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CHAPTER I

The Effect of Marketing Investments On The Sales And The Financial Performance Of Companies In The Bist Transportation Index

Ahmet KARACA¹

INTRODUCTION

The marketing mix investments are of vital importance as they align product, price, promotion and distribution optimization with consumer expectations. Moreover, such investments are expected to have a positive impact on the brand equity, contributing to both stakeholder satisfaction and demand for the firm's investment instruments (Simon and Sullivan, 1993: 32). It is stated that the share of marketing costs, which accounted for 20% of operating costs in the 1940s, could reach up to 50% in the 2000s (Sheth and Sharma, 2001). This increase may be an indicator of the positive results of investments in marketing.

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The aim of this research is to examine issues related to the financial evaluation of marketing investments. Srivastava, Shervani, and Fahey suggest that part of the accountability issues in marketing may be due to a missing set of metrics that can be used to evaluate marketing activities. Financial measures focusing on shareholder value, such as Net Present Value and Discounted Cash Flows, are forward-looking in that they reflect the present value of expected future cash flows. It is suggested that traditional measures such as sales and market share are retroactive and reflect past events. Simon and Sullivan suggest, in one of their studies examining the effect of marketing, that financial markets positively evaluate marketing expenditures in terms of equity and debt. They also suggest that industries and firms with "major brands" have stronger market valuations. Some firm-level effects of marketing expenditures on financial markets have also been observed (Sheth & Sharma, 2001).

This study examines the relationship between marketing expenses, sales and financial performance of companies traded in the BIST Transportation index. In the study, information on marketing investments and literature were provided, followed by the section with analysis. The analysis section utilizes the financial statement data of the companies to measure their sales volumes and financial performance. The sales data of the companies were obtained from the income statement, and their financial performance was measured using the Altman z-score model, a financial performance and financial risk measurement model based on ratio analysis. Subsequently, the relationship between the investment (expenditure) of companies in marketing with sales and financial performance is revealed by panel data regression analysis.

MARKETING INVESTMENTS

Today's intensely competitive world inevitably requires companies to develop marketing strategies to establish long-term relationships with their customers and maximize the value of the company (Doyle, 2000). For companies, marketing investment is a long-term investment and its payoffs have a positive influence on firm performance and company value. Marketing expenditures bring value to a firm by creating assets that have a positive net present value of future cash flows.

Marketing assets link marketing activities to the value chain. Assets are defined by accountants as items that a business possesses and whose cost can be objectively measured as of the time of purchase. This definition, however, leads accountants to only include tangible assets such as cash, inventory, debtors, plant and equipment on their balance sheets. In modern companies, however, such tangible assets constitute only a small portion of the market value of the company.

The average "market capitalization to book value" ratio of the UK's largest companies is three, indicating that intangible assets account for two-thirds of their market capitalization. Marketing assets fall into four types (Doyle, 2000):

(1) Marketing Knowledge: Advanced marketing knowledge is a core competency of skills, systems and knowledge that provides the company with a competence in identifying market opportunities and developing marketing strategies.

(2) Brands: Strong brand names bear powerful images making them more appealing to customers than rival products. The

owners of strong brands draw customers, providing a lasting cash cycle, often at high prices.

(3) Customer Loyalty: When a company has established a satisfied and loyal customer base, its profitability increases and it grows more rapidly compared to other companies. Many studies have found that loyal customers purchase more of the company's products, offer cheaper service, are less price sensitive and introduce new customers.

(4) Strategic relationships: The network of relationships a company builds with its channel partners can lead to higher sales and access to new markets, enabling the company to build competencies in additional fields.

The IPA's 2000 Survey of Finance Managers revealed the perceptions of finance directors of UK companies regarding marketing managers. It shows that finance executives in UK companies are becoming more demanding of in-depth information about marketing expenditure and its impact. According to the research, 56% of finance executives reported that they make efforts to measure the effectiveness of marketing spend. 60% of executives agreed that marketing executives are becoming more financially oriented, while only 18% believe that the effectiveness of marketing spend can be easily measured. In addition, only 40% of finance executives state that they consider marketing executives' future plans to be based on return on investment (Gür & Bayraktar, 2011).

LITERATURE

Companies' concern for financial results has led to a mounting body of research on the link between marketing structures

and financial results. One of the main fields of research on the financial consequences of marketing outcomes is the relationship between market share and profitability. Notwithstanding the huge interest and significant research in this field, the exact nature of the relationship is still poorly defined. Some of the leading research in this field also focuses on customer satisfaction, long-term relationships, and retail efficiency (Sheth and Sharma, 2001).

In the studies, various variables such as market capitalization, stock return rate, shareholder value, return on assets, return on sales, Tobin's Q ratio, and return on capital are utilized to measure the impact of marketing investments (Çıtak, 2015). In this study, the performance of companies is evaluated from multiple perspectives using the Altman Zskor model, which expresses profitability, productivity, leverage, financial structure, and market capitalization together.

Sales revenue is defined as the total amount of capital earned by the company from the sale of all its goods and services over a certain period of time. Typically lasting for either half a year or twelve months, this period pertains to companies that have either a single product or service. During this time, the sales revenue is calculated by multiplying the product's price by the quantity sold. However, if the company offers multiple products or services, the revenue from each must be combined or totalled. Advertising has a positive relationship with product or service demand. (Verdon, 1968). Additionally, the cointegration method reveals a positive correlation with sales. Furthermore, it is evident that larger companies can make more efficient use of marketing promotion expenses, thanks to the advantages of economies of scale. Moreover,

the impact of advertising effectiveness varies between the manufacturing and non-manufacturing sectors (Chowdhury, 2017).

Yucel and Kurt (2003) examined the effect of marketing and R&D expenses on profit and sales performance of banks and non-holding companies selected from Borsa Istanbul. According to the findings, marketing expenses have a greater impact than R&D expenses. The regression analysis conducted in the study indicates a negative correlation between marketing expenses and net revenue, while revealing a positive correlation between marketing expenses and operating profit and sales (Sercek, 2018).

In their study, Ciftci et al. (2010) analyzed the data of 82 companies selected from Borsa Istanbul between 2000 and 2008 with time series analysis and concluded that the variable with the highest impact on operating profitability is the marketing expenses variable. Moreover, the study's results demonstrate that not only marketing expenses but also general administrative expenses and total asset size have a positive contribution to company performance..

In their studies on the Borsa Istanbul food sector, Topuz and Aksit (2013) found that marketing expenses have a positive effect on stock returns, that is, these expenses increase the market value of companies. (Öztürk et al., 2016).

Citak (2015) examined the impact of SMEs' marketing investments on financial performance. The study highlights that small and medium-sized enterprises (SMEs) can enhance their operational efficiency by prioritizing and increasing their investments in marketing.

In their study on Borsa Istanbul manufacturing firms, Dogan and Mecek (2015) provide evidence that an increase in marketing expenses increases the profitability and value of companies.

In a study conducted by Gupta (2008), the impact of marketing expenditures on company performance was investigated in the textile, automotive, and food sectors in India. Utilizing data from 1997-2006, the study revealed a positive correlation between marketing expenditures and profitability in the automotive sector. Similarly, a positive relationship between marketing expenditures and profitability was found for the textile and food sectors. Several other authors, including Pitelis (1991), Sougiannis (1994), Graham and Frankenberger (2000), and Notta and Oustapassidis (2001), have also reported a positive relationship between marketing expenditures and profitability (Mecek & Dogan, 2015).

DATA AND METHOD

This study aims to determine the impact of the investments made by companies in marketing on their financial performance and sales. The financial performance of the companies was evaluated with the financial soundness scores obtained with the Altman Z Score model. The model in this study utilizes discriminant analysis to assess financial soundness and solvency based on a function. The commonly used function for this purpose is the Z-score model developed by Altman (2000), which involves performing a discriminant analysis without creating new ratios and coefficients to determine financial soundness or solvency (Akın Aksoy & Kandil Göker, 2018). Data for this model was sourced from the Public Disclosure Platform Financial Statements. The study investigates the connection between marketing investments and the financial

performance and sales of companies through a panel data regression model.

Table1. Marketing Expenditures of Companies in the BIST Transportation Index

COMPANIES/ YEARS	BEYAZ	CLEBI	GSDDE	PGSUS	RYSAS	THYO
2012	1.394.185	0	0	80.353.989	3.021.856	1.588.790.893
2013	1.701.942	0	0	105.089.686	944.082	1.947.304.294
2014	3.915.262	0	0	133.117.559	952.155	2.462.000.000
2015	3.685.390	0	0	149.815.601	1.028.722	3.129.000.000
2016	6.449.725	0	0	182.641.780	1.440.598	3.493.000.000
2017	10.071.559	0	0	186.893.200	1.542.244	4.101.000.000
2018	12.418.942	0	0	225.652.168	2.445.648	6.185.000.000
2019	9.623.955	0	0	311.965.775	3.332.955	8.015.000.000
2020	9.032.856	0	0	168.837.261	2.464.224	4.542.000.000
2021	12.270.303	0	0	284.441.314	2.658.256	7.573.000.000

Table2. The Sales of Companies in the BIST Transportation Index (Demand)

COMPANIES/ YEARS	BEYAZ	CLEBI	GSDDE	PGSUS	RYSAS	THYO
2012	119024444	511.788.320	6.375.000	1.919.446.126	310.907.921	14.762.062.246
2013	138413431	507.871.288	5.329.000	2.404.060.243	333.452.574	18.776.784.325
2014	345.199.277	621.449.684	21.209.000	3.081.727.739	331.008.701	24.158.000.000
2015	407.312.940	732.278.323	31.583.000	3.488.271.223	339.665.751	28.752.000.000
2016	519.126.404	709.524.691	33.068.000	3.707.471.135	379.744.743	29.468.000.000
2017	707.347.068	917.789.663	59.424.000	5.348.573.409	449.649.155	39.779.000.000
2018	610.176.472	1.483.010.488	76.000.000	8.276.743.365	541.498.558	62.853.000.000
2019	775.579.491	1.877.885.618	41.285.000	11.025.224.523	662.132.343	75.118.000.000
2020	1.300.046.710	1.541.501.101	44.571.000	4.803.559.909	822.272.565	46.448.000.000
2021	1.470.676.139	2.560.188.835	178.611.000	10.664.406.707	1.022.284.724	97.378.000.000

Table 3. *Performance Scores of Companies in the BIST Transportation Index*

COMPANIES/ YEARS	BEYAZ	CLEBI	GSDDE	PGSUS	RYSAS	THYO
2012	0.20	1.89	7.77	1.43	0.87	1.14
2013	0.14	1.35	0.17	1.97	0.98	1.03
2014	0.97	2.35	0.22	2.19	0.67	1.39
2015	3.08	2.58	0.06	1.78	0.28	1.14
2016	3.90	1.70	-0.54	1.00	0.25	0.65
2017	8.51	2.49	-0.11	1.51	0.21	1.00
2018	6.69	2.32	0.53	1.04	-0.09	0.97
2019	4.47	2.11	0.14	1.21	0.25	0.79
2020	6.49	1.64	0.13	0.20	0.46	0.23
2021	6.56	1.63	2.30	0.19	0.35	0.39

Table 4. *Stock price of companies in the BIST Transportation Index*

COMPANIES/ YEARS	BEYAZ	CLEBI	GSDDE	PGSUS	RYSAS	THYO
2012	1.23	20.20	0.39	17.80	0.66	5.39
2013	0.59	10.80	0.29	34.60	0.59	5.80
2014	0.69	28.50	0.67	33.40	0.74	9.36
2015	1.23	35.80	0.53	17.56	0.65	7.39
2016	2.97	21.50	0.53	14.15	0.79	4.94
2017	33.61	36.98	0.65	32.48	1.28	15.69
2018	2.74	62.60	0.56	22.86	0.74	16.01
2019	3.14	106.40	1.19	84.75	4.18	13.95
2020	10.18	184.90	2.44	74.60	9.24	12.91
2021	9.15	183.90	3.60	84.95	4.56	21.12

Table 5. Comparative Analysis of the Sales of Companies in the BIST Transportation Index

COMPANIES/ YEARS	2013	2014	2015	2016	2017	2018	2019	2020	2021
BEYAZ	0.16	1.49	0.18	0.27	0.36	-0.14	0.27	0.68	0.13
CLEBI	-0.01	0.22	0.18	-0.03	0.29	0.62	0.27	-0.18	0.66
GSDDE	-0.16	2.98	0.49	0.05	0.80	0.28	-0.46	0.08	3.01
PGSUS	0.25	0.28	0.13	0.06	0.44	0.55	0.33	-0.56	1.22
RYSAS	0.07	-0.01	0.03	0.12	0.18	0.20	0.22	0.24	0.24
THYO	0.27	0.29	0.19	0.02	0.35	0.58	0.20	-0.38	1.10

Table 6. Comparative Analysis of Marketing Expenses of Companies in the BIST Transportation Index

COMPANIES/ YEARS	2013	2014	2015	2016	2017	2018	2019	2020	2021
BEYAZ	0.22	1.30	-0.06	0.75	0.56	0.23	-0.23	-0.06	0.36
CLEBI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GSDDE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PGSUS	0.31	0.27	0.13	0.22	0.02	0.21	0.38	-0.46	0.68
RYSAS	-0.69	0.01	0.08	0.40	0.07	0.59	0.36	-0.26	0.08
THYO	0.23	0.26	0.27	0.12	0.17	0.51	0.30	-0.43	0.67

REGRESSION ANALYSIS AND FINDINGS

In the research, the data of the companies for a 10-year period were included in the analysis as a whole, and the determination of the relationship between the variables was examined by panel data regression analysis.

Panel Data Regression Model is given in equation (1) (Altunışık 2010;Tafri et al. 2009).

$$Y_{it} = \alpha_{it} + \beta_{kit} X_{kit} + \mu_{it} \quad (1)$$

In the regression model,

Y (dependent variable),
 X_k (independent variables),
 α constant parameter,
 β_k slope parameters and
 μ_{it} error term
 sub-index i indicates units,
 sub-index t indicates time.

Research hypothesis is as follows:

H₁: There is a relationship between the marketing expenditures and the sales of companies in the BIST Transportation index.

H₂: There is a relationship between marketing expenditures and the performance of companies in the BIST Transportation index.

The model of the study can be expressed by equation (2).

Research model;

$$\text{Model 1: SALES} = \beta_0 + \beta_1 \text{ MARKETING EXPENDITURES} + \varepsilon_{it} \quad (2)$$

In Model 1, demand is the dependent variable, while marketing expenditures are the independent variables.

$$\text{Model 2: PERFORMANCE} = \beta_0 + \beta_1 \text{ MARKETING EXPENDITURES} + \varepsilon_{it} \quad (3)$$

In Model 2, Performance is the dependent variable, while marketing expenditures are the independent variable.

PANEL DATA ANALYSIS AND FINDINGS

Panel data refers to the merging of time series data, which tracks variable changes over days, months, years, or seasons, with cross-sectional data, collected from diverse units at a specific moment. Panel data analysis, a statistical estimation method, involves examining horizontal cross-sectional observations of entities like individuals, households, and firms across various periods together (Karaca, 2022: 105).

Table 4. *Descriptive Statistics of the Variables*

Variables	Mean	Standard Deviation	Minimum	Maximum	Number of Observations
logS	20.76109	2.295438	15.48867	25.30187	60
logP	17.7324	3.093314	13.75797	22.80458	40
logZ	-0.0640	1.186079	-2.813411	2.141242	57

As can be concluded from Table 4, the average Sales (logS), average Marketing Expenses (logP), and Performance value (logZ) of the 6 Companies for the period 2012-2021 are realized as 20.76109, 17.7324 and 1.620136, respectively, while the standard deviation and other statistical values of the variables are shown in detail in the relevant table.

Horizontal Cross-Section Dependence Test

Among the assumptions of panel data analysis, testing horizontal cross-sectional dependence is crucial for generating consistent parameters both on a variable and model basis.

Table 5. Horizontal Cross-Sectional Dependence Test

METHOD	CD (Pesaran 2004)	
Variables	Statistics	Probability (p)
P	5.3740*	0.0000
Z	0.0560	0.9550
S	10.8950*	0.0000
Pesaran CD Test Statistics	2.2990**	0.0215

Note: *, **, and *** refer to the significance levels of 1%, 5%, and 10%, respectively.

H₀: There is no cross-sectional dependence. H₁: There is a cross-sectional dependence.

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

H₀: No dependency between cross-sections

H₁: Dependency between cross-sections.

The Pesaran CD (2004) test results presented in Table 5 are considered to assess cross-sectional dependence since the cross-sectional dimension is larger than the time dimension. Based on the analysis, the null hypothesis is rejected for marketing expenses (logP) and sales (logS) as their probability values are below 0.05. Conversely, the null hypothesis is supported for the performance (Z) score, as its probability values are higher than 0.05. Additionally, the model-based probability values fall below the critical value (0.05), indicating a cross-sectional dependence issue with the variables in our model. To address this, first-generation unit root tests that account for horizontal cross-section dependence, along with other first-generation unit root tests, were employed to test the stationarity of the variables.

Panel Unit Root Test

The unit root test results for the variables used in the analysis are given in Table 6 below. An analysis of the table shows that the variables are stationary at level.

Table 6. Pesaran Panel Unit Root Test Results

Variabl es	Model	LLC Test Statistic	Probabili ty	Stationa ry
Z	Stationary	- 3.6560*	0.0000	I(0)
	Stationary - With Trends	- 2.7600*	0.0029	I(0)
Variabl es	Model	Hadri LM Statistic	Probabili ty	Stationa ry
P	Stationary	4.2947*	0.0000	I(0)
	with Constant and Trend	1.9741**	0.0241	I(0)
S	Stationary	10.4771*	0.0000	I(0)
	Stationary - With Trends	1.8326**	0.0334	I(0)

Note: *, **, and *** refer to the significance levels of 1%, 5%, and 10%, respectively.

Table 7. Results of the Equality of Variances and Autocorrelation Test

Tests	Hypothesis	Test Statistics	Probability
Modified Wald Test	$H_0: \sigma^2_i = \sigma^2_i$	55.89	0.0000
Baltagi Wu LBI	$H_0: \rho=0$	1.65	0.0119
Bhargava Durbin - Watson	$H_0: \rho=0$	1.16	0.0119

An analysis of Table 7 shows that based on the results of the **Modified Wald Test**, H_0 : "The variances of the units are equal" is rejected, i.e. the variance varies across units. **Baltagi Wu LBI** and **Bhargava Durbin - Watson** show that there is an autocorrelation problem according to the probability value.

Estimation of Panel Data Models

The tests conducted to select the appropriate estimation model revealed that the Fixed Effects Model would produce more reliable and consistent parameters compared to other estimators. Furthermore, the presence of cross-sectional dependence, heteroscedasticity, and autocorrelation in the model indicates the necessity of employing robust estimators in panel data analysis.

Table 8. *Results of the Analysis on the Relationship between Marketing Expenditures with the Sales and Performance*

logS	Coef.	Std. Err.	t- Statistic	Prob.
cons	8.7509	1.1082	7.90*	0.0000
logP	0.7271	0.0602	12.06*	0.0000
Wald chi2(1)	145.52	Number of obs.	40	
Prob.	0.0000	Number of groups	4	
R-squared	0.9523	MODEL	Random-effects GLS regression	
logZ	Coef.	Std. Err.	t- Statistic	Prob.
cons	-10.23	3.7731	. -2.71**	0.0240
logP	0.5708	0.2177	2.62**	0.0280
F Statistic (1,9)	6.87	Number of obs.	40	
Prob.	0.0277	Number of groups	4	
R-squared	0.1209	MODEL	Fixed-effects (within) regression	

Note: * denotes 1%, ** denotes 5%, *** denotes 10% significance level.

Table 8 shows that the **Wald chi²** a statistical probability value of 0.000 indicates that the model is significant. Considering

the significance levels of the variables, it is concluded that the coefficients of the FIX and LogP variables are statistically significant.

The findings indicate a statistically significant and positive correlation between marketing expenditures (LogP) and sales (LogS), with a coefficient of 0.7271, meaning that a one-unit increase in marketing expenditures results in a 0.7271 unit increase in sales.

In the second model (Table 8), the F statistical probability value of 0.0277 shows that the model is significant. Additionally, the coefficients of the FIX and LogP variables are deemed statistically significant based on their significance levels.

Furthermore, the results demonstrate a statistically significant and positive relationship between marketing expenditures (LogP) and performance (LogZ), with a coefficient of 0.5708. This implies that a one-unit increase in marketing expenditures leads to a 0.5708 unit increase in performance.

CONCLUSION

In conclusion, the study found that companies' expenditures on marketing mix positively affect their sales and financial performance.

$$\text{LogS} = 8,75 + 0,7271\text{LogP} + \epsilon_{it}$$

The results show that the investment in the marketing mix (LogP) positively affects sales (LogS), a one-unit increase in marketing expenditures leads to an increase of 0.7271 in sales, and the estimated coefficient is statistically significant.

$$\text{LogZ} = -10,23 + 0,5708\text{LogP} + \varepsilon_{it}$$

An evaluation of the coefficients in the model reveals that there is a statistically significant and positive relationship between marketing expenditures (LogP) and financial performance (LogZ). It is observed that a one-unit increase in marketing expenditures (LogP) leads to an increase of 0.5708 in the financial performance ratio (LogZ). It is found from the estimation results that the constant coefficient and the slope coefficient in the model are statistically significant.

This study analyzes the influence of marketing mix investment on companies' sales and financial performance by using panel data regression analysis. The results of the analysis show that companies' investments in the marketing mix are found to have a positive influence on both sales and financial performance. Moreover, the estimated coefficients for these relationships are found to be statistically significant.

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CHAPTER II

The Role of Politics on Foreign Trade: A Conceptual, Historical and Theoretical Analysis

Hasan BARDAKÇI¹

Introduction

Foreign trade has historically been a key driver of economic growth, prosperity, and international competitiveness. Beyond economic activity, it has shaped political, cultural, and diplomatic relationships among nations. In today's interconnected world, political decisions and power dynamics significantly influence trade. Governments design foreign trade policies to achieve not only economic objectives but also political goals such as national security, forming alliances, and gaining regional influence.

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Globalization has deepened these connections, making economic relationships more sensitive to political changes. While initiatives like free trade agreements aim to enhance cooperation, they often face hurdles due to conflicting national interests and geopolitical tensions. Economic tools such as tariffs, sanctions, and trade wars highlight how countries leverage trade for political purposes.

Historically, politics has shaped trade through control of trade routes, colonial systems, and modern sanctions or trade wars. This study examines the intersection of politics and foreign trade from conceptual, historical, and theoretical perspectives, exploring the complex relationship where trade becomes both an economic and political tool.

2. Conceptual Framework

2.1. Definition and Importance of Foreign Trade

Foreign trade is the exchange of goods and services between nations and plays a critical role in economic growth, welfare, and development. It enhances production capacities, resource utilization, and international interdependence, often intertwining with political and diplomatic strategies (Berikan, 2023). Political factors, therefore, heavily shape trade's rules, limits, and directions (Tuna, 2023).

2.2 Political Determinants of Trade Policies

Trade policies, while economically driven, are significantly influenced by politics. Governments use measures like tariffs, import quotas, and trade agreements to balance domestic protection with international competitiveness. These policies reflect ideological

stances, electoral considerations, and geopolitical strategies (Altuntaş & Altınöz, 2020).

For instance, protectionist policies support domestic industries but may conflict with global trade dynamics. Conversely, free trade policies emphasize liberalization and international integration. In both cases, political priorities often overshadow purely economic calculations.

3. Historical Development

3.1. Trade in Ancient and Medieval Times

In ancient times, trade routes like the Silk Road not only spurred economic growth but also strengthened political and military power. Similarly, medieval trade often depended on the control of key ports and strategic pathways, influencing both diplomacy and warfare (Kırbaçoğlu & Hasançebi, 2024; Çatal & Yılmaz, 2021).

3.2 The Modern Era and Colonialism

Colonial expansion globalized trade, with European powers exploiting overseas territories to access raw materials. This era exemplifies how political dominance shaped trade for economic and geopolitical advantage (Çatalbaş, 2022).

4. Literature Review

This section examines academic studies focusing on the influence of politics on foreign trade, systematically evaluating different approaches within the literature. The findings help us understand how political decisions shape foreign trade and the key dynamics involved.

4.1. Political Decisions and the Direction of Foreign Trade

Okuy (2023) analyzed how political decisions affected foreign trade during Turkey's journey to NATO membership. The study highlights that Turkey's foreign policy strategies during the Cold War had economic repercussions, leading to an increase in foreign trade volume. This underscores how international political alliances can yield economic benefits. Tokatlı (2022) assessed how the power balance between the U.S. and the EU, alongside China's rising economic influence, shapes international trade relations. The study demonstrates that trade policies are driven not only by economic interests but also by political competition. The imbalances caused by U.S.-China trade wars have led to significant changes in European countries' trade strategies. Çağlak, Çelik, and Bağlama (2021) examined the media's effect on political opinions and analyzed the indirect impact of political perceptions on trade policies. Their research reveals that public perception, shaped by the media, plays a critical role in forming political decisions.

4.2. Political Context of Regional and Global Trade Relations

Berikan (2023) studied the impact of political crises between Turkey and Russia on foreign trade. The decline in trade volume following the 2015 plane crisis and its long-term effects on economic relations are discussed. The research clearly shows that political tensions can directly affect foreign trade. Ndayishimiye (2023) analyzed trade relations between Turkey and African countries, noting that Turkey's efforts to increase its influence in Africa align with its goal of boosting trade volume. Diplomatic relations play a significant role in enhancing trade in this context. Kırbaşoğlu and Hasançebi (2024) investigated the economic effects of political

crises in Turkey-Israel relations. The study indicates that political tensions restrict foreign trade, especially in strategic products.

4.3. The Globalization Process and Evolution of Trade Policies

Sharifi (2024) examined Afghanistan's foreign trade structure and its effects on economic growth. The research shows that integration into the international trade system is directly linked to political stability and that political factors drive trade in developing countries like Afghanistan. Çatal and Yılmaz (2021) assessed the impact of China's Belt and Road Initiative on international trade. They note that this initiative has strengthened China's role in global trade and reshaped many countries' trade policies. Tuna (2023) analyzed the effects of Turkey's foreign policies amid the Syrian crisis on trade relations. The study reveals a significant drop in trade volume with Syria since the crisis began, affecting trade routes along Turkey's southern border.

4.4. Sensitivity of Trade to Political Dynamics

Altuntaş and Altınöz (2020) explored the impact of tariffs on domestic production. They state that using tariffs as a protectionist tool can alter the direction of foreign trade, causing imbalances in international trade. Ece (2022) analyzed the effects of the Russia-Ukraine war on energy trade. The sanctions imposed due to the war led Europe to reassess its energy dependence, causing significant shifts in energy trade routes. Çatalbaş (2022) studied Turkey's foreign trade policy from 1980 to 2020. The research indicates that while Turkey's foreign trade volume increased during the transition to liberal economic policies, the sustainability of this growth depends on political stability.

4.5. Free Trade Agreements and Regional Economic Cooperation

Yüce (2022) analyzed the trade policies of Southeast Asian countries, finding that regional cooperation mechanisms strengthen economic integration by reducing trade barriers. McGlinchey (2023) evaluated how trade policies affect interstate relations within the context of international relations. The research emphasizes that free trade agreements contribute to strengthening diplomatic ties between nations. Rai (2022) examined Mongolia's efforts to boost its foreign trade volume through free trade agreements. The study reveals that these agreements play a crucial role in regulating trade flows and promoting economic growth. Collectively, these studies examine the multifaceted relationship between politics and foreign trade. The findings clearly indicate that foreign trade results from political decisions, not just economic processes. Regional economic cooperation, free trade agreements, sanctions, and customs policies are prominent instruments in this interaction. This literature review enhances our understanding of the role of politics in foreign trade and provides a comprehensive framework for future research.

5. Direct Effects of Politics on Foreign Trade

5.1. Tariffs and Protectionist Policies

Tariffs often serve as political tools, protecting domestic industries but disrupting global trade. For instance, EU tariffs in key sectors encourage local production but may reduce competitiveness over time (Cihan & Çetin, 2024).

5.2. Sanctions

Sanctions are used to exert political pressure through trade restrictions. For example, sanctions on Russia during the Ukraine conflict disrupted global energy markets, illustrating the far-reaching effects of politically motivated trade actions (Ece, 2022).

5.3. International Trade Agreements

International trade agreements aim to reduce trade barriers and enhance economic cooperation. Free trade agreements lower tariffs, simplify trade processes, and increase mutual economic benefits. For instance, the North American Free Trade Agreement (NAFTA) significantly boosted trade among Canada, Mexico, and the United States (Sharifi, 2024). Such agreements promote economic growth through trade liberalization and strengthen diplomatic ties. However, they can also create competitive pressures for local producers, necessitating careful economic policy management.

6. Impact of Global and Regional Dynamics

6.1. Geopolitical Tensions

Geopolitical tensions can directly influence international trade patterns. The trade wars between the U.S. and China, for example, negatively affected not just their bilateral relations but also global supply chains. Additional tariffs and trade barriers reduced worldwide trade volumes and required new economic regulations (Tokatlı, 2022). Such tensions can introduce uncertainty in financial markets and put pressure on exchange rates. The Russia-Ukraine war led to rising energy prices and disrupted foreign trade balances, especially in energy-importing countries.

6.2. Economic Blocs

Economic blocs are mechanisms that enhance economic integration and trade flows among member countries. Blocs like the European Union increase intra-member trade by reducing barriers and supporting economic growth. Trade volume within the EU grew by 15% between 2010 and 2020 (Yüce, 2022). These blocs influence not only member nations but also shape foreign trade relations globally, redefining the nature of international trade. Their impact extends to non-member countries as well, affecting global trade dynamics (Bardakçı, 2024).

Table1 : Impact of Political Factors on Foreign Trade

Region/Country	Political Factor	Impact on Foreign Trade	Sample Year
European Union	Free Trade Agreements (FTA)	Increase in trade volume (15% growth)	2010-2020
US-China	Trade Wars	Tariff hikes, trade volume decline	2018-2020
Russia-Ukraine	Sanctions	Disruptions in trade in energy and agricultural products	2022-2023
Middle East	Tensions (e.g. Arab Spring)	Uncertainty and decline in trade flows	2011-2015

This table illustrates how political events impact regional and global trade over time. The interactions between economic blocs and political factors are crucial elements that drive the nature and flow of trade. Understanding these dynamics is essential for developing effective foreign trade strategies.

6. Conclusion

Political factors play a decisive role in shaping foreign trade. Tools such as tariffs, sanctions, and trade agreements not only drive economic outcomes but also reflect broader political strategies. Understanding these dynamics is crucial for policymakers to develop effective trade strategies.

Recommendations:

International Cooperation: Strengthen regional and global trade blocs for enhanced economic integration. For example, Turkey's role in the "One Belt, One Road" initiative should be evaluated both economically and politically (Okumuş, Bozoklu & Çağlayan, 2021).

Sustainability: Align trade policies with environmental goals for long-term success.

Free Trade Expansion: Promote free trade agreements to foster economic growth.

Political Risk Management: Proactively address risks to stabilize trade policies.

Support for SMEs: Incentivize small enterprises to integrate into international markets (Çetin, Genç & Köse, 2021).

Education and Human Resources: Develop training aligned with trade objectives (Sain & Berber, 2024).

Logistics Infrastructure: Modernize logistics systems to reduce costs and boost efficiency (Altuntaş & Altınöz, 2020).

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CHAPTER III

Uluslararası Demir Yolu Taşımacılığının İşletme Büyüklüklerine İnşaat Değerleri ile Dış Ticaret Değerleri Arasındaki İlişkilerin Belirlenmesi

Ramazan YILDIZ³

Giriş

Üretim öncesi gerekli kaynakların üretim yerlerine getirilmesine, üretilmiş olan ürünlerin ihtiyaç yerlerine ulaştırmasında kara, demir, deniz ve iç su yolları, hava ve boru hattı taşımacılığı kullanılmaktadır. Bu taşımacılık türlerinden birisi olan demir yolu taşımacılığı; güvenli, kara yoluna göre daha uygun, tek seferde daha fazla ürün taşıyabilmesi gibi avantajları bulunmaktadır.

Demir yolu taşımacılığı yolcu ve yük taşımacılığı açısından vazgeçilmez taşımacılık türlerinden birisidir. Ülkelerdeki trafik sıkışıklığını büyük ölçüde azaltmada, kara yollarının da az

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deformasyon oluřturmasında ve ayrıca karbon salınımının daha az olmasında da önemli katkıları bulunmaktadır.

Hızlı tren taşımacılığının yaygınlaşmaya başlaması ile, yolcular hem daha güvenli hem de istedikleri yere daha hızlı ulaşabilmektedir. Türkiye ve Avrupa ülkelerinde hızlı tren hatlarının hızla yaygınlaştırılması planlanmaktadır.

Demir yolu taşımacılığı ile, hemen birçok ürün taşınmasına rağmen, özellikle ağır ve değeri düşük ürünler taşınabilmektedir. Bu ürünlerden bazıları da inřaat malzemeleridir. Kum, çakıl, çimento, demir, beton vb. malzemelerin bir yerden bir başka yere taşınması yapılabilmektedir.

Demir yolu taşımacılığı ulusal ve uluslararası ticarete kullanmasından dolayı, ülkelerin ekonomilerine ve üretimin gelişmesine önemli katkıları bulunmaktadır.

Demir yolu taşımacılığının ülkelerin ekonomilerinin gelişmesine yönelik yerli ve yabancı birçok çalışma bulunmaktadır. Nalçakan (2003), demiryolu taşımacılığının Türkiye ekonomisi açısından önemi üzerine çalışma yapmıştır. Akçay (2005), lojistikte demiryolu taşımacılığının öneminden bahsetmiştir. Arslan (2015), demiryolu taşımacılığının istihdam açısından önemli üzerine çalışma yapmıştır. Evans, (2013) demir yolu güvenliğinin ekonomisi üzerine çalışma yapmıştır. Wu vd. (2021), demir yolu yolcularının ekonomik büyüme ve sürdürülebildiğı üzerinde çalışma yapmışlardır. Lingaitisa ve Sinkevičius, (2014) demir yolu yolcu taşımacılığının ekonomik ve sosyal açıdan değerdendirilmesi üzerine çalışma yapmışlardır.

Yapılan yerli ve yabancı çalışmalar incelendiğinde uluslararası demir yolu taşımacılığının işletme büyüklüklerine inřaat

değerleri ile dış ticaret değerleri arasındaki ilişkilerin belirlenmesine yönelik bir çalışmaya rastlanmamıştır. Literatürdeki bu boşluğu değerlendirmek için, yapılan bu çalışmanın önemli büyüktür.

Giriş bölümünden sonra araştırmanın 2. bölümünde demiryolu taşımacılığı ile ilgili literatür bilgisi yer alırken, 3. Bölümde Türkiye’deki demir yolu taşımacılığı ile ilgili kısa bilgi verilmektedir. 4. Bölümünde araştırma metodolojisinden bahsedilirken, 5. Bölümde araştırmanın bulgularına değinilmiş ve 6. Bölümde sonuçlardan bahsedilmiştir.

Demir Yoluna Yönelik Literatür Taraması

Demir yolu taşımacılığına yönelik bazı literatür çalışmaları Tablo 1’de gösterilmektedir.

Tablo 1: demir yolu taşımacılığına yönelik literatür taraması

Yayın Başlığı	Yazar(lar)	Metodoloji	Sonuç
Demiryolu Taşımacılığının Ulaştırma ve Lojistik Altyapısının Verimliliğinin Değerlendirilmesi	Mukhtarova vd. 2018	Kalitatif	Demiryolu taşımacılığı altyapısındaki verimlilik düzeyinin ve teknik değişimin de o kadar yüksek olacağını belirlenmiştir.
Demiryolu güvenliğinin ekonomisi	Evans, 2013	Maliyet-fayda analizi	Demiryollarının yeniden yapılandırılmasının güvenlik üzerindeki etkilerine dair kanıtları inceliyor ve güvenliğin kötüleştiğine dair hiçbir kanıt bulamıyor.
İsveç demiryollarının serbestleştirilmesinin ekonomik etkileri	Arne Jensen ve Stelling, 2007	Zaman serisi ve kesit regresyonu (TSCS)	Dikey ayrımın maliyetleri artırdığı ve ayrıca rekabetin getirilmesinin

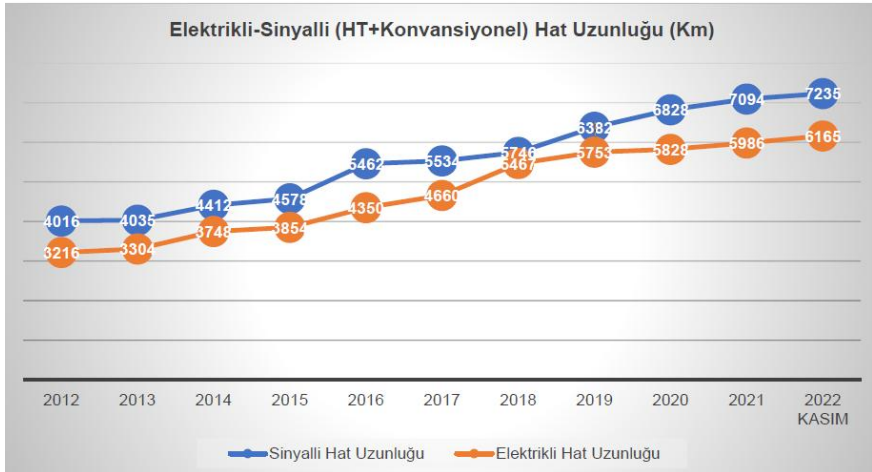
			maliyetleri düşürdüğü
Sosyal ve ekonomik kalkınması için demiryolu taşımacılığının etkisi	Polyakova and Borisova 2019	Kalitatif	Bölgesel otoriteler tarafından hedef programlar vb. geliştirirken bölgenin sosyo-ekonomik kalkınmasının stratejik yönlerinin gerçekleştirilmesi için kullanılabilir.
Demir yolu erişilebilirliği ve bunların bölgesel ekonomik büyüme üzerindeki dinamik etkileri	Alotaibi vd. 2022	Dinamik panel veri modelleri	Ulaştırma yatırımının parasal değerinin etkisinin genel olarak hemen takip eden yılda ortaya çıktığını bulmuştur.
Demiryolu Taşımacılığı Altyapısının Tüketim ve Sürdürülebilir Ekonomik Büyüme Üzerindeki Etkileri	Wu, vd. 2021	Nitel analiz	Demiryolu altyapı yatırımlarının yalnızca çarpan etkisi yoluyla sürdürülebilir ekonomik kalkınmayı doğrudan teşvik etmekle kalmayıp, aynı zamanda özel turizmin miktarını ve oranlarını artırarak dolaylı olarak ekonomik büyümeyi de teşvik edebileceği bulunmuştur.
Demiryoluyla Yolcu Taşımacılığı: Ekonomik ve Sosyal Olayın Değerlendirilmesi	Lingaitisa ve Sinkevičius, 2014	Ekonomik istatistiksel analiz yöntemleri	Yolcu taşımacılığı faaliyetleri bir ülkenin ekonomik ve sosyal kalkınması ile yakından ilgilidir.
Demiryolu taşımacılığının Türkiye ekonomisine etkisi	NALÇAKAN, 2003	Ekonometrik model	Demiryolu taşımacılığının Türkiye ekonomisini büyük oranda etkilemektedir.
Lojistikte Demir yolu taşımacılığının önemli	AKÇAY, 2005	Anket	Blok tren, konteyner ve kombine taşımacılığının

			OSB'lere bağlanılması gereklidir.
Demiryolu Taşımacılığında İstihdam Politikaları	Arslan, 2015	Anket	Önümüzdeki yıllarda demiryolu sektörünün gelişmeye devam etmesi taşımacılığın karayollarından demiryollarına kayması beklenmektedir.
Lojistik Açısından Türkiye'de Demiryolu Taşımacılığının Değerlendirilmesi	Sevinç, 2022	SWOT Analizi	Normal standartlarda da ilk yatırım maliyeti yüksek olan demiryolu hatlarının eğimli alanlardan, akarsu alanlarından ve dağlardan geçirilmesi maliyetleri arttırmaktadır.
Demiryolu Taşımacılığının Turizm Faaliyetleri İçerisinde Ki Rolü	Yılmaz, 2023		Doğu Ekspresi tercih eden yolcuların seyahat nedenleri arasında doğal güzellikler, turistik gezi, reklam, nostalji ve uygun fiyatlar sıklıkla tekrarlanırken, Kyushu Seven Stars'ı tercih eden yolcuların seyahat nedenleri arasında doğal güzellikler, turistik gezi, reklam, nostalji ve lüks turizm daha ağırlıklı olarak görülmektedir.
Türkiye ve Avrupa Birliği ülkelerinin demiryolu hat uzunluğuna göre kümelenmesi	Avşar, 2023	Kümeleme analizi	Türkiye; Birleşik Krallık, Macaristan, Polonya, Romanya, İspanya, Çekya,

			İsveç ve İtalya ile yer almaktadır.
Orta Asya'ya Ulaşımında Demiryolu Alternatif, Bölgesel Güçler Ve Türkiye	Barutca, 2006	Kalitatif	Avrupa'nın da kabul ettiği bu güzergâhın en önemli noktası Kars-Tiflis demiryolu bağlantısıdır.
Türkiye'nin Demiryolu Yük Taşımacılığı Talep Tahmini	Karadağ Albayrak 2021	Zaman Serisi Analizi	Demiryolu yükü talebinin uzun dönemli dış ticaret hacmi esnekliği anlamlı ve pozitifdir, yani ticaret hacmi arttıkça demiryoluna oluşacak yük talebi artacaktır

Türkiye’de Demir Yolu Taşımacılığı

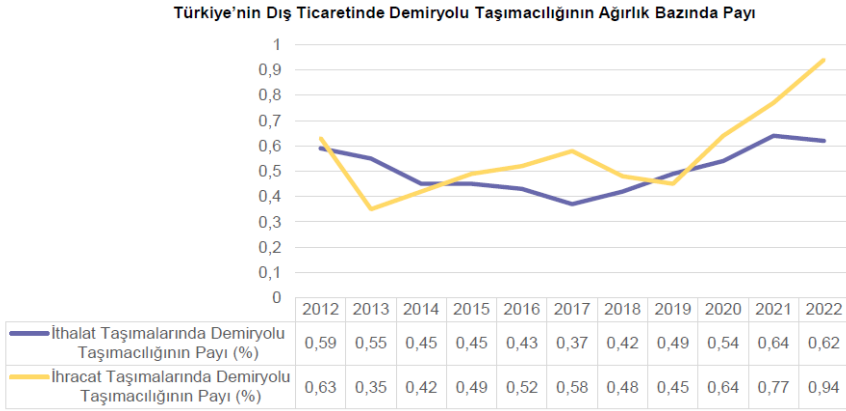
Türkiye’nin sinyalizasyon ve elektrikli hat uzunluğuna yönelik bilgiler Şekil 1’de verilmektedir. Buna göre 2012 yılından 2022 yılına kadar hem sinyalizasyon hattında hem de elektrikli hat uzunluğu giderek artma göstermektedir (UTİKAD, 2022).



Şekil 1: Sinyalli hat ve elektrikli hat uzunluğu

Kaynak: (UTİKAD, 2022).

Türkiye'nin dış ticaretinde demiryolu taşımacılığının ağırlık bazında payı ise Şekil 2'de gösterilmektedir. İhracat taşımacılığında demiryolu taşımacılığının payı; bir önceki yıla göre 2013 ve 2019 yılında düşme yaşanırken, diğer yıllarda yükselme görülmektedir. En fazla yükselme ise 2022 yılında olduğu anlaşılmaktadır. Demir yolu ithalat taşımacılığında ise; 2012 yılından 2017 yılına kadar düşme yaşansa da, 2022 yılına kadar yükselme görülmektedir.



Şekil 2: Türkiye'nin Dış Ticaretinde Demir Yolu Taşımacılığının Payı

Kaynak: (UTİKAD, 2022).

3. Araştırmanın Yöntemi

Araştırmada, uluslararası demir yolu taşımacılığının işletme büyüklüklerine göre inşaat değerleri ile dış ticaret değerleri arasındaki ilişkilerin belirlenmesi amaçlanmaktadır. Araştırmaya konu olacak 2013-2021 yılları arasındaki veriler Türkiye İstatistik Kurumu'ndan (TÜİK) yararlanılmıştır. 2013 yılı öncesi ve 2021 yılı sonrası verilere ulaşılamadığından bu tarihler arası veriler tercih edilmiştir. Uluslararası demir yolu taşımacılığının işletme büyüklüklerine göre inşaat değerleri ile dış ticaret değerleri arasındaki ilişkilerin olup olmadığını ve ilişkilerin yönünü ve

şiddetini belirlemek için Pearson Korelasyon analizi tercih edilmiştir. Verilerin analizlerinin gerçekleştirilmesinde IBM SPSS Statistics 20 paket programı kullanılmıştır.

4. Araştırmanın Bulguları

Öncelikle, araştırmada kullanılan verileri tanımlayıcı istatistik değerleri analiz edilmiştir. Ayrıca veriler arasındaki ilişkilerin durumlarını öğrenmek için Pearson Korelasyon analiz yöntemi uygulanmıştır.

Araştırmaya konu olan demir yolu taşımacılığındaki ihracat ve ithalat değişkenleri, işletme büyüklüklerine (1-9 çalışanı olan işleme, 10-49 çalışanı olan işletme, 50-249 çalışanı olan işletme ve 250 ve üstü çalışanı olan işletme) inşaat ve dış ticaret verilerinin tanımlayıcı istatistik değerleri Tablo 2’de verilmektedir. Tanımlayıcı istatistik verilerine göre en fazla standart sapmanın 10-49 çalışanı olan işletmede görünmektedir. En az standart sapmanın demiryolu ihracat verilerinde olduğu görülmektedir.

Tablo2: Araştırmada Kullanılan Verilerin Tanımlayıcı İstatistik Değerleri

Veriler	Minimu m	Maksimu m	Ortalama	Standart Sapma	Varyans
1-9 çalışan	6240199 1396,00	44473478 8124,00	15641080 8999,1000	1120093810 39,43690	125461014408377 67000000,000
10-49 çalışan	7031488 1384,00	46496929 0765,00	16365141 4346,4000	1152123079 79,52568	132738759099690 78000000,000
50-249 çalışan	6786281 9238,00	41624499 2151,00	15644351 7341,0000	1016377106 69,83054	103302242302041 85000000,000
250 ve üstü çalışan	5165163 8610,00	40971969 2003,00	13552263 6632,4000	1040183818 66,95581	108198237662198 43000000,000
Dış Tic.	1492469 99263,0 0	25416974 7663,00	17997329 4784,3000	3368952015 6,21566	113498376835606 1600000,000
Demiryolu ihracat	673816, 00	2457286,0 0	1131235,1 000	551079,472 26	303688584747,433
Demiryolu İthalat	1253892 ,00	2967903,0 0	1828802,1 000	643603,911 96	414225995485,878

Uluslararası demir yolu taşımacılığının işletme büyüklüklerine göre inşaat değerleri ile dış ticaret değerleri arasındaki ilişkilere ait Pearson Correlation analizi sonucu Tablo 3’de gösterilmektedir. Sonuçlara göre, uluslararası demir yolu ihracat değerleri ile işletme büyüklüklerine göre inşaat üretim değerleri arasında pozitif yönlü güçlü ilişki bulunmaktadır. Demir yolu ihracat ile en güçlü ilişki düzeyi ise, 1-9 çalışanı olan işletmeler arasında (Pearson Correlation= 0,910** ve Sig. (2-tailed)= 0,000) olduğu görülmektedir. Aynı şekilde demir yolu

ithalat ile en güçlü ilişki düzeyi ise, 1-9 çalışanı olan işletmeler arasında (Pearson Correlation= 0, ,778** ve Sig. (2-tailed)= 0,008) olduğu görülmektedir.

Demir yolu ihracat ile dış ticaret arasında (Pearson Correlation= 0, ,924** ve Sig. (2-tailed)= 0,000) pozitif yönlü güçlü ilişki bulunmaktadır. Aynı şekilde, demir yolu ithalat ile dış ticaret arasında (Pearson Correlation= 0, ,889** ve Sig. (2-tailed)= 0,001) pozitif yönlü güçlü ilişki bulunmaktadır.

Tablo 3: Değişkenler Arasındaki İlişkilerin Pearson Korelasyon Analizi

Değişkenler		1-9 çalışan	10-49 çalışan	50-249 çalışan	250 ve üstü çalışan	Dış Tic.	Demir yolu ihracat	Demir yolu ithalat
1-9 çalışan	Pearson Correlation	1	,996**	,994**	,995**	,924**	,910**	,778**
	Sig. (2- tailed)		,000	,000	,000	,000	,000	,008
	N	10	10	10	10	10	10	10
10-49 çalışan	Pearson Correlation	,996**	1	,998**	,997**	,922**	,904**	,771**
	Sig. (2- tailed)	,000		,000	,000	,000	,000	,009
	N	10	10	10	10	10	10	10
50-249 çalışan	Pearson Correlation	,994**	,998**	1	,995**	,928**	,894**	,769**
	Sig. (2- tailed)	,000	,000		,000	,000	,000	,009
	N	10	10	10	10	10	10	10
	Pearson Correlation	,995**	,997**	,995**	1	,907**	,883**	,731*

250 ve üstü	Sig. (2- tailed)	,000	,000	,000		,000	,001	,016
çalışan	N	10	10	10	10	10	10	10
Dış Tic.	Pearson Correlation	,924**	,922**	,928**	,907**	1	,924**	,823**
	Sig. (2- tailed)	,000	,000	,000	,000		,000	,003
	N	10	10	10	10	10	10	10
Demir yolu ihracat	Pearson Correlation	,910**	,904**	,894**	,883**	,924**	1	,889**
	Sig. (2- tailed)	,000	,000	,000	,001	,000		,001
	N	10	10	10	10	10	10	10
Demir yolu İthalat	Pearson Correlation	,778**	,771**	,769**	,731*	,823**	,889**	1
	Sig. (2- tailed)	,008	,009	,009	,016	,003	,001	
	N	10	10	10	10	10	10	10
**. Correlation is significant at the 0.01 level (2-tailed).								
*. Correlation is significant at the 0.05 level (2-tailed).								

SONUÇ

Demir yolu taşımacılığı ülkelerin dış ticaretini, ekonomilerini ve üretimini geliştirmektedir. Bunlara bağlı olarak kişi başına düşen gelirin artmasına vesile olmaktadır. Ayrıca demir yolu taşımacılığı, ülkeleri askeri, sosyokültürel ve politik açıdan da etkilemektedir. Demir yolu taşımacılığı ile diğer ürünlerin yanında inşaat malzemeleri (kum, çakıl, beton, demir, yapı malzemeleri vb.) de taşınmaktadır. Bu çalışmada, uluslararası demir yolu taşımacılığının farklılık büyüklüklerde inşaat malzemesi üretimi yapan işletmeler ile ilişkinin olup olmadığı, ilişki varsa yönünü ve şiddeti araştırılmıştır.

Demir yolu ihracat ve ithalat deęerleri ile iřletme b y kl klerine g re inřaat  retimi deęerleri arasında pozitif y nl  g  l  iliřkinin olduęu tespit edilmiřtir. Demir yolu ihracat deęerleri, demir yolu ithalat deęerlerine g re inřaat  retimini daha fazla etkiledięi belirlenmiřtir.

Benzer řekilde demir yolu ihracat ve ithalat deęerleri ile dıř ticaret deęerleri arasında pozitif y nl  g  l  iliřki bulunmaktadır. Demir yolu ihracat deęerlerinin, demir yolu ithalat deęerlerine g re dıř ticareti daha fazla etkiledięi belirlenmiřtir.

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