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THE CAUSAL RELATIONSHIP BETWEEN FOREIGN DIRECT INVESTMENTS, TRADE OPENNESS AND ECONOMIC GROWTH IN TURKEY

Turkey adopted a policy of openness with the decisions of January 24, 1980. The openness policy implemented by Turkey has significantly increased the ability of the Turkish economy to attract foreign capital, with the effect of increasing international capital movements.The main objective of this study was to examine the impact of foreign direct investments and trade openness on the economic growth of the Turkish economy. Data from the period 1980-2022 was used for this purpose. In the study, the relationship between variables was investigated using Johansen cointegration test and Granger causality test. Johansen cointegration test results show that there is a cointegration relationship between the variables and the series move together in the long run. Granger causality test results show that there is a one-way causality relationship between economic growth to foreign direct investments and openness. It has been determined that there is a unidirectional Granger causality from trade openness to foreign direct investments. Foreign trade and financialisation movements, which have sped up since the 1980s, have significantly affected the growth levels of countries. Countries that adopted an import substitution approach, such as Turkey, abandoned this approach and determined outward-open growth strategies, leading to their classification in the global economy according to their foreign direct investments and openness levels.

Key words: Foreign Direct Investments, Trade Openess, Economic Growth, Johansen Cointegration Test, Granger Causality Test.

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Тікелей шетелдік инвестициялар, сауданың ашықтығы және Түркиядағы экономикалық өсу арасындағы себеп-салдарлық байланыс

Түркия 1980 жылғы 24 қаңтардағы шешімдерге сәйкес ашықтық саясатын қабылдады. Түркияның ашықтық саясаты түрік экономикасының шетелдік капиталды тарту қабілетін едәуір арттырды, бұл халықаралық капитал қозғалысының өсуіне әкелді. Бұл зерттеудің негізгі мақсаты тікелей шетелдік инвестициялардың және сауданың ашықтығының түрік экономикасының экономикалық өсуіне әсерін зерттеу болды. Бұл үшін 1980–2022 жылдар аралығындағы деректер пайдаланылды. Зерттеуде айнымалылар арасындағы байланыс Йохансеннің коинтеграциялық сынағы мен грейнджердің себептілік сынағы арқылы зерттелді. Йохансеннің коинтеграциялық тестінің нәтижелері айнымалылар арасында интеграциялық байланыс бар екенін және ұзақ мерзімді перспективада қатарлар бірге қозғалатынын көрсетеді. Гранженің себептілік сынағының нәтижелері экономикалық өсу, тікелей шетелдік инвестициялар және ашықтық арасында біржақты себеп-салдарлық байланыс бар екенін көрсетеді. Сауда-саттықтың ашықтығы мен тікелей шетелдік инвестициялар арасында Грангер бойынша бір бағытты себеп-салдарлық байланыс бар екені анықталды. 1980 жылдардан бері жеделдетілген сыртқы сауда және қаржыландыру процестері елдердің экономикалық өсу деңгейіне айтарлықтай әсер етті. Түркия сияқты импортты алмастыру тәсілін қабылдаған елдер бұл тәсілден бас тартты және сыртқы нарықтарға бағытталған өсу стратегияларын анықтады, бұл олардың тікелей шетелдік инвестициялары мен ашықтық деңгейіне сәйкес әлемдік экономикада жіктелуіне әкелді.

Түйін сөздер: тікелей шетелдік инвестициялар, сауданың ашықтығы, экономикалық өсу, Йохансен коинтеграциялық тесті, Грейнджердің себептілік тесті.

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Причинно-следственная связь между прямыми иностранными инвестициями, открытостью торговли и экономическим ростом в Турции

Турция приняла политику открытости в соответствии с решениями от 24 января 1980 года. Политика открытости, проводимая Турцией, значительно повысила способность турецкой экономики привлекать иностранный капитал, что привело к увеличению международного движения капитала.Основная цель данного исследования заключалась в изучении влияния прямых иностранных инвестиций и открытости торговли на экономический рост турецкой экономики. Для этого были использованы данные за период 1980-2022 гг. В исследовании связь между переменными изучалась с помощью коинтеграционного теста Йохансена и теста причинности Грейнджера. Результаты коинтеграционного теста Йохансена показывают, что между переменными существует коинтеграционная связь и в долгосрочном периоде ряды движутся вместе. Результаты теста причинности Гранже показывают, что существует односторонняя причинно-следственная связь между экономическим ростом, прямыми иностранными инвестициями и открытостью. Установлено, что существует однонаправленная причинно-следственная связь по Грангеру между открытостью торговли и прямыми иностранными инвестициями. Процессы внешней торговли и финансиализации, которые ускорились с 1980-х годов, существенно повлияли на уровни экономического роста стран. Страны, которые приняли подход к импортозамещению, такие как Турция, отказались от этого подхода и определили стратегии роста, ориентированные на внешние рынки, что привело к их классификации в мировой экономике в соответствии с их прямыми иностранными инвестициями и уровнем открытости.

Ключевые слова: прямые иностранные инвестиции, открытость торговли, экономический рост, коинтеграционный тест Йохансена, тест причинности Грейнджера.

Introductıon

Foreign direct investments have acquired momentum since the 1980s, especially with the liberalization process, and have become one of the basic international capital movements for open economic systems. Foreign direct investments provide not only capital flow to the host country's economy, and it also has been the dominant force in the country's growth economies (Tipanov, 2013). While foreign direct investments provide technology transfer to the host country, they have also been a driving force in increasing productivity in human capital and domestic investments (Osano and Koine, 2016). Therefore, foreign direct investments, which provide an increase in the general welfare level with these features. The view that it has a positive effect on sustainable economic growth is gaining ground. In addition, it can be said that direct foreign investments are of vital importance for the economy of developing countries, especially those with limited national savings and insufficient capital accumulation (Bıkov, 2000). However, when the studies conducted in this field are examined, it is seen that different results emerge. While most of the studies show that foreign direct investments have a positive effect on economic growth, some studies show that they have a negative effect. In addition, according to some exceptional studies, it can be said that there are findings that there is no specific relationship between dependent variables (Knobel and Zaitsev, 2020). The reason for this is explained as the positive or negative impact of foreign direct investments on the economy is directly related to numerous factors. (Aleksandrovna, 2021). When the relationship between foreign direct investments and economic growth is examined from another approach, theoretically, it is seen that there are some differences in the results between new growth models and traditional growth models (Luiz and Mello, 1997). According to the results of the analyzes made with the traditional model; the impact of foreign direct investments on economic growth is seen to be directly related to technological development or an increase in human capital in the long term, this situation is seen to be related to the implementation and development of new technologies and their determining factors in new growth models (Belloumi, 2014). Therefore, we can state that the basic dynamics of today's growth are directly related to new discoveries, new inventions, innovations and direct increases in human capital resulting from new investments, departing from traditional methods and known ones (Kuemmerle, 1999).

Another important source of economic growth for country economies is trade openness. With

globalization, countries are opening up more to the outside world by liberalizing their trade and speeding up the economic growth in their countries thanks to these economic policies they implement (Yapılı, 2007). The concept of openness to the outside world is included in the literature as a concept that tries to explain how the commercial relations of countries with each other are shaped by globalization and which of the outward-oriented or inward-looking economic policies they apply more among themselves. The concept of openness to the outside world expresses how freely countries act or how strict policies they implement in their commercial relations with the outside world (Saçık, 2009). In this context, there are numerous studies in the literature on the relationship between trade openness and economic growth of country economies (Özcan, et al., 2018., Özyıldız, et al., 2018., Utku, 2005., Kıran and Güriş, 2011). Most of the data got from these studies conclude that there is a positive relationship between trade openness and economic growth. Therefore, many developing countries that want to accelerate economic growth; They want to implement the incentive packages and necessary infrastructure services to attract foreign direct investments to their own countries by implementing open economic policies (Karaca et al., 2022). As understood from the results of the research, foreign direct investments, and trade openness have a great importance for the country's economies (Acaravcı and Akyol, 2017). In this context, we can say that policymakers who can attract foreign direct investments to their countries and see foreign trade as the first step of industrialization and increase production, employment, and exports in the country can be successful in economic growth, while those who cannot do this will fail (Ekinci, 2011).

While Turkey was implementing import substitution policies before 1980, it put the openness policy into effect with the decisions of January 24, 1980. Although Turkey's ability to attract foreign capital increased significantly because of the determination of the openness policy, a deterioration in the current account balance and the need for financing emerged at the end of this period. In this period, this need was tried to be met with portfolio investments and direct foreign investments (Güriş and Gözgör, 2015). As shown on the left panel of Figure 1, foreign direct investment entering Turkey has increased since 1980. While the share of foreign direct investments in total GDP was 0.026% in 1980, this rate increased to 1.134% in 1981. Aydemir et al. (2012), the early 2000s point to another period in which direct foreign investments in the world increased. In this period, parallel to the increase in world direct foreign investments, the share of foreign direct investments in GDP in the Turkish economy increased by 3.58%. With the impact of the 2001 financial crisis, foreign direct investments decreased rapidly on a global scale, and the share of foreign direct investments in the total GDP in the Turkish economy decreased to 0.45% in 2002. The share of foreign direct investments in GDP, which increased significantly from 2005 to 2008, decreased in 2009 and 2010. While the share of foreign direct investments in total GDP was 2.229% in 2015, it is seen that this rate reached 1.445% by 2022. Commercial openness, defined as the removal of state control over trade in goods and services, has facilitated international trade for Turkey. As seen in the right panel of Figure 1, the share of foreign trade in GDP has grown in the Turkish economy with the January 24 decisions. With the abandonment of import substitution policies, activities to increase exports and the impact of technological development, imports had a positive impact on economic growth. In this context, while the ratio of imports and exports, defined as trade, to GDP in the right panel of Figure 1 was approximately 17% in 1980, this ratio increased to approximately 80.5% in 2022. Finally, when we consider the GDP growth rate per capita in the Turkish economy, we encounter a fluctuating trend. The increase in GDP per capita, which was 0.855% in 1970, turned negative between 1978 and 1981. The increase in GDP per capita, which rose to 2.775% in 1981, displayed a negative outlook, especially in 1999, 2001, 2008, 2009 and 2019, when the effects of the financial crisis periods were felt. The GDP per capita increase level, which was observed as 1.148% in 2020, increased to 10.513% in 2021.

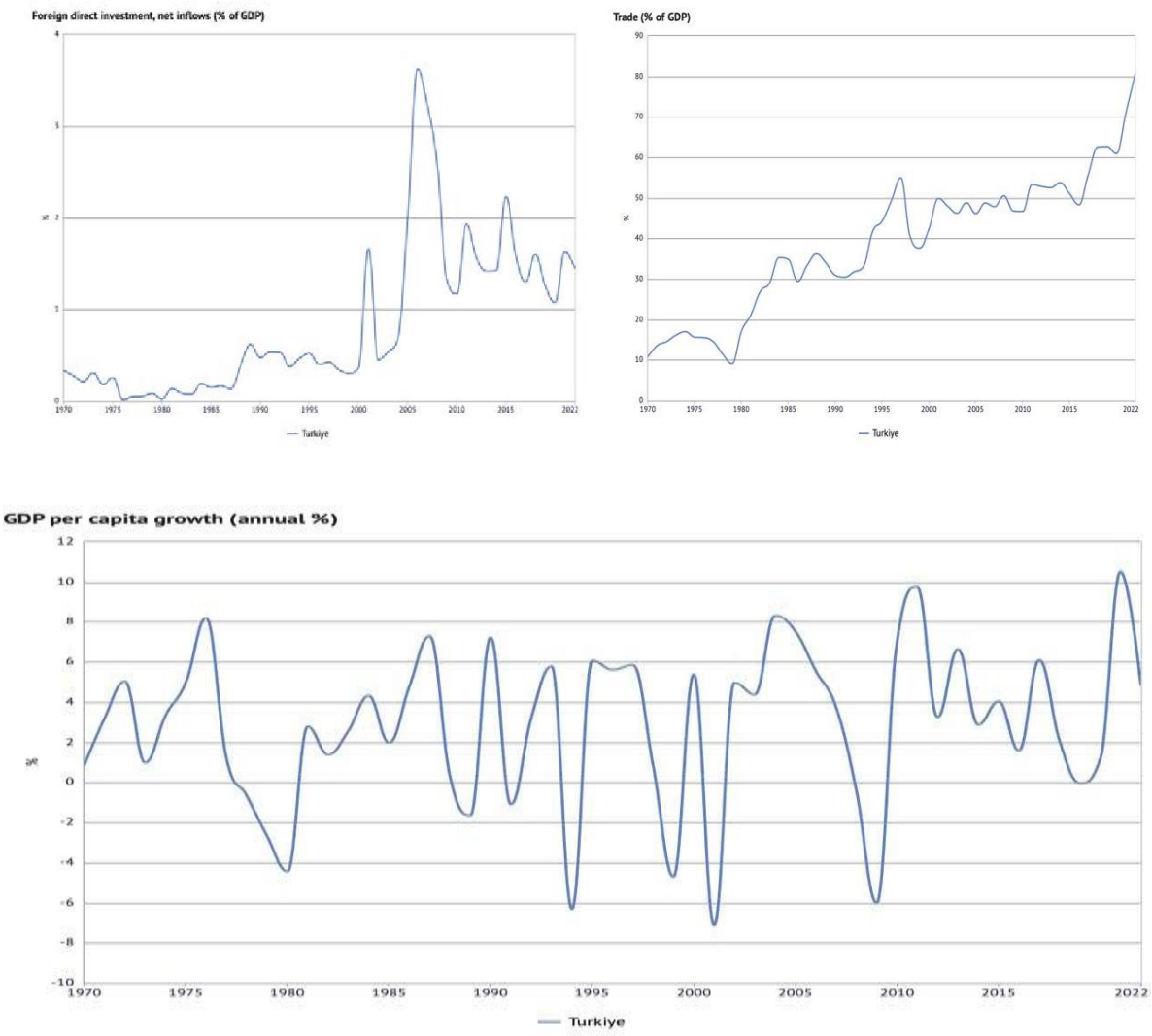

Figure 1 – Foreign Direct Investments, Trade Openness And Economic Growth (1970-2022)
Note: Knoema, World Development Indicator (WDI),2023.

The aim of this study was to assess the influence of foreign direct investments and trade openness on the economic growth of the Turkish economy between 1980 and 2022. While some empirical studies in the international literature suggest that foreign direct investments and trade openness have a positive effect on the growth of country economies, some studies suggest that the relationship in question is negative. Studies conducted specifically for the Turkish economy have also reached different results, similar to the international literature. The second part of the study includes a literature review of studies examining the impact of foreign direct capital investments and trade openness on economic growth. The third section presents the data set and methodology that will be utilized to investigate empirically the impact of foreign direct investments and trade openness on economic growth, following the literature review. While the fourth chapter of the study is devoted to the presentation of the empirical results got, the fifth chapter is devoted to the results and evaluation.,

Lıterature revıew

In the international literature has many theoretical and empirical studies effect of the foreign direct investments and trade openness on the economic growth. Among these studies, specifically the relationship between foreign direct investments

and economic growth while it is seen that different positive or negative results are got depending on the method, analysis, country, or country groups used, it is seen that predominantly positive results are got in the relationship between trade openness and economic growth. It is seen that different results are got in studies examining the relationship between foreign direct investments and trade openness with economic growth in Turkey specifically. The reason for this can be explained because, as explained above, economic growth in Turkey is directly related to different internal or external reasons other than FDI and trade openness. For example, when the relations between FDI and economic growth are examined within international literature; Borensztein, Gregorio, and Lee (1998) discussed the effects of foreign direct investments on economic growth in the period between 1970-79 and 1980-89. This study was researched using the regression technique (SUR) based on panel data sets. The results show that some state that foreign direct investments are an important tool for technology transfers and that FDI contributes relatively more to growth than domestic investments. Choong, Yusop, and Soo (2004) discussed their study on the economic growth of foreign direct investments and the development of the financial sector through Granger causality analysis. They concluded that foreign direct investments are not directly related to economic growth or that foreign direct investments alone cannot be sufficient for economic growth. Batten and Vo (2010) discussed the relationship between FDI and economic growth using a panel data model technique. In this study, the authors also pointed of the broader social policy objectives, such as education and institutional reform, to maximize foreign direct investment. According to Hermes and Lensink (2010), FDI can only contribute to economic growth if the financial system and technological infrastructure develop simultaneously. Forte and Mouro (2013), in their theoretical and empirical study on FDI's economic growth of host countries; They emphasized that in order for FDI to have a positive impact on the host country, that country must have adequate levels of human capital and economic and technological conditions. Iamsiraroj (2016) explains the link between foreign direct investments and economic growth; associated it with the simultaneous equation system approach and the estimation of instrumental variables. The author found both a positive and a negative, a bidirectional relationship between FDI and economic growth. Dollar (1992) was stated that since there would be an increase in the export volume of countries that open their economies to the outside world, the growth rates of the countries would also increase. He also explained that the increase in exports will enable developing country technologies to be renewed faster, as it facilitates access to imported inputs and machinery-equipment. There are studies examining the effects of foreign direct investments and trade openness on economic growth in Turkey. In the study conducted by Lee (1993) which is related to the neoclassical open economy model stated that not only domestic inputs are used in the production of countries but also imported inputs. Therefore, some state that customs tariffs, which are one obstacle to international trade in a country that is open to the outside world, will negatively affect the growth and national income per capita in the country in the long term. In the study conducted by Maggi and Rodrigues-Clare (2000), it was stated that applied foreign trade policies have an active role in the growth of developing countries, and that the most basic way to increase the growth rate in all countries can be achieved through adaptation and integration movements with the world economy. Different results have been found in studies examining the relationship between FDI and trade openness with economic growth in Turkey specifically. Türker (2006), in his study titled "Outward Open Growth: The Case of Turkey", applied VAR analysis in the period between 1988 and 2005 and stated that foreign trade in Turkey has a significant impact on the increases in the national income level. For example Ayaydın (2010) used VAR causality analysis in his study examining the relationship between FDIs and economic growth in Turkey covering the period between 1970 and 2007; It has been determined that there is a strong positive relationship between FDI and economic growth in Turkey. Kurt and Berber (2008) discussed the relationship between openness and economic growth in Turkey between 1989 and 2003 with time series analysis. According to the results that imports and exports affect economic growth, that there is a bidirectional causality relationship between growth and imports, but that there is a unidirectional causality relationship from growth and imports to exports. Bertola and Prete (2013) used panel data analysis in their study titled finance governments and trade in the period between 1980 and 2007; They explained that financial development has a

positive effect on openness. Özel and Sezgin (2014) analyzed the relationship between trade liberalization and economic growth between 1998 and 2011 with the help of bootstrap quantile regression. According to the analysis results that there is a positive relationship between trade openness and economic growth. Şahin (2015) examined the relationship between FDI and economic growth in Turkey between 1980 and 2013 with the ADRL bounds test. The results of the analysis show that the economic growth is the dependent variable and there is a statistically significant long-term relationship from foreign direct capital investments to economic growth. Acaravcı and Akyol (2017) tried to reveal the relationship between FDI, foreign trade, and economic growth in Turkey between 1998 and 2015 through time series analysis. The results of the analysis show that the import-led growth hypothesis is supported by Turkey. They also concluded that imports and FDI increase productivity in the country and support economic growth. Taşdemir and Erdaş (2018), in their study covering the period between 2006Q1 and 2016Q4; They explained the relationship between FDI and economic growth in Turkey using impulse-response analysis and variance decomposition analysis. As a result of the econometric analysis, FDI causes economic growth in Turkey. Sevüktekin and Öz (2021), with data from the period of 1980-2018, examine the relationship between FDIs and economic growth in Turkey; They examined it with Granger causality and VAR model. According to the analysis results show that FDI is not a direct cause of economic growth in Turkey. However, it was concluded that economic growth is a reason for foreign direct investments. Karaca, Güney, and Hopoğlu (2022) examined the relationship between trade openness-FDIs and economic growth in the BRICS-T countries using the data between 1992 and 2019 with the panel data analysis method. As a result of this analysis, a bidirectional causality relationship was found between growth and trade openness in the studied period for the panel of BRICS-T countries. A unidirectional causality relationship was found from growth to FDI. Kılıç and Kızılkaya (2023) analyzed the relationship between FDIs and economic growth between 1990 and 2020 with the ARDL time series. According to this study, the variables in question are cointegrated in Turkey and in the long term, FDI, BSSO, and ENF variables are, in the short term; They found that FDI and BSSO variables had a positive impact on GDP figures. Zengin (2023) applied Toda-Yamato analysis in the study, addressing the relationship between financial development data published by the IMF between 1980 and 2020 and financial development and economic growth in Turkey. According to the results, the financial institution development index and the financial development index have a bilateral causality relationship with growth, as well as a unilateral causality relationship from economic growth to the development of financial markets. Güzel and Tünsoy (2023) used panel data analysis in their study on the relationship between FDI and foreign trade between 1997 and 2017. The results of the analysis show a statistically positive relationship between FDI and the import and export volume of the host country where the investment is made, and that FDI positively affects the foreign trade volume of the country.

Data and methodology

The study investigates the connection between Foreign Direct Investments (FDI), Trade Openness (TO), and Economic Growth (GDP) in the Turkish economy spanning from 1980 to 2022. It employs the ratio of total import and export to GDP, the ratio of net foreign capital inflow to GDP, and real per capita income as measurements of economic growth. While TO and FDI variables were included in the analysis as% change, the logarithm of the data for the GDP variable was taken. The data in the study was got from the World Bank database. Descriptive statistics for the variables used in the study are shown in Table 1.

As seen in Table 1, the variable with the highest average is TO, while the variable with the lowest average is FDI. The standard deviation of the TO variable is higher than the other variables. The skewness coefficient shows all series are skewed to the right. Statistical results regarding the kurtosis coefficient show that the GDP and TO series are flattened, while the FDI series has a vertical distribution. Probability results of the Jarque-Bera test statistics show that the FDI series does not have a normal distribution, while the GDP and TO series have a normal distribution.

Table 1 – Descriptive Statistics

	GDP	FDI	TO
Mean	8.847	0.985	41.375
Maximum	9.546	3.623	80.500
Minimum	8.276	0.026	12.919
Std. Dev.	0.365	0.864	15.424
Skewness	0.265	1.167	0.187
Kurtosis	1.927	3.996	2.530
Jarque-Bera	2.566	11.545	0.646
Probability	0.277	0.003	0.723
Observations	43	43	43

In the study, first, the stationarity levels of the variables were examined with Augmented Dickey-Fuller (ADF) and Phillips Perron (PP) unit root tests. After determining the stationarity levels of the variables, the cointegration relationship between the series was investigated via the Johansen cointegration test. Johansen cointegration test tests the validity of the null hypothesis stating that there is no cointegration between the series, as opposed to the alternative hypothesis that there is a cointegration relationship between the series. Testing the null hypothesis is based on the comparison between the got Trace and Maximum Eigenvalue statistics and critical values. The null hypothesis is accepted or rejected depending on whether this statistical value is greater than the critical values of 1% and 5%. In equation numbered (1) T is the sample size and λ_i is formulated to define the characteristic roots got from the matrices of the series. The Trace statistic value is formulated through equation numbered (1) (Johansen and Juselius,1990; Dwyer,2015; Kumari et al.2021):

$$\lambda_{Trace}\left(\begin{matrix} r \\ k \end{matrix}\right) = -T\sum_{i=r+1}^{k}\ln(1-\hat{\lambda}_i) \qquad (1)$$

In the trace test, the null hypothesis of r cointegrated vectors and the alternative hypotheses of n cointegrated vectors are examined. In the maximum eigenvalue test, unlike the trace test, the maximum cointegration is investigated and the null hypothesis of the r cointegrated vector is compared with the alternative hypotheses of the r+1 cointegrated vectors. The maximum eigenvalue test statistic is shown in equation (2):

$$\lambda_{\max}(r, r+1) = -T\ln(1-\hat{\lambda}_{r+1}) \qquad (2)$$

The first step in the computation of the Trace and Maximum eigenvalue statistics in the Johansen cointegration test involves establishing the lag length order, denoted as p. The lag length should be calculated using a first-order Vector Autoregressive (VAR) model. In the study, the lag length was determined by taking the Akaike Information Criterion into consideration. According to the results got from the Johansen cointegration test, the null, and alternative hypotheses asserting that $r = 0$ there is no cointegration relationship, $r \geq 1$ there is at least one cointegration relationship and $r \geq 2$ that there are at least two cointegration relationships between the series, were compared and it was decided whether there is a cointegration relationship between the series. After detecting a cointegration relationship between the series, the Granger causality test was used to investigate whether there was a causality relationship between the series. Granger causality test tests the existence and direction of a one- or two-way causality relationship between more than one variable. In this test, the possibility of one variable being the cause of another is calculated by adding the current and past values of a variable to the model. Granger causality test is shown in equations (3) and (4) (Granger, 1969):

$$X_t = \sum_{j=1}^{m} a_j X_{t-j} + \sum_{j=1}^{m} b_j X_{t-j} + \varepsilon_t \qquad (3)$$

$$Y_t = \sum_{j=1}^{m} c_j X_{t-j} + \sum_{j=1}^{m} d_j Y_{t-j} + \mu_t \qquad (4)$$

(3) and (4) are the error terms in the models and represent two unrelated white noise series. Under the assumption that the error terms are distributed around zero mean and have constant variance, the causality relationship between X_t and Y_t is based on testing the alternative hypothesis $H_1 = b_j \neq 0$ against the null hypothesis $H_0 = b_j = 0$. While the null hypothesis $H_0 = b_j = 0$ states that there is no Granger causality relationship between the series, the alternative hypothesis $H_1 = b_j \neq 0$ reveals that there is a causality relationship between the series (Granger, 1969).

Empırıcal results

In the study, first, the stationarity levels of the series were examined with ADF and PP unit root tests. As presented in Table 2, the stationarity of the variables was first examined for their level values, and the null hypothesis that all variables were stationary at their level values was rejected at the 1% significance level in the intercept and trend and intercept models. Following this result, the first differences of the series were taken and the null hypothesis, which stated that the series were not stationary at their first differences, was accepted at the 1% significance level for all variables in the intercept and trend and intercept models.

Table 2 – ADF and PP Unitroot Test Results

ADF				
Variables	Intercept		Trend and Intercept	
	Level	1st diff.	Level	1st diff.
GDP	0.525 [0.985]	-6.773 [0.000]	-2.141 [0.508]	-6.821 [0.000]
FDI	-2.240 [0.195]	-6.098 [0.000]	-2.905 [0.171]	-6.026 [0.000]
TO	0.229 [0.971]	-5.666 [0.000]	-1.860 [0.657]	-5.652 [0.000]
PP				
Variables	Intercept		Trend and Intercept	
	Level	1st diff.	Level	1st diff.
GDP	1.510 [0.999]	-7.195 [0.000]	-2.172 [0.491]	-8.376 [0.000]
FDI	-2.089 [0.249]	-11.278 [0.000]	-2.781 [0.211]	-11.742 [0.000]
TO	0.346 [0.978]	-5.052 [0.000]	-1.860 [0.657]	-5.045 [0.001]

Note: Expressions in parentheses are probability values for testing the null hypothesis.

After testing the stationarity of the variables and making the non-stationary series stationary by taking their first differences, the Johansen cointegration test was used to examine whether the series moved together in the long run. In the first step, a VAR(p) model was established to identify the optimal lag length, which was determined to be 5 after considering the Akaike Information Criterion. The lag lengths for the VAR(p) model are presented in Table 4.

Table 4 – VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-168.4601	NA	1.666330	9.024218	9.153501	9.070216
1	-60.87568	192.5196	0.009319	3.835562	4.352695*	4.019554*
2	-51.43347	15.40572	0.009200	3.812288	4.717270	4.134274
3	-44.25429	10.57984	0.010384	3.908121	5.200952	4.368100
4	-29.38797	19.56095*	0.008002	3.599367	5.280047	4.197340
5	-17.16644	14.15125	0.007326*	3.429812*	5.498342	4.165780

Note: * indicates lag order selected by the criterion. LR: Sequental modified LR test statistic, FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion.

The results got from the Johansen cointegration test presented in Table 5 show that in the first two models, the Trace and Max-Eigen test statistics are larger than the 1% and 5% critical values, and in the last model, the said values are smaller than the 1% and 5% critical values. According to these results, a cointegration vector was found between GDP, FDI and TO variables and the series move together in the long run.

After it was found that the series moved together in the long term, the causality relationship between the series was examined with the Granger causality test. According to the Granger causality test results presented in Table 6, the null hypothesis that GDP is not the cause of FDI was statistically rejected at the 5% significance level. The null hypothesis that GDP is not the Granger cause of TO and that TO is not the Granger cause of FDI was rejected at the 1% significance level for both cases. In this context, Granger causality test results reveal the existence of a one-way causality relationship from GDP to FDI and TO and from TO to FDI.

Table 5 – Johansen Cointegration Test Results

Ho Hypothesis	Trace	Critical Value		Max-Eigen	Critical Value	
	Statistic	%5	%1	Statistic	%5	%1
$r = 0$	78.104***	35.192	41.195	46.154***	22.299	27.067
$r \geq 1$	31.949***	20.261	25.078	26.055***	15.892	20.161
$r \geq 2$	5.894	9.164	12.760	5.894	9.164	12.760

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

Table 6 – Granger Causality Test Results

Null Hypothesis:	F-Statistic	Prob.
FDI does not Granger Cause GDP	0.561	0.575
GDP does not Granger Cause FDI	4.994**	0.012
TO does not Granger Cause GDP	1.451	0.247
GDP does not Granger Cause TO	3.074*	0.058
TO does not Granger Cause FDI	3.101*	0.057
FDI does not Granger Cause TO	0.763	0.473

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

Conclusıon

Foreign trade and financialisation movements, which have sped up since the 1980s, have significantly affected the growth levels of countries. Countries that adopted an import substitution approach, such as Turkey, abandoned this approach and determined outward-open growth strategies, leading to their classification in the global economy according to their foreign direct investments and openness levels. Considering that the basic growth strategies, especially in developing economies, depend on the intensity of imported capital goods and intermediate goods, the steps to be taken to improve these factors become more important. The main aim of this study was to explore *t*he relationship between foreign direct investments, trade openness, and economic growth in the Turkish economy was investigated using data for the period 1980-2022. The Johansen cointegration and Granger causality test methods were used to analyze this relationship. In this direction, first, the stationarity of the series subject to the study was tested and whether the series, which were non-stationary at their level values, moved together in the long run was investigated with the Johansen cointegration test. From the Johansen cointegration test results, it was concluded that there is a cointegration vector between the series. After it was determined that the series moved together in the long term, the causality relationship between them was investigated using the Granger causality test method. According to the Granger causality test results, a one-way causality relationship was found from GDP to FDI and TO

and from TO to FDI. These results shows that the openness rate increases as direct foreign capital inflows increase. On the other hand, findings regarding the causality relationship from economic growth to openness show that, as the economy grows, the rate of openness will also increase. Considering that the trade openness ratio is the ratio of the sum of imports and exports to national income, the sustainability of openness is closely related to the increase in economic growth. Finally, it was determined in the study that there is a unidirectional causality relationship from economic growth to foreign direct investments. Based on this outcome, an increase in the growth rate of the Turkish economy corresponds to a rise in foreign capital inflow. When the study results are evaluated as a whole, the sustainability of growth in the Turkish economy is closely related to foreign direct investments and trade openness rates. As the economy grows, commercial activities with the foreign world increase and direct foreign capital inflow increases. In addition, the increase in foreign direct capital investments depends on the openness of the economy. As the economy grows, the trade openness rate increases, and the country whose trade area expands can attract more foreign direct investment.

Although direct foreign investments have increased in the Turkish economy since 1980, their impact on economic growth has remained limited. This limited impact is because of the involvement of foreign investments in the Turkish economy with the privatization process and purchasing existing investments in the economy or establishing partnerships with domestic activities. In order to reverse this situation and for the Turkish economy to benefit more from foreign direct investments, it is important to organize foreign investments that will create new employment and produce policies that will create new actual investments. Implementing national plans and structural reforms to encourage the flow of foreign investments and directing foreign investments to new investment areas rather than competing with the elements operating in the domestic industry will help foreign investments contribute to economic growth. Increasing the effect of the openness ratio on economic growth is directly proportional to the development of international competitiveness. It is important to develop policies to increase R&D expenditures, technological development, and human capital, which can be described as the competitive forces of the country's economy. Within these policies, establishing the infrastructure for the provision of high value-added goods and services and increasing activities aimed at producing high added value will have a positive impact on economic growth. In addition, developing policies aimed at eliminating the risks that arise because of globalization will contribute to both providing confidence for foreign investments and increasing trade in goods and services. In addition, increasing the diversity of existing sectors in the country and financial services sectors have the potential to have a positive impact on economic growth because of openness to the outside world.

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