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A Research on the Mediating Role of Foreign Direct Investments of Logistics Sector on the Relationship between Global Competitiveness Index with Gross Domestic Product and Exports

İbrahim Ethem DAĞDEVİREN[1], Şakir MİRZA[2]

Abstract

Exports, Gross Domestic Product (GDP) and Foreign Direct Investment (FDI) are very important concepts for countries to achieve their strategic, political and economic goals and to have stable growth. The Global Competitiveness Index publishes by the World Economic Forum also has a great impact on the decisions of foreign investors and provides comparative information to investors on different issues about the country where investment is desired. At this study, the relationship between Türkiye's global competitiveness index ranking with exports and GDP data and whether foreign direct investments in the logistics sector have a mediating role at this relationship is investigated. SAS software package is used to analyse the data and Structural Equation Model is established. In this framework, it is determined that Türkiye's global competitiveness index ranking affects the logistics sector foreign direct investments and GDP. It is also concluded that there is a significant relationship between export values and GDP data. It has been determined that foreign investments in the logistics sector have no effect on exports and GDP data, and the ranking of the index has no effect on export values. In addition, FDI in the logistics sector have a mediating role in the relationship between the global competitiveness index and GDP but doesn't have a mediating role relationship between exports and GDP and between the global competitiveness index and exports. Within the framework of the results obtained, it is important to increase the gross domestic product by achieving a good ranking in the global competition index in terms of Türkiye's goals of becoming one of the top ten economies and becoming a logistics hub, and for this purpose, it is important to focus on foreign direct investments in the logistics sector.

Keywords: Global Competitiveness Index, Logistics Sector, Foreign Direct Investment, Export Data, Gross Domestic Product.

1. Lecturer, Uşak University,
ethem.dagdeviren@usak.edu.tr,
https://orcid.org/0000-0003-2317-6407

2. Lecturer, Uşak University,
sakir.mirza@usak.edu.tr,
https://orcid.org/0000-0003-4869-864X

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1. INTRODUCTION

Foreign direct investment (FDI), which is defined as "a form of long-term investment in which the investor controls or be closely involved with decisions of an enterprise in an economy other than the economy in which the investor is resident", provides great advantages especially for developing countries such as Türkiye (Central Bank of the Republic of Türkiye, 2017). Foreign investments, which make significant contributions to the economic growth of countries such as China, India and South Korea, also enable countries to develop in terms of capital and technology. Since foreign investments, which countries try to increase by encouraging them in various ways, are important for Türkiye's economic development, amendments have been made to the law on this subject at different times. The amendments made did not reach the desired level and did not meet expectations. Despite this, they have led to an increase in the number of foreign investments.

The Global Competitiveness Index (GCI) guides the decisions by providing information on different issues. Therefore, Türkiye's ranking and score in the index can also be effective on the decisions of the foreign investments in the country. Since Türkiye has the advantage of geographical location and the potential to become a logistics hub, the Transportation and Communication sector has had the large share in public investments for years (International Transport and Logistics Service Producers Association, 2022). It can explain as an indicator of the importance of the sector. FDIs contribute to the growth of the sector to achieve the country's export and growth targets.

At this research, the relationship between Türkiye's GCI ranking, logistics sector FDIs, exports and GDP data and whether mediating role of logistics sector FDIs at this relationship are investigated. With this research, firstly FDIs and their strategic importance are explained, and then Türkiye's FDI, GDP, exports and GCI data are evaluated. The study also includes research methodology.

2. LITERATURE REVIEW

2.1. Foreign Direct Investment (FDI)

According to the Central Bank of the Republic of Türkiye (CBRT), foreign direct investment (FDI) *is " a form of long-term investment in which the investor controls or be closely involved with decisions of an enterprise in an economy other than the economy in which the investor is resident"*. At FDI, the investor must have a share of 10% or more of the working capital (Central Bank of the Republic of Türkiye, 2017). Factories, houses, lands or partnership shares established by businesses, individuals or the state within the borders of another country, provided that they are not less than 10%, are considered direct foreign investment. If the share of working capital is below 10%, it is considered a portfolio investment (Organisation for Economic Co-Operation and Development, 2008). If the profits obtained from direct investments in the country are used in reinvestment in the same country, these investments are also considered as FDIs (Republic of Türkiye Prime Ministry Undersecretariat of Treasury, 2005). The reason of these investments varies depending on whether the countries are

developed or underdeveloped. According to the Dunning Eclectic Paradigm, this situation can also be expressed as the search for resources, the search for markets, the search for efficiency and strategic assets. Economic, social and political factors such as market size, growth rate, infrastructure, workforce, inflation, innovation and macrostability are effective in countries attracting these direct foreign investments (Çubukçu, 2021).

Foreign investments, which are classified in different ways in the literature, are generally classified into three groups according to the method of investment abroad (United Nations Conference on Trade and Development, 2005). The first is greenfield investment, a form of investment in which the main company starts a new venture in the foreign company by building new operational facilities. Greenfield investment is also the most common type of FDI and is used in greenfield projects (Aalioua, 2019). It is the most preferred type of investment by countries as it creates new facilities in the host country, increases employment and involves capital and technology transfer. The second type of FDI is mergers, which is "a type of investment in which two or more businesses transfer all their assets to form a new company" (Aalioua, 2019). Investors who do not want to make an investment from scratch can focus on a specific market by merging with an existing business (Abuu, 2020). By mergering, the company's products and services may reach new markets and investors can gain the opportunity to capture new and profitable markets (Hitt & Pisano, 2003). The third type of investment, acquisitions, involves the purchase of all or part of the capital and can take the form of vertical, horizontal and holding company acquisitions (Aalioua, 2019). Buyout investments have been criticized in some countries for being less conducive to economic development, employment and production capacity compared to investments in the creation of new enterprises (United Nations Conference on Trade and Development, 2000).

2.2. Strategic Importance of Foreign Direct Investment

Since the 1980s, with the removal of barriers to international capital flows, FDIs have increased, national firms have internationalised, and host countries have begun to put various strategies in place to attract investment by not emphasising their superiority (Aalioua, 2019). Especially developing countries, where raw materials and labour are cheap, have started to provide facilities to investors to attract foreign investments (Alparslan, 2019). Thus, by transferring capital and technology through FDI, an increase in production was realized and contribution was made to the current account balance (Akman, 2019).

Thanks to the production made in the country with FDIs, employment is provided, export data increase and economic growth can be achieved and stabilized (Akman, 2019). Domestic businesses in the host country may also benefit from new technology, marketing know-how, and skilled labour (Javorcik, 2004) brought into the country by capital flows (Jayaraman, 1998). Investing enterprises can more easily find markets for their products and, thanks to their foreign connections, they can produce

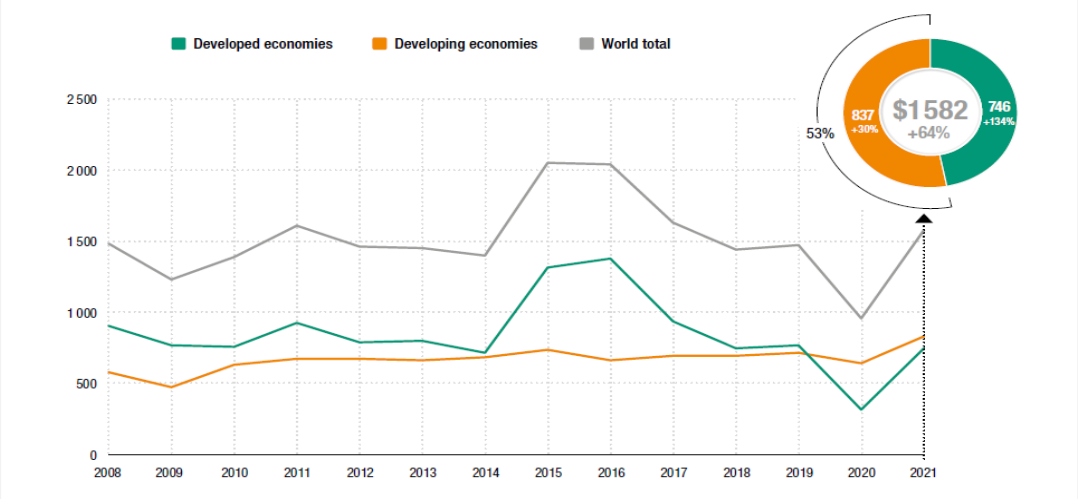
and export their products in that country. Thus, the host country can reach new markets and gain a larger share of the global economy (Kurtaran, 2007) and domestic firms can increase their exports (Harding & Javorcik, 2012). However, in order to compete with firms in the host country, the FDI enterprise may need to produce higher quality products and sell them at more economic prices. While this is highly advantageous for the welfare of host country citizens, it can put domestic businesses in a difficult competitive position. Moreover, the host country can sometimes be criticized for being technologically dependent on FDI (Alparslan, 2019).

2.3. Global Foreign Direct Investment

Global foreign direct investments (GFDI), which were 24 billion dollars in the 1970s, increased to 93 billion dollars with the liberalization movements that emerged with neoliberal policies in the 1980s (United Nations Conference on Trade and Development, 2002). In 2007, FDIs reached a peak of 1.83 trillion dollars (United Nations Conference on Trade and Development, 2008), and in 2018, they decreased by 13 percent compared to the previous year to 1.3 trillion dollars (United Nations Conference on Trade and Development, 2019). Foreign investments, which sometimes experience such fluctuations depending on economic developments, were also adversely affected by the Covid 19 pandemic worldwide and fell below 1 trillion dollars with a contraction of 42%. This rate was below 30 percent even during the 2008-2009 crisis

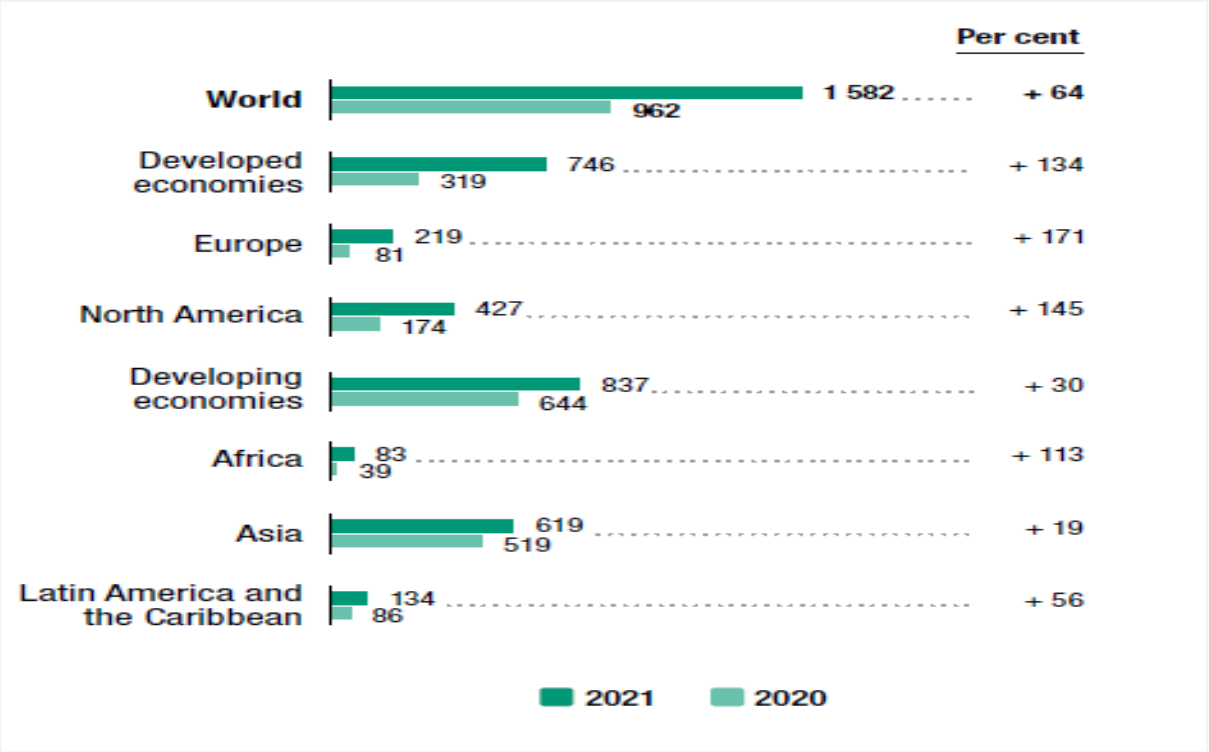
As seen in Figure 1 and 2, foreign investments surpassed the contraction caused by the pandemic in 2021, increasing by 64% to $1.58 trillion. Since developed countries are generally successful in attracting foreign investments and receive a large share of global foreign investments, the figure of foreign investments worldwide and the graph of developed countries are very similar. Since the shares of developing countries in total foreign investments are at lower levels, there is no significant fluctuation in the Figure 1.

Figure 1. According to Global and Economic Grouping, 2008–2021 FDI Inflows (Billion Dollars / %)



Source: United Nations Conference on Trade and Development, 2022

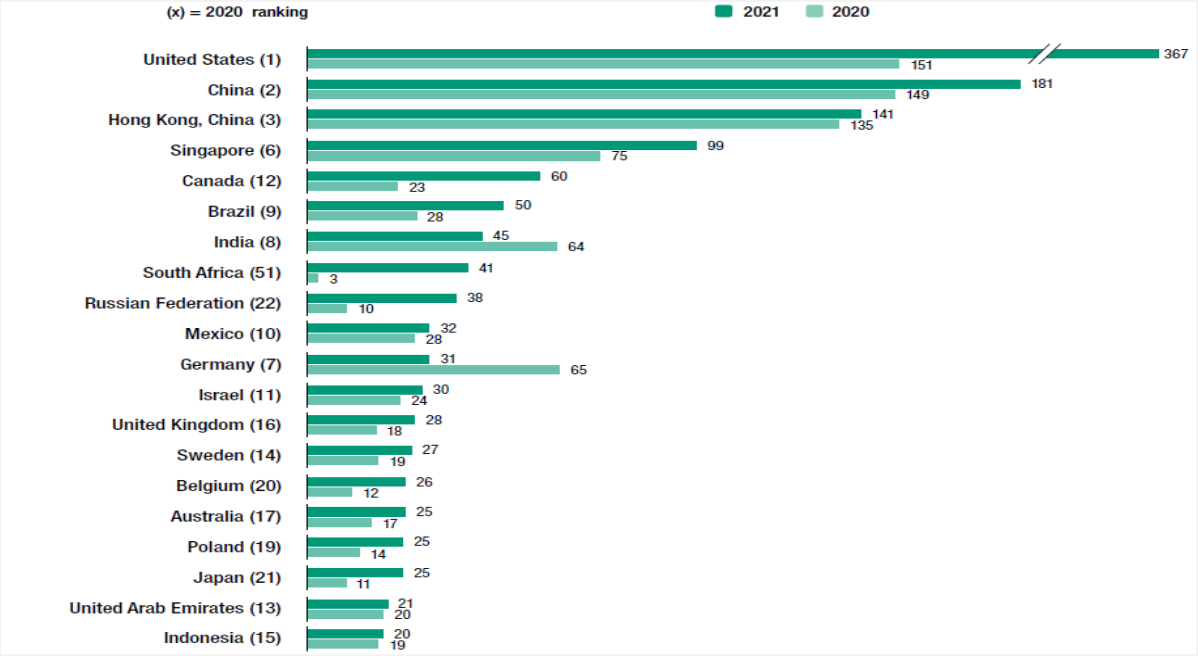
Figure 2. FDI Inflows by Region, 2020–2021 (Billion Dollars / %)



Source: United Nations Conference on Trade and Development, 2022

Figure 3 shows the rankings and shares of the top twenty countries in attracting foreign investment in the world. While there is no change in the ranking of the top three successful countries in attracting FDI in 2020-2021, the rankings of other countries may change from time to time. It is also seen in the data that FDIs, which are among the development strategies of countries, are not evenly distributed among countries. The USA is the country that attracts the most FDI, especially since the bonds and bills issued by the USA attract many investors. At the same time, the USA is the country that makes the most FDI. China, another successful country in attracting foreign investment, has started to attract more foreign investment since the 2000s by providing incentives to foreign investors with its huge population, cheap labour and natural resources after becoming a member of the WTO in 1991 and has achieved rapid growth. In addition, countries such as India, South Korea and Singapore are also successful in attracting foreign investment and are among the leading countries that have shown great development (Uslu, 2018).

Figure 3. Top 20 Countries with the Highest FDI Inflow (Billion Dollars)



Source: United Nations Conference on Trade and Development, 2022

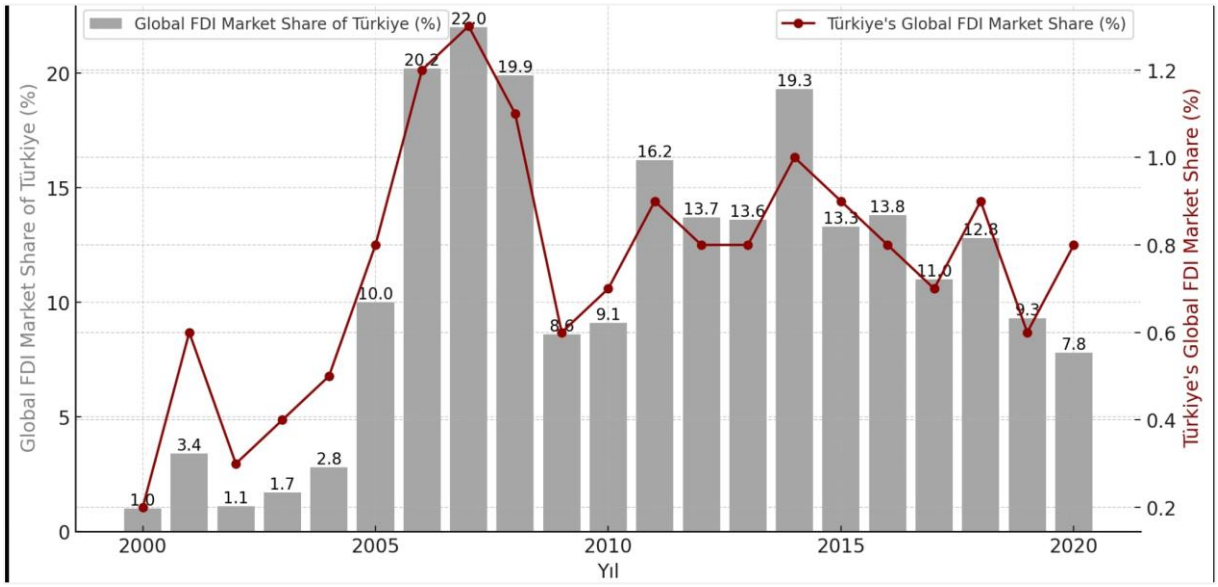
2.4. Developments in Türkiye's Foreign Direct Investments

During the Ottoman Empire, FDI first started with the construction of railways by British, German and French enterprises, and they were encouraged in the years when the Republic was established. Mustafa Kemal Atatürk also stated at the 1st Turkish Economic Congress that he was not against foreign capital and supported foreign investments made jointly with Turkish Citizens. In this regard, 66 of 201 companies were established between 1923 and 1930 as joint ventures of domestic and foreign businesses (Kepenek, 2003). Türkiye is among the major markets due to its geographical location and market size. In this respect, it is an advantageous country in terms of FDI. In terms of labour force, which is one of the most important criteria for attracting FDI, Türkiye attracts the attention of investors with its cost advantage compared to other countries, as well as with its young and educated population of more than 30 million (Akman, 2019).

In Türkiye, which has made significant progress in attracting FDI in recent years, the first regulation on foreign investments was enacted in 1954 as the "Foreign Capital Encouragement Law" (State Planning Organization, 2000). This law provided foreigners various legal guarantees regarding their investments and allowed them to make all kinds of investments independently of domestic investors (State Planning Organization, 2000). However, despite this change, FDI inflow did not reach the expected level until the 1980s. However, after the 1980s, with the regulations in the foreign capital law and international liberalization movements, there has been a partial increase in FDI inflows. Türkiye's share in global FDI inflows, which started to increase especially after the 2000s, is presented in Figure 4. The amount of FDI, which was below 1 billion dollars before the 2000s, was realized at the levels of 1-3 billion dollars in the early 2000s and reached the highest level in the country's history with

22 billion dollars in 2007 (Alparslan, 2019). The new regulation made in 2003 in the FDI Law No. 4875 has a great share in achieving these data. With this regulation, investments made by Turkish citizens residing abroad started to be considered as foreign investments (Özen & Kıdemli, 2020). Large privatization transactions such as Aliağa Petkim and Türk Telekom had an impact on the increase in the amount of FDI in the 2005-2008 period (Uslu, 2018). The sharp decline in 2009 was caused by the worldwide economic crisis, while the decline in 2019-2020 was caused by the global pandemic.

Figure 4. Türkiye's Share in the Global FDI Market (2000-2020, Trillion USD, %)



Source: Investment Office of the Presidency of the Republic of Türkiye, 2022

The share received from global foreign investments varies throughout the world from year to year. Türkiye's foreign investment share has generally remained below 1%, except for certain periods (Investment Office of the Presidency of the Republic of Türkiye, 2022). Türkiye's target of had a 1.5% share of global FDI and was among the top 10 countries attracting the most foreign capital (International Investors Association, 2022) had expected to increase the transaction volume of foreign investments in mergers and acquisitions between 2014 and 2019. and their numbers are given in Table 1. According to the report published by Deloitte, 108 transactions with a transaction volume of 5.7 billion dollars were carried out in 2022 with the initiative of FDI in the form of mergers and acquisitions.

Table 1. Mergers and Acquisitions by Foreign Investors in Türkiye between 2014-2022 (Billion Dollars)

	2014	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Number of Transactions	113	125	93	70	74	71	82	86	108
Transaction Volume	8.0	11.5	3.8	5.5	7.6	3.4	4.6	5.9	5.7

Source: Deloitte, 2023

Table 2 contains information on the distribution of foreign investments in Türkiye according to other countries. The largest investment in Türkiye was made by the Netherlands, followed by Ireland, Germany and China, respectively.

Table 2. Distribution of Foreign Direct Investments to Türkiye by Country

Rank	Countries	2022 FDI (Million Dollars)	2023 FDI January (Million Dollars)
1	Netherland	863	76
2	Ireland	371	44
3	Germany	697	23
4	China	83	15
5	Spain	1.592	14
6	Russia	22	11
7	Taivan	112	10
8	Hong Kong	50	8
9	Switzerland	738	7
10	United States of America	257	7
11	Italy	230	6
12	Luxembourg	295	6
13	England	401	5
14	Sweeden	20	5
15	United Arab Emirates	20	4
16	Belgium	82	3
17	Jersey	0	3
18	Uzbekistan	0	2
19	Austria	193	1
20	Libya	0	1
	LIST TOTAL	**6026**	**251**
	TOTAL	**6506**	**253**

Source: Central Bank of The Republic of Türkiye, 2023b

Table 3 shows the sectoral distribution of FDI flows to Türkiye. While the investments made until the 2000s were dominated by industry, the services sector, including transportation and storage, has come to the forefront since these years. While 73% of the investments made in 2021 belonged to the service sector, this rate decreased to 70% in 2022. Therefore, the service sector is one of the critical sectors for FDI inflows to the country.

Table 3. Distribution of Direct Investments of Non-Residents in Türkiye by Sectors

	TOTAL (Million USD)	AGRICULTURE SECTOR (Million USD)	INDUSTRIAL SECTORS (Million USD)	SERVICES SECTOR (Million USD)	A. Transport and Storage (Million USD)
2022	6,506.00	107.00	1,851.00	4,548.00	80.0
2021	7,098.00	148.00	1,850.00	5,100.00	216.0
2020	5,791.00	17.00	1,188.00	4,586.00	576.0
2019	5,881.00	23.00	2,106.00	3,752.00	274.0
2018	6,699.00	34.00	2,706.00	3,959.00	629.0
2017	7,401.00	29.00	2,022.00	5,350.00	1,333.0
2016	7,579.00	38.00	3,120.00	4,421.00	635.0
2015	12,181.00	31.00	5,785.00	6,365.00	1,524.0
2014	8,632.00	61.00	4,258.00	4,313.00	594.0
2013	10,523.00	47.00	5,390.00	5,086.00	364.0
2012	10,761.00	43.00	5,480.00	5,238.00	130.0
2011	16,136.00	32.00	8,040.00	8,064.00	221.0
2010	6,256.00	81.00	2,887.00	3,288.00	183.0
2009	6,266.00	48.00	3,887.00	2,331.00	230.0
2008	14,748.00	41.00	5,187.00	9,520.00	96.00
2007	19,137.00	9.00	5,037.00	14,091.00	679.0
2006	17,639.00	6.00	2,988.00	14,645.00	453.0
2005	8,535.00	5.00	908.00	7,622.00	21.00

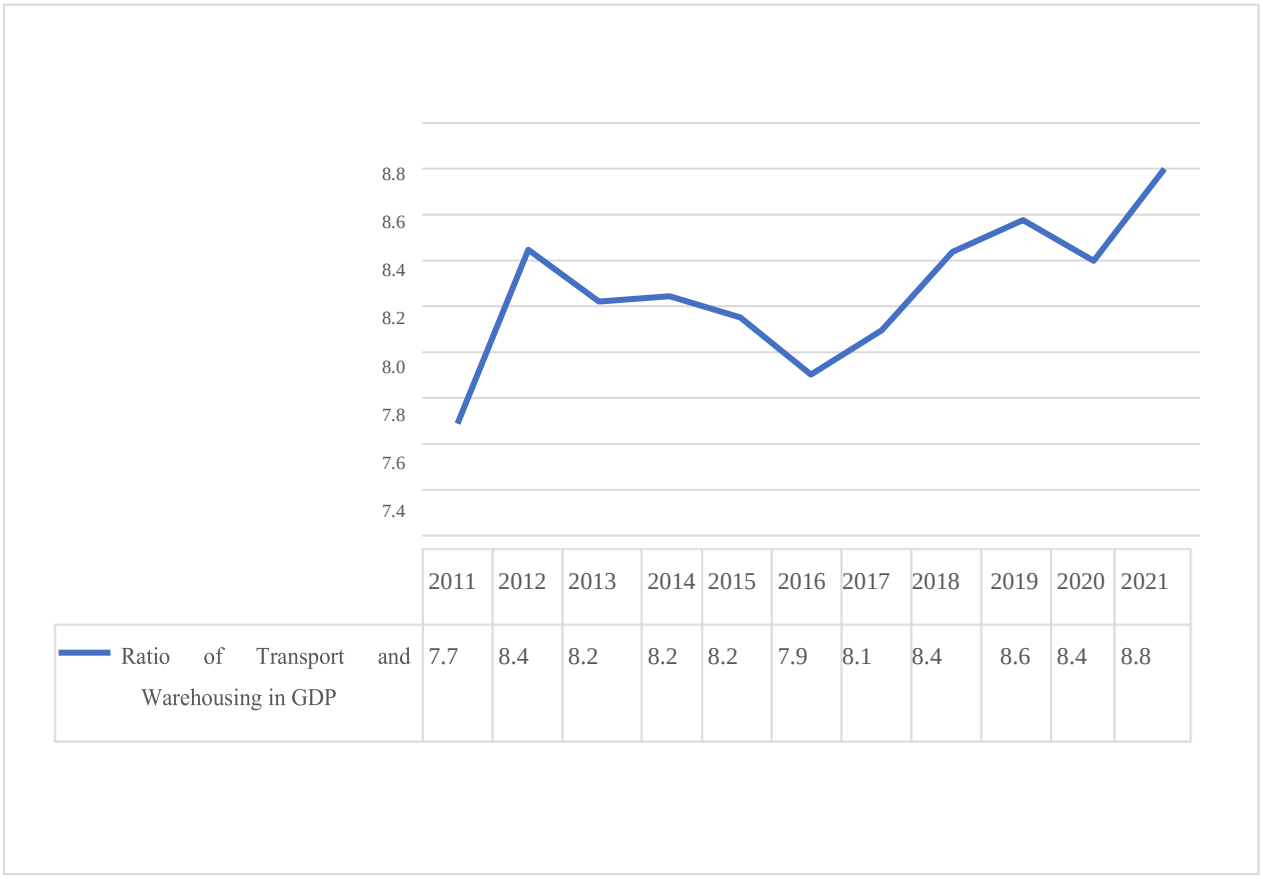
Source: Central Bank of The Republic of Türkiye, 2023a

3. EVALUATION OF TÜRKİYE'S LOGISTICS SECTOR, GDP, EXPORTS AND GLOBAL COMPETITION INDEX DATA

After tourism, one of the sectors with the greatest expectations for Türkiye to achieve its export targets is the logistics sector. Therefore, transportation and communication investments have the largest share among public investments in the logistics sector. In 2022, the largest investment was made in the transportation and communication sectors with 49,746,105 (thousand TL) and 27% share (Republic of Turkish Strategy and Budget Presidency, 2022). The logistics sector, which has a global market of 10.68 trillion dollars as of 2022, is one of the promising and fast-growing sectors in Türkiye and the world. The share of the logistics sector (International Transportation and Logistics Service Producers Association, 2022), which is expected to reach 18.23 trillion dollars in 2032, in Türkiye's GDP is shown in Figure 5. Since 2017, the logistics sector has continuously contributed more than 8% to GDP and made the largest contribution with 8.8% in 2021. On the way to becoming a leading country and logistics hub in the region on a global base in the field of transportation and logistics, Türkiye's 2053 target of 1 trillion dollars in exports needs to be achieved by improving logistics infrastructure, increasing efficiency and productivity, and reducing costs. In this direction, it is aimed that the investments to be made until 2053 will contribute to the national income at the level of 1 trillion dollars, that is,

investments can contribute more than 5 times more than now (Turkish Exporters Assembly, 2022). Therefore, with the investments in the sector at future, this ratio is expected to increase further and contribute more to GDP.

Figure 5. Share of Transportation and Storage in GDP



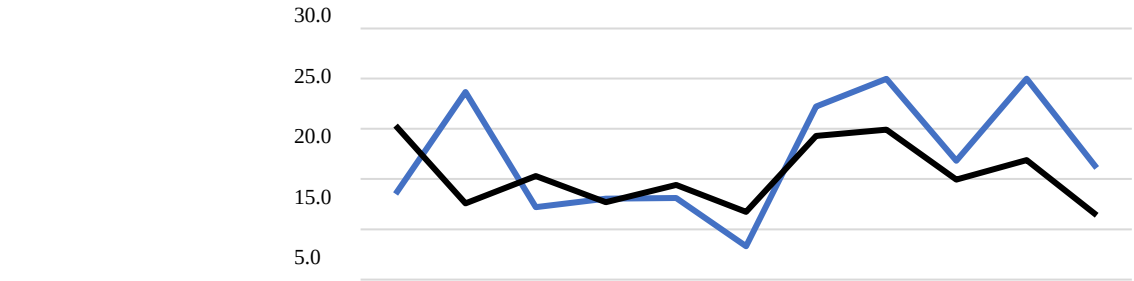
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Ratio of Transport and Warehousing in GDP	7.7	8.4	8.2	8.2	8.2	7.9	8.1	8.4	8.6	8.4	8.8

Source: Turkish Statistical Institute, 2022

Figure 6 shows a comparison of the transportation and storage sectors and GDP growth rates. These mentioned sectors include not only freight-related activities but also passenger transportation activities.

Especially since 2017, the sector has grown above the GDP growth rate. This reveals the importance of investments in the sector for the country's growth rates. In addition, it is one of the leading sectors in terms of providing foreign currency inflow to the country within service exports. As of 2021, while GDP had a growth rate of 11.4%, growth rate of the sector reached 16.1%, which rate is less than the transportation and storage sector.

Figure 6. Comparison of Transportation and Storage (H) Sector and GDP Growth Rates



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Transport and Storage FDI	13.5	23.7	12.2	13.0	13.1	8.3	22.2	25.0	16.8	25.0	16.1
GDI	20.3	12.6	15.3	12.7	14.4	11.7	19.3	19.9	15.0	16.9	11.4

Source: Turkish Statistical Institute2022 (GDP at Current Prices).

Table 4 shows Türkiye's export data. Service exports make a significant contribution to Türkiye's exports which have reached over 254 billion dollars in 2022, in 2022 service export increased by 47%, reached 90.3 billion dollars. The major contribution to service exports was made by the transportation sector, with a data exceeding 21 billion dollars and a rate of 70.2% as of 2021.The transportation sector which is significant for service exports, contributes more than each day to Türkiye's export targets. The sector is one of the important sectors, that can be effective in increasing Türkiye's 1.27% share in global service exports.

Table 4. Türkiye 2005-2022 Export Data (Value: Thousand US$)

Year	Export Value	Change (%)
2005	73,476,408	16.3
2006	85,534,676	16.4
2007	107,271,750	25.4
2008	132,027,196	23.1
2009	102,142,613	-22.6
2010	113,883,219	11.5
2011	134,906,869	18.5
2012	152,461,737	13.0
2013	161,480,915	5.5
2014	166,504,862	3.1
2015	150,982,114	-9.3
2016	149,246,999	-1.1
2017	164,494,619	10.2
2018	177,168,756	7.7
2019	180,832,722	2.1
2020	169,637,755	-6.2
2021	225,214,458	32.8
2022	254,191,555	12.9

Source: Turkish Statistical Institute, 2022

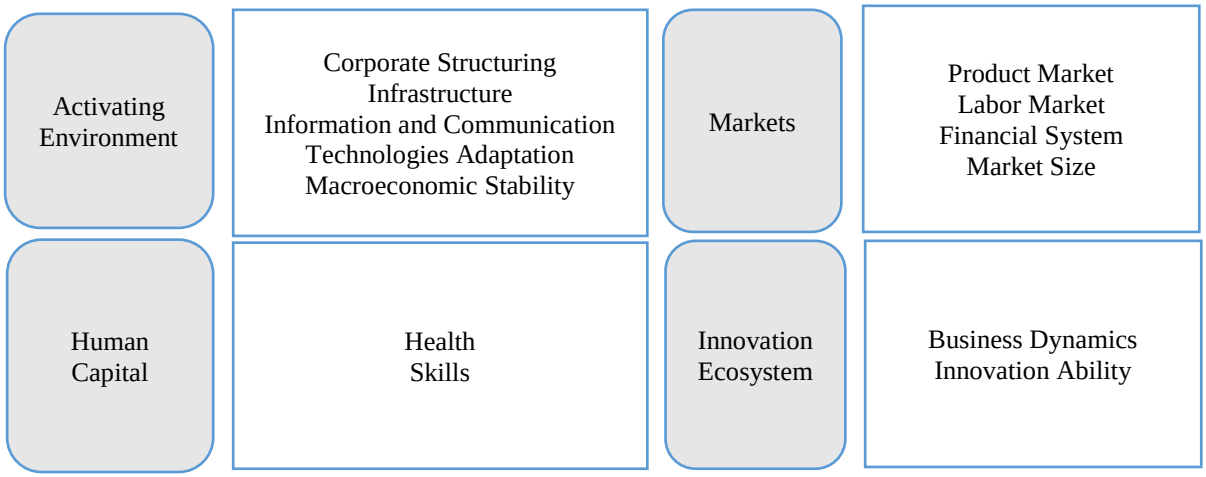
The Global Competitiveness Report, which has been published by the World Economic Forum under the name "Global Competitiveness Report" since 1979, was renamed the "GCI 4.0" in 2018 to ensure compliance with the current economic structure. In this framework, to determine the global competitiveness of countries, twelve criteria related to Industry 4.0, which is very important for the economy, were added under four headings for the creation of the report. In the prepared reports, the strengths and weaknesses of the countries are evaluated to scoring on the basis of criteria and countries are ranked with a comprehensive and regular analysis according to the average of 12 criteria. Approximately 15 thousand enterprises were subjected to the questionnaire for the preparation of the report. In addition, data published by relevant countries and international organizations were also used to evaluate and calculate scores of the countries. In the recently published 2019 report, 141 countries, which account for 99% of the total global GDP, were evaluated and included in the report (World Economic Forum, 2019). The criteria by which countries are evaluated are shown in Figure 7 and Türkiye's index scores and ranking are shown in Table 5.

Table 5. Global Competitiveness Index Türkiye Score and Ranking

Year	Score	Ranking
2019	62.1	61
2018	61.6	61
2017	4.42	53
2016	4.39	55
2015	4.37	51
2014	4.46	45
2013	4.45	44
2012	4.45	43
2011	4.28	59
2010	4.25	61
2009	4.16	61
2008	4.15	63
2007	4.25	53
2006	4.14	59
2005	4.1	71

Source: World Economic Forum, 2019

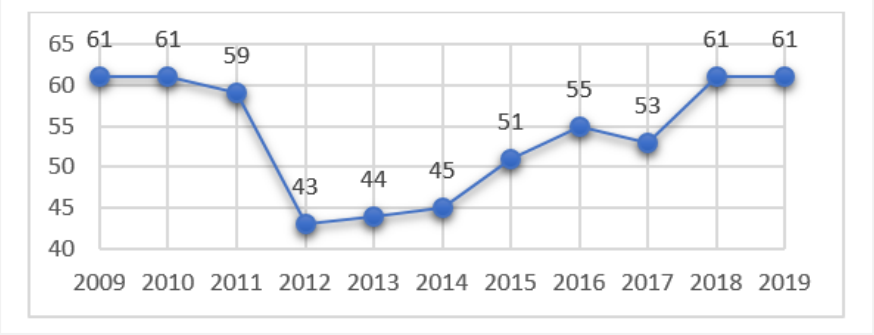
Figure 7. Headings and Subheadings of the Global Competitiveness Index Assessment



Source: World Economic Forum, 2019

Türkiye's ranking in the index is presented in Figure 8. According to this figure, while Türkiye ranked 61st in 2018 and 2019, it is also seen that there was an improvement from time to time in the previous 10-year period. In the report, Türkiye scores highest on the market size criterion and worst on the macroeconomic stability criterion. The index, which also identifies weaknesses and strengths in terms of competitiveness, is very important for the country. In addition, by making comparisons with countries such as Singapore, the USA, and Hong Kong, which rank in the top three in terms of the criteria determined, it is possible to direct the necessary investments to these areas. Especially by focusing on the innovation criterion, competitiveness can be increased by ensuring that enterprises and the country achieve sustainable economic growth. In addition, in the infrastructure criterion, factors such as quality roads, railways, ports, air transportation and safe and timely delivery of goods and services are evaluated and scored, which are also very important for the effective functioning of the logistics sector and the economy (Erat & Demirkanoğlu, 2021). Therefore, improvements in these areas can be effective both in raising the country's score and in the growth of the sector and its contribution to exports and GDP. However, Türkiye has made limited progress in the infrastructure criterion. Therefore, the infrastructure needs to be supported by investment.

Figure 8. Türkiye's Global Competitiveness Index Ranking



Source: World Economic Forum, 2019

The Global Competitiveness Index is an important report that countries take into account in their logistics-related decisions, as well as in FDI in the sector and in the decision-making of investors (Investment Office of the Presidency of the Republic of Türkiye, 2022). Because the report provides critical services to investors in terms of ensuring sustainable growth with more realistic data on the business environment and economic productivity of countries (Schwab, 2019). Thus, by analysing the report, investors have information on many issues about the country they can invest in and decide whether to invest or not. Therefore, improving the score and ranking in the report for Türkiye would be beneficial for both FDI in the logistics sector and FDI in other sectors.

4. PURPOSE AND IMPORTANCE OF THE STUDY

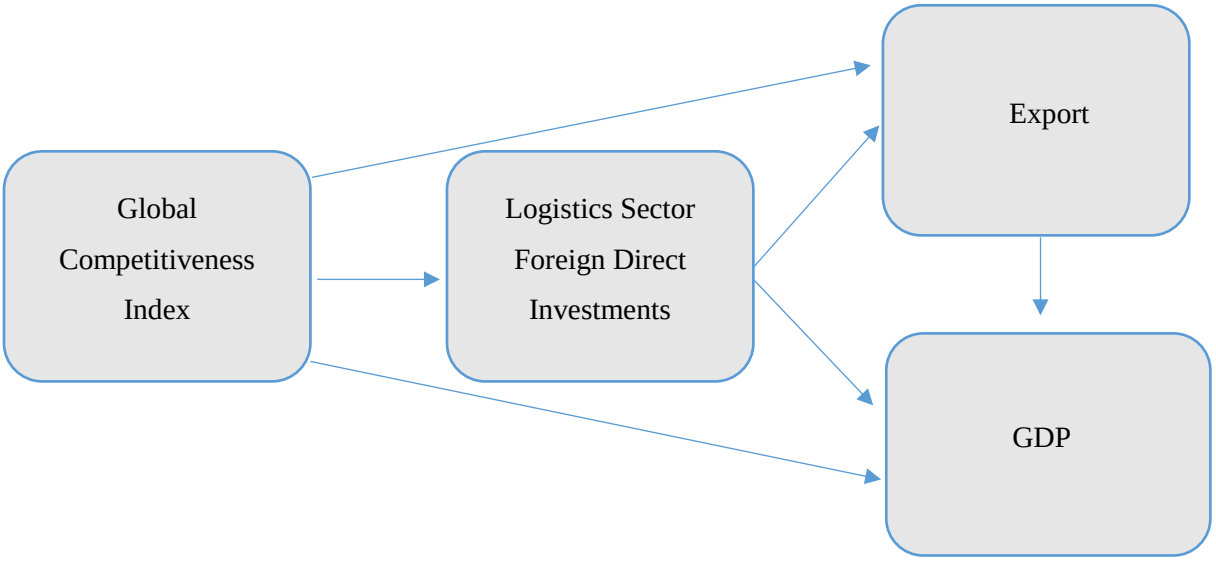
For developing countries like Türkiye, exports, GDP and FDI are very important. The global competitiveness index, which influences the decisions of investors in investments to be made on a global basis, is also an important report that should be considered in ensuring stable growth. In this framework, the aim of the research is to investigate the relationship between Türkiye's global competitiveness index ranking and exports and GDP data and whether there is a mediating role of foreign direct investments in the logistics sector in this relationship. Since the determined variables are of critical importance for the country's economy, the determination of the relationship between them can be important for the decisions on these issues. Although there are many studies on foreign direct investments in the literature, there is a limited number of studies on foreign investments in the logistics sector. Conducting a research on foreign investments in the sector can contribute to both the literature and the sector. In addition, there is no study investigating the relationship between the variables determined in the literature in the intermediary variable dimension. For this reason, a new model can be introduced to the literature with the research to be conducted and contributions can be made to the researchers in this regard in the future studies.

5. RESEARCH MODEL, HYPOTHESES AND DATA SET

The model was created as shown in Figure 9 by examining the domestic and foreign literature on the subject. It has been determined that studies on foreign direct investments have attracted interest by researchers. However, studies on foreign investments in the logistics sector, which serves many sectors, has the potential to become a logistics base with the advantage of geographical location, has been the largest share among Türkiye's public investments for years and has strategic importance in achieving the country's economic goals, have remained very limited (International Transportation and Logistics Service Producers Association, 2022). In addition, there is no study investigating the relationship between the global competitiveness index, which has a great impact on investors' decisions and provides investors with information about countries (Investment Office of the Presidency of the Republic of Türkiye, 2022), and foreign investments in the logistics sector, which is one of the promising sectors that has been growing over the years in the world as well as in Türkiye. Since foreign direct investments to be made in the logistics sector, where there is a great expectation for Türkiye to achieve

its export targets, are of strategic importance for the country to achieve its export and growth targets, these variables are included in the research model. In the literature, there is no study investigating the mediating variable dimension the relationship between exports, GDP, FDI and global competition index, which have a great impact on the decisions of foreign investors, which are very important for countries to achieve their strategic, political and economic goals. Therefore, these variables are included in the model and it is aimed to obtain important results for the country's economy by presenting an original study.

Figure 9. Research Model



In the study, Türkiye's Global Competitiveness Index data published by the World Economic Forum for the years 2005-2019, foreign direct investment data for the Transport and Storage Sector published by the Central Bank, GDP data published by the World Bank and export data published by Turkish Statistical Institute (TURKSTAT) were used. While the Global Competitiveness Index was calculated as two separate indices as business competitiveness and growth competitiveness before 2005, it has been updated since this year and started to be published as a single index under the name of global competitiveness index. Since the last year data was published in 2019, the study is limited to the years 2005-2019. In addition, since the global competitiveness index scoring system changed in 2018, the study is based on this ranking. Foreign direct investments in the logistics sector are also referred to as foreign direct investments in the transport and storage sector in the Central Bank.

As a result of the review of national and international literature related to the research, 10 main hypotheses were determined in line with the model developed for the purpose of the research. It has been reported in different studies that the variables used in the global competitiveness index are effective on exports and that there is a strong relationship between global competitiveness and export performance (Öztürk & Kurt, 2023; Madzova, 2018; Akhuand & Abbas, 2023). In this direction, the hypothesis “H1: There is a relationship between global competitiveness index ranking and exports” was formed to

determine the relationship between global competitiveness index ranking and Türkiye's exports in the determined periods.

The impact of foreign direct investments on the exports of the investing country is expressed by product life cycles, flying geese model and new growth theories. These theories emphasize that foreign investments have a positive, direct and indirect effect on a country's exports. The relationship between FDI and exports has been widely examined in the literature, and there are studies that find a relationship between the variables (Kutan & Vuksic, 2007 Temiz & Gökmen, 2009; Prasanna, 2010; Zhang, 2005; Njong, 2008; Pacheco-Lopez, 2005). There are also a small number of research results indicating that there is no relationship between FDI and export rates (Yılmazer, 2010; Gerni et al., 2014; Kıran, 2011; Prasanna, 2013). However, there is no study examining the relationship between FDI in the logistics sector and exports. In this framework, the hypothesis "H2: There is a relationship between transportation and warehousing FDI and exports" formed to determine whether there is a relationship between transportation and warehousing FDI and exports.

Achievements in the global competition index are expected to contribute to an increase in foreign investments in the transportation and storage sector. Therefore, improvements to be made in the global competition index in terms of Türkiye's goal of becoming a logistics hub can contribute to the growth and development of the sector. Since the logistics sector serves many sectors, success in the index can indirectly contribute to many sectors. In this framework, it has been wondered whether the achievements in the index contribute to transportation and warehousing FDI and the hypothesis "H3: There is a relationship between global competition index ranking and Transportation and Warehousing FDI" was formed.

The Global Competitiveness Index provides users with a comprehensive dataset on the competitiveness indicators of industrialized and developing economies. The countries included in the rankings account for approximately 98% of the world's total gross domestic product. To determine whether Türkiye's success in the index contributes to GDP, the hypothesis "H4: There is a relationship between global competitiveness index ranking and GDP" was formed.

According to the export-led growth approach, exports are the locomotive of economic growth since an increase in exports leads to an increase in production and employment (Ramos, 2001 p. 613). The Keynesian approach, the theory that exports bring positive externalities, the theories stating that technological development and growth can occur by creating economies of scale are among the theories that support the export-led growth hypothesis. In line with these theories, the hypothesis "H5: There is a relationship between exports and GDP" was formed to determine the relationship between exports and GDP.

FDI has become increasingly important due to the competition caused by globalization. Developing countries, where international competition has emerged as a result of the widespread free

market system, have had to increase their export capacities in order to meet their foreign exchange requirements. Multinational companies, which have a high share in international goods and services markets, contribute positively to the export revenues of the host country through FDI. The theoretical foundations of this idea are based on the Product Life Cycle approach developed by Vernon (1966). According to this approach, a developed country that develops a new product first introduces it to the domestic market. Then, this product, which is determined to be suitable for consumption, starts to be exported. While exporting over time, the developed country aims to make a profit by reducing the costs of production since its own labour and production costs are high, and for this purpose, it establishes factories in developing countries through FDI or carries out certain stages in developing countries through the global supply chain. In the literature, the results of the studies investigating the impact of FDI on GDP are widely concluded that there is an effect (Gunaydin & Tatoglu, 2005; Albulescu, 2015; Ekinci, 2011; Mehicet al., 2013; Omri & Kahouli, 2014; Raza et al., 2021). However, there are also rare studies that conclude that there is no effect (Naveed & Shabbir, 2006; Belloumi, 2014; Zhao & Du, 2007; Har et al., 2008). In this direction, the hypothesis "H6: There is a relationship between Transportation and Warehousing FDI and GDP" was formed to determine the relationship between Transportation and Warehousing FDI and GDP in the determined periods.

In the literature, researches on the relationship between global competitiveness index ranking, export rates and GDP variables have attracted a great deal of attention from researchers. As explained before, different results have been reached in the research results. However, it has been determined that the issue has not been examined more specifically and limitedly on a sectoral basis and there are no studies examining the mediating role in the literature. In this context, the hypotheses "H7: Transportation and Warehousing FDI has a mediating role in the relationship between exports and GDP, H8: Transportation and Warehousing FDI has a mediating role in the relationship between global competitiveness index ranking and GDP, H9: Transportation and Warehousing FDI has a mediating role in the relationship between global competitiveness index ranking and exports" were formed to determine whether Transportation and Warehousing FDI plays a mediating role in the relationship between other variables. In addition, to determine whether there is a mediating role of exports in the relationship between Transportation and Warehousing FDI and GDP, the hypothesis "H10: There is a mediating role of exports in the relationship between Transportation and Warehousing FDI and GDP" was formed.

It was examined whether the dependent and independent variables used in the research were normally distributed. The descriptive statistics, Jarque-Bera test statistic, skewness and kurtosis values obtained as a result of the analysis in this framework are presented in Table 6. Skewness values between +1.5 and -1.5 (Tabachnick et al. 2013), +3.0 and -3.0 (George, & Mallery, 2010), which are examined in order to evaluate the suitability for normal distribution, mean that the data conform to normal distribution. In addition, variables with significance values of Jarque-Bera test statistic less than 0.05 significance level do not show normal distribution. Accordingly, the p-values of the Jarque-Bera test

statistic of the variables whose logarithms are taken from Table 6 are greater than 0.05 and it is understood that they meet the normality assumption.

Table 6. Descriptive Statistics of Variables and Jarque-Bera Test Statistic Results

Analysis	Mean	Median	Max	Min	Sd	p	Skewness	Kurtosis	Jarque-Bera	P value
Export	18.78	18.84	19.35	18.11	0.32	0.7089	-0.4200	0.1682	0.5503	0.7595
Transportation and Warehousing	5.70	5.76	7.33	3.04	1.06	0.4771	-0.7501	0.9444	2.3571	0.3077
Ranking	4.02	4.08	4.26	3.76	0.15	0.2038	-0.4807	-0.4443	0.7012	0.7043
GDP	6.65	6.68	6.86	6.23	0.17	0.0514	-1.1906	1.0784	5.1245	0.0771

6. FINDINGS OF THE RESEARCH

In the study, Structural Equation Modelling (SEM) was used to determine the logistics sector FDI data of mediating role at the relationship of the independent variable GCI ranking and on the dependent variable exports and GDP data. For processing data, SAS statistical software package (Version 9.4) was used.

Table 7 shows the indices related to the fit of the model to the data. When the index values are equal to 1, it indicates that the model created in the research fits the data perfectly. In addition, the Root Mean Square Residual (RMR) value of 0 indicates an excellent fit. As the SRMR (Standardized RMR) value approaches 0, the goodness of fit of the model increases.

Table 7. Model Fit Test

Fit Summary		
	Root Mean Square Residual (RMR)	0.0000
	Standardized RMR (SRMR)	0.0000
	Goodness of Fit Index (GFI)	1.0000
	McDonald Centrality	1.0000
Incremental Index	Bentler Comparative Fit Index	1.0000
	Bentler-Bonett NFI	1.0000
	Bollen Non-normed Index Delta2	1.0000

Table 8 shows the results of which variables in the covariance matrix are well predicted by the model and which variables are not. Since the model fits the data perfectly, the standardized matrix values of all variables are calculated as 0.

Table 8. Standardised Matrix Values of Variables

	Asymptotically Standardized Residual Matrix			
	Global Competitiveness Index Ranking	**GDI**	**Export**	**Transport and Storage FDI**
Global Competitiveness Index Ranking	0.000	0.000	0.000	0.000
GDI	0.000	0.000	0.000	0.000
Export	0.000	0.000	0.000	0.000
Transport and Storage FDI	0.000	0.000	0.000	0.000
MEAN	0.000	0.000	0.000	0.000

Table 9 includes unstandardised and standardised path coefficients, their standard errors p, t and, R^2 values. Figure 10 shows the standardised coefficient estimates of the relationships with their significance. There are direct and indirect effects of GCI ranking and direct effects of transport and storage FDI on Türkiye's export values. Only the GCI ranking has a direct effect on transport and storage FDI. GCI ranking, export values and transport and storage FDIs have a direct effect on GDF values. Transport and storage FDI and GCI ranking also indirectly affect GDP data.

The GCI ranking and transport and storage FDIs explain 39 percent of the total variance of the dependent variable exports ($R^2 = 0.3909$). GCI ranking alone explains 21% ($R^2 = 0.2144$) of the total variance of the dependent variable of transport and storage FDI. The effect of GCI ranking, export data and transport and storage FDI variables on the total variance of the GDP dependent variable is 86% ($R^2 = 0.8594$).

While international competition, which is the focus point of economic theories, is evaluated through comparative advantages in classical economic theories, it is explained by neo-classical economists through factors such as macroeconomic stability and technological development. It is stated that the variables used in the global competition index are also effective on exports and that there is a strong relationship between global competitiveness and export performance (Öztürk & Kurt, 2023; Madzova, 2018; Akhuand & Abbas, 2023). However, as a result of the research, it was determined that the global competitiveness index ranking does not have a statistically significant ($p = 0.0965$) effect on exports. Increase of performance in the global competitiveness index cannot contribute to the increase in exports. Therefore, the increase in the Global Competitiveness Index ranking did not have a positive effect on export data.

The impact of foreign direct investments on the exports of the investing country is expressed by product life cycles, flying geese model and new growth theories. These theories emphasise that foreign investments have positive, direct and indirect effects on country exports. In this study, it is concluded

that transport and storage FDIs do not have a significant effect on export data (p= 0.0886). Therefore, it has been determined that foreign investments made in the transport and storage sector have no effect on the increase in Türkiye's exports in the specified years. In the literature, the relationship between FDI and exports has been widely examined and there are studies that determine that there is a relationship between the variables (Kutan & Vuksic, 2007 Temiz & Gökmen, 2009; Prasanna, 2010; Zhang, 2005; Njong, 2008; Pacheco-Lopez, 2005). However, the result similar to the result reached in the study was also found in a limited number of other studies in the literature (Yılmazer, 2010; Gerni et al., 2014; Kıran, 2011; Prasanna, 2013). Therefore, the relationship between FDI and exports may differ depending on the time period, country and sector analysed.

As a result of the analysis, it was determined that there is a statistically significant and negative relationship between Türkiye's global competitiveness index ranking and transportation and storage FDI (p= 0.0225) and GDP (p= 0.0035) at 5% significance level.

Export data have a statistically significant (p= 0.0001) effect on GDP data at 5% significance level and there is a positive relationship between them (0.7075). In the export-led growth hypothesis, exports are the locomotive of economic growth since an increase in exports leads to an increase in production and employment (Ramos, 2001 p. 613). Keynesian approach, the theory that exports bring positive externalities, the theories stating that technological progress and growth can be experienced by the formation of economies of scale are among the theories that support the export-led growth hypothesis. In this framework, the results of the research coincide with these theories and the increase in export data leads to an increase in GDP data. There is no statistically significant relationship between FDI in transport and storage sector and GDP data (p= 0.6819). It is concluded that foreign investments in the sector do not contribute to the increase in GDP data. In the literature, there are studies that investigate the effect of FDI on GDP and rarely conclude that there is no effect (Naveed & Shabbir, 2006; Belloumi, 2014; Zhao & Du, 2007; Har et al., 2008).

In order for transport and storage FDI to be an intermediary variable, it should be directly affected exports and GDP. The results of the analysis show that transport and storage FDI has no direct effect on exports (0.37) and GDP (-0.05). It was also revealed that there was no significant relationship between the variables. Therefore, it is proved that transport and storage FDIs do not have a mediating role between the variables.

Table 9. Path Coefficients of Variables

Dependent Variable	Predictor	Unstandardized Effects				Standardized Effects				R^2	Tolerence	Variance Inflation (VIF)
		Estimate	Standard Error	t	p	Estimate	Standard Error	t	p			
Export	Intercept	20.9051	1.8947	11.033	<.0001							
Export	Global Competitiveness Index Ranking	-0.6811	0.4283	-1.590	0,1118	-0.3615	0.21752	-1.662	0.0965		0.785	1.272
Export	Transport and Storage FDI	0.0922	0.0567	1.624	0,1042	0.3694	0.21698	1.702	0.0886	0.3909	0.785	1.272
Transport and Storage FDI	Intercept	19.7882	6.9355	2.853	0,0043							
Transport and Storage FDI	Global Competitiveness Index Ranking	-3.4920	1.7260	-2.023	0,0431	-0.4630	0.20285	-2.282	0.0225	0.2144	1.000	1.000
GDP	Intercept	-0.3803	1.8573	-0.204	0,8377							
GDP	Global Competitiveness Index Ranking	-0.4661	0.1503	-3.100	0,0019	-0.3660	0.12541	-2.919	0.0035		0.672	1.487
GDP	Export	0.4781	0.0838	5.703	<.0001	0.7075	0.11724	6.035	<.0001		0.609	1.641
GDP	Transport and Storage FDI	-0.0082	0.0200	-0.411	0,6811	-0.0486	0.11876	-0.409	0.6819	0.8594	0.668	1.496

Figure 10. Trace Plot of Standardised Direct Effects Between Variables

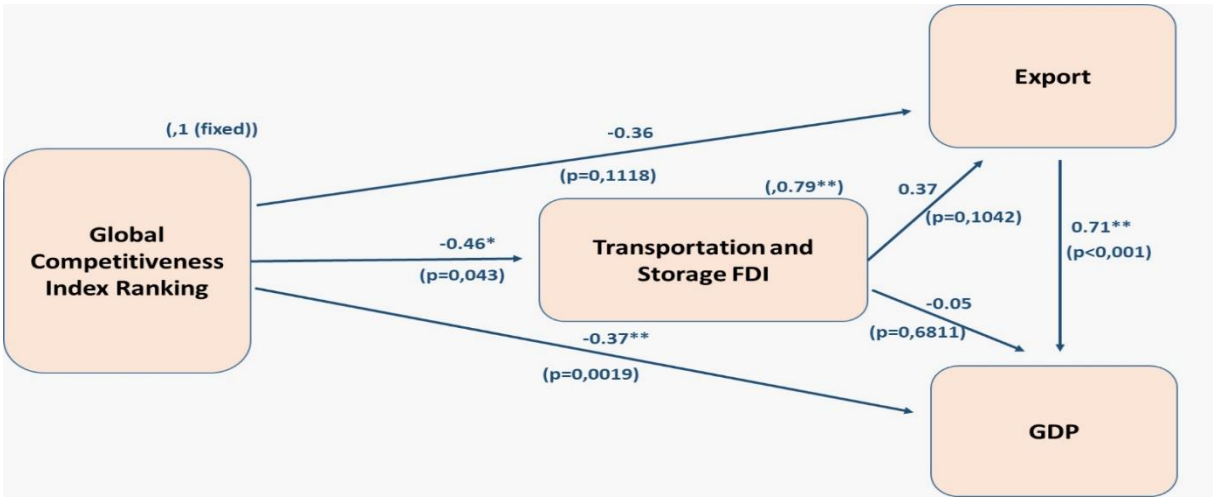


Table 10 shows the standardized direct, indirect and total effects obtained from path analysis. The total effects in this table are the sum of direct and indirect effects. These results show in detail that the structural equation model (SEM) impact analysis shows some impact structures that cannot be accurately analysed by linear regression analysis method. Therefore, this table presents more detailed results of SEM effect analysis and more refined results in terms of the overall theory. When Table 10 is examined in detail, it is seen that the statistical significance values for direct effects are the same as the standardized values in Table 9. Therefore, the interpretations of direct and total effects are the same as in Table 9. The most striking effect in Table 10 is the mediating effect of Transportation and

Warehousing FDI on the effect of global competitiveness index ranking on GDP (t=-2.6894, p=0.0071). Therefore, the result of the research shows that it is important to consider the FDI to be made to the sector in order to increase the GDP data. On the other hand, the mediating effects of Transportation and Warehousing FDI on the effect of global competitiveness index ranking on exports and also the mediating effects of exports on the effect of Transportation and Warehousing FDI on GDP are not statistically significant.

In the literature, there are studies that find positive and negative effects of the global competitiveness index on exports and FDI on country GDP, as well as studies that find no effect. The results obtained may differ depending on the period analysed the model used and the sector selected. The emergence of these results in the research may be due to the fact that FDI in the transportation and storage sector has a share of 3.8% in total FDI between 2005-2019, as well as the period examined (CBRT)

Table 10. Standardized direct, indirect and total impacts (Impact/Std Error/t Value/p Value)

	Standardized Direct Effects			**Standardized Indirect Effects**			**Standardized Total Effects**		
	Transportation and Warehousing	**Export**	**Ranking**	**Transportation and Warehousing**	**Export**	**Ranking**	**Transportation and Warehousing**	**Export**	**Ranking**
GDP	-0.0487 0.1188 -0.4099 0.6819	0.7075 0.1172 6.0351 **<.0001**	-0.3661 0.1254 -2.9192 **0.0035**	0.2614 0.1669 1.5663 0.1173	0	-0.3543 0.1317 -2.6894 **0.0071**	0.2127 0.1933 1.1002 0.2713	0.7075 0.1172 6.0351 **<.0001**	-0.7204 0.1242 -5.7996 **<.0001**
Transportation and Warehousing	0	0	-0.4630 0.2028 -2.2825 **0.0225**	0	0	0	0	0	-0.4630 0.2028 -2.2825 **0.0225**
Export	0.3694 0.2170 1.7026 0.0886	0	-0.3615 0.2175 -1.6621 0.0965	0	0	-0.1710 0.1263 -1.3545 0.1756	0.3694 0.2170 1.7026 0.0886	0	-0.5326 0.1850 -2.8795 **0.0039**

The results of the hypotheses tried to be true as a result of the analyses are given in Table 11.

Table 11. Hypothesis Results

Code	**Hypothesis**	**Results**
H1	There is a relationship between global competitiveness index ranking and exports.	Rejected
H2	There is a relationship between transportation and warehousing FDI and exports.	Rejected
H3	There is a relationship between global competition index ranking and Transportation and Warehousing FDI.	Not rejected
H4	There is a relationship between global competitiveness index ranking and GDP.	Not rejected
H5	There is a relationship between exports and GDP	Not rejected
H6	There is a relationship between Transportation and Warehousing FDI and GDP.	Rejected
H7	Transportation and Warehousing FDI has a mediating role in the relationship between exports and GDP.	Rejected
H8	Transportation and Warehousing FDI has a mediating role in the relationship between global competitiveness index ranking.	Not rejected
H9	Transportation and Warehousing FDI has a mediating role in the relationship between global competitiveness index ranking and exports.	Rejected
H10	There is a mediating role of exports in the relationship between Transportation and Warehousing FDI and GDP.	Rejected

To obtain valid and accurate results from the multivariate linear regression model obtained in the last step using the multivariate stepwise regression method, there are some assumptions that must

be met. The assumptions that the regression model used in this study must meet are the assumption of multicollinearity (VIF and Tolerance values), the assumption of normality of errors (residual values) (Kolmogorov-Simirnov test), the assumption of the mean of error values and the assumption of constant variance.

One of the assumptions that the linear regression models obtained in the research should meet is the assumption of multicollinearity (VIF and Tolerance values) and for this purpose, tolerance and VIF values were obtained. High VIF values and low tolerance values are indicators of multicollinearity. Variance inflation factors (VIF) should be less than 10 and tolerance value should be greater than 0.1. It is determined that the tolerance values of the three different regression models given in Table 9 are greater than 0.1 and the VIF values are less than 10. This shows that multivariate linear regression models do not have multicollinearity problem.

Moreover, in multivariate linear regression analysis, it is desirable that there is no strong correlation between independent variables. In order to investigate this situation, the Pearson correlation analysis results of all variables used in the study (Global competitiveness index ranking, Transportation and Warehousing FDI, Exports, GDP) are presented in Table 12. When the correlations of all variables with each other are analysed it is found that the highest correlation is between Exports and GDP (r=0.7854, p=0.0001) and Global competitiveness index ranking and GDP (r=-0.7204, p=0.0001). It is thought that a relationship of more than 85% between independent variables would cause the problem of multicollinearity. Therefore, it can be said that there is no serious multicollinearity problem between the independent variables used in the study.

Table 12. Pearson Correlation Analysis between Dependent and Independent Variables

	Export	**Ranking**	**GDP**	**Transportation and Warehousing**
Export	1.0000			
Ranking	-0.5326 0.0410	1.0000		
GDP	0.7854 0.0001	-0.7204 0.0025	1.0000	
Transportation and Warehousing	0.2419 0.3335	-0.4630 0.0822	0.3634 0.1383	1.0000

The mean errors for the three linear regression models presented in Table 9 are -0.05 ± 1.11, -0.09 ± 1.20 and -0.05 ± 1.10 and the skewness values are close to zero, respectively. This means that the errors are approximately normally distributed with mean 0 and variance 1. White test was used for the constant variance assumption. This test tests the null hypothesis that the error variance is constant. Therefore, if the p value is very small, we should reject the null hypothesis in favour of the alternative hypothesis that the error variance is not constant. The White test results of the three regression models in Table 9 obtained in this study are $\chi2(5) = 4.50$, $p = 0.4804$ $\chi2(2) = 2.05$, $p = 0.3596$ and $\chi2(9) = 6.68$,

p = 0.6708, respectively, and therefore the null hypothesis is not rejected. In other words, the model satisfies the constant variance assumption.

After estimating the model in regression analysis, whether the residual terms are correlated or not, i.e. whether there is a suspicion of auto-correlation or not, is tested by Durbin-Watson analysis. The Durbin-Watson test statistic takes values between 0-4 and when it takes a value of 2, it shows that there is no correlation between the error terms of the independent variables. It is desirable that the Durbin-Watson value, which indicates the auto-correlation value, is between 1.5 and 2.5. The Durbin-Watson values of the three separate regression analyses obtained in this study are 1.930, 1.525 and 1.564, respectively, which eliminates the suspicion of autocorrelation.

7. CONCLUSIONS

In order to increase FDIs, which are effective in the economic growth of countries, necessary amendments have been made in the relevant law from time to time in Türkiye. Despite these amendments, Türkiye, which has a great market potential and a favourable labour force in attracting foreign investments, has not received the desired level of foreign investment inflow. Türkiye has a target of 1.5 percent share of foreign investments and ranking among the top 10 countries. In order for Türkiye to reach this target, it should have a good score and ranking in the GCI, which is effective in the decisions of investors. In addition, in Türkiye, which is developing day by day with the foreign investments to be made in the logistics sector, the capital and technology required by the logistics sector can be provided. In this way, both the country's share in global foreign investments can increase and can contribute to the increase in exports and GDP data. Also serving all sectors, the logistics sector has an important position in the national economy due to its contribution to employment and national income and directing FDIs (Duran, 2022). In this regard the study obtained the relationship between the global competition index, logistics sector FDIs, exports and GDP data and the mediating role of export and logistics sector FDIs in this relationship. As a result of the analysing of the structural equation model, it was determined that transportation and storage FDI does not play a mediating role in the relationship between exports and GDP and between global competitiveness index and exports, while it plays a mediating role in the relationship between global competitiveness index and GDP. It is also concluded that exports do not play a mediating role in the relationship between transportation and storage FDI and GDP. According to the results, it is predicted that it would be beneficial to focus on FDI in the transportation and warehousing sector to increase GDP further with the success to be achieved in the global competitiveness index. Thus, both GDP can increase and the competitiveness of the sector can be contributed.

In the literature, in the research results of researchers such as Allahverdi and Ay (2021), Şahin (2022), Popovici and Călin (2015), Güneş (2014), Zlatković (2016), İnançlı and Aydın (2015) and İnançlı and İnal (2017), it has been determined that the global competition index contributes to

increasing FDI. However, when analysed in the context of the logistics sector, a negative relationship was found between the two variables. A similar result was determined in the analysis of the relationship between the global competitiveness index and GDP. While it is expected that the achievements in the global competition index can contribute to the increase in both logistics sector FDIs and GDP data, the results of the research are unexpected.

As a result of the analyses found that export data have a significant effect on GDP data. The increase in export data can both increase the GDP data of the country and increase the welfare level of individuals. The results of the research are consistent with the results of the studies on this subject, as well as supporting the export-led growth hypothesis. Researchers such as Sharma et al. (2018), Abdullah et al. (2017), Karaca and Sancak (2021), Külünk (2018), Alam and Myovella (2017), Çelik (2022) and Elbeydi et al. (2010) have also determined that exports have a significant effect on GDP. Therefore, within the framework of the research result, it is thought that export-enhancing policies should be given importance in order to increase GDP.

In the study, it was concluded that the global competitiveness index ranking has no effect on export data. In the literature, there are studies such as Öztürk and Kurt (2023), Madzova (2018), Akhuand and Abbas (2023), Xu (2016) and Bierut and Pawlak (2017), which found that the global competitiveness index has a significant effect on exports. However, contrary to these studies, it is determined in the research that the increase in the Global Competitiveness Index ranking does not have a positive effect on export data. Therefore, it can be stated that the years and countries taken as the basis of the research have an impact on the results of the research.

Another result obtained is that foreign investments made in the transport and storage sector between 2005-2019 did not have a significant effect on exports and GDP data in these years. In the literature, researchers such as Kutan and Vuksic (2007), Temiz and Gökmen (2009), Prasanna (2010), Zhang (2005), Njong (2008) and Pacheco-Lopez (2005) have determined that FDI has a significant effect on GDP. It is thought that the selection of the transport and storage sector in the research, the analysis of the data for the years 2005-2019 and the fact that the research was conducted on Türkiye are effective on this difference. Although limited in number, researchers such as Yılmazer (2010), Gerni et al. (2014), Kıran (2011) and Prasanna (2013) have also concluded that exports have no significant effect on GDP. Similarly, there are researchers such as Naveed and Shabbir (2006), Belloumi (2014), Zhao and Du (2007) and Har et al. (2008), who determined that a limited number of FDIs have no effect on GDP. It has been determined that foreign investments made in the logistics sector between the years mentioned did not contribute to the increase in GDP data. However, since the logistics sector is a multidisciplinary sector serving many sectors, it can be stated that it indirectly contributes to the increase in exports and GDP data. In addition, since the development of the sector can affect other sectors and the global competition index can be effective in the decisions of investors, it is thought that improvements to be made on all variables can contribute to the country in economic terms.

The limitations of the research can be stated as the fact that the research is based on data from 2005-2019 and FDI in transport and storage is taken as the basis. In future studies, conducting studies based on different sectors and data from different years can be beneficial in terms of enriching the literature and better understanding of the subject. In addition, an original and new model has been introduced to the literature with the research and it is expected that the research can contribute to the researchers in the future studies.

Ethics Committee approval was not required for this study.

The authors declare that the study was conducted in accordance with research and publication ethics.

The authors confirm that no part of the study was generated, either wholly or in part, using Artificial Intelligence (AI) tools.

The authors declare that there are no financial conflicts of interest involving any institution, organization, or individual associated with this article. Additionally, there are no conflicts of interest among the authors.

The authors affirm that they contributed equally to all aspects of the research.

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