlarına göre analizler

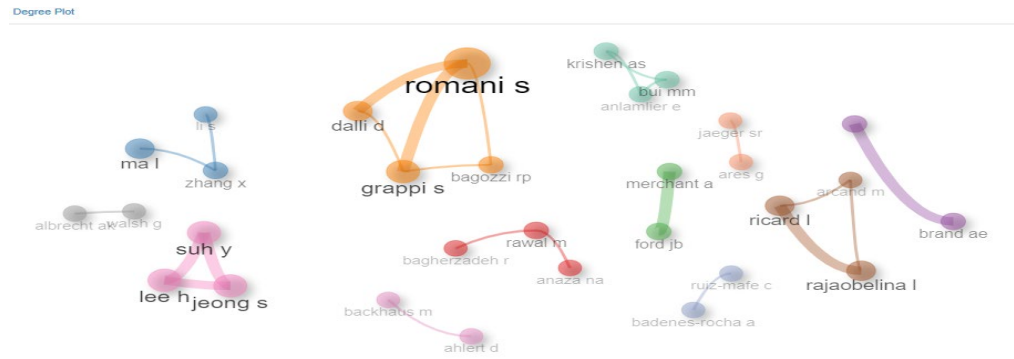
Yazarların iş birliği ağına bakıldığında (Şekil 21) ise genelde birlikte çalışılan ana başlıklar tüketici, hizmet, sadakat tüketiciler ve tatmin olurken bu başlıklarla birlikte en başta birlikte çalışan konular arasında ise emotions, negative, positive ve marka kelimeleri gelmektedir.



Şekil 21: Yazarların İş Birliği Ağları (Parametre: Abstract-Unigram)

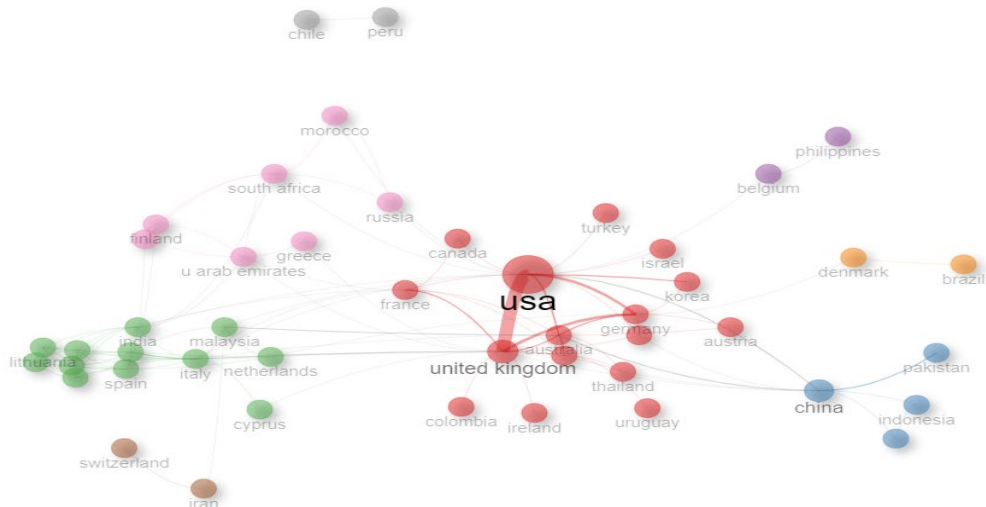
**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

Şekil 22'de yazarların birbirleriyle iş birliğine baktığımız da ise genelde aynı üniversitede ya da aynı ülkede çalışan yazarların çoğunlukla bir makale içerisinde yazar olarak daha fazla (yazarların aynı kümede olmaları) ve daha sık (yazarlar arasındaki bağların kalınlığı) şekilde bir araya geldiği görülmektedir. Örneğin S.Romani, S.Grappi ve D. Dalli aynı ülke vatandaşları (İtalyan) olması buna örnek verilebilir.



Şekil 22: Yazarların Birbirleriyle İş Birlikleri (Collabration Network)

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

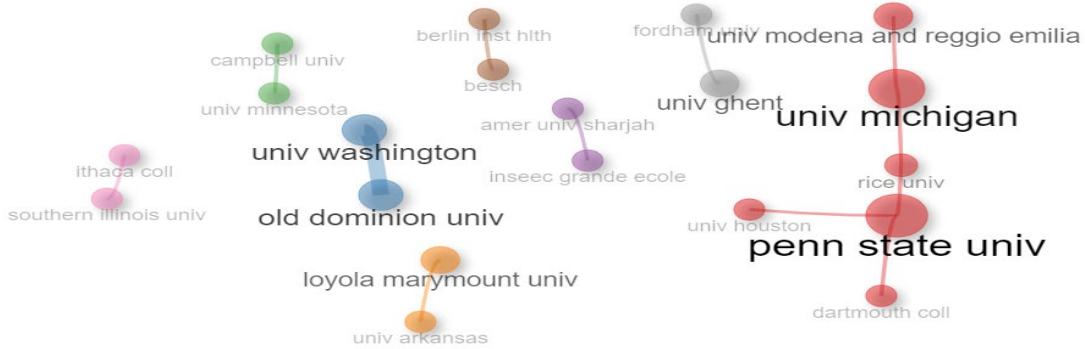


Şekil 23: Ülkelerarası İş Birliği Haritası

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

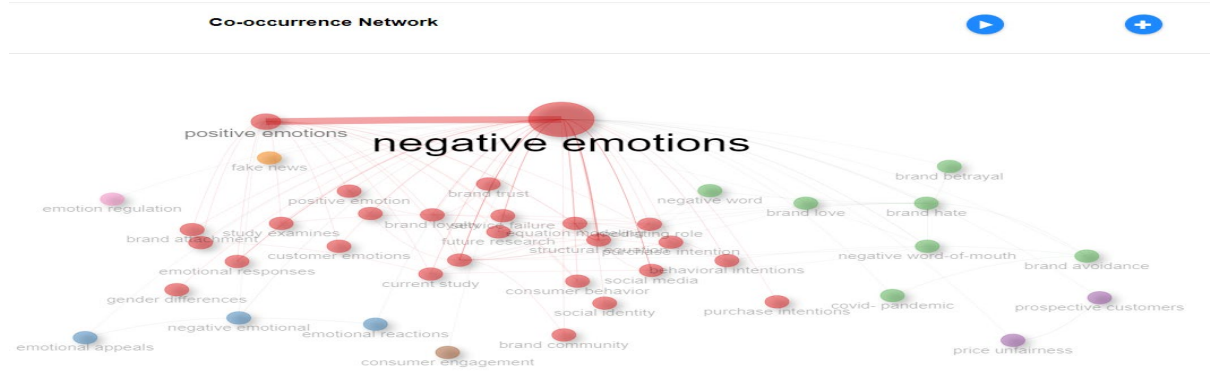
Şekil 23'te ülkeler arası iş birliğine gelindiğinde ise “Marka ve olumsuz duygular” hakkında en fazla diğer ülkelerle iş birliği yapan ABD iken, Çin genelde Asya ülkeleri yoğun iş birliği halinde ve Avrupa ülkeleri ise çoğunlukla kendi aralarında iş birliği halindedir. Yine Çin, Hindistan, İran gibi ülkeler hem kendi buldukları kıta hem de dünyanın farklı bölgelerinde bulunan ülkelerle iş birliği yaptığı görülmektedir. Yine bu şekilde Türkiye'nin en fazla iş birliği yaptığı ülke ise ABD/USA olmuştur.

Şekil 24'te üniversiteler arası iş birliğinde ise en fazla iş birliğinin ABD üniversiteleri ile İtalyan üniversiteleri arasında olduğu görülmektedir.



Şekil 24: Üniversitelerin İş Birliği Ağı

Kaynak: WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

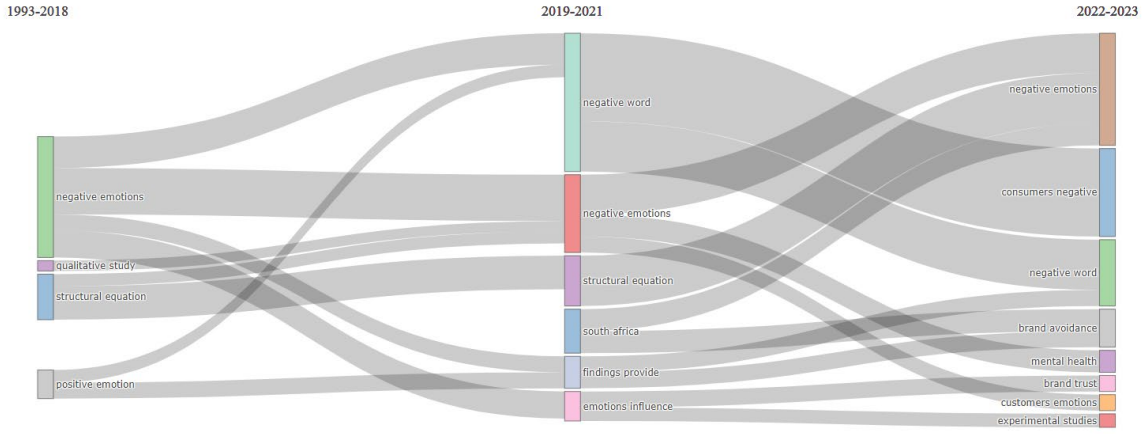


Şekil 25: İş Birliği Ağı (Parametreler: Abstracts-Bigrams)

Kaynak: WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında Yazar tarafından hazırlanmıştır.

İş birliği ağında (Şekil 25) en büyük ilişki “negative emotions” ve “positive emotions” arasında görülmektedir. Yine “negative emotions” şemsiyesi altında “brand hate-marka nefreti”, “negative emotions-olumsuz duygular” olan “consumer behavior-tüketici davranışı”, “brand betrayal-tüketici aldatması”, “brand avoidance-marka kaçınması”, “price unfairness-fiyat adaletsizliği” vb. gibi sık rastlanan olumsuz duygular bulunurken, positive emotions şemsiyesi altında ise “brand trust-marka güveni”, “brand love-marka aşkı”, “brand loyalty-marka bağlılığı” gibi olumlu duygulara ait anahtar sözcüklere yerel veri tabanımızda bulunan “Marka ve olumsuz duygular” ile ilgili makalelerde rastlanılmıştır.

Zaman dilimlerine göre tematik değişim Şekil 26'da görülmektedir. Buna göre 1993-2018 yıllarındaki “negative emotions” önemini 2022-2023 yıllarından itibaren “negative motions”, “consumers negative” ve “negative word” a devretmiştir.



**Şekil 26:** Zaman Dilimlerine Göre Tematik Gelişim (Parametreler: Abstracts-Bigrams)

**Kaynak:** WoS veri tabanı kullanılarak R Programı tabanlı Bibliometrix programında hazırlanmıştır.

## Sonuç

Bibliyometri, belirli bir sürede yazılmış makale, eserlerin analizini yaparak araştırılan disiplinindeki yazarların, eserlerin, ülkelerin etkisini gösterme ve o disiplinindeki yıllara göre değişen, gelişen yönelimleri, yazarların, dergilerin ve üniversite/ülkelerin etki ağlarını göstermesi, ayrıca o disiplinindeki fazla işlenen ve kenarda kalmış yükselen/düşen konuları/başlıklar açısından araştırmacılara kolaylık sağlayan bir bilim dalıdır.

Yukarıda yapılan olumsuz duygular ve markaların bibliyometrik analizinden çıkan sonuçlara gelirsek:

Negatif/olumsuz duygular ve markalar hakkındaki makalelere bakıldığında 1993-2023 yılları arasında belirli yıllar haricinde bir artış grafiği çizmektedir. 1993 yılında 1 adet makale iken bu 2023 yılında yazılan toplam 30 adet makaleye çıkmıştır. Yine ilk yıllarda konunun ana hatları -negative emotions and brand-olumsuz duygular ve marka'nın anlaşılması ile ilgili makaleler iken sonraki yıllarda konunun alt dalları hakkında makalelerin yazılmasıyla ana konu olan negative emotions and brand yerini olumsuz duyguların alt dallarına (marka değiştirme-brand switching, nWOM, brand hate) bırakmıştır.

Yine konu hakkında yapılan yayınlara bakıldığında ise en fazla makaleyi Teksas Üniversitesi, ABD'den S. Kim adlı yazar yazmışken, belirli periyot içinde en fazla yazan yazar ise Richard P. Bagozzi olmuştur. Bagozzi globalde 702 adet ile en fazla atıf almıştır. S. Kim adlı yazar ise globalde yalnızca 2 atıf almıştır. Yerelde en fazla alıntılan 24 atıf ile İtalya'dan Silvia Romani alırken onu 13 atıfı ile yine İtalya'dan Lia Zarantonello takip etmiştir.

En fazla makaleleri alıntılananlara ülke olarak geldiğimizde yazılan makale sayısına bağlı olarak ABD ilk sırada yer alırken ikinci sırada İngiltere'yi, İtalya ve Yeni Zelanda izlemektedir. Çin ise konu hakkında en fazla bilimsel yayın üreten ikinci ülke olmasına rağmen globalde en fazla alıntılanan ülkeler sıralamasında 5.ci sıradaki Kore'nin ardından gelmektedir. Tematik haritalara (parametreler *abstract* + ngramdan ise unigrams seçilerek) bakıldığında ise dikkatimizi çeken *niş* kısmındaki *yapay zekâ, sahte ve haberler* gelmesidir. Bu bize yapay zekanın negatif duygular ve markalar alanında hala fazla araştırma yapılmamış yeni-niş bir konu olduğunu göstermektedir. Özetlere göre makalelerde en fazla geçen kelimelerde ilk sırada negative emotions'ı ise brand hate (yine olumsuz duygulardan olan marka nefreti) izlemektedir. Yine makalelerde özetlere göre en fazla geçen kelimelerden social media (sosyal medya) ve brand attachment (marka bağlılığı) ve tüketici markası dikkati çekmektedir. Son 10 yılın makalelerde en sık kullanılan kelimelerde ise ilk sırada emotions gelirken onu negative ve brand takip etmektedir.

Tematik haritalarda parametre olarak *abstract* göre ve *ngram'dan ise trigram* seçildiğinde konuları en sık kullanılan çiftli kelime grubu olarak seçildiğinde ortaya çıkan sonuçlar doğrultusunda en fazla rastlanan kelimeler negative emotions olurken onu specific emotions, artificial intelligence, customers positive emotions takip etmektedir. Burada artificial intelligence çıkan önemli bir sonuçtur. Bu pazarlama da negative emotions da artık artificial intelligence'ın da geçerli bir parametre olarak ortaya çıktığını göstermektedir.

Konu ile en fazla makale yazan yazarların ülkelerine bakıldığında ise ilk 10 da çoğunluğu ABD üniversiteleri oluştururken onu İtalya ve Fransa izlemektedir. Türkiye'den de konuyla ilgili bir makale tabloda yerini almıştır. En fazla yayın yapılan dergilerde Journal of Business Research ve Journal of

Product and Management isimli dergilerde 12'şer makale ile başı çekerken onları Psychology & Marketing ve Sustainability dergileri 7'şer makale ile izlemiştir. En fazla alıntı yapılan makale yazarlarının çalıştığı üniversitelerde ise ABD üniversiteleri başı çekmektedir. Buna göre Michigan Üniversitesi 10 yazarı ile ilk sırayı alırken onu Penn State üniversitesi, Ghent Üniversitesi ve Washington Üniversitesi, her biri 6 şar atıf ile takip etmektedir. Sorumlu yazarların ülkelerine bakıldığında tek ve çok yazarlı makalelerde ABD başı çekerken çok yazarlı makalelerde İngiltere ikinci sırada yer almaktadır. İngiltere'yi Fransa Çin ve Avustralya izlemektedir.

Ülkelere göre en fazla makale yayınlayan ülke ABD'yi, Çin, Fransa, Almanya, İngiltere, Güney Kore, Avustralya ve İspanya, İtalya, Hollanda izlemekte iken Türkiye 3 makale ile 32. sırada yer almaktadır. Tematik haritalarda parametrelerden *abstract* ve *ngram* ayarlarından *bigrams* seçildiğinde ise fiyat adaletsizliği ve algılanan fiyat gibi konular niş kategorisinde öne çıkmaktadır. Ayrıca, sosyal ağlar da önemli bir konu olarak ortaya çıkarken parametreleri *abstract* ve *ngram* dan *trigrams* seçildiğinde ise negative emotions perceived, artificial intelligence, online brand community ve negative emotions gibi konular niş kategorisinde yer alır. Yazarların iş birliği ağlarına bakıldığında, genellikle tüketici, hizmet, sadakat ve tatmin gibi ana başlıklarda birlikte çalıştıkları görülmektedir. Ülkeler arası iş birliğine gelince, ABD birçok ülke ile iş birliği yaparken, Çin genellikle Asya ülkeleriyle yoğun bir ilişki içindedir. Avrupa ülkeleri ise genellikle kendi aralarında makale yazımı konusunda yoğun bir ilişki göstermektedir. Genel olarak, negatif duygular ve marka henüz olumlu duygular kadar tam olarak önemi anlaşılamamış bir konudur. Ancak, makalelerdeki istikrarlı artış, bu konunun öneminin giderek arttığını göstermektedir. Ayrıca, negatif duygular ve marka ile ilgili olarak, tematik haritalarda ortaya çıkan marka nefreti ve yapay zekâ gibi unsurların gelecekte gelişen bir grafik çizebileceği izlenimini uyandırmaktadır.

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Yazar çıkar çatışması bildirmemiştir.

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## Devlet borç temerrüdünün makroekonomik belirleyicileri: Yükselen piyasa ekonomileri örneği

### Macroeconomic determinants of sovereign debt default: Evidence from emerging market economies

Tayfun Moğol<sup>1</sup> 

Burak Pirdal<sup>2</sup> 

<sup>1</sup> Dr. Öğr. Üyesi, Anadolu Üniversitesi, Eskişehir, Türkiye, [tmogol@anadolu.edu.tr](mailto:tmogol@anadolu.edu.tr)

ORCID: 0000-0002-2435-890X

<sup>2</sup> Arş. Gör., Anadolu Üniversitesi, Eskişehir, Türkiye, [burakpirdal@anadolu.edu.tr](mailto:burakpirdal@anadolu.edu.tr)

ORCID: 0000-0002-7856-5701

#### Sorumlu Yazar/Corresponding Author:

Burak Pirdal

Anadolu Üniversitesi, Eskişehir, Türkiye

[burakpirdal@anadolu.edu.tr](mailto:burakpirdal@anadolu.edu.tr)

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#### Öz

Bu çalışmada devlet borç temerrütlerinin makroekonomik belirleyicileri araştırılmıştır. Yöntem olarak İkili Tercih Panel Probit Modeli kullanılmış olup ampirik analiz kapsamında yükselen piyasa ekonomileri incelenmiştir. Ekonometrik analizde yıllık veriler kullanılmıştır ve incelenen dönem 1994-2022 yılları arasını kapsamaktadır. Bulgulara göre; devlet borcu temerrüt riski ile cari işlemler dengesi, ABD faiz oranları ve dış borç stoku arasında istatistiki olarak anlamlı ve pozitif bir ilişki tespit edilmiştir. Kişi başı GSYİH büyüme oranı ve doğrudan yabancı yatırımlar ile temerrüt riski arasındaki ilişki ise istatistiksel olarak anlamlı ve negatiftir.

**Anahtar Kelimeler:** Devlet Borçları, Devlet Borç Temerrüdü, İkili Tercih Panel Probit Model

**Jel Kodları:** H630, H680, H300

#### Abstract

In this study, the macroeconomic determinants of sovereign debt defaults are investigated. The Binary Choice Panel Probit Model is used, and the empirical analysis focuses on emerging market economies. Annual data is used in the econometric analysis, covering the period from 1994 to 2022. The findings indicate a statistically significant and positive relationship between the risk of sovereign debt default and the current account balance, U.S. interest rates, and the external debt stock. On the other hand, the relationship between GDP per capita growth rate and foreign direct investments with the risk of sovereign default is statistically significant and negative.

**Keywords:** Sovereign Debt, Sovereign Debt Default, Binary Choice Panel Probit Model

**Jel Codes:** H630, H680, H300



## Extended Abstract

### Macroeconomic determinants of sovereign debt default: Evidence from emerging market economies

#### Literature

Chakrabarti and Zeaiter (2014) examine whether the results from existing studies on government debt default are robust to small changes in the conditioning information set. According to the study, heavy debt burdens can be perceived as an early default signal. The study also notes that strong public policies and implementing measures to combat political risks can significantly control default risk. Rho and Saenz (2021) investigate the impact of macroeconomic dynamics on the risk of sovereign debt defaults. According to the analysis, during the periods of financial stress, there is a significant increase in the impact of the debt-to-GDP ratio, international reserve stocks and GDP per capita on the probability of sovereign defaults. Verma (2002) attempts to identify the political and economic determinants of sovereign debt defaults. The study finds that political factors play a crucial role in sovereign defaults. In this context, it is stated that the countries with more democratic regimes are more prone to defaults. Liu, Wang and Wang (2024) examine the relative sensitivity of sovereign defaults to foreign aid and the informal economy. The study concludes that the informal economy and foreign aid are statistically significant determinants of sovereign debt defaults. The findings also suggest that prioritizing the limitation of the informal economy to increase government revenues and enhancing the effectiveness of foreign aid can be beneficial in increasing the fiscal capacity of developing economies. Ghulam and Derber (2018) utilize panel data and a logit regression model in order to analyze the factors that affects the probability of indebted governments to default on their external debt obligations. According to the findings, an increase in inflation and a higher external debt-to-GDP ratio cause increases in the probability of sovereign default. On the other hand, higher GDP per capita reduces the probability of sovereign default.

#### Research subject

This paper investigates the macroeconomic determinants of government debt defaults and the statistical significance, nature (direction- positive/negative), and magnitude (numerical size) of the potential relationship between them.

#### Research purpose and importance

Government debt defaults are often the result of a series of policy failures such as poor public financial management, unsustainable debt burdens, and inadequate mechanisms to respond to external shocks and crises. Government debt defaults can have serious economic, financial and social repercussions. This research aims to identify the macroeconomic determinants of government debt defaults. The paper is expected to have a widespread impact by helping creditors assess the creditworthiness of indebted countries and the decision-makers evaluate the effectiveness of the previous policies more accurately, thus enabling them to take better decisions.

#### Contribution of the article to the literature

In our literature review, no empirical research on this topic was detected in the Turkish literature. On the other hand, the paper utilizes the most recent data and aims to support econometric findings with theoretical foundations and explanations. Thus, the paper is likely to contribute to the relevant literature regarding its comprehensiveness with all the aforementioned aspects.

#### Design and method

Logit and probit models are commonly used when the dependent variable is a dummy variable. These models can also be applied to panel data. The panel probit method analyzes the impact of explanatory variables on the probability of occurrence of the dependent variable in a model (Acar and Akay, 2021, p. 72). In the econometric analysis of the study, the dependent variable is "default (non-default) status" and is represented with a dummy variable. Therefore, considering the appropriateness of the paper's aim, the "Binary Choice Panel Probit Model" is applied as the econometric method.

#### Research type

In line with the paper's aim, the macroeconomic determinants of countries' sovereign default risk are analyzed using the "Binary Choice Panel Probit Model". The data used in the empirical analysis is secondary data in panel format and is annual data covering the period from 1994 to 2022.

#### Research problems

Government debt defaults (sovereign defaults) can have various causes. This paper investigates the macroeconomic determinants of government debt defaults in this context. Understanding the factors leading to government debt defaults can help policymakers, domestic/foreign investors, financial institutions, and other economic actors foresee potential debt crises earlier and intervene against their potential undesired consequences.

#### Data collection method

The data used in the empirical analysis is secondary data obtained from databases such as the World Bank, FRED (Federal Reserve Economic Data), and other databases mentioned in the paper.

#### Quantitative/qualitative analysis

This paper uses a quantitative analysis method based on panel data (Panel Probit Model). The panel probit model analyzes the possible impacts of the independent variable(s) on the probability of occurrence of the dependent variable in an econometric model (Acar and Akay, 2021, p. 72). Indeed, most of the literature addressing the determinants of government debt defaults applies logit or probit regression models in order to identify the risk factors associated with government debt defaults (Ghulam and Derber, 2018, p. 44).

#### Research model

The model forming the basis of the econometric analysis is as follows:

$$\text{DEFAULT} = \alpha + \beta_1\text{GDP} + \beta_2\text{CA} + \beta_3\text{FDI} + \beta_4\text{US-INT} + \beta_5\text{EXDEBT} + \epsilon t$$

The model uses a dummy variable reflecting the default status as the dependent variable. Thus, the model's dependent variable (DEFAULT) takes the value of 1 in the case of government debt default and 0 otherwise. As explanatory variables, the growth rate of GDP per capita (GDP), current account balance (% GDP) (CA), foreign direct investments (% GDP) (FDI), US interest rates-yields on long-term US government bonds (10-year) (US-INT) and external debt stock (% GDP) (EXDEBT) are used.

### Research hypotheses

H<sub>1</sub>: A statistically significant and positive relationship exists between the current account balance and government debt default risk.

H<sub>2</sub>: A statistically significant and positive relationship exists between US long-term interest rates and government debt default risk.

H<sub>3</sub>: A statistically significant positive relationship exists between external debt stock and government debt default risk.

H<sub>4</sub>: A statistically significant and negative relationship exists between the GDP growth rate per capita and government debt default risk.

H<sub>5</sub>: A statistically significant and negative relationship exists between foreign direct investments and government debt default risk.

### Findings and discussion

The findings indicate that increases in CA, US-INT, and EXDEBT variables increase the risk of default. In contrast, increases in GDP and FDI variables reduce the probability of government debt default. In this context, the finding of a positive relationship between the current account deficit and default risk is also expected theoretically. As the current account deficit grows, countries' foreign exchange needs are expected to increase and it will become more challenging to repay external debts due to foreign exchange shortages. Similarly, the negative relationship between the growth rate and default risk is an expected result. Indeed, the higher the growth rate of countries, the higher their ability to repay external debts and the lower their default risk. Assuming all other conditions remain constant, more economic growth means more tax revenue. The findings implicitly indicate that increases in foreign direct investments reduce the risk of debt default. Foreign direct investments mean both foreign exchange earnings and economic growth for countries. Therefore, foreign direct investments can reduce the risk of default by providing foreign exchange inflow to the country and positively contributing to its economic growth. The positive impact of external debt on sovereign default risk suggests that an increase in the share of external debt stock in GDP may strain the repayment capacity of the developing countries and thus increase the risk of default.

### Findings as a result of analysis

The findings indicate that increases in CA, US-INT, and EXDEBT variables increase the risk of default. In contrast, increases in GDP and FDI variables reduce the probability of government debt default.

### Hypothesis test results

H<sub>1</sub>: Accepted.

H<sub>2</sub>: Accepted.

H<sub>3</sub>: Accepted.

H<sub>4</sub>: Accepted.

H<sub>5</sub>: Accepted.

### Discussing the findings with the literature

The findings indicate that increases in the CA, US-INT, and EXDEBT variables increase the risk of default. This is a positive relationship. In contrast, the increases in the GDP and FDI variables reduce the probability of government debt default. According to Chakrabarti and Zeiter (2014), heavy debt burdens can be perceived as an early default signal. According to Rho and Saenz (2021), during periods of financial stress, the impact of the debt-to-GDP ratio, international reserve stocks, and GDP per capita on the likelihood of sovereign defaults increases significantly. Liu et al. (2024) found that the informal economy and foreign aid are significant determinants of government debt defaults. The findings suggest that prioritizing the limitation of the informal economy to increase state revenues and enhancing the effectiveness of foreign aid can be beneficial in increasing the fiscal capacity of developing economies. Ghulam and Derber (2018) state that an increase in inflation and a higher external debt-to-GDP ratio increase the probability of sovereign default, while the higher GDP per capita reduces the probability of government debt default.

### Conclusion, recommendation, and limitations

Macroeconomic dynamics are among the main determinants of government debt default. Understanding the factors leading to government debt defaults can help policymakers, investors, and financial institutions foresee potential economic crises and mitigate their possible undesired impacts. Researchers and policymakers can gain insights into the key factors contributing to financial crises by examining default events and developing strategies to reduce systemic risks. Furthermore, countries can reduce default risk and maintain their financial credibility by identifying early warnings of excessive borrowing and implementing more prudent debt management practices.

### Results of the article

A positive relationship was detected between the current account balance, US interest rates, and external debt stock with the sovereign default risk; and a negative relationship was found between the annual GDP growth rate per capita and foreign direct investment with the default risk. The empirical findings are generally in line with theoretical expectations.

### Suggestions based on results

Analyzing government debt defaults are essential for maintaining financial stability, improving policy effectiveness, managing investor expectations, promoting international cooperation, ensuring debt sustainability, and addressing potential social impacts.

By learning from past defaults, policymakers and stakeholders can develop effective strategies to reduce and manage future potential default risks.

**Limitations of the article**

This paper examines the emerging market economies as the sample country group. In this context, the nine countries subject to empirical analysis are Argentina, Brazil, Egypt, Indonesia, Mexico, the Philippines, the Russian Federation, Turkey, and South Africa (Dutttagupta and Pazarbasioglu, 2021, p. 7). The analyzed period covers the years 1994-2022, depending on data availability. In the empirical analysis, only the sovereign default status related to external debts is examined, and the defaults related to domestic debts are excluded from the scope of the study. Additionally, only the government debts (and the defaults of these kinds of debts) are included in the research, while private debts and their default statuses are excluded from the analysis.

## Giriş

Devlet borç temerrütleri genellikle zayıf kamu mali yönetimi, sürdürülemez borç yükü ve dış şoklar ile krizlere yetersiz müdahale mekanizmaları gibi bir dizi politika başarısızlığının sonucudur ve devlet borç temerrütlerinin hem ulusal düzeyde hem de küresel piyasalarda ciddi ekonomik, finansal ve sosyal nitelikli yansımaları olabilir. Nitekim devletlerin temerrüde düşmeleri, durumun ciddiyetine göre hem yerel hem de bölgesel ve küresel düzeyde borç krizlerini tetikleyebilir. Ayrıca genellikle temerrüt sonrası dönemlerde uygulanan kemer sıkma önlemleri ve kamu kesiminde artan tasarruf tedbirlerinin, vergilerde önemli boyutlarda artışların ve sosyal yardımlarda kısıtlamaların gerçekleşmesi yaygın bir durumdur. Bu açıdan, borç temerrütleri; yoksulluğu ve işsizliği arttırma, ekonomik performansı ve sosyal refah programlarını sekteye uğratma gibi olumsuzluklara sebep olabilmektedir.

Bu bağlamda, devlet borç temerrüdüne yol açan unsurların (devlet borç temerrüdünün belirleyicilerinin) anlaşılması; politika yapıcılarının, yerli/yabancı yatırımcıların, finansal kuruluşların ve diğer muhtelif iktisadi aktörlerin olası krizleri öngörebilmesine ve bunların potansiyel etkilerinin erken müdahale mekanizmalarıyla kontrol altına alınabilmesine yardımcı olabilir. Devlet borç temerrütlerinin incelenmesinin en önemli faydalarından biri de mali sürdürülebilirliğin tesisine katkıda bulunmasıdır. Zira mali sürdürülebilirliğin sağlanması ve (aşırı) borçlanmanın kontrol altında tutulması sağlam bir kamu mali yönetimi açısından kilit öneme sahiptir.

Bu çalışmada, devlet borç temerrütlerinin makroekonomik belirleyicileri ile bunlarla arasındaki muhtemel ilişkinin istatistiksel açıdan anlamlılığı, niteliği (yönü- pozitif/negatif) ve niceliği (rakamsal büyüklüğü) araştırılmaktadır. Bu çerçevede, çalışmanın araştırma soruları şunlardır: (i) 'Devlet borcu temerrüt riski ile cari işlemler dengesi, ABD uzun dönem faiz oranları, dış borç stoku, kişi başı GSYİH büyüme oranı ve doğrudan yabancı yatırımlar ile istatistiki olarak anlamlı bir ilişki mevcut mudur?' (ii) 'Bu ilişkinin mevcudiyeti varsayımı altında, bahsi geçen açıklayıcı değişkenlerin temerrüt riski üzerindeki olası etkisinin yönü (pozitif/negatif) ve rakamsal büyüklüğü ne şekilde tezahür etmektedir?' Çalışmanın hipotezleri ise aşağıdaki gibidir:

*H<sub>1</sub>: Cari işlemler dengesi ile devlet borcu temerrüt riski arasında istatistiki olarak anlamlı ve pozitif yönlü bir ilişki vardır.*

*H<sub>2</sub>: ABD uzun dönem faiz oranları ile devlet borcu temerrüt riski arasında istatistiki olarak anlamlı ve pozitif yönlü bir ilişki vardır.*

*H<sub>3</sub>: Dış borç stoku ile devlet borcu temerrüt riski arasında istatistiki olarak anlamlı ve pozitif yönlü bir ilişki vardır.*

*H<sub>4</sub>: Kişi başı GSYİH büyüme oranı ile devlet borcu temerrüt riski arasında istatistiki olarak anlamlı ve negatif yönlü bir ilişki vardır.*

*H<sub>5</sub>: Doğrudan yabancı yatırımlar ile devlet borcu temerrüt riski arasında istatistiki olarak anlamlı ve negatif yönlü bir ilişki vardır.*

Ekonometrik analizde 1994-2022 yılları arası dönemi kapsayan ve yıllık verilerden oluşan panel veri setinden faydalanılarak "İkili Tercih Panel Probit Modeli" uygulanmıştır. Ekonometrik analizde, örnek ülke grubu olarak yükselen piyasa ekonomileri incelenmiştir.

Tarafımızca gerçekleştirilen literatür taramasında Türkçe literatürde bu konuda yapılmış ve ampirik analizle desteklenmiş olan herhangi bir araştırmaya rastlanmamıştır. Diğer taraftan, çalışma dahilinde en güncel verilerden faydalanılmış olup, ekonometrik bulguların teorik temeller ve açıklamalarla desteklenmesi amaçlanmıştır. Çalışmanın, tüm bu yönleri ile kapsamlılığı açısından ilgili literatüre katkıda bulunması kuvvetle muhtemeldir. Ayrıca çalışmanın; kreditorlerin, borçlu devletlerin kredibilitelerini ve karar mercilerinin, geçmiş politikaların etkinliğini daha sağlıklı şekilde değerlendirmesine ve böylece daha doğru kararlar vermelerine yardımcı olma anlamında yaygın etkiye bulunması beklenmektedir.

## Literatür

Devlet borcu temerrüdünü etkileyen makroekonomik faktörler çok yönlü olmanın yanı sıra hem yerel hem de uluslararası dinamiklerle yakın bir ilişki içerisindedir. Konuya ilişkin hali hazırda görece geniş olan ve gelişmeye devam eden literatür, devlet borç temerrütlerinin temel makroiktisadi belirleyicilerini tanımlamayı ve bu faktörlerle temerrüt hadiseleri arasındaki ilişkiyi anlamayı amaçlamaktadır. Bu çerçevede, Verma (2002) devlet borç temerrütlerinin politik ve ekonomik belirleyicilerini tespit etmeye çalışmışlardır. Yazar, 1975-1995 arasına tekabül eden zaman dilimi için 30 gelişmekte olan ülkeye ait verilerle çok değişkenli panel probit regresyon modelini uygulamışlardır. Analizde incelenen zaman aralığı 1980'lerin başlarında birçok Latin Amerika ülkesinin temerrüde düştüğü dönemi kapsayacak

şekilde seçilmiştir. Temel olarak, devletlerin borç temerrüt riskinin (temerrüt olasılığının) belirleyicilerinin araştırıldığı bu çalışmadaki ekonometrik modelde yer alan açıklayıcı değişkenler (devlet borç temerrütlerinin olası belirleyicileri) siyasi ve ekonomik değişkenler (unsurlar) olarak ayrılmıştır. Çalışmada, bir devletin temerrüde düşme durumunda siyasi faktörlerin önemli bir rol oynadığı tespit edilmiştir. Bu bağlamda, daha demokratik bir rejime sahip ülkelerin daha fazla temerrüde düşme eğiliminde olduğu bulgulanmıştır. Dolayısıyla bulgular, borçlu ülkelerdeki demokrasi düzeyiyle bu ülkelerin temerrüt riskinin ters orantılı olduğu yönündeki hipotezi desteklemektedir.

Reinhart ve Rogoff (2009) sekiz yüzyıl boyunca yapılan mali politika hatalarını ve özellikle de devlet borç temerrütlerini araştırdıkları çalışmalarında küresel mali krizlere ilişkin kapsamlı bir veri setinden yararlanarak tarihsel analiz gerçekleştirmişlerdir. Çalışmada, görece yüksek devlet borcu seviyeleri ve düşük ekonomik büyüme performansının devletlerin temerrüde düşme olasılığını önemli ölçüde artırdığı belirtilmektedir. Manasse ve Roubini (2009) çalışmalarında devlet borç temerrütlerine yol açan ekonomik ve siyasi koşulları incelemiştir. Çalışma dahilinde, 1970 ile 2001 arası döneme tekabül eden geniş bir panel veri seti ile gerçekleştirilen ampirik analiz neticesinde borç-GSYH oranları, siyasi istikrarsızlık ve görece düşük seviyelerde seyreden büyüme oranlarının devlet borcu temerrüt riskinin başat belirleyicileri olduğu bulgulanmıştır.

Chakrabarti ve Zeaiter (2014) çalışmalarında devlet borç temerrüdüne ilişkin mevcut çalışmalardan elde edilen sonuçların koşullandırma bilgi setindeki küçük değişikliklere karşı dayanıklı olup olmadığını incelemek amacıyla Ekstrem Sınır Analizi (Extreme Bounds Analysis-EBA) tekniklerini kullanmışlardır. Analiz 1970-2010 yılları arasında 190 ülkeyi kapsamaktadır. Analiz sonucunda elde edilen bulgular; devlet borç temerrüdü ile ülkelerin kredi notu, büyüme, ihracat kazançları üzerindeki kaldıraç oranı, borç servisi oranı, rezervler, enflasyon, döviz kuru, ticaret açığı, yolsuzluk, hesap verebilirlik ve demokrasi arasında gözlemlenen ilişkinin sağlamlığını desteklemektedir. Ayrıca çalışmada, devlet borcu temerrüdü ile açıklık, merkez bankası yükümlülükleri, faiz ödemeleri, borçlanma maliyeti, ithalat, ihracat, kişi başına düşen GSMH ve politik istikrar arasındaki korelasyonların oldukça yüksek olduğu bulgulanmıştır. Çalışmanın bulgularına göre, devletlerin ağır borç yükü temerrüdün erken bir sinyali olarak algılanabilir. Çalışmada ayrıca kamu politikalarının pozitif yönde revize edilmesinin ve politik risklerle mücadeleye dönük uygulamaların gerçekleştirilmesinin, temerrüt riskinin kontrol altına alınmasında önemli rol oynayabileceği belirtilmiştir.

Ghulam ve Derber (2018) 1970-2010 arası süreçte vuku bulan başlıca devlet temerrütlerini incelemektedir. Çalışmada, borçlu devletlerin dış borç yükümlülüklerini yerine getirememesi (temerrüt) olasılığını etkileyen faktörleri analiz etmek amacıyla panel verilerden yararlanılarak logit regresyon modeli kullanılmıştır. Verilerin tanımlayıcı analizi, temerrütlerin daha uzun bir süre boyunca döngüsel bir yapıya sahip olduğunu göstermektedir. Ayrıca çalışmanın regresyon analizi sonuçları; ABD hazine bonusu oranlarındaki ve ABD doları cinsinden LIBOR'daki dalgalanmaların temerrütler üzerinde önemli etkiler yaratması nedeniyle uluslararası parasal koşulların önemini vurgulamaktadır. Siyasi belirsizlik temerrüt olasılığını artırırken, ihracat (ithalat) büyümesi temerrüt olasılığını azalmaktadır (artırmaktadır). Benzer şekilde, enflasyondaki %1'lik bir artış, temerrüt olasılığını %7 artırmaktadır ve daha yüksek borç/GSYH oranı aynı zamanda daha yüksek temerrüt olasılığıyla bağlantılıdır. Dış borçtaki %1'lik bir artış, temerrüt olasılığının %5 ila %7 oranında artmasına yol açarken, kişi başına düşen GSYİH'nın yüksek olması temerrüt olasılığını azaltmaktadır.

Rho ve Saenz (2021) çalışmalarında makroekonomik dinamiklerin, devlet borçlarının temerrüde düşme riski üzerindeki etkisini incelemektedir. Çalışmada makroekonomik değişkenlerin ve finansal kırılmalıkların, devlet borç temerrüdü riski üzerinde sakin zamanlara göre finansal baskı dönemlerinde daha güçlü bir etkiye sahip olup olmadığı hususu test edilmektedir. Çalışma dahilinde, gelişmekte olan piyasalarda ve gelişmiş ekonomilerde borç yükü göstergelerinin ve makroekonomik temellerin devlet borç temerrüdü riski üzerindeki olası etkisinin incelenmesi için 1990-2014 dönemini kapsayan ve toplamda 113 ülkeden oluşan panel verinin kullanılmasıyla elde edilen bulgular analiz edilmiştir. Analiz bulgularına göre, finansal stres yaşanan dönemlerde, borcun GSYİH'ye oranının, uluslararası rezerv stokunun ve kişi başına düşen GSYİH'nin, devletlerin temerrüde düşme olasılığı üzerindeki etkisinde önemli ölçüde artış görüldüğü tespit edilmiştir. Bu, makroekonomik dinamiklerin temerrüt riski üzerindeki etkisinin finansal stres dönemlerinde sakin zamanlara göre daha güçlü olduğunu açıklamaktadır.

Liu, Wang ve Wang (2024) ülke temerrüdünün dış yardıma ve gayri resmi ekonomiye olan göreceli duyarlılığını incelemektedir. Çalışmada, 2002'den 2022'ye kadarki süreçte, toplamda 84 ekonomiyi içeren bir panel veri seti kullanılarak, Sala-I-Martin'in Ekstrem Sınır Analizi (Extreme Bounds Analysis-EBA) yaklaşımından yararlanılmıştır. Çalışmanın neticesinde hem gayri resmi ekonominin hem de dış

yardımanın devlet borç temerrüdünün önemli belirleyicilerinden olduğu tespit edilmiştir. Bulgular, devlet gelirlerini artırmak için resmi olmayan ekonominin boyutunu sınırlamaya öncelik vermenin ve dış yardımın etkinliğini artırmanın, gelişmekte olan ekonomilerin mali kapasitesini artırmada faydalı olabileceği yönündedir. Bu, temerrüt olasılığını düşürücü bir gelişme olacaktır. Yazarlara göre, hükümetler, kamu gelirlerini artırmak için resmi olmayan ekonominin boyutunu sınırlamaya öncelik vermeli ve dış yardımın etkinliği artırılmalıdır.

### Devlet borcu temerrüdü kavramı

Devlet borcu kavramı egemen bir devlet tarafından alınmış ve/veya garanti edilmiş borcu ifade eder (Tomz ve Wright, 2013, s. 248). Diğer taraftan, en basit haliyle 'temerrüt' kavramı, bir taahhüdün yerine getiril(e)memesi (Ams, Baqir, Gelpert ve Trebesch, 2020, s. 276) veya bir sözleşmenin ihlali anlamına gelir. Yasal açıdan, borç temerrüdü, bir borç akdinin -sözleşme şartları çerçevesinde- ihlalidir (Martinez, Roch, Roldan ve Zettelmeyer, 2022, s. 9). Bu, borç temerrüdünün dar anlamda tanımıdır. Nitekim geniş anlamda borç temerrüdü kavramı borcun değerini azaltacak şekilde gönüllü olarak yeniden yapılandırılmasını da içerir (Tomz ve Wright, 2013, s. 248). Devlet borcu açısından temerrüt kavramına vadesi geçmiş bir geri ödemenin yanı sıra, borcun geri ödenmesi konusundaki isteksizlik de dahildir (Ams vd., 2020, s. 276). Bu bağlamda, devlet borcu temerrüdü, bir hükümetin borç sözleşmelerinin şartlarına uygun olarak planlanmış faiz ve anapara geri ödemelerini veya her ikisini birden öde(ye)meyerek borç sözleşmesine ilişkin yükümlülüklerini yerine getir(e)memesi durumunda ortaya çıkar (Verma, 2002, s. 4817).

Devlet borcu ifadesi genellikle ülkelerin kamu ve özel sektör borç miktarını kapsamaktadır. Hükümetlerin ihraç ettiği devlet borçları yurtiçi finansal sistemden elde edildiğinde, genellikle görece güvenli ve likit olarak değerlendirilir. Zira bu borçların, özel sektörün ihraç ettiği borçlardan daha güvenli ve daha likit olduğu düşünülür. Bunun nedeni, hükümetlerin vergilendirme yetkisi ve gücüdür. Bu çerçevede, iç borcun temerrüde düşmesi daha çok ülkelerin kendi iç meselesidir. Ancak, dış borçlar pek çok açıdan daha farklı şekilde yorumlanır ve yönetilir. Örneğin, hükümetlerin borçlandığı kreditorlerin yabancı yatırımcılar olması durumunda, olası bir temerrüt durumu daha problematik bir hal alabilir. Buradaki mesele, özü itibarıyla, yasal düzenlemelerin etki alanının ötesindedir. Yasal açıdan sorun, devletlerin temerrüde düşme durumunda, herhangi bir yabancı mahkemenin bu borcun cebren ödenmesini mümkün kılma yetkisine ve gücüne sahip olmamasıdır. Nitekim temerrüde düşen dış borç tutarının, borçlu ülkenin varlıklarından cebren tahsil edilmesi egemenlik sorunu yaratmaktadır (Martinez vd. 2022, s. 2; Ulusoy, 2013, s. 51).

Dış borç, yabancı kreditorlere (yatırımcılara) olan borçtur. Verilerde bu, genellikle yabancı para cinsinden borçlar veya yabancı bir yasal yetki alanında ihraç edilen borçlarla temsil edilir (Tomz ve Wright, 2013, s. 250). Özetle, devlet borcu temerrüdünün; egemen devletlerin muhtelif alacaklılara (yerli/yabancı tahvil sahiplerine, bankalara, finans kurumlarına, yabancı ülkelere, uluslararası kurum ve kuruluşlar ile diğer kreditorlere) karşı borç sözleşmesinden kaynaklanan mali taahhütlerini yerine getir(e)memesi anlamına geldiği söylenebilir.

Devlet borcu temerrüdü, farklı şekillerde ortaya çıkabilir. Örneğin, hükümetler borç yükümlülükleri için planlanmış faiz veya anapara geri ödemelerini yapamıyor veya bunları geciktirmiş olabilirler. Borçlu ülkeler, kreditorlere borcun vadesinin uzatılması (konsolidasyon), faiz oranlarının düşürülmesi (konversiyon) veya borcun anapara tutarında indirim uygulanması gibi taleplerde bulunabilir. Böylece, borç sözleşmesinin şartlarının değiştirilmesi söz konusu olabilir. Moratoryum ilan edilmesi devlet borcu temerrüdüne ilişkin bir başka örnektir. Moratoryum, borçlu devletlerin, borç ilişkisinden doğan yükümlülüklerinin tamamını veya bir kısmını belirli bir süre için askıya alarak borç ödemelerini yapamayacağını duyurmasıdır (Ulusoy, 2013, s. 265-269).

Yasal açıdan değerlendirildiğinde, borç temerrüdü durumu, borç sözleşmesinin sözleşmesel şartlara bağlı bir ihlalidir. Bir başka deyişle, sözleşmede belirtilen ödemesiz sürenin ötesinde, olağan olarak planlanmış olan borç servisinin öden(e)memesidir. Teknik temerrüt ve akdi temerrüt olarak adlandırılan kavramlar bu tür temerrütlerdendir. Teknik temerrütler genellikle küçük ölçekli, bazı idari hatalardan kaynaklanan ve alacaklılar tarafından fazla önemsenmeyen gecikmiş ödemeleri kapsar. Akdi temerrütler ise genellikle 30 günden daha fazla süren geri ödeme gecikmelerini ifade etmektedir (Ams vd. 2020, s. 3).

Borç temerrüdü iradi ya da gayriiradi şekilde ortaya çıkabilir. Bu çerçevede, borç temerrüdünün nedenlerinin incelenmesinde önemli bir bakış açısı, ödeme gücü ve ödeme isteği konusudur (Verma, 2002, s. 4817). Ülkelerin borç geri ödemelerinde temerrüde düşmeleri hem ödeme isteğinin hem de ödeme gücünün bir fonksiyonudur. Zira ülkelerin ödeme gücü olmasına rağmen borçların ödenmemesi söz konusu olabilir. Örneğin, savaş dönemlerinde, kendilerine karşı savaşılan veya ittifak dışındaki

ülkelere olan borç geri ödemelerinin (kasten) yapılmadığı durumlarda doğan iradi temerrüt durumları görülmüştür (Sturzenegger ve Zettelmeyer, 2007, s. 29). Geri ödeme gücünün belirlenmesinde ise daha çok ekonomik değişkenlere bakılır. Geri ödeme gücü, ekonominin büyüme oranı, döviz gelirleri ve dış şoklar gibi ekonomik faktörler tarafından belirlenirken, geri ödeme isteğini ölçmek daha zordur. Bu zorluk, ödeme isteği göstergelerinin daha çok siyasi ve kurumsal nitelikte olmasından kaynaklanmaktadır (Manasse ve Roubini, 2009, s. 195).

Literatürde, 'önleyici' borç yeniden yapılandırılmaları, bir başka deyişle, bir ödemenin gecikmesi reel olarak gerçekleşmeden önce borç sözleşmesine ilişkin koşulların yeniden müzakere edilmesi (Ams vd. 2020, s. 3) de temerrüt sayılır. Bu, asli temerrüt olarak adlandırılır. Böylece, 'temerrüt öncesi' ve 'temerrüt sonrası' yeniden borç yapılandırılmaları arasında ayırım yapılmıştır.

## Tarihsel süreçte devlet borç krizleri ve borç temerrütleri

Devlet borç krizleri tarih boyunca ülkelerin ekonomilerini, yönetimlerini ve toplumsal yapısını çeşitli açılardan etkilemiştir. Bu krizler genellikle ulusal hükümetlerin borçlarına ilişkin yükümlülüklerini yerine getir(e)memesi durumlarında ortaya çıkmış olup borç temerrütlerine ve borçların yeniden yapılandırılması gibi uygulamalara sebep olmuştur. Bu açıdan, borç krizlerinin tarihsel süreci, küresel finansal istikrarın ana dinamiklerinin ve ülkelerin ekonomi politikalarının anlaşılabilmesi açısından elzemdir. Zira devlet borcu temerrütlerinin tarihini incelemek, farklı dönemler ve bölgelerdeki temerrüt olaylarının ana dinamikleri, nedenleri ve sonuçları hakkında kayda değer bilgiler sağlar. Bu tarihsel bakış, devlet borç krizlerine katkıda bulunan faktörlere ışık tutmaya yardımcı olur. Böylece, politika oluşturma ve kriz yönetimi konusunda stratejileri şekillendirebilir. Borç krizlerinin tarihsel olarak incelenmesi; krizlerin yinelenen kalıpları, temel nedenleri ve borç krizlerine gösterilen yaygın tepkilerin gelişimini de ortaya koyabilir.

Devlet borcu kavramı ve borç krizlerinin kökeni antik döneme kadar uzanır. Bu çerçevede, devlet borcu krizlerine dair kayıtlara geçen en eski örneklerden biri Antik Yunan döneminde Atina şehir devletinde meydana gelmiştir. Atina şehir devleti, M.Ö. dördüncü yüzyılda borçlarını ödeme noktasında temerrüde düşmüş olup, bu olay birtakım toplumsal huzursuzluklara ve politik kargaşaya sebep olmuştur (Kindleberger, 1989, s. 53). Bu örnek, aşırı borçlanmanın tehlikeleri ile borcun sürdürülebilirliğinin ve mali disiplinin önemini vurgular niteliktedir.

19. yüzyılda özellikle Latin Amerika ve Avrupa'da çeşitli borç krizleri yaşanmıştır. Bahsi geçen dönemde ekonomilerini geliştirmeyi ve güçlendirmeyi arzu eden bazı Latin Amerika ülkeleri, Avrupalı kreditorlerinden yoğun şekilde borçlanmışlardır ve 1800'li yılların başlarında bu ülkelerin çoğu temerrüde düşmüştür. Bu durum bölgesel bazda geniş çaplı finansal istikrarsızlıklara neden olmuştur (Marichal, 1989, s. 124).

1929'da patlak veren Büyük Buhran, devlet borç krizleri açısından dönüm noktası niteliğindedir. Nitekim bu dönemde Almanya ve Avusturya dahil olmak üzere çok sayıda devlet küresel ekonomik çöküşten etkilenmiş ve temerrüde düşmüştür (Eichengreen, 1992, s. 210). Bu süreçte, Amerika Birleşik Devletleri de ciddi boyutlarda finansal zorluklarla karşı karşıya kalmış olup tüm bu negatif gelişmeler neticesinde Almanya'nın borçlarını yeniden yapılandırmayı ve özellikle Avrupa'da iktisadi açıdan yeniden inşa sürecini kolaylaştırmayı hedefleyen 1953 Londra Borç Anlaşması imzalanmıştır (Bulow ve Rogoff, 1989, s. 56). 1980'lerde yaşanan Latin Amerika borç krizinde de Meksika, Brezilya ve Arjantin gibi ülkeler temerrüde düşmüştür (Sachs, 1989, s. 74).

19. ve 20. yüzyıllardaki temerrütler, özellikle uluslararası sermaye hareketlerindeki patlama-çöküş döngülerinde ve genellikle belirli bölgelerde ortaya çıkmıştır (Sturzenegger ve Zettelmeyer, 2007, s. 4-5). Bu çerçevede, Lindert ve Morton'un (1989, s. 41) tespitlerine göre, 19. yüzyılın başlarından bu yana sekiz sermaye akışı ve borç verme patlaması (aşırı borçlanma) söz konusudur. Bu istikrarsızlıklar kronolojik olarak aşağıdaki bölgelerde yaşanmıştır (Sturzenegger ve Zettelmeyer, 2007, s. 4-5):

- 1820'lerin başında, bağımsız Latin Amerika ülkeleri ve bazı Avrupa ülkeleri,
- 1830'larda Amerika Birleşik Devletleri, İspanya ve Portekiz,
- 1860'lardan 1870'lerin ortalarına kadar Latin Amerika, Amerika Birleşik Devletleri, Avrupa ülkeleri, Osmanlı İmparatorluğu ve Mısır,
- 1880'lerin ortalarından sonlarına kadar Amerika Birleşik Devletleri, Avustralya ve Latin Amerika,
- Dünya Savaşı'ndan önceki 10 yıl içinde Kanada, Avustralya, Güney Afrika, Rusya, Osmanlı İmparatorluğu, Balkan ülkeleri ve bazı Latin Amerika ülkeleri,

- 1920'lerde Almanya, Japonya, Avustralya, Kanada, Arjantin, Brezilya ve Küba,
- 1970'lerde Latin Amerika, İspanya, Yugoslavya, Romanya, Polonya, Türkiye, Mısır ve Endonezya'nın yanı sıra bazı Afrika ülkeleri,
- 1990'larda Latin Amerika, gelişmekte olan Asya ve Doğu Avrupa'daki eski Komünist ülkeler.

Sözü edilen sermaye akışlarının ana kaynakları 19. yüzyılda Birleşik Krallık ve Fransa idi. 20. yüzyılın başlarında ise Birleşik Krallık, Fransa, Almanya, Hollanda ve ABD; iki dünya savaşı arası dönemde ABD ve Birleşik Krallık; 1970'lerde ABD ve bazı Batı Avrupa ülkeleri ve 1990'larda ABD, Batı Avrupa ülkeleri ve Japonya'dır. Bütün bu sermaye akışlarındaki aşırı borçlanma dönemleri, borç temerrütleriyle veya borçların yeniden yapılandırıldığı çöküş dönemleriyle sonuçlanmıştır. Bu çöküşler, genellikle aşağıda belirtilen faktörlerden en az biri tarafından tetiklenmiştir (Sturzenegger ve Zettelmeyer, 2007, s. 5-6):

- Borçlu ülkelerin ticaret hadlerinin bozulması,
- Sermaye aktaran ülkelerde vuku bulan durgunluklar,
- Sıkı para politikası gibi alacaklı ülkelerdeki olayların neden olduğu uluslararası borçlanma maliyetlerinde bir artış,
- Borç veren ülkedeki krizin, finansal ve ticari yollarla küresel krize neden olması.

1990'lar ve 2000'lerde de borç krizleri devam etmiştir. 1990'larda, ilk olarak Tayland'da patlak veren ve daha sonra Endonezya, Güney Kore ve Malezya gibi bölgedeki diğer ülkelere de sıçrayan Asya Finansal Krizi geniş ölçekli sermaye çıkışları, yerel para birimlerinde devalüasyonlar ve negatif büyüme oranları neticesinde ulusal ekonomilerin küçülmesi ile karakterize edilmektedir (Radelet ve Sachs, 1998, s. 12). Bu kriz, finansal liberalizasyon süreçleriyle ilişkili risklerin ve sürdürülebilir makroekonomik politikaların önemini vurgulamaktadır. Ayrıca, 1990'larda Rusya ve Arjantin'in de içinde bulunduğu bir dizi yükselen piyasa ekonomisinde ciddi boyutlarda temerrütler yaşanmıştır. Bu temerrütler, genellikle döviz krizlerinin, bankacılık sektöründeki çöküşlerin ve mali açıdan kötü yönetimin sonuçlarıydı. Tüm bu krizler, küresel finans piyasalarının birbirine ne kadar güçlü şekilde entegre olduğunu da vurgulamıştır. Zira 2008 küresel finansal ve ekonomik krizi, Yunanistan, İrlanda, Portekiz ve İspanya gibi ülkelerin sürdürülemez borç seviyeleri ile muhtelif piyasa spekülasyonları gibi gelişmeler neticesinde Avro Bölgesi'nde ciddi ve geniş çaplı bölgesel bir borç krizine yol açmıştır (von Luckner, Meyer, Reinhart ve Trebesch, 2023, s. 11; Reinhart ve Rogoff, 2009, s. 315). Son olarak ise 2019 yılı sonlarında patlak veren ve küresel bir sosyo-ekonomik kriz halini alan COVID-19 pandemisi, özellikle de gelişmekte olan ülkelerin borç stokunu dramatik bir biçimde artırmıştır. Bu durum, geçmişte meydana gelmiş krizlerin incelenmesinin gelecekteki politikalara ışık tutma anlamında ne denli önemli ve gerekli olduğunun altını bir kez daha çizmiştir (Dünya Bankası, 2020, s. 44).

Borç krizleri, tarih boyunca, sık sık karşılaşılan ve ciddi sosyal ve iktisadi sonuçlara yol açan problemler olagelmıştır. Antik dönemlerden modern çağdaki kurulu küresel ekonomik düzene kadarki süreçte devlet borçlarına ilişkin sorunlar ve bunların çözümüne ilişkin yöntemler evrim geçirmiştir. Tüm bu krizlerin anlaşılması, gelecekteki politikaların dizayn ve uygulamaları açısından önemli dersler barındırmaktadır. Sonuç itibarıyla, özetle, ülkelerin, aşırı borçlanmanın yol açabileceği sorunlardan kaçınabilmeleri için borç stoklarını dengeli düzeylerde bulundurmaları ve borçlanma politikalarını aynı zamanda sürdürülebilir mali ve iktisadi politikalarla dengelemelerinin önemli ve gerekli olduğu söylenebilir.

## Ekonometrik uygulama

Ekonometrik uygulamanın açıklandığı bu kısımda ülkelerin (yükselen piyasa ekonomilerinin) devlet borçlarına ilişkin temerrüde düşmesini etkileyen makroekonomik faktörler (devlet borcu temerrüdünün makroekonomik belirleyicileri) Panel Probit Modeli ile analiz edilmiştir.

### Amaç ve kapsam

Bu çalışmanın amacı devlet borç temerrüdünün makro-iktisadi belirleyicilerini tespit etmektir. Ekonometrik analizde, örnek ülke grubu olarak yükselen piyasa ekonomileri incelenmiştir. Bu çerçevede, ampirik analize konu edilen dokuz ülke; Arjantin, Brezilya, Mısır, Endonezya, Meksika, Filipinler, Rusya Federasyonu, Türkiye ve Güney Afrika'dır (Dutttagupta ve Pazarbasioglu, 2021, s. 7). Verilerin mevcudiyeti dahilinde, incelenen dönem 1994-2022 yılları arasını kapsamaktadır. Ampirik analizde, yalnızca dış borçlara ilişkin temerrüt durumu incelenmiş olup, iç borçlara ilişkin temerrütler çalışma kapsamının dışında tutulmuştur. Ayrıca, çalışmanın konusuna yalnızca devlet borçları (ve bu



borçların temerrüdü) dahil olup, özel borçlar ve bunlara ilişkin temerrüt durumları çalışmadan dışlanmıştır.

### Yöntem

Ekonometrik modellerde bağımlı değişkenin gölge (kukla) değişken olduğu durumlarda yaygın olarak logit ve probit modelleri kullanılmaktadır. Bu çerçevede, devlet borcu temerrüdünün belirleyicilerini konu alan literatürün çoğu, devlet borç temerrüdüyle ilişkili risk faktörlerinin belirlenmesi amacıyla logit veya probit regresyon modellerini uygulamıştır (Ghulam ve Derber, 2018, s. 44). Bu modeller panel verilere de uygulanabilmektedir. Panel probit yöntemi, bir modeldeki açıklayıcı değişkenlerin, bağımlı değişkenin gerçekleşme olasılığı üzerindeki etkisini analiz eder (Acar ve Akay, 2021, s. 72). Çalışmanın ekonometrik analizi dahilinde oluşturulan modelde bağımlı değişken “temerrüde düşme durumu” dur ve kukla (gölge) değişken olarak temsil edilmektedir. Bu sebeple çalışmada, çalışmanın amacına uygunluğu yönüyle, ekonometrik yöntem olarak “İkili Tercih Panel Probit Modeli” kullanılmıştır.

### Veri seti ve ekonometrik model

Bu çalışmada ülkelerin temerrüt riskinin makroekonomik belirleyicileri “İkili Tercih Panel Probit Modeli” yöntemi ile araştırılmaktadır. Analizde kullanılan veriler yıllık bazda olup 1994-2022 arası dönemi kapsamaktadır. Ekonometrik analize temel teşkil eden model aşağıdaki gibidir:

$$DEFAULT = a + \beta_1GDP + \beta_2CA + \beta_3FDI + \beta_4US-INT + \beta_5EXDEBT + \epsilon_t$$

Modelde, bağımlı değişken olarak temerrüt durumunu yansıtan gölge değişken kullanılmıştır. Dolayısıyla, modelin bağımlı değişkeni (DEFAULT) devlet borçlarının temerrüde düşme durumunda 1 aksi durumda 0 değerini almaktadır. Açıklayıcı değişkenler olarak ise kişi başı GSYİH büyüme oranı (GDP), cari işlemler dengesi (%GSYİH) (CA), doğrudan yabancı yatırımlar (% GSYİH) (FDI), ABD faiz oranları -ABD uzun vadeli devlet tahvili getirileri (10 yıllık)- (US-INT) ve dış borç stoku (% GSMH) (EXDEBT) değişkenleri kullanılmıştır. Tablo 1’de modelde yer alan serilere ilişkin özet bilgiler yer almaktadır:

**Tablo 1:** Bağımlı ve Açıklayıcı Değişkenlere İlişkin Temel Bilgiler

Bağımlı Değişken	
DEFAULT	Devlet Borcu Temerrüdü
Açıklayıcı Değişkenler	
GDP	Yıllık Kişi Başı GSYİH Büyüme Oranı
CA	Cari işlemler dengesi (% GSYİH)
FDI	Doğrudan Yabancı Yatırım (% GSYİH)
US-INT	ABD Faiz Oranları- ABD Uzun Vadeli Devlet Tahvili Getirileri: 10 Yıllık
EXDEBT	Dış borç stoku (%GSMH)

Bağımlı değişkene ait veri (DEFAULT) Das, Papaioannou ve Trebesch (2012), Cruces ve Trebesch (2014) ve Trebesch (2020) kaynaklarından elde edilmiştir. Bağımsız değişkenlerden US-INT verisi FRED (2024) kaynağından alınmıştır. Diğer açıklayıcı değişkenler ise Dünya Bankası veri tabanından elde edilmiştir (Dünya Bankası, 2024). Bu çalışmada yararlanılan tüm veriler kamuoyuna açık durumda bulunan elektronik kaynaklardan elde edilmiş ikinci elden verilerdir. Bu sebeple, işbu çalışmayla ilgili olarak etik kurulu belgesi temin edilmesi gerekmemektedir.

### Bulgular

Öncelikle serilere ilişkin betimleyici özet istatistikler oluşturulmuştur. Tablo 2’de modelde kullanılan verilere ait tanımlayıcı istatistikler sunulmaktadır.

**Tablo 2:** Model Değişkenleri ve Tanımlayıcı İstatistikler

Değişken	CA	GDP	FDI	US-INT	EXDEBT
Ortalama	0,477	1,98	2,006	3,837	0,053
Standart Hata	0,224	0,248	0,093	0,105	0,002
Medyan	-1,228	2,429	1,929	3,667	0,05
Standart Sapma	3,623	4,004	1,497	1,696	0,028
Basıklık	2,846	2,31	7,005	-1,034	1,305
Çarpıklık	1,297	-1,142	1,566	0,242	0,896
Maksimum	-8,87	-14,476	-2,757	0,894	0,009
Minimum	17,474	10,464	9,678	7,08	0,192
Toplam	-124,589	516,755	523,663	1001,49	13,936
Gözlem Sayısı	261	261	261	261	261

Tanımlayıcı istatistikler araştırmacılara analizde kullanılan serilere ilişkin genel bilgiler sağlar. Ekonometrik analizde yararlanılan panel veri setinde açıklayıcı değişkenlerden her bir serinin toplamda 261 gözlemden oluştuğu görülmektedir. Modeldeki açıklayıcı değişkenlere uygulanan korelasyon testi bulguları ise Tablo 3'te sunulmaktadır:

**Tablo 3:** Açıklayıcı Değişkenlere İlişkin Korelasyon Matrisi

	CA	GDP	FDI	US-INT	EXDEBT
CA	1				
GDP	0,023	1			
FDI	-0,147	0,091	1		
US-INT	0,071	0,066	-0,117	1	
EXDEBT	0,036	-0,096	-0,118	0,070	1

Tablo 3'te yer alan korelasyon analizi sonuçlarına göre modelin açıklayıcı değişkenleri arasında yüksek derecede (%80 ve üzeri) korelasyon ilişkisinin bulunmadığı görülmektedir. Bu sonuç, modelde çoklu doğrusal bağıntı sorununun bulunmadığına dair öngörü sağlar niteliktedir. Gerekli tanı testlerinin icrasını takiben elde edilen nihai bulgular Tablo 4'te yansıtılmaktadır.

**Tablo 4:** İkili Tercih Panel Probit Modeli Bulguları

Bağımlı Değişken	DEFAULT			
Zaman Aralığı	1994-2022			
Gözlem Sayısı	261			
Açıklayıcı Değişkenler	Katsayı	Std. Hata	Z istatistiği	Olasılık Değeri
C	0,405	0,206	1,960	0,049
CA	0,026	0,012	2,033	0,041
GDP	-0,321	-0,122	2,612	0,008
FDI	-0,101	-0,043	2,326	0,019
US-INT	0,003	0,001	1,750	0,080
EXDEBT	0,590	0,158	3,724	0,000
LR istatistiği	17,309			
LR stat. Olasılık Değeri	0,008			

Tablo 4'te İkili Tercih Panel Probit Regresyon analizine ilişkin nihai bulgular yer almaktadır. Modelin bağımlı değişkeni ülkelerin temerrüde düşme durumunda 1 aksi durumda 0 değerini alan gölge (kukla) değişkendir. LR istatistiği olasılık değeri (<0,05) kurulan modelin bir bütün olarak anlamlı olduğunu göstermektedir. Değişkenlere ilişkin bulgular; CA, US-INT ve EXDEBT değişkenlerinin artış sergilemesinin temerrüt riskini arttırdığı, GDP ve FDI değişkenlerindeki artışların ise ülkelerin devlet borçlarının geri ödenmesi konusunda temerrüde düşme olasılığını azalttığı yönündedir. Bu bağlamda, cari açık ile temerrüt riski arasında pozitif bir ilişkinin bulunması teorik açıdan da beklenen bir sonuçtur. Zira cari açığın büyümesi neticesinde ülkelerin döviz ihtiyaçlarının artması ve döviz

yetersizliđi sebebiyle dıř borçların geri ödenmesinin zorlařması beklenir. Benzer şekilde, büyüme oranı ile temerrüt riski arasındaki negatif iliřki de beklenen bir sonuçtur. Nitekim ülkelerin büyüme oranı ne kadar yüksekse dıř borçlarını ödeme yeterliliklerinin de o kadar yüksek olması ve temerrüt risklerinin azalması beklenti dahilindedir. Çünkü, daha fazla ekonomik büyüme -diđer bütün şartların veri olduđu varsayımı altında- daha fazla vergi geliri anlamına gelir. Bulgular, yabancı doğrudan yatırımlardaki artışların borç temerrüt riskini azalttıđını yansıtmaktadır. Yabancı doğrudan yatırımlar, ülkeler açısından hem döviz kazancı hem de ekonomik büyüme anlamına gelir. Bu sebeple, yabancı doğrudan yatırımlar bir yandan ülkeye döviz girdisi sağlarken, diđer yandan ülkenin ekonomik büyümesine de pozitif katkılarda bulunarak temerrüt riskini azaltıcı etkide bulunabilir. Dıř borçların temerrüt riski üzerindeki etkisinin pozitif olması ise dıř borç stokunun GSYH içerisindeki payının artmasının geliřmekte olan ülkelerin borç geri ödeme kapasitelerini zorlaması neticesinde temerrüt riskini de artıracadı yönündedir.

## Sonuç

Devlet borç temerrütleri genellikle kötü mali yönetim, sürdürülemez borçlanma ve krizlere yetersiz müdahale mekanizmaları dahil olmak üzere bir dizi politika başarısızlıđından kaynaklanır. Devlet borcunun temerrüde düşmesinin hem yurt içinde hem de uluslararası alanda siyasi sonuçları olabilir. Bu düzlemde, devlet borçları, özellikle de dıř borçlanma, genellikle sözleşme yükümlülükleri, alacaklı hakları ve anlaşmazlıklara iliřkin çözüm mekanizmaları dahil olmak üzere (ulusal ve uluslararası düzeyde) bir dizi karmařık yasal ve düzenleyici süreçlerle iliřkilidir. Bu açıdan, devlet borcu temerrüdünün analiz edilmesi, hem mevcut yasal çerçevelerin daha iyi kavranmasına yardımcı olur hem de borçların yeniden yapılandırılmasına yönelik etkili olabilecek politika uygulamalarının geliřtirilmesi süreçlerine destek olabilir.

Bu çalışmada, yükselen piyasa ekonomileri özelinde ülkelerin temerrüt riskinin makroekonomik belirleyicileri İkili Tercih Panel Probit Modeli ile analiz edilmiştir. Bulgulara göre, cari işlemler dengesi, ABD faiz oranları ve dıř borç stoku ile temerrüt riski arasında pozitif; yıllık kişi başı GSYİH büyüme oranı ve doğrudan yabancı yatırımlar ile ise negatif bir iliřki tespit edilmiştir. Ampirik bulgular, genel anlamda, teorik beklentilerle uyumludur.

Devlet borç temerrütleri; derin ekonomik, finansal ve sosyal etkileri göz önüne alındıđında oldukça önem arz eder. Zira devlet borcu temerrütlerinin ciddi ekonomik, finansal ve sosyal etkileri olabilir. Temerrütler ve borç krizleri; finansal piyasalarda dalgalanmalara, yatırımcı güveni kaybına, kamu ve özel sektör açısından borçlanma maliyetlerinin artmasına, sermaye çıkışına, para biriminin deđer kaybetmesine, enflasyonist baskılara ve/veya ekonomik durgunluđa yol açabilir. Bu sebeple, devlet borcunun temerrüde düşmesinin küresel ekonomi ve ulusal ekonomiler üzerinde önemli yansımaları olabilir. Dahası, borç temerrütleri ulusal/uluslararası finansal sistemlerde krizleri tetikleyebilir.

Bu bağlamda, devlet borcunun temerrüde düşmesine yol açan faktörleri anlamak, politika yapıcılarının, yatırımcıların ve finansal kuruluşların potansiyel ekonomik krizleri öngörmesine ve olası etkilerinin hafifletmesine yardımcı olabilir. Bu doğrultuda, arařtırmacılar ve politika yapıcılar, temerrüt olaylarını inceleyerek finansal krizlere katkıda bulunan temel faktörler hakkında fikir edinebilir ve sistemik riskleri azaltmak için stratejiler geliřtirebilir. Ayrıca, ülkeler, aşırı borçlanmanın erken uyarılarını belirleyerek ve daha ihtiyatlı borç yönetimi uygulamalarını hayata geçirecek temerrüt riskini azaltabilir ve böylece mali açıdan kredibilitelerini koruyabilir.

Özetle, finansal istikrarın korunması, politika etkinliđinin iyileřtirilmesi, yatırımcı beklentilerinin yönetilmesi, uluslararası iş birliđinin teşvik edilmesi, borç sürdürülebilirliđinin tesisi ve olası sosyal etkilerin ele alınması açısından devlet borç temerrütlerinin arařtırılması elzemdir. Bu sayede, politika yapıcılar ve paydařlar, geçmiş temerrütlerden ders çıkararak gelecekteki muhtemel temerrüt risklerini azaltma ve yönetme yönünde etkili stratejiler geliřtirebilirler. Diđer taraftan, temerrütler sonrası gerçekleřen borç yapılandırılmalarının makro ekonomik deđişkenlerde ne tür etkilerin yarattıđı da ayrı bir çalışmada incelenebilir. Ayrıca yapılandırmalar sonrasında sadece iktisadi deđil, politik ve sosyal etkilerin de ortaya çıkabileceđi düşünülürse, bu tür olası etkilerin de ileriki arařtırmalara konu edilmesi akademik literatüre katkı sağlayabilir.

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## A field research on Accommodation Tax<sup>1</sup> Konaklama Vergisi üzerine bir saha araştırması

Dilan Öztürk<sup>2</sup> 

Özgür Saygın<sup>3</sup> 

### Abstract

<sup>1</sup> This article was produced from the master's thesis titled "Taxation of The Tourism Sector and Accommodation Tax", completed at Kütahya Dumlupınar University Graduate Education Institute / Department of Finance in 2023 (under the supervision of Associate Professor Özgür SAYGIN).

<sup>1</sup> [dilanozturk295@gmail.com](mailto:dilanozturk295@gmail.com)

ORCID: 0000-0002-7864-0652

<sup>2</sup> Assoc. Prof. Dr., Kütahya Dumlupınar University, Türkiye

[ozgur.saygin@dpu.edu.tr](mailto:ozgur.saygin@dpu.edu.tr)

ORCID: 0000-0002-2159-7112

### Corresponding Author:

Dilan Öztürk, Türkiye,

[dilanozturk295@gmail.com](mailto:dilanozturk295@gmail.com)

Law No. 7194, Digital Service Tax and Certain Laws and Law No. 375 on the Turkish Tax System With the Law on the Amendment of the Decree Law, a new tax calculated on the cost of accommodation services was introduced. The impact of the Accommodation Tax, which has been in practice for a short period, on citizens is essential. On 01.01.2023, 1,020 people were surveyed to obtain their opinions on the Accommodation Tax that was put into effect. It is seen that some of the demographic and preferential characteristics of the respondents in terms of gender, age, marital status, educational status, occupational status, number of annual vacations, accommodation preferences and income status differ significantly within themselves. In contrast, their opinions on the Accommodation Tax do not differ in some variables.

**Keywords:** Accommodation Tax, Tourism, Taxation

**Jel Codes:** H21, H24

### Öz

Türk Vergi Sistemine 7194 sayılı, Dijital Hizmet Vergisi ile Bazı Kanunlarda ve 375 Sayılı Kanun Hükmünde Kararnamede Değişiklik Yapılması Hakkında Kanun ile konaklama hizmetleri bedeli üzerinden hesaplanan yeni bir vergi dahil edilmiştir. Kısa bir süredir uygulamada yer alan Konaklama Vergisinin vatandaşlar üzerinde nasıl bir etki oluşturduğu önem arz etmektedir. 01.01.2023 tarihinde yürürlüğe konulan Konaklama Vergisine ilişkin görüşlerini almak üzere 1.020 kişiye anket yapılmıştır. Konaklama Vergisi özelinde ankete katılanların cinsiyeti, yaşları, medeni durumları, öğrenim durumları, mesleki durumları, yıllık yapılan tatil sayısı, konaklama tercihleri ve gelir durumları bakımından demografik ve tercihsel özelliklerinden bazılarının kendi içlerinde anlamlı olarak farklılaştıkları görülmekte olup bazı değişkenlerde ise Konaklama Vergisine ilişkin görüşlerinin farklılaşmadığı görülmektedir.

**Anahtar Kelimeler:** Konaklama Vergisi, Turizm, Vergilendirme

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## Introduction

The weight of the state in the general economy is one of the central debates in economic theories. Although it has been theoretically suggested that the state should have a limited volume in the general economy in the historical process, economic crises have led to new practices in which the state is more involved. It is customary to blame the bureaucrats and politicians managing the public sector for the increase in public expenditures in terms of amount and ratio. Increasing expectations and demands of citizens from the state may also be effective in increasing expenditures. Public expenditures, the justifications for which change over time, increase in amount and proportion, and permanent sources of revenue are sought to finance these expenditures. The magnitude of financing requirements also determines the sources to which the state will resort. In the long run, non-tax revenues will not be practical tools in the search for resources. Therefore, to ensure the continuity of revenues, increasing the rates of existing taxes or introducing a new tax becomes an option. Increases in tax rates and/or the introduction of new taxes in the tax system bring with them economic and social costs. The question of who will bear the additional fiscal burden is a significant problem. The reflection of the tax burden on the final consumer through the price mechanism reduces the disposable income of households. The fact that the tax burden remains on those producing goods and services will reduce firms' profit margins. The size of the revenues needed and from whom they will be collected is a critical choice. Increasing fiscal burdens on firms reduce the attractiveness of doing business. Indeed, increased tax burdens further reduce firms' real profits during high inflation and high interest rates. On the other hand, imposing a tax burden on final consumers poses political risks for governments as it may cause financial difficulties for households.

Law No. 7194 introduced the Accommodation Tax into the tax system, a tax on vacation and accommodation services rather than goods that must be consumed. In this respect, it can be said that this tax is not levied on goods and services consumed by low-income groups. Since the accommodation tax is technically a tax added to the service fee paid by the users of accommodation services, it is valuable to analyze what kind of impact it will have on the purchasing decisions of individuals. This study analyzes how citizens perceive the Accommodation Tax, which has recently entered the tax system. Issues such as the awareness of the Accommodation Tax, its impact on consumers' accommodation and tourism service purchases, etc. are discussed in the study.

## Literature review

Accommodation tax was first put on the agenda in Turkey in 2004. In 2006 and 2008, the "Law on Special Provincial Administration and Municipal Revenues" was submitted to the Turkish Grand National Assembly – draft Law" as a local government revenue. The draft law aims to contribute financially to local governments. In these years, the tax rate in the draft law submitted to the Turkish Grand National Assembly was set at 3%. However, the bill failed to pass the Parliamentary Sub-Commission due to opposition reactions because the tourism industry would be negatively affected by the tourism industry lobby (Güler, 2017, p. 24; Akçaoğlu, 2020: 393; Toman and Türkcan, 2015, pp. 261-262).

Accommodation Tax, despite real objections "Law No. 7194 on Digital Service Tax and Certain Laws and Law No. 375" published in the Official Gazette on December 7, 2019, Law on the Amendment of the Decree Law" is added to our tax system. Thus, the Accommodation Tax is included in the tax laws with the provision of the ninth article in the fourth section of Law No. 7194 and the 34th article of the Expense Taxes Law (Akçaoğlu, 2020, p. 398).

Accommodation TaxThe effective date of this tax, which was planned to be implemented on 01.04.2020, was initially set as 31.12.2020, then as 01.01.2021 and finally as 01.01.2023 due to the outbreak of the Covid-19 virus in our country, which negatively affected all sectors, especially humanity.

Toman and Türkcan (2015) emphasize in their study that preserving cultural and historical values with better-quality tourism services is possible with wisely used financial resources. In this context, he believes that the Accommodation Tax should be accepted and that the relevant tax should be added to the revenues of local budgets to transfer our cultural and historical values to future generations. In this way, the opportunity to protect tourism resources can be provided.

Predicting the possible effects of the Accommodation Tax on voter behaviour is an essential area of study. Accordingly, Pekşen and Şener (2021), in their study titled "The Effect of Taxes on Voter Behavior: Antalya Province Example in Specific Accommodation Tax", examined whether taxpayers' political preferences would be directly affected by the Accommodation Tax. In this regard, interviews were conducted with the officials of 8 different accommodation establishments in Antalya. It has been determined that the opinions of the relevant business owners are similar. Accordingly, business owners

believe taxes should be collected but find the tax burden high. As a result of the research, the Accommodation Tax legal regulation is found correct by most participants. It has been concluded that implementing the tax alone will not effectively influence voting preferences.

Before the legal regulation revealed the legal framework of the Accommodation Tax, suggestions were made on whether the tax would be a local or national tax. In his study, Doğan (2017) considers the accommodation tax as a tax whose income should be left to local governments and evaluates the applicability of the tax in Turkey by considering examples from around the world. Within the scope of the research, it is determined that the city tax will rarely harm tourism demand and is considered acceptable by tourists in foreign countries. It is emphasized that the city tax for Turkey will complete its functionality with multi-faceted contributions by providing a source of financing to local governments and increasing the opportunities to develop tourism (Doğan, 2017).

Özkan and Sümerli Sarıgül (2019) emphasized that the accommodation tax should be a local tax, the revenue of which is similarly collected by local governments. This study discusses tourist taxes applied in foreign countries, their reasons for application, and the applicability of tourist tax in Turkey. In the data obtained from the research, it is concluded that the tourist tax will provide benefits to the budget of financial administrations within the scope of infrastructure-superstructure activities and the execution of social and cultural events. The tax to be collected will prevent tax loss and evasion through financial audits and ensure the fluid sustainability of the tourism sector (Özkan & Sümerli Sarıgül, 2019).

In their study on the perception of accommodation tax, Feridun Duman and Mustafa Dogan emphasized that with the development of tourism, the need for financial resources increases and, accordingly, new taxes are needed. In the study, it is discussed that tourism-based taxes have become widespread in the world. The study found that the preferences of local and foreign tourists would not be negatively affected by the prices increasing due to taxes, regardless of their differences (Duman & Doğan, 2020).

"Accommodation Tax", which has been implemented under different names in many parts of the world, especially in European cities" is of great importance for the sustainability of the tourism sector. Tourism The most critical factor affecting the sustainability of businesses operating in the tourism sector is the number of tourists in the tourism regions, which should gradually increase annually. Countries with a high potential to attract tourists to their regions must strengthen their tourism activities with personal interest-oriented individual marketing techniques to maintain their competitiveness in the global tourism market. This is because people plan their vacation trips according to their particular interests. Travels where historical and cultural heritage and various artistic and cultural activities are developed and explored are among the most attractive choices for tourists to create travel plans (Toman & Türkcan, 2015, p. 261).

A tourist destination is attractive to visitors not because it is glamorous but because it is different and unique. Thus, it is stated that what a city offers to visitors should be evaluated not by how comfortable and glamorous it is but by how different or how familiar it is. Accordingly, Judd's term "tourist bubble" states that comfortable areas designed to attract tourists will be preferred more by mass tourists. At the same time, post-tourist groups will seek different searches based on their desire to explore. This desire to discover a place for the first time is an essential motivation for travelling (Enlil and Dinçer, 2011, p. 27; Toman and Türkcan 2015, p. 261).

For this reason, to have a potential tourism sector, countries ensure the development and protection of tourism assets and values by carrying out activities with a high quality of life, development, and renewal. Tourism needs to continue working to strengthen conservation, development, and competitiveness in the sector, so large amounts of financing need to be allocated, and tourism investments need to be sustained (Toman and Türkcan, 2015, p. 261).

Tourism The income that will finance the costs incurred by the enterprises in providing quality services during the periods of tourism consists of the warm expenditures to be made by tourists, that is, the money they will pay in return for the services they receive. At the same time, the income and expenditures generated by tourism movements increase government revenues by taxing foreign tourists coming to the country due to the expenditures of the country's citizens for tourism purposes. In order to ensure the continuity of these revenues, the state has to make some expenditures to both develop tourism and bring touristic foreign exchange revenues to the country (Türkcan, 2015, p. 261). The best structure to ensure this cycle is provided by creating tax systems.



## **Legal basis of the accommodation tax**

Effective January 1, 2023, the Accommodation Tax Overnight accommodation services provided in accommodation establishments such as hotels, motels, holiday villages, pensions, apart-hotels, guesthouses, camping, chalets, highland houses and all other services provided within the activities of accommodation establishments in addition to these services (Expense Tax Law, 1956, p. 34)

Therefore, regardless of the type, nature, class, definitions, and definitions of accommodation facilities in the relevant legislation or whether they have a tourism management certificate or a workplace management certificate, the services provided by all businesses that provide accommodation services fall within the scope of the accommodation tax.

"Tourism" of the OG No. 307791, published on June 1, 2019 Regulation on the Qualifications of Facilities";

- Places with accommodation facilities such as hotels, boutique hotels, apartments, holiday villages, private accommodation, hostels or motels,
- Thermal facilities with accommodation facilities and wellness facilities,
- In places organized within the scope of rural tourism facilities such as farmhouses, chalets, village houses, plateau houses and camping,
- Tourism complexes, leisure and holiday centres, staff training facilities, overnight stays and private facilities,
- In places such as guest houses, recreational facilities, staff guesthouses, which are affiliated to the public and private sectors and reserved for the accommodation of personnel (excluding lodgings),
- Apart from the facilities listed, the services provided in all facilities that provide overnight stay services, regardless of the existence of a tourism operation certificate and a business operation or opening certificate, are duly taxed within the integrity of tax systems (T.R. Official Gazette, 2019).

In this context, each individual benefiting from the services provided in the facilities mentioned above is subject to accommodation tax regardless of his/her nationality, personality, or status as a citizen due to the tourism service he/she has benefited from (Expense Tax Law, 1956).

### **Taxable event**

The taxable event in accommodation tax, Accommodation Tax It occurs with the fulfilment of the services provided by the facilities within the scope of the Law. The time dimension of the taxable event is explained in detail in the "Accommodation Tax Implementation General Communiqué" (Akçaoğlu, 2020, p. 398). According to the Communiqué, the fact that some or all of the service fee is collected before or after the service is rendered or that this fee is not collected does not affect the taxable event. In this case, the taxable event does not occur before the service, such as when documents such as invoices are prepared. However, in services where more than one tax period occurs, the taxable event for the services provided in the relevant taxation periods is realized in the taxation period in which the last day of the service coincides with the date on which the accommodation service will end is determined before the service is provided. In taxation without such determination, the taxable event is deemed to have occurred on the last day of each taxation period related to the days when the service is provided (Revenue Administration, 2022).

### **Taxpayer of the tax**

The taxpayers of the accommodation tax are those who operate the facilities where the services specified in the first paragraph of the accommodation tax and subject to the tax are provided (Expense Tax Law, 1956). Whether actual or legal persons or organizations operate the facilities specified in the law without legal personality, whether the ownership right of the facilities belongs to an operator or not, or whether the public or private sector operates these places does not have any effect on the tax liability arising from the accommodation tax. How an accommodation facility is operated does not matter; the tax liability for those who operate the facility arises when these facilities are made ready for operation, that is, when the facility is partially ready for operation. The accommodation tax liability of those who operate accommodation facilities is created in the tax offices to which they are affiliated in terms of VAT payment. For those who are not liable for VAT payment, taxpayer transactions are established in the tax offices to which the facility is affiliated. In line with the requests of those who do not have a value-added tax liability, a single taxpayer can be established for all accommodation establishments within the borders of the same province, which are within the scope of the jurisdiction of different or the same

tax offices, by the decision of the relevant Tax Office (in provinces where there is no Tax Office, the Treasurer's Office). In addition, the established accommodation tax liability can be terminated at the tax offices upon request due to the termination of the accommodation facility activity or the transfer of these facilities (Revenue Administration, 2022).

### **Other provisions**

The values that fall within the scope of the accommodation tax and the value of the services provided by accommodation facilities in any way constitute the accommodation tax's tax base. However, VAT is not added to the accommodation tax base. The values included within the scope of the accommodation tax base are the sum of the money or goods borrowed due to the services provided, the benefits provided in different ways and the form of money, and the values in return for the services provided. Law Maturity, exchange rate, price differences, interest, premiums, premiums and many other forms of income and benefits or values provided under similar names arising from the services provided in the facilities specified in the scope of the accommodation tax are added to the base of the accommodation tax. For the accommodation service, it is also possible to deduct the discounts from the commercial practices organized by these facilities, which are stated separately in the invoice from the tax base. The accommodation tax rate to be applied to the tax base for the tax collection is determined as 2% following Article 34 of Law No. 6802. However, due to the spread of the COVID-19 pandemic worldwide and the economic difficulties in the tourism sector, the effective date of the accommodation tax, which is planned to be implemented on 01.04.2020, is initially decided as 31.12.2020, then as 01.01.2021 and finally as 01.01.2023 in line with the last announced decision (Expense Tax Law, 1956).

In line with these decisions, the 2% tax rate was implemented as of 01.01.2023, and the accommodation tax is shown separately on the invoices or similar documents generated by the facilities. President, Accommodation Tax The Law authorizes the tax authorities to increase the 2% rate by up to one time, reduce it by up to half, and set different rates between these values. In addition, accommodation tax cannot be deducted under any name (Expense Tax Law, 1956).

Accommodation Tax By the provisions: services provided to students in student dormitories, student camps and hostels; services provided to diplomatic consulates, representative offices or diplomatic right holders of foreign states in our country, provided that there is reciprocity; and services provided to international organizations that are exempt from tax as per international agreements and the members of these organizations are exempt from tax (Expense Tax Law, 1956).

The taxation period for the accommodation tax is the one month of the calendar year in which the businesses within the scope of the Accommodation Tax Law operate. Businesses that are subject to accommodation tax are required to submit a tax declaration to the tax office to which they are affiliated in terms of VAT liability in each month of a calendar year- to the tax office in the place where the business is located for those who do not have VAT liability- until the evening of the 26th day and pay the accommodation tax within the same period. The Ministry of Treasury and Finance is authorized to establish the form, content, annexes, procedures, and principles for applying the Accommodation Tax declaration used to pay the tax (Expense Tax Law, 1956).

### **Tax reflected on the invoice**

Accommodation Tax The tax is shown separately in the invoice, etc., documents prepared by the accommodation facilities. No discount can be applied to the stated tax with any nomenclature. In addition, Accommodation Tax cannot be added to the VAT base (Expense Tax Law, 1956).

Law No. 6802 Within the scope of Article 34 of the Law, the tax value to be paid changes with the decision to apply the accommodation tax rate of 2% to 1% until 01/01/2023 (Expense Tax Law, 1956).

This 1% decrease in the tax rate provides some relief to accommodation businesses affected by the COVID-19 outbreak. The pandemic and the decrease in tourism demand greatly affect tourism businesses.

Accommodation Tax In line with these decisions taken within the scope of the Law, it is possible to determine taxation in the invoice issued by accommodation businesses in the following examples. For example

- The amount in the invoice to be issued for 30/12/2022 for accommodation services provided by a tourism complex operator for 11.375,00 TL (not including value-added tax);
  - ✓ Accommodation Amount (Value added tax not included): 11.375,00 Turkish Lira
  - ✓ Accommodation Tax Value (11.375,00 x 0,01): 113,75 Turkish Lira

- ✓ Value Added Tax Base: 11.375,00 Turkish Lira
- ✓ Value Added Tax Fee (11.375,00 x 0,08): 910,00 Turkish Lira
- ✓ Total Invoice Amount: 12.398,75 Turkish Liras.
- The amount in the invoice to be issued for 01/01/2023 for accommodation services provided within the scope of a hotel business (not including value-added tax) for 11.375,00 TL;
  - ✓ Accommodation Amount (Value added tax not included): 11.375,00 Turkish Lira
  - ✓ Accommodation Tax Value (11.375,00 x 0,02): 227.5 Turkish Lira
  - ✓ Value Added Tax Base: 11.375,00 Turkish Lira
  - ✓ Value Added Tax Fee (11.375,00 x 0,08): 910,00 Turkish Lira
  - ✓ Total Invoice Amount: 12,512.5 Turkish Lira (Revenue Administration, 2022).

### **Foreign country practices and differences in terms of accommodation tax**

Tourism In many countries with high tourism capacity, tax applications under different names are put into force to meet the financing needs, provide better quality tourism services, and eliminate service deficits in this direction. The accommodation tax, one of these taxes, significantly impacts the sustainability of these facilities, as it is an application for the facilities within the scope of tourism enterprises. In particular, by reflecting it to the customers who benefit from the service, the tax allocation affects how much customer potential these enterprises will create and what level of service quality they will create. In addition, there is a need to provide many applications such as infrastructure, transportation, security and cleanliness in the regions visited by the masses due to their touristic travels. In order to meet these requirements, there is also a need for a source of income, i.e. taxes, to finance the cost of tourism. Thus, it is necessary to evaluate the sample practices of accommodation facilities, whose primary purpose is customer satisfaction, for this tax, which is within the scope of their obligations within the scope of the study (Uçar & Ayrancı, 2021, pp. 352-358).

Accommodation Tax in many developed countries (Accommodation Tax), City Tax with different names from country to country, Tourism Tourism Tax or Culture Tax (Bozdoğanoglu, 2013, p. 132).

This tax is mainly applied at the local level and exceptionally at the national level. For example, in France, the tourism tax dates back over 100 years and is applied under the name of "Taxe de Sejour"; it is recorded as revenue in the budgets of municipalities in order to increase the quality of services for tourism to finance the expenses of cities needed for tourism activities, and to improve these areas by ensuring the use of public areas and touristic facilities (Uçar & Ayrancı, 2021, p. 358; Güzel & Yıldız, 2019, p. 15).

Accommodation Tax was introduced in Italy in 2011. It is applied under the name "Tassa di Soggiorno" and varies according to the quality of the hotel and the number of nights of accommodation. The tourism tax applied in Italy has similar characteristics to the tax applied in France and is recorded as income in municipal budgets (Güler, 2017, p. 20; Bozdoğanoglu, 2013, pp. 138-139; Uçar & Ayrancı, 2021, p. 358; Güzel & Yıldız, 2019, p. 14).

The Accommodation Tax in Italy is an example of the tourism tax system applied in other countries. In Venice, Italy, according to the relevant regulations, the revenue from the tourism tax is used to finance the development of the city's tourism and promotion, as well as the city's cultural heritage, maintenance, and public services. Within the scope of the system, the subject of the tax is overnight accommodation, and the taxpayers are the people who stay overnight. The exemptions and exemptions of the tax include residents of Venice, children under the age of 10, persons receiving treatment in the hospital within the municipality and their companions, foreign nationals with a disability report, persons staying in accommodation facilities and hostels owned by the Municipality of Venice, tour leaders working in groups by travel agencies, social volunteers serving for the city in events organized by the City Council (Güler, 2017, p. 22).

Tourist Tax Austria is another country where this tax is applied. In Austria, taxes levied within the scope of the tourism sector differ according to the regions and the cities included within the region's borders, and the Accommodation Tax and Tourism It is diversified as Accommodation Tax. The Austrian Accommodation Tax is levied on stays for temporary residence, seasonal stays for tourism and health and treatment purposes, and stays of citizens in their homes in holiday destinations other than their place of residence. In these areas of application within the scope of the Austrian Accommodation Tax, the tax is levied on the price to be paid according to the number of nights stayed due to overnight

accommodation, according to the period that caravans are parked in campsites for more than two months during the holiday season, and according to the length of stay of people staying in houses rented for holiday purposes. It is also levied on the economic benefits obtained by the earners who provide this accommodation, on the benefits obtained directly or indirectly from tourism for the activities carried out under the control of local governments at the end of the period in which the benefits are provided or annually (Bozdoğanoglu, 2013, p. 138).

Many different taxes are imposed on the tourism sector in the UK, making it one of the countries where the sector's tax burden is felt the most. However, despite the tax burden, the sector's sensitivity to price changes remains high. The taxes imposed on the tourism sector in the country are divided into two categories: "Taxes levied directly on tourists" and "Taxes on those operating in the sector."

- Taxes levied directly on tourists:
  - ✓ Arrival Tax,
  - ✓ Travel Taxes, Airport Tax, Car Rental Tax, Gasoline Tax
  - ✓ Accommodation Tax
  - ✓ Expenditure Tax (e.g. expenditures in restaurants)
  - ✓ Environmental Tax (Collected separately during transportation or arrival)
- Taxes on those operating in the sector:
  - ✓ Transportation/Transportation Tax (e.g. Road Tax)
  - ✓ Import Tax (Tourism imported products used as input in the sector).
  - ✓ Corporate Tax
  - ✓ Land and Land Tax
  - ✓ Environmental Tax (levied by the airline for overnight departures/flights)

Accommodation Tax in the UK is applied to accommodation facilities. The Westminster Council implements it with the idea that tourism demand will increase by keeping cities clean with the tourism sector's contribution (Bozdoğanoglu, 2013, pp. 141-142).

Accommodation Tax It is also applied in many states in the USA. The Accommodation Tax applied here is known as the "Hotel Occupancy Tax" or "Hotel Room Tax". Although this tax system applied in the US states is the same in terms of application, it differs in terms of tax amounts (Bozdoğanoglu, 2013, p. 143).

This tax system, which differs from country to country in terms of its application, also has similar features within its structure. These can be listed as increasing tourism demand, developing tourism cities, increasing the sector's potential to attract tourists, strengthening the infrastructure system of the tourism sector, etc. At the same time, the reasons for implementing the Accommodation Tax vary. However, there is also a goal of meeting debt financing at the national level rather than local budget contribution. For this reason, in countries where the Accommodation Tax is applied, the revenue from the tax is recorded in the local and general budgets. For example, while the accommodation tax collected in France and Italy is recorded as revenue in the municipal budgets, in Greece and Turkey, it is included in the general budget (Uçar and Ayrancı, 2021, p. 358). In addition, the tourist tax applied in European Union member countries is left to local governments along with its revenues. The legal basis of the tax applied in these countries is the Council Directive 2006/112/EC. This tax, which has been implemented, is levied on short-term stays and all local or foreign persons engaged in tourism activities since they are subject to VAT (Güler, 2017, p. 19).

### **Evaluation of citizens' opinions on accommodation tax**

Effective January 1, 2023, the Accommodation Tax The tax is collected from the persons who receive the service together with the invoice issued for the services provided by the establishments specified under the law. This tax, which is collected on the services provided in accommodation establishments, must first be known by the persons to whom it is collected and these persons must be aware that they will pay the Accommodation Tax at the rate of 2% for their stays in the establishments specified in the law as of 01.01.2023 (T.C. Official Gazette, 2022). Within the scope of the survey conducted on 1,020 people after introducing the tax, the respondents' opinions are obtained through questions regarding their opinions, thoughts and knowledge about the Accommodation Tax. The data obtained are analyzed

within the scope of the study according to the gender, age, marital status, educational status, occupational status, number of annual vacations, accommodation preference and income status of the participants. In addition, frequency analysis is performed on the answers collected in the survey questions, and the positive or negative opinions of the participants on the questions directed to them are highlighted.

### **Purpose of the research**

Taxpayers are required to pay the Accommodation Tax as specified in Annex 1. This study aims to determine whether there are significant differences between opinions about judgments based on gender, age, marital status, educational status, occupational status, number of vacations per year, accommodation preference, and income status.

### **Methodology of the research**

In this section of the study, a detailed introduction is given to the research model, the study group, the measurement tool to be used, how the data will be collected, and how the obtained data will be analyzed. In addition, the following process steps are followed to provide a general framework for the research.

### **Research design**

The research is designed using the cross-sectional survey model, a quantitative research method (Büyükoztürk et al., 2012). This model aims to capture the situation by collecting data simultaneously to illuminate a situation, variable, or phenomenon and reveal the situation, variables, and relationships between variables by examining this photograph (Barış, 2015).

### **Research questions**

In the context of the purpose of this research, the following questions were formulated, and the research was shaped around these questions:

- Do participants' judgments about the Accommodation Tax differ according to their gender?
- Do participants' judgments about the Accommodation Tax differ according to their marital status?
- Do participants' judgments about the Accommodation Tax differ according to their ages?
- Do participants' judgments about the Accommodation Tax differ according to their educational background?
- Do participants' judgments about the Accommodation Tax differ according to their occupational status?
- Do participants' judgments about Accommodation Tax differ according to the number of annual vacations they take?
- Do participants' judgments about accommodation tax differ according to their accommodation preferences?
- Do participants' judgments about the Accommodation Tax differ according to their income status?

### **Research design**

The research design includes two main sections. In the first part, the respondents are asked to indicate information such as gender, age, marital status, marital status, average income, accommodation preference, number of annual vacations, professional status, educational status, etc., which are considered to affect their judgments, will be collected. In the second part, the "Accommodation Tax Opinions" questionnaire designed by the researcher will be used.

In the "Accommodation Tax Opinions" survey, which was finalized with the participation of 1,020 people in 2022, a 5-point Likert scale is applied for the relevant questions within the scope of the questions directed to the taxpayers. The questions in this scale consist of groupings expressing different opinions such as "strongly agree", "agree", "undecided", "disagree", and "strongly disagree". The related research questionnaire is prepared using the survey studies from Sandalcı (2019) and Martinho et al. (2017) on plastic bag tax. In particular, the survey questions within the scope of the study are based on the 12 items of the study titled "People's Opinions on Plastic Bag Tax: Field Research", was compiled from the 12-item survey questions of the study and directed to people in 31 items.

## Working group

This study consists of 1020 (n=1020) participants selected by random sampling from Istanbul. Creswell (2008) states that 360 or more participants generalize the population in survey studies. In this context, the study can generalize the population.

## Collection of data

The 'online survey' method was used in data collection, a faster, more effective, and economical method that is becoming increasingly popular in the literature (Arıkan, 2018). The questionnaire was uploaded to the online survey platform Google Forms, and the link to access the form was shared.

## Analysis of data

*Accommodation Tax* was prepared within the study's scope. The skewness and kurtosis coefficients of the scores obtained from the *opinions* questionnaire were between +1.5 and -1.5. According to the values obtained, the data meet the normality assumption (De Carlo, 1997). Descriptive statistics of the scale scores are presented in Table 1.

**Table 1:** Descriptive Statistics of Scores

	<i>n</i>	<i>Min.</i>	<i>Mak.</i>	<i>Mean</i>	<i>SS</i>	<i>Skewness</i>	<i>Kurtosis</i>
Accommodation	1020	1,00	5,00	3,48	0,435	-,249 ,	,503
Tax Survey						,79	,151

The data obtained are analyzed with the help of the SPSS package program. The findings are evaluated at % a 95 confidence interval and a 5% significance level. Since it is seen that normal distribution is provided, parametric tests were applied. In comparing quantitative data, the t-test is used for variables with two sublevels and a one-way ANOVA is used for variables with more than two sublevels. Post-hoc tests are used to determine the pairwise differences in the ANOVA test.

In the scale used to determine the current score range, the lowest score value (1) is subtracted from the highest score value (5) to be obtained from the scale item. This value is found by dividing the total value by the number of degrees, and finally, the score ranges are determined (Erkuş, 2012).

**Table 2:** Scale Item Rating Intervals

Preferred-Value	Item Value Range
1 - Strongly Disagree	1,00 - 1,79
2 - Disagree	1,80 - 2,59
3 - Undecided	2,60 - 3,39
4 - Agree	3,40 - 4,19
5 - Strongly Agree	4,20 - 5,00

The average score obtained from the data collected within the research is 3.48, which shows that the participant's views on the accommodation tax are positive. In addition, Cronbach's Alpha value was examined to determine the reliability level of the questionnaire prepared within the research. Cronbach's Alpha internal reliability coefficient is 0.766, which shows the questionnaire is reliability.

## Findings

### Findings related to the study group

This section shows the frequency and percentage distributions of the data collected through the participant information form in the tables.

**Table 3:** Distribution Table According to Gender of Participants

Variables	Groups	Frequency	Percentage
Gender	Woman	592	58
	Male	428	42
	Total	1020	100

58% of the study group consists of female participants and 42% of male participants. Female participants show more interest in the study.

**Table 4:** Distribution Table According to the Marital Status of the Participants

Variables	Groups	Frequency	Percentage
Gender	Single	549	53,8
	Married	471	46,2
Total		1020	100

The marital status of 53.8% of the study group was single, and 46.2% was married. Single participants showed more interest in the related study.

**Table 5:** Distribution of Participants According to Age

Variables	Groups	Frequency	Percentage
Age Ranges	18-25	369	36,2
	26-33	343	33,6
	34-41	158	15,5
	42-49	84	8,2
	Over 50	66	6,5
Total		1020	100

36.2% of the study group consists of people between the ages of 18 and 25, 33.6% between the ages of 26 and 33, 15.5% between the ages of 34 and 41, 8.2% between the ages of 42 and 49, and finally 6.6% between the ages of 50 and above. People between 18 and 25 show more interest in the study.

**Table 6:** Distribution of Participants according to their Level of Education

Variables	Groups	Frequency	Percentage
Education Status	Primary education	50	4,9
	Secondary Education	219	21,5
	License	639	62,6
	Postgraduate	112	11,0
	Total	1020	100

62.6% of the study group comprises people with undergraduate education, 21.5% with secondary education, 11% with postgraduate education, and 4.9% with primary education. People with undergraduate education show more interest in the related study.

**Table 7:** Distribution of Participants According to Annual Vacation

Variables	Groups	Frequency	Percentage
Annual Vacation Number of	1 Holiday	749	73,4
	2 Vacation	174	17,1
	3 Vacation	51	5,0
	4 Vacation	22	2,2
	5 Vacation	24	2,4
Total		1020	100

73.4% of the study group consists of people who go on vacation once a year, 17.12% times a year, 5% 3 times a year, 2.2% four times a year, and 2.4% five times a year. Participants who go on vacation once a year show more interest in the study.

**Table 8:** Distribution of Participants According to Their Holiday Accommodation Preferences

<i>Variables</i>	<i>Groups</i>	<i>Frequency</i>	<i>Percentage</i>
Accommodation Preference	Hotel	439	43,0
	Motel	28	2,7
	Apart	175	17,2
	Holiday Village	140	13,7
	Kamping	59	5,8
	Mountain or Plateau House	179	17,5
Total		1020	100

43% of the study group consists of people who prefer hotel accommodation, 17.5% mountain or plateau house, 17.2% apartment, 13.7% holiday village, 5.8% camping, and 2.7% motel accommodation. Participants who prefer hotel accommodation in their vacation plans show more interest in the study.

**Table 9:** Income of Participants Distribution by Status

<i>Variables</i>	<i>Groups</i>	<i>Frequency</i>	<i>Percentage</i>
Average Income	Up to 8,500 TL	382	37,5
	8.501-12.000 TL	231	22,6
	12.001-15.500 TL	146	14,3
	15.501-20.000 TL	130	12,7
	20.001 + TL	131	12,8
	Total		1020

It is seen that 37.5% of the study group consists of people earning up to 8,500 TL, 22.6% between 8,501 and 12,000 TL, 14.3% between 12,001 and 15,500 TL, 12.7% between 15,501 and 20,000 TL, and 12.8% between 20,001 TL and above. It is seen that people earning up to 8,500 TL participated more in the study.

**Findings related to the research questions**

This section details the findings related to the sub-problems specified in the context of the purpose of the study.

**1. Do participants' judgments about the Accommodation Tax differ according to their gender?**

**Table 10:** T-test Table According to Gender of the Participants in the Study

<i>Variables</i>	<i>Groups</i>	<i>Center</i>	<i>F</i>	<i>P</i>
Accommodation Tax Opinions	Woman	3,42	,492	,483
	Male	3,54		

Participants' Accommodation Tax the independent samples t-test was conducted to determine whether there was a significant difference in the participants' opinions regarding the views according to the gender variable. No significant difference was found due to the relevant analysis ( $P=0,483>0,05$ ).



**2. Do participants' judgments about the Accommodation Tax differ according to their marital status?**

**Table 11:** T-test Table According to Gender of the Participants in the Study

<i>Variables</i>	<i>Groups</i>	<i>Center</i>	<i>F</i>	<i>P</i>	<i>Cohen's d</i>
Accommodation Opinions	Tax Single	3,19	13,492	,000*	0,42
	Married	3,88			

An Independent sample t-test was conducted to determine whether there was a significant difference in the participants' views on the Accommodation Tax in the context of marital status. As a result of the relevant analysis, a significant difference is observed ( $P=0,000<0,05$ ). Cohen's d values of this difference are analyzed. It is seen that the relevant value for the sub-dimensions with significant differences between them is 0.42 and has a medium effect size.

**3. Do participants' judgments about the Accommodation Tax differ according to their ages?**

**Table 12:** One-Way ANOVA Table According to the Age of the Participants

<i>Variables</i>	<i>Groups</i>	<i>Center</i>	<i>F</i>	<i>P</i>	<i>Difference</i>
Accommodation Opinions	18-25	3,2945	5,926	000*	1-2, 1-3 2-4
	26-33	3,5296			
	Tax 34-41	3,6337			
	42-49	3,6423			
	Over 50	3,6706			

Participants' Accommodation Tax: The one-way ANOVA test is performed to determine the significant difference in the opinions of the participants regarding the 's views on the's according to the age variable. According to the ANOVA results, it is seen that there is a difference ( $Sig.=.000<.05$ ). Since the variances are not distributed homogeneously ( $Sig.=.0,07>.05$ ) and the distribution in the sample groups is not equal, Games-Howell Post Hoc test is performed. According to the results of the related analysis, among the groups with different age ranges, it is seen that the group between the ages of 18-25 differed significantly from the groups between the ages of 26-33 and 34-41, and the group between the ages of 26-33 differed significantly from the group between the ages of 42-49.

**4. Do participants' judgments about the Accommodation Tax differ according to their educational background?**

**Table 13:** One-Way ANOVA Table According to the Educational Background of the Participants

<i>Variables</i>	<i>Groups</i>	<i>Center</i>	<i>F</i>	<i>P</i>	<i>Difference</i>
Accommodation Opinions	Primary education	3,5554	4,509	001*	4-1, 4-2 4-3
	Tax Secondary Education	3,5653			
	License	3,5942			
	Postgraduate	3,7183			

Participants' Accommodation Tax: The one-way ANOVA test is performed to determine the significant difference in the participants' opinions regarding the views on these according to the education level variable. According to the ANOVA results, it is seen that there is a difference ( $Sig.=.001<.05$ ). Since the variances are not distributed homogeneously ( $Sig.=.0,06>.05$ ) and the distribution in the sample groups is not equal, Games-Howell Post Hoc test is performed. According to the relevant analysis results, the opinions of the participants with postgraduate education levels on Accommodation Tax differ significantly from those of the other groups.

**5. Do participants' judgments about the Accommodation Tax differ according to their occupational status?**

**Table 14:** One-Way ANOVA Table According to the Occupational Status of the Participants

<i>Variables</i>	<i>Groups</i>	<i>Center</i>	<i>F</i>	<i>P</i>	<i>Difference</i>
Accommodation Tax Opinions	Salaried (Public)	3,5945	3,555	007*	2-4
	Paid (Private)	3,6296			
	Independent Employed	Self- 3,6337			
	Not working	3,5323			
	Retired	3,7806			

Participants' Accommodation Tax: A one-way ANOVA test is performed to determine the significant differentiation of the opinions on the views on the's according to the occupational status variable. According to the ANOVA results, it is seen that there is a difference (Sig.=.007<.05). Since the variances are distributed homogeneously (Sig.=0,670>.05) and the distribution in the sample groups is not equal, Hochberg GT2 Post Hoc test is performed. According to the related analysis results, there is a significant difference between the non-employed and the private wage earners.

**6. Do participants' judgments about Accommodation Tax differ according to the number of annual vacations they take?**

**Table 15:** One-Way Anova Table According to the Number of Annual Vacations of the Participants

<i>Variables</i>	<i>Groups</i>	<i>Center</i>	<i>F</i>	<i>P</i>
Accommodation Tax Opinions	1 Holiday	3,5764	1,659	0,157
	2 Vacation	3,6676		
	3 Vacation	3,6123		
	4 Vacation	3,6320		
	5 Vacation	3,5833		

A one-way ANOVA test is performed to determine the significant difference in the participants' opinions on accommodation tax according to the number of annual vacation variables. According to the ANOVA results, it is seen that there is no difference (Sig.=0,157< 0,05).

**7. Do participants' judgments about accommodation tax differ according to their accommodation preferences?**

**Table 16:** One-Way ANOVA Table According to the Number of Annual Vacations of the Participants

<i>Variables</i>	<i>Groups</i>	<i>Center</i>	<i>F</i>	<i>P</i>
Accommodation Tax Opinions	Hotel	3,6148	,881	,493
	Motel	3,6452		
	Apartment	3,6090		
	Holiday Village	3,5565		
	Kamping	3,6047		
	Mountain or Plateau House	3,5524		

A one-way ANOVA test is performed to determine whether there is a significant difference in the participants' opinions regarding the Accommodation Tax according to the accommodation preference variable. According to the ANOVA results, there is no difference (Sig.=0,493>0,05).

**8. Do participants' judgments about the Accommodation Tax differ according to their income status?**

**Table 17:** Income of the Respondents' One-Way Anova Table According to Status

Variables	Groups	Center	F	P	Difference
Accommodation Tax Opinions	Up to 8,500 TL	3,5457			
	8,501-12.000	3,6070			
	12.001-15.500 TL	3,6259	2,688	,030*	1-4
	15.501-20.000 TL	3,6767			
	20.001 + TL	3,6028			

Participants' Accommodation Tax The one-way ANOVA test is performed to determine the significant difference in opinions on the "what is the difference between the two groups" according to the income status variable. According to the ANOVA results, it is seen that there is a difference (Sig.=.030<.05). Since the variances are distributed homogeneously (Sig.=0.806>0.05) and the distribution in the sample groups is not equal, Hochberg GT2 Post Hoc test is performed. According to the results of the relevant analysis, there is a significant difference between the participant group with an income of up to 8,500 TL and the participant group with an income between 15,501-20,000 in terms of Accommodation Tax opinions.

**Table 18:** Accommodation Tax Frequency Table Regarding Judgments About

NO	Accommodation Tax Survey	Strongly Agree	I agree.	Undecided	Disagree	Strongly Disagree
		%	%	%	%	%
	<b>Related Articles</b>					
1	I am in favor of the Accommodation Tax on accommodation services.	37,4	26,5	18,0	7,6	10,5
2	Accommodation businesses must pay the Accommodation Tax.	30,1	39,6	16,7	7,7	5,7
3	I have a negative view of the Accommodation Tax.	3,9	9,0	15,7	44,8	26,5
4	The purpose of the Accommodation Tax is to provide a public benefit.	18,7	23,2	32,5	9,4	16,2
5	I think the Accommodation Tax will contribute to the development of the tourism sector.	22,2	28,4	25,2	9,1	15,1
6	I believe that the Accommodation Tax is included in the tax laws in order to generate revenue for the state.	6,0	9,6	20,2	27,5	36,8
7	The Accommodation Tax will cause tax injustice against low-income earners.	3,1	7,3	18,5	36,1	40,0
8	I have sufficient knowledge about the Accommodation Tax.	5,9	18,5	34,3	12,4	28,9
9	I find the accommodation tax rate to be high.	2,3	7,0	32,9	25,5	32,4
10	Accommodation Tax has a determining effect on my desire to take a vacation.	5,0	13,9	24,6	24,5	32,0
11	I think the Accommodation Tax has a fair structure.	22,6	31,0	31,2	6,7	8,6
12	I believe that the Accommodation Tax financing should be used to develop our country's tourism sector.	7,0	10,8	23,5	25,3	33,4
13	I think the Accommodation Tax will negatively affect the purchasing power of domestic tourists.	4,0	10,4	18,7	33,0	33,8

**Table 18:** Accommodation Tax Frequency Table Regarding Judgments About

NO	Accommodation Tax Survey	Strongly Agree	I agree.	Undecided	Disagree	Strongly Disagree
		%	%	%	%	%
	<b>Related Articles</b>					
14	I think the Accommodation Tax should be considered within the local government budget.	4,5	11,5	31,5	18,9	33,6
15	I think the Accommodation Tax should contribute to the environment and culture.	5,9	10,2	20,9	26,2	36,9
16	I find the Accommodation Tax necessary for sustainable tourism.	14,1	24,8	33,7	10,1	17,3
17	I think the Accommodation Tax will harm tourism investments.	6,9	18,1	32,1	15,8	27,2
18	Implementing the Accommodation Tax will reduce the number of people who want to go on vacation.	3,3	12,3	19,4	28,0	40,0
19	I believe that the Accommodation Tax will create a tax burden on the tourism sector.	3,4	9,3	24,8	22,9	39,5
20	I think the Accommodation Tax should only be levied on foreign tourists.	5,4	12,1	20,8	37,2	24,6
21	I think the Accommodation Tax is complex and challenging to understand.	4,4	14,0	35,8	15,2	30,6
22	I think the Accommodation Tax will harm our country's potential to attract tourists.	9,4	22,7	27,2	16,5	24,2
23	I think the Accommodation Tax is suitable for taxation according to financial ability.	9,7	20,6	30,8	13,2	25,7
24	Applying more than one tax in the tourism sector is unnecessary.	3,8	6,9	21,3	32,9	35,1
25	I believe that the revenue from the Accommodation Tax will contribute to tourism expenditures.	12,4	21,8	32,5	9,3	24,1
26	The fact that the Accommodation Tax is clear and understandable positively affects my perspective.	13,0	20,6	36,2	8,5	21,8
27	With the implementation of the Accommodation Tax, I believe our country will have an advantage over countries where this tax is not applied.	16,3	24,8	33,4	9,1	16,4
28	I would not avoid paying an additional tax to go on vacation.	32,5	28,9	20,7	6,0	12,0
29	The proportional increases in the Accommodation Tax will harm tourists' willingness to take a vacation by reflecting on tourism prices.	6,0	16,3	25,3	21,6	30,9
30	The revenue from the Accommodation Tax should be used for social and cultural services.	4,7	7,4	22,4	26,4	39,2
31	The implementation of the Accommodation Tax will negatively affect my decision to purchase accommodation services/go on vacation.	3,8	11,6	21,4	29,6	33,6

## Comments

### Evaluation of the descriptive statistical findings obtained for the study group

- Women showed more interest in the survey than men, with a rate of 58%. This is because women find it more appropriate to share their thoughts and ideas on the surveys than men.
- In the study, single people with a marital status show more interest than married people with a rate of 53.8%. This is because married people do not focus on the idea of a vacation or the tax to be paid due to the vacation since they both fulfil the responsibilities of marriage and incur many expenses due to these responsibilities. Singles, on the other hand, do not yet have significant responsibilities imposed

on them. Even if they work, they spend their earnings on vacations, sightseeing, or entertainment in places that provide suitable conditions, so they care more about the tax they pay for the service they receive. Therefore, they tend to be informed about the studies on tax and express their opinions.

- People between 18 and 25 show more interest in the study with a rate of 36.2% within the specified age range. Today's young people benefit from all the material and spiritual opportunities their families provide, and the excitement of vacationing is more dominant in this segment. In addition, people in this age range are new to life and have not yet fully encountered life's difficulties. These people have research, travel, and agile personality traits. They are at an age when they tend to learn, criticize, comment and share their thoughts faster. For this reason, people with the personality and characteristic traits we have mentioned pay attention to the quality of the service, accommodation, etc. offered to them for every trip and vacation they take and pay attention to their expenses. Every tax they pay on the service they receive is essential for them. Because, like every other person, they want to travel, see, have more fun, and pay less.
- With a rate of 62%, people with a bachelor's degree are more likely to participate in the research. Each individual who wants to improve himself/herself in the field of education accesses a lot of information through research and friendships. They conclude the opinions accumulated in their thought structures with easier and more precise answers. These people, Accommodation TaxHe has also conveyed all his knowledge and thoughts regarding our study on the 's.
- In the related study, 73.4% of the respondents who were on vacation once a year participated. People with an excellent financial situation feel the burden of the tax they bear less due to their travel and vacation plans. People who take a vacation once a year or who tend to take a vacation make vacation and travel plans according to the budget accounts they have increased apart from their subsistence. They will tend to choose a more suitable place according to the plan. However, these people also have to consider the tax they will bear on the service they receive. Although the tax rate is the same as 2% for all segments, the tax burden felt is different. For this reason, people are more willing to express their opinions about the tax they will bear at the end of the vacation.
- In this study, 43% of the participants prefer hotel accommodation. Compared to other accommodation places, other features such as service, comfort, convenience, security, etc. offered by hotel businesses are more attractive to people. Stress, fatigue, etc., are experienced by people during the year. It is a factor in their preference for hotel businesses more than other businesses due to their desire to leave other negativities aside, rest, and stay in accommodation activities.
- Respondents earning up to TL 8,500 have the highest participation rate, with 37.5%. Income: People with low incomes express their opinions on this survey on accommodation tax more than other income groups. Accordingly, it can be interpreted that people with low incomes do not care about the tax more than those with high incomes.

#### **Evaluation of inferential statistical findings obtained from the research**

- Participants' Accommodation TaxThere is no significant difference when their views on "gender" are examined according to the gender variable. In this context, it can be said that there is no significant difference in the context of gender variables with the t-test value ( $P=0,483>0,05$ ).
- Participants' Accommodation TaxA significant difference is observed when the views on the sub-dimensions are examined in the context of the marital status variable. The relevant value for the sub-dimensions with significant differences is 0.42 and has a medium effect size. According to the analysis, the average score of married individuals is higher than that of single individuals. In the context of all these statements, it can be said that married individuals have more positive views and attitudes towards the Accommodation Tax than single individuals.
- Participants' Accommodation TaxIn the evaluation of the participant's views on the 's' according to the age variable, it is seen that there is a difference in the specified age ranges. Since the variances are not distributed homogeneously and the distribution in the sample groups is unequal, the Games-Howell Post Hoc test is applied. According to the relevant analysis results, among the groups with different age ranges, the 18-25 age group is significantly different from the 26-33 and 34-41 age groups, and the 26-33 age group is significantly different from the 42-49 age group. Thus, we can say that the views on the Accommodation Tax differ among the age groups mentioned.
- Participants' Accommodation TaxIt is seen that the opinions of the participants about the 's views on the 'sociology of the 'sociology of the 'sociology of the 'sociology of the 'sociology of the 'sociology of the 'sociology' differ according to the education level variable. However, since the variances are not

distributed homogeneously and the distribution in the sample groups is unequal, the Games-Howell Post Hoc test is performed. According to the tests applied, the opinions of the participants with postgraduate education on Accommodation Tax differ significantly from the other groups. The knowledge and opinions of people about the tax they will pay as a result of their accommodation differ as the level of education increases. Again, it can be said that as long as these people are engaged in research and sharing ideas about taxes due to their knowledge, they will have different opinions compared to those with less education. This situation will create a difference.

- As a result of the relevant analysis, the participants' Accommodation TaxThe ANOVA test was conducted to analyze whether their opinions on the 's' differed according to their occupational status variable. According to the ANOVA results, it is seen that there is a difference (Sig.=.007<.05). The variances are distributed homogeneously. However, since the distribution in the sample groups is unequal, the Hochberg GT2 Post Hoc test is performed. As seen in the analysis, there is a significant difference between the respondents who are not employed and those who are employed in the private sector. Thus, it can be said that the views of these people towards the Accommodation Tax differ significantly from each other.

- According to the one-way ANOVA test results, the participants' Accommodation TaxIt is seen that there is no difference (Sig.=0, 157< 0,05) between the number of annual vacations. As a result of the related analysis, it can be stated that the number of annual vacations of the participants does not significantly differ in their views on Accommodation Tax. In addition, the fact that people benefit from accommodation services once or more a year does not make a difference in their views on the tax.

- In the related analysis, participants' Accommodation Tax'does not differ significantly according to the accommodation preference variable (Sig.=0, 493>0,05). According to the results of the analysis, the participants' opinions on the questionnaire applied to accommodation tax do not differ significantly within the scope of accommodation preference types. It can be said that the accommodation preference does not differ among the participants since the service utilized will be taxed at the rate of 2% specified in the law, regardless of which of the establishments specified in the law is preferred.

- According to the ANOVA test, participants' Accommodation TaxThe opinions of the respondents on the "income status" differed within the scope of the income status variable (Sig.=.030<.05). However, since the variances are not distributed homogeneously (Sig.=0.806>0.05) and the distribution in the sample groups is not equal, Hochberg GT2 Post Hoc test is performed. According to the relevant analysis results, there is a significant difference between the group of participants with an income of up to 8,500 TL and the group of participants with an income of 15,501-20,000 TL in terms of Accommodation Tax opinions. It can be said that people who earn up to 8,500 TL minimum wage, which is determined as 8,500 TL for 2023, and people who earn up to 15,501-20,000 TL have different views on the Accommodation Tax.

### **Evaluation of the statistical findings obtained regarding the survey questions**

We can reach the following conclusions when we examine the frequency analysis of the judgments within the scope of the survey on accommodation tax. According to this

- 63,9% of the respondents have a favourable view of the Accommodation Tax, while 18.1% do not have a favourable view. 18% of the respondents stated that they did not have any opinion about the Accommodation Tax. According to our data, more than 50% of the people participating in the survey study have a favourable view of the accommodation tax.

- 69.7% of the participants think that Accommodation Tax should be paid by accommodation businesses, while 13.4% of the participants think that businesses should not pay the tax. 16.7% of the respondents are undecided about whether the enterprises should pay the Accommodation Tax or not. According to the data obtained, more than 50% of the respondents are of the opinion that the enterprises should pay Accommodation Tax.

- While 12.9% of the respondents have a negative view of the Accommodation Tax, 71.3% do not have a negative view of the Accommodation Tax. 15.7% of the respondents stated that they had no opinion about the Accommodation Tax. According to the data, more than 50% of the participants do not view the accommodation tax negatively.

- 41.9% of the respondents think that the purpose of the Accommodation Tax is to offer public benefit, while 25.6% think that it does not. 32.5% of the participants do not have any opinion on whether the purpose of the Accommodation Tax is to provide public benefit. According to the data obtained, the majority of the participants are of the opinion that the purpose of the Accommodation Tax is to provide

public benefit. However, this value is not more than %50. In addition, %32.5 of the respondents do not have any opinion about the purpose of the Accommodation Tax. This high rate indicates a lack of knowledge about the purpose of the tax.

- While %50.6 of the participants think that the Accommodation Tax will contribute to the development of the tourism sector, %24.2 think that it will not. %25.2 of the participants do not have any opinion on whether the Accommodation Tax will contribute to the development of the tourism sector. According to the data obtained, more than %50 of the participants think that the Accommodation Tax will contribute to the development of the tourism sector.
- While 15.6% of the participants think that the Accommodation Tax is included in the scope of tax laws in order to generate revenue for the state, %64.3 of the participants state that the reason for including the Accommodation Tax in the scope of tax laws is not to generate revenue. In this judgment, %20.2 of the participants are undecided and do not have any idea about the purposes for which the Accommodation Tax is included in the scope of tax laws. According to the data obtained, more than %50 of the respondents think that the Accommodation Tax was enacted for the purpose of generating revenue for the state.
- While %10.4 of the participants think that the Accommodation Tax will cause tax injustice against low-income groups, %76.1 of the participants think that it will not cause tax injustice. %18.5 of the respondents do not know whether the Accommodation Tax will cause tax injustice on low-income groups. According to the information obtained, more than %50 of the participants think that the Accommodation Tax will not cause tax injustice against low-income groups. Therefore, we can say that Accommodation Tax will not cause tax injustice against low-income groups.
- While %24.4 of the respondents have sufficient information about the Accommodation Tax, %41.3 do not have sufficient information about the tax. %34.3 of the respondents do not have any information about Accommodation Tax. Some of the respondents indicate that they have information about the accommodation tax, but the majority of the respondents indicate that they do not have information about the tax and do not know whether they have information about the tax or not. Here, we can infer that the respondents do not have sufficient information about the Accommodation Tax.
- While %9.3 of the respondents think that the rate of Accommodation Tax is high, %83.4 do not think that the rate of the tax is high. %25.5 of the respondents do not have any opinion about whether the rate of the tax is high or not. According to the data obtained, more than %50 of the respondents do not find the rate of accommodation tax high. In this case, we can say that the rate of Accommodation Tax is not high.
- %18.9 of the respondents state that the Accommodation Tax has a determining effect on their desire to take a vacation, while %56.5 state that it does not have a determining effect. %24.6 of the respondents do not know whether the Accommodation Tax will have any impact on their desire to take a vacation. According to the inference obtained, it is seen that Accommodation Tax does not affect the desire to take a vacation on more than %50 of the respondents. Thus, we can say that Accommodation Tax does not have a determining effect on the desire to take a vacation.
- 53.6% of the participants think that the Accommodation Tax has a fair structure and %15.3 think that the tax does not have a fair structure. On the other hand, %31.2 of the respondents have no opinion on whether the tax is fair or not. According to the data obtained, more than %50 of the respondents think that the accommodation tax has a fair structure. Therefore, we can conclude that the Accommodation Tax has a fair structure.
- While %17.8 of the respondents think that the financing from the Accommodation Tax should be used for the development of the Turkish tourism sector, %58.7 of the respondents think that it should not be used. %23.5 of the respondents are undecided about whether or not the financing from the Accommodation Tax should be used for tourism initiatives. According to the data obtained, more than %50 of the participants state that the financing obtained from the Accommodation Tax should not be used in developing the tourism sector. Therefore, we can say that it would be appropriate to use the financing obtained from the Accommodation Tax outside the tourism sector.
- While %14.4 of the participants think that the Accommodation Tax will negatively affect the purchasing power of domestic tourists, %66.8 of the participants state that the tax will not negatively affect the purchasing power of domestic tourists. On the other hand, %18.7 of the participants stated that they did not have any negative or positive opinion on the impact of the Accommodation Tax on the purchasing power of domestic tourists. According to the data obtained, more than %50 of the participants think that the Accommodation Tax will not negatively affect the purchasing power of

domestic tourists. Accordingly, we can say that Accommodation Tax will not negatively affect the purchasing power of domestic tourists.

- %16.5 of the respondents think that Accommodation Tax should be included in the local government budget and %52.5 of the respondents think that it should not be included in the local government budget. Another %31.5 of the respondents are undecided about whether Accommodation Tax should be included in the local government budget. According to the data obtained, more than %50 of the participants think that Accommodation Tax should not be included in the local government budget. Thus, it would be more appropriate to consider the Accommodation Tax within the central government budget rather than the local government budget.
- %16.1 of the participants think that the Accommodation Tax should contribute to the environment and culture, while 63.1% think that it should not. Regarding the related opinion, %20.9 of the participants remain undecided. In other words, they do not have any opinion on whether the Accommodation Tax contributes to the environment or culture. Accordingly, more than %50 of the participants think that Accommodation Tax does not contribute to the environment or culture.
- While %38.9 of the respondents find the Accommodation Tax necessary for sustainable tourism, %27.4 do not find it necessary. %33.7 of the participants do not know whether Accommodation Tax is necessary for sustainable tourism. According to the data obtained, the majority of the participants find the Accommodation Tax necessary for sustainable tourism. Accordingly, it can be said that "Accommodation Tax is necessary for sustainable tourism".
- %25 of the respondents think that the Accommodation Tax will have a negative impact on tourism investments, while %43 think that it will not have a negative impact. %32.1 of the participants do not know whether the Accommodation Tax will have a negative or positive impact on tourism investments. According to the data obtained, the Accommodation Tax will not have a negative impact on tourism investments.
- %15.6 of the respondents stated that the number of people who want to go on vacation will decrease with the implementation of the Accommodation Tax, while %68 of the respondents stated that the number of people who want to go on vacation will not decrease. %19.4 of the respondents do not know whether the Accommodation Tax will have any impact on the number of people who want to go on vacation. According to the data obtained, more than %50 of the participants think that the Accommodation Tax will not reduce the number of people who want to go on vacation. Accordingly, it can be said that "Accommodation Tax will not reduce the number of people who want to go on vacation."
- While %12.7 of the participants state that the Accommodation Tax will create a tax burden on the tourism sector, %62.4 state that it will not create a tax burden. On the other hand, %24.8 of the participants do not have any opinion on whether the Accommodation Tax will create a tax burden on the tourism sector. According to the data obtained, more than %50 of the participants state that the Accommodation Tax will not create a tax burden on the tourism sector. Therefore, it can be said that "Accommodation Tax does not create a tax burden on the tourism sector."
- %17.5 of the respondents think that the Accommodation Tax should be levied only on foreign tourists, while %61.8 of the respondents think that the tax should not be levied only on foreign tourists. Another %20.8 of the respondents were undecided about whether Accommodation Tax should be levied only on foreign tourists. According to the data obtained, more than %50 of the participants find it appropriate to charge Accommodation Tax only from foreign tourists. Therefore, it can be said that "Accommodation Tax should not be levied only on foreign tourists".
- While %18.4 of the respondents think that the Accommodation Tax is complex and difficult to understand, %45.8 of the respondents think that the tax is understandable. %35.8 of the respondents have no idea whether the Accommodation Tax is complex and difficult to understand. In line with the data obtained from the study, the majority of the respondents think that the Accommodation Tax is not complex and difficult to understand. However, the fact that %35.8 of the respondents are undecided about this judgment shows that the respondents have not examined the tax law.
- %32.1 of the participants think that the Accommodation Tax will have a negative impact on the tourist attraction potential of our country and %40.7 of the participants think that the tax will not have a negative impact on the tourist attraction potential of our country. Another %27.2 of the respondents do not know whether the Accommodation Tax will have any impact on the tourist attraction potential of Turkey. Therefore, it can be said that "Accommodation Tax will not negatively affect the tourist attraction potential of the Turkish tourism sector."



- %30.3 of the participants think that the Accommodation Tax is appropriate for taxation according to financial power and %38.9 of the participants state that the tax is not appropriate for taxation according to financial power. On the other hand, %30.8 of the participants are undecided about whether the Accommodation Tax is appropriate for taxation according to financial power. Accordingly, the majority of the participants are of the opinion that the Accommodation Tax is not suitable for taxation according to financial power.
- %10.7 of the respondents find it unnecessary to apply more than one tax in the tourism sector, while %68 do not find it unnecessary. %21.3 of the participants are undecided about the application of more than one tax in the tourism sector. According to the data obtained, more than %50 of the participants do not find it unnecessary to apply more than one tax in the tourism sector. Therefore, we can say that the implementation of more than one tax in the tourism sector is necessary.
- While %34.2 of the participants think that the revenue from the Accommodation Tax will contribute to tourism expenditures, %33.4 think that it will not. %32.5 of the participants are undecided about whether the revenue from the Accommodation Tax will contribute to tourism expenditures. According to the data obtained, the majority of the participants think that the revenue from the Accommodation Tax will contribute to tourism expenditures. Therefore, we can say that it is appropriate for the revenue from the Accommodation Tax to contribute to tourism expenditures.
- %33.6 of the participants state that their perspective on the tax will be positively affected by the clarity and comprehensibility of the Accommodation Tax, but %30.8 of the participants state that their perspective on the tax will not be positively affected. %36.2 of the participants do not know whether their perspective on the tax will be positively or negatively affected by the clarity and comprehensibility of the tax. According to the data obtained, the majority of the respondents state that their perception of the tax will be positively affected by the clarity and comprehensibility of the Accommodation Tax. Therefore, the clarity and comprehensibility of the Accommodation Tax has a positive effect on people's perspectives on the tax.
- %41.1 of the respondents state that the implementation of the Accommodation Tax will give Turkey an advantage over countries where this tax is not applied, while %25.5 state that it will not. %33.4 of the participants remain undecided. According to the data obtained, the majority of the participants think that with the implementation of the Accommodation Tax, Turkey will have an advantage over countries where this tax is not applied. Therefore, it can be concluded that the implementation of the Accommodation Tax may make our country advantageous against other countries.
- %61.4 of the respondents do not avoid paying an additional tax to go on vacation. However, %18 of the respondents avoid paying an additional tax. In the related study, %20.6 of the respondents did not know whether they would avoid paying an additional tax to go on vacation. According to the data obtained, more than %50 of the respondents do not avoid paying an additional tax for going on vacation. Therefore, we can say that people will not see the Accommodation Tax, which was put into effect on 01.01.2023, as an additional tax burden and will not avoid paying this tax when they go on vacation.
- While %22.3 of the participants think that the proportional increases in the Accommodation Tax will have a negative impact on tourists' willingness to take a vacation by reflecting on tourism prices, %52.5 of the participants think that the proportional increases in the tax will not have a negative impact on their willingness to take a vacation. %25.3 of the respondents remain undecided and do not know whether the proportional increases in the Accommodation Tax will have a negative or positive impact on tourists' willingness to vacation. According to the data obtained, more than %50 of the respondents state that proportional increases in the Accommodation Tax will not negatively affect tourists' willingness to vacation. Therefore, we can say that proportional increases in the Accommodation Tax will not have a negative impact on tourists' willingness to vacation.
- %12.1 of the participants find it appropriate to use the revenues from the Accommodation Tax for social and cultural services, while %65.6 do not. %22.4 of the participants are undecided about whether the revenues from the Accommodation Tax should be used for social and cultural services. According to the data obtained, more than %50 of the respondents do not find it appropriate to use the revenues from the Accommodation Tax for social and cultural services. In line with the related opinions, it can be interpreted that it is appropriate to use the revenues from the Accommodation Tax for other services instead of social and cultural services.
- %15.4 of the respondents state that the Accommodation Tax will negatively affect their decision to purchase accommodation services or go on vacation, while %63.2 state that it will not negatively affect their vacation decision. Another %21.4 of the respondents did not express any positive or negative

opinion and remained undecided. According to the data obtained, more than 50% of the respondents are of the opinion that the Accommodation Tax will not harm their decision to purchase accommodation services or go on vacation. Therefore, we can conclude that "Accommodation Tax will not negatively affect people's decisions to purchase accommodation services or go on vacation."

## **Conclusion**

In the Turkish tourism sector, which significantly affects the development and welfare level of the country with its economic, social, historical and cultural structures within the world tourism sector, many tax applications are encountered due to the services provided and the goods delivered. As stated in the study, it is explained in detail that these tax applications cover the services and goods deliveries provided by tourism enterprises, tourism agencies and tourism guides in which cases the tax arises in these applications. Taxes are levied on many services provided by all business structures operating in the sector, including timeshare and vacation structures. Within the scope of the study, the tax systems applied in the tourism sector, the functioning of these tax systems, their scope, and the advantages of tax for the sector are mentioned. Tourism The purpose of this study on the taxation of the tourism sector is to discuss the tax systems applied in the Turkish tourism sector and to analyze the Accommodation Tax for the tourism sector, which was put into effect as of 01.01.2023.'s structure, scope, functioning, and the whole subject, and to reveal the views of the taxpayers in terms of this tax that people pay as a result of benefiting from accommodation services. Thus, within the scope of the questionnaire prepared by taking the opinions of the participants within the scope of the questions in Annex-1 in the study, It is essential to conclude the significant differences between gender, age, marital status, marital status, educational status, professional status, number of annual vacations, accommodation preferences and income status of the taxpayers.

As a result of the survey analysis, Accommodation Tax It is seen that women show more interest in the questions explicitly created for women compared to men, single people in marital status compared to married people, people between the ages of 18-25 compared to people in the other specified age range, people with a bachelor's degree compared to people with other education, people who go on vacation once a year compared to people who go on more than one vacation, people who prefer hotel accommodation compared to people who prefer other accommodation places specified in the law, and people with an income of up to 8,500 TL compared to other income earners. As a result of the findings obtained through the tests, the following conclusions are reached.

- Participants' Accommodation Tax There is no significant difference when the views on Accommodation Tax are analyzed according to gender variable. In the data obtained, it can be said that male participants' views on Accommodation Tax are more positive than female participants.
- Participants' Accommodation Tax When the views on the Accommodation Tax are analyzed in terms of marital status, a significant difference is observed. In the whole of the data obtained, it is seen that the views and attitudes of married individuals towards the Accommodation Tax are more positive than single individuals.
- Participants' Accommodation Tax In the evaluation of the views on Accommodation Tax according to the age variable, it can be said that there is a difference in the specified age ranges. In the whole of the data obtained, as the age range values of the participants increase, their views on Accommodation Tax also increase positively. It is seen that the group with the most favorable opinion on Accommodation Tax is the age group of 50 and over, while the group with the most unfavorable opinion is the age group of 18-25.
- Participants' Accommodation Tax It is seen that the opinions on the Accommodation Tax differ according to the education level variable. In the whole of the data obtained, it can be said that the views on Accommodation Tax change positively as the level of education increases. It is seen that the group with the most positive views on the Accommodation Tax is the participants with postgraduate degrees.
- As a result of the relevant analysis, the participants' Accommodation Tax It is seen that the opinions on the Accommodation Tax differ according to the occupational status variable. In the whole of the data obtained, it is seen that the views of unemployed individuals on the Accommodation Tax are the most negative among the other participant groups, while the most positive views are held by retired individuals.
- According to the results of the one-way ANOVA test, the participants' Accommodation Tax It can be said that there is no difference between the number of vacations per year. In the whole of the data obtained, it is seen that the participants who vacation two times a year express the most positive opinion on the Accommodation Tax.

- In the related analysis, respondents' Accommodation Tax's views on the Accommodation Tax do not differ significantly according to the accommodation preference variable. In the data obtained, it can be said that the participants who prefer motels in accommodation preference are the ones who declare the most favourable opinion regarding the Accommodation Tax.
- According to the tests conducted, respondents' Accommodation Tax It is observed that the respondents' opinions on Accommodation Tax differ according to their income status. In the whole of the data obtained, it is seen that the opinions of individuals with an income of up to 8,500 TL regarding the Accommodation Tax are the most negative among the other participant groups, while those with an income between 15,501-20,000 have the most positive opinion.

As a result of all the research on the subject, it is seen that more than one tax is applied in the tourism sector. Taxpayers have to pay taxes at the end of many services they receive due to their vacations, travels and trips in line with their economic conditions. However, the application of more than one tax in the tourism sector may affect the demand for the sector, as well as the views of taxpayers on the tax incurred by taxpayers due to services such as accommodation, food and beverage, lodging, travel, etc. provided within the scope of the sector. Individuals should be aware of the tax they incur due to their vacation, travel and accommodation. They should question the purpose for which the tax is levied, whether it contributes to the sector, the tax rates determined and whether these tax rates affect their desire to take a vacation. Taxpayers should be aware of what these situations will affect on the taxes they have incurred: the rates of these taxes, who the main taxpayers are, whether they are fair or not, whether they create a burden on themselves, whether they have public benefit or local benefit, whether they contribute to the tourism sector, whether they affect their purchasing power, for what purposes the tax obtained from the sector is used, whether it is taken according to financial power or not, whether it provides financing power for the sector or not. With the researches they will conduct, people will act more consciously and will remove question marks on their views on tax. In this way, we can say that our reaction to taxes will result in positive opinions as long as we know why taxes are applied, regardless of the field.

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#### **Author Contributions:**

Idea/Concept/Design: Ö.S. Data Collection and/or Processing D.Ö., Ö.S., Analysis and/or Interpretation: D.Ö. Literature Review: D.Ö., Ö.S., Writing the Article: D.Ö., Ö.S.,

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Business & Management Studies: An International Journal [BMIJ] is an international, peer-reviewed multidisciplinary journal dedicated to publishing scholarly articles on all aspects of business and management sciences. Available online and published three times a year -four times from 2019 on-, the journal aims to become one of the leading platforms in the world for new findings and discussions of all fields of business and management sciences.

### **The Position of Researches on Business & Management Studies: An International Journal [BMIJ] Publishing Ethics**

Business & Management Studies: An International Journal [BMIJ] is committed to maintaining the highest ethical standards for all parties involved in the act of publishing in a peer-reviewed journal: the author, the editor of the journal, the peer reviewer and the publisher.

The publishing ethics of Business & Management Studies: An International Journal, both internally and externally, are based on- and adhere to the Double-blind refereeing process is applied in the journal BMIJ. The referee and the author (s) are unaware of the identity of each other. Scientific studies are sent to at least two referees in the evaluation process.

### **Editor Responsibilities**

#### **Accountability:**

The editors of Business & Management Studies: An International Journal [BMIJ] are accountable and responsible for deciding which of the articles submitted to the journal should be published. The editor may be guided by the policies of the journal's editorial board and constrained by such legal requirements as shall then be in force regarding libel, copyright infringement and plagiarism. The editor may confer with other editors or reviewers in making this decision.

#### **Impartiality:**

The reviewing process and publication decision will occur without regard to race, gender, sexual orientation, religious belief, ethnic origin, citizenship, or political philosophy of the authors.

#### **Confidentiality:**

The editor(s) and any editorial staff will not disclose any information about a submitted manuscript to anyone other than the corresponding author, reviewers, potential reviewers, other editorial advisers, and the publisher, as appropriate.

#### **Disclosure and Conflicts of Interest:**

Unpublished materials disclosed in a submitted manuscript will not be used in an editor's research without the author's express written consent. Privileged information or ideas obtained through peer review will be kept confidential and not used for personal benefits. Editors make fair and unbiased decisions independent of commercial considerations and ensure a fair and appropriate peer-review process. Editors recuse themselves (i.e. should ask a co-editor, associate editor, or other members of the editorial board instead to review and consider) from considering manuscripts in which they have conflicts of interest resulting from competitive, collaborative, or other relationships or connections with any of the authors, companies, or (possibly) institutions connected to the papers. Editors will require all contributors to disclose relevant competing interests and publish corrections if competing interests are revealed after publication. If needed, other appropriate action will be taken, such as publishing a retraction or expression of concern.

#### **Involvement and Cooperation in Investigations:**

Editors of Business & Management Studies: An International Journal [BMIJ] will guard the integrity of the published record by issuing corrections and retractions when needed and pursuing suspected or alleged research and publication misconduct. Editors should pursue reviewer and editorial misconduct. An editor should take reasonably responsive measures when ethical complaints have been presented concerning a submitted manuscript or published paper, in conjunction with the publisher (or society). Such measures will generally include contacting the author of the manuscript or paper and giving due consideration of the individual complaint or claims made, but may also include further communications to the relevant institutions and research bodies, and if the complaint is upheld, the publication of a correction, retraction, expression of concern, or other note, as may be relevant. Every reported unethical publishing behaviour must be looked into, even if it is discovered years after publication.

### Reviewers Responsibilities

#### Contribution to Editorial Decisions:

Peer review assists the editor in making editorial decisions, and through the editorial communications with the author may also assist the author in improving the paper.

#### Promptness:

Any selected referee who feels unqualified to review the research reported in a manuscript or knows that its prompt review will be impossible should notify the editor and excuse himself/herself from the review process.

#### Confidentiality:

Any manuscripts received for review must be treated as confidential documents. Therefore, they must not be shown to or discussed with others except as authorized by the editor.

#### Standards of Objectivity:

Reviews should be conducted objectively. Personal criticism of the author is inappropriate. Instead, referees should express their views clearly with supporting arguments.

#### Acknowledgement of Sources:

Reviewers should identify relevant published work that the authors have not cited. Any statement that an observation, derivation, or argument had been previously reported should be accompanied by the relevant citation. A reviewer should also call to the editor's attention any substantial similarity or overlap between the manuscript under consideration and any other published paper of which they have personal knowledge.

#### Disclosure and Conflict of Interest:

Privileged information or ideas obtained through peer review must be kept confidential and not used for personal benefit. In addition, reviewers should not consider manuscripts in which they have conflicts of interest resulting from competitive, collaborative, or other relationships or connections with any of the authors, companies, or institutions connected to the papers.

### Author Responsibilities

#### Reporting Standards:

Authors should present their results honestly and without fabrication, falsification or inappropriate data manipulation. In addition, authors should describe their methods clearly and unambiguously so that others can confirm their findings.

#### Originality, Plagiarism and Acknowledgement of Sources:

Authors should adhere to publication requirements that submitted work is original, is not plagiarized, and has not been published elsewhere - fraudulent or knowingly inaccurate statements constitute unethical behaviour and are unacceptable. If an author has used the work and/or words, this original has been appropriately cited or quoted and accurately reflects individuals' contributions to the work and its reporting.

#### Data Access and Retention:

Authors may be asked to provide the raw data in connection with a paper for editorial review and should, in any event, be prepared to retain such data for a reasonable time after publication.

#### Ethics:

Authors should only submit papers on work conducted ethically and responsibly, which complies with all relevant legislation.

#### Disclosure and Conflicts of Interest:

All authors should disclose in their manuscript any financial or another substantive conflict of interest that might be construed to influence the results or interpretation of their manuscript. In addition, all sources of financial support for the project should be disclosed.

### Authorship of the Paper:

Authorship should be limited to those who have made a significant contribution to the conception, design, execution, or interpretation of the reported study. All those who have made significant contributions should be listed as co-authors. Where others have participated in certain substantive aspects of the research project, they should be acknowledged or listed as contributors. The corresponding author should ensure that all appropriate co-authors and no inappropriate co-authors are included on the paper and that all co-authors have seen and approved the final version of the paper and have agreed to its submission for publication.

### Multiple, Redundant or Concurrent Publication:

An author should not generally publish manuscripts describing essentially the same research in more than one journal or primary publication. Submitting the same manuscript to more than one journal concurrently constitutes unethical publishing behaviour and is unacceptable.

### Fundamental Errors in Published Works:

When an author discovers a significant error or inaccuracy in his/her published work, the author must promptly notify the journal editor or publisher and cooperate with the editor to retract or correct the paper. Likewise, if the editor or the publisher learns from a third party that a published work contains a significant error, the author must promptly retract or correct the paper or provide evidence to the editor of the correctness of the original paper.

## Publisher's Responsibilities

Business & Management Studies: An International Journal, as the publisher of BMIJ, encourages the editors to follow the Double-blind refereeing process. The referee and the author (s) are unaware of the identity of each other. Scientific studies are sent to at least two referees in the evaluation process. The publisher defines the relationship between the publisher, editor and other parties in a contract, respect privacy (for example, for research participants, for authors, for peer reviewers), protects intellectual property and copyright, and fosters editorial independence.

Publisher works with journal editors to set journal policies appropriately and aim to meet those policies, particularly concerning:

- Editorial independence,
- Research ethics, including confidentiality, consent, and the unique requirements for human and animal research,
- Authorship,
- Transparency and integrity (for example, conflicts of interest, research funding, reporting standards,
- Peer review and the role of the editorial team beyond that of the journal editor,
- Appeals and complaints,

Publisher works with journal editors to:

- Communicate journal policies (for example, to authors, readers, peer reviewers),

review journal policies periodically, particularly concerning new recommendations from the Double-blind refereeing guidelines,

- Maintain the integrity of the academic record,
- Assist the parties (for example, institutions, grant funders, governing bodies) responsible for the investigation of suspected research and publication misconduct and, where possible, facilitate in the resolution of these cases,
- Publish corrections, clarifications, and retractions and
- Publish content on a timely basis.

**Publisher**



**Editors-In-Chief**

**Prof. Dr. Ali Çağlar ÇAKMAK**

Business & Management Studies: An International Journal [BMIJ], işletme ve yönetim bilimlerinin tüm yönleri üzerine olan bilimsel makaleleri yayınlamaya kendini adanmış, diğer akran hakemlerin değerlendirmelerine tâbi, çoklu bilim dalından oluşan, uluslararası bir dergidir. İnternet üzerinden online olarak yılda 3 kez - 2019'dan itibaren yılda 4 kez - yayınlanan dergimiz, işletme ve yönetim bilimleri ile ilgili tüm alanlardaki yeni bulgular ve değerlendirmeler üzerine dünyadaki lider platformlardan biri olmayı hedeflemektedir.

## Business & Management Studies: An International Journal (BMIJ) Dergisindeki Makalelerin Yayın Etiği Kuralları Açısından Durumu

Business & Management Studies: An International Journal (BMIJ), akran hakemlerin değerlendirmelerine tâbi olup, bir derginin yayınlanmasında yer alan tüm tarafların en yüksek etik kurallar çerçevesinde davranmalarını sağlamayı taahhüt etmiştir. Bu taraflar; yazarlar, derginin editörü, yardımcı/bölüm editörleri, akran hakemler ve yayımcıdır.

BMIJ yayın etiği kuralları, içeride ve dışarıda, "çift-körleme hakemlik sürecine", yani makale yazar (lar)ının ve hakemlerin kimliklerinin birbirlerinden gizlenerek yapılan bir yöntemle incelenmesi üzerine kuruludur ve bu ilkeye sadık kalınarak uygulanır. Bilimsel çalışmalar, değerlendirme aşamasında en az iki hakeme (değerlendiriciye) gönderilir.

### Editörün Sorumlulukları

#### Hesap Verebilirlik:

Business & Management Studies: An International Journal (BMIJ) dergisinin editörleri, dergiye gönderilen makalelerden hangilerinin yayınlanacağı hususunda karar verme aşamasından sorumludurlar ve bu konuda hesap verme konumundadırlar. Editör, derginin yayın kurulunun ilkeleri doğrultusunda yönlendirilebilir ve sonradan yürürlüğe girebilecek olan yayın yoluyla hakaret, telif hakkı ihlali ve eser hırsızlığı gibi yasal şartlar nedeniyle sınırlandırılabilir. Editör, bu kararı verirken diğer editörler ya da hakemlerle bu durumu müzakere edebilir.

#### Tarafsızlık:

Makalelerin değerlendirme ve yayınlanma kararı aşaması; yazarların ırk, cinsiyet, cinsel yönelim, dinî inanç, etnik köken, tabiiyet veya siyasi felsefesine bakılmaksızın gerçekleşecektir.

#### Gizlilik:

Editör(ler) ve editör kurulu, gönderilen bir taslakla ilgili herhangi bir bilgiyi, -eğer açıklamak uygun görülürse- ilgili yazar, hakemler, potansiyel hakemler, diğer yayın danışmanları ve yayıncı dışında hiç kimseye açıklamayacaklardır.

#### Bilgilendirme ve Çıkar Çatışması:

Yayın için gönderilen bir taslakta açığa çıkmış ama yayınlanmamış materyaller, yazarın açık rızası olmadan editörün kişisel araştırmasında kullanılamaz. Bağımsız değerlendirme sonucu elde edilen seçkin bilgi ve fikirler gizli tutulacak ve kişisel çıkarlar için kullanılmayacaktır. Editörler, ticarî kaygılardan bağımsız, âdil ve önyargısız kararlar verirler ve âdil ve uygun bir bağımsız değerlendirme sürecini temin ederler. Editörler rekabete dayanan, ortak çalışmaya dayalı ya da başka ilişkilerden kaynaklı veya makalelerle bağlantılı herhangi bir yazar, şirket ya da muhtemel kurum bağlantıları sebebiyle ortaya çıkan çıkar çatışmalarının olduğu makale taslaklarının değerlendirmesinden feragat ederler, geri çekilirler, (başka bir deyişle, diğer editör, yardımcı editör veya yayın kurulundan başka birisinin bu değerlendirmeyi kendisinin yerine yapmasını isterler). Eğer bu faydalar yayından sonra meydana çıkarsa editörler, tüm katılımcılardan çatışan çıkar unsurlarını açıklamalarını ve düzeltmeleri yayınlamalarını isterler. Eğer ihtiyaç duyulursa, cayma kararının yayınlanması ya da kaygıların ifade edilmesi gibi başka uygun tedbirler alınır.

#### Soruşturmalara Katılım ve İş Birliği:

BMIJ Editörleri, ihtiyaç halinde düzeltmeleri ve cayma durumlarını bildirerek ve şüpheli veya şüpheli iddiası olan araştırmaları ve yayın suiistimallerini takip ederek yayınlanmış belgenin bütünlüğünü sağlayacaktır. Editörler, hakem ve yazı işleri ile ilgili suiistimalleri takip etmelidirler. Bir editör; başvuru yapılmış bir makale taslağı ya da yayımlanmış bir makale ile ilgili olarak yayıncı veya toplumla bağlantılı olan yayın etiği ile ilgili şikayetler yapılmışsa bunlarla ilgili makul cevabî önlemleri almalıdır. Bu tür önlemler genelde makale taslağının ya da yayımlanmış makalenin yazarıyla bağlantı kurmak veya ilgili şikâyet ya da ortaya konulan iddiaya gereken önemi vermek şeklinde olabildiği gibi, ilgili kurumlar ve araştırma organlarıyla daha ileri seviyede bağlantılar kurmak şeklinde de olabilir. Eğer iddia onanırsa, ilgili olması halinde, düzeltmenin, cayma durumunun yayınlanması, kaygı ya da başka bir bilginin ifade edilmesi şeklinde olması da mümkündür. Bildirilen her bir etik dışı yayın davranışı hareketi, yayımdan yıllar sonra bile ortaya çıkarılsa mutlaka soruşturulmalıdır.



## Hakemlerin Sorumlulukları

### Editöryal Kararlara Katkı:

Akran değerlendirmesi, editöre, yayına ilgili kararlar vermesinde ve editörün yazarla editöryal iletişimine, yazarın makaleyi geliştirmesine yardımcı olur.

### Hızlı Davranma:

Seçilmiş herhangi bir hakem; bir makale taslağında ortaya konan araştırmayı gözden geçirme konusunda kendisini yetersiz hissederse veya taslağın hızlı ve objektif bir şekilde gözden geçirmesinin mümkün olamayacağını bilirse, editörü bilgilendirmeli ve değerlendirme sürecinden alınmasını istemelidir.

### Gizlilik:

Değerlendirme için gelen herhangi bir makale taslağı, 'gizli doküman' olarak kabul edilmelidir. Bu dokümanlar editör tarafından yetkilendirilmiş kişiler dışında kimseye gösterilmemeli veya kimseye tartışılmamalıdır.

### Objektiflik Standartları:

Değerlendirmeler objektiflik ilkeleri çerçevesinde ele alınmalıdır. Yazarın şahsına yönelik kişisel eleştiri doğru değildir. Hakemler, düşüncelerini, destekleyici argümanlarla/delillerle açık ve net bir şekilde ortaya koymalıdır.

### Alıntılanan Kaynakların Belirtilmesi:

Hakemler, yazarlar tarafından belirtilmeyen ilgili yayınlanmış eserlerin neler olduğunu bulup ortaya çıkarmalıdır. Önceden bildirilmiş olan bir gözlem, türetme veya görüş öne sürme ile ilgili herhangi bir bildirim, ilgili alıntı ile beraber olmalıdır. Bir hakem, değerlendirilmekte olan makale taslağı ile kişisel bilgisi dâhilinde olan başka herhangi bir yayınlanmış makale arasındaki kayda değer bir benzerlik veya örtüşmeye, editörün dikkatini çekmelidir.

### Bilgilendirme ve Çıkar Çatışması:

Bağımsız değerlendirme sonucu elde edilen seçkin bilgi ve fikirler gizli tutulacak ve kişisel çıkarlar için kullanılmayacaktır. Hakemler; rekabete dayanan, ortak çalışmaya dayalı ya da başka ilişkilerden kaynaklı veya makalelerle bağlantılı herhangi bir yazar, şirket ya da muhtemel kurum bağlantıları sebebiyle ortaya çıkan çıkar çatışmalarının olduğu makale taslaklarını değerlendirmemelidirler.

## Yazarların Sorumlulukları

### Standartların Bildirimi:

Yazarlar, buldukları sonuçları açık ve net bir biçimde, dürüstçe ve uydurmadan, üzerinde tahrifat veya uygun olmayan veri manipülasyonu yapmadan sunmalıdırlar. Yazarlar, metodlarını açık ve net bir biçimde, belirsizliğe meydan vermeyecek bir tarzda anlatmalı ki böylece bulguları başkaları tarafından doğrulanabilsin.

### Özgünlük, İntihal ve Alıntılanan Kaynakların Belirtilmesi:

Yazarlar, sunulan çalışmanın orijinal olması, aşırma olmaması, başka bir yerde yayımlanmamış olması gibi yayın gereksinimlerine bağlı kalmalıdır. Aksi takdirde düzmece ya da bilerek ifade edilen gerçek dışı beyanlar, yayın etiğine uygun olmayan bir davranış teşkil eder ve bu durum kabul edilemez. Bir yazar; başkalarının çalışmalarını ve/veya kelimelerini kullandıysa, bu durum, orijinalinin uygun şekilde iktibas edildiği ya da bire bir alıntılandığı ve böylelikle bireylerin bu işe katkılarının doğru şekilde gösterildiği anlamına gelir.

### Veri Girişi ve Veriyi Tutma:

Yazarların, yayıma ilgili bir editöryal değerlendirme durumuyla bağlantılı olarak kullandıkları ham veriyi vermeleri istenebilir. Böyle bir durumda yazarların, yayımlandıktan sonra bu tarz bir bilgiyi makul bir süre saklamaya hazırlıklı olmaları gerekir.

### Yayın Etiği Kuralları:

Yazarlar, sadece yayın etiği ve sorumluluk çerçevesinde yürütülen ve tüm ilgili mevzuata uygun çalışmaları, makale başvurusu olarak sunmalıdır.

### Bilgilendirme ve Çıkar Çatışmaları:

Tüm yazarlar makale taslaklarında yer alan, bu taslaklarının sonuçlarını ya da tercümesini etkileyeceği yönünde yorumlanabilecek herhangi bir finansal ya da maddi çıkar anlaşmazlığını bildirmek durumundadırlar. Projeye ilgili tüm maddi kaynaklar açıklanmalıdır.

**Eser Sahipliği:**

Eser sahipliği, sunulan çalışmanın düşünce, tasarım, icra veya çevirisine önemli derecede katkı sunanlarla sınırlandırılmalıdır. Kayda değer bir katkıda bulunanların hepsi yazar listesinde yer almalıdır. Araştırma projesinin belli maddi yönleriyle ilgili katılım gösterenler olması durumunda da bu kişiler 'teşekkür edilenler' olarak belirtilmeli ya da 'katkıda bulunanlar' olarak listelenmelidir. Sorumlu yazar, uygun tüm yazarların makalede yer aldığından, uygun olmayanların da yer almadığından ve ayrıca tüm yazarların makalenin son halini gördüğünden ve yayın için teslim edilmesine onay verdiklerinden emin olmalıdır.

**Çoklu, Gereksiz ve Eş-Zamanlı Yayın:**

Bir yazar aslında aynı araştırmayı anlatan bir makale taslağını genel olarak birden fazla dergide veya ilk yayından fazla yayımlamamalıdır. Aynı makale taslağını eş zamanlı olarak birden fazla dergiye göndermek yayın etiğine uymaz ve kabul edilemez.

**Yayımlanan Eserlerdeki Temel Hatalar:**

Bir yazar kendisine ait yayımlanmış bir çalışmada, önemli bir hata veya yanlışlık ya da gerçek olmayan bir bilgi tespit ettiğinde, hızlı bir şekilde derginin editörünü bilgilendirmelidir. Makaleyi düzeltmek veya geri çekmek için editörle iş birliği yapmak, yazarın yükümlülüğündedir. Eğer editör ya da yayıncı, yayımlanan makalede önemli bir hata olduğunu üçüncü taraftan öğrenirse, hızlı bir şekilde makaleyi geri çekmek ya da düzeltmek veyahut orijinal makalenin doğruluğunu gösterir kanıtı editöre sunmak da yine yazarın yükümlülüğü altındadır.

**Yayıncının Sorumlulukları**

Business & Management Studies: An International Journal (BMIJ) Dergisi Yayıncısı, editörleri "çift-körleme" hakemlik süreci konusunda cesaretlendirmektedir. Hakemler ve yazar(lar) birbirlerinin kimliklerinden habersizdirler. Bilimsel çalışmalar, değerlendirme sürecinde en az iki hakeme gönderilir. Yayıncı, kendisi, editör ve diğer taraflarla arasındaki ilişkiyi bir sözleşmede belirtir, gizlilik ilkesine riayet eder (mesela, araştırma katılımcılarının, yazarların ve akran hakemlerin gizliliği), fikrî mülkiyet hakkını ve telif hakkını korur ve yazı işlerinde bağımsızlığı teşvik eder.

Yayıncı, olması gerektiği şekliyle dergi ilkelerini belirlemek için dergi editörleriyle birlikte çalışır ve bu ilkeleri yerine getirmeyi özellikle şu hususlar bakımından amaç edinir:

- ❖ Yazı işleri bağımsızlığı,
- ❖ Gizlilik, rıza ve insan ve hayvan araştırmalarında gerekli olan özel gereksinimleri içeren araştırma etik kuralları,
- ❖ Eser sahipliği,
- ❖ Şeffaflık ve bütünlük (çıkar çatışması, araştırmanın finansmanı, standartları bildirme),
- ❖ Akran değerlendirmesi ve dergi editörünün dışında editör kurulunun rolü,
- ❖ Başvurular ve şikayetler.

Yayıncı, aşağıdaki durumları sağlamak için dergi editörleriyle birlikte çalışır:

- ❖ Derginin ilkelerini değerlendirmek (mesela, yazarlarla, okuyucularla, akran hakemlerle), periyodik olarak derginin ilkelerini, özellikle "çift-körleme" hakemliğin prensipleri çerçevesindeki yeni öneriler açısından gözden geçirmek,
- ❖ Akademik kayıt sisteminin bütünlüğünü korumak,
- ❖ Şüpheli araştırma ve suiistimal edilen yayınla ilgili yapılan soruşturmada sorumlu olan taraflara (mesela, kurumlar, hibe sağlayıcılar ve yerel yönetim organları) yardımcı olmak ve mümkün olduğu sürece vakaların çözümünü kolaylaştırmak,
- ❖ Düzeltmeleri, açıklamaları ve geri çekmeleri yayınlamak ve
- ❖ Belirtilen zamanda sayıyı yayınlamak.

**Yayıncı**

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**Baş Editör**

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