Interplay of Foreign Direct Investments, International Trade, and Economic Growth: Evidence from Turkey

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Abstract

Purpose: This paper examines the intricate relationships between foreign direct investments, international trade, and economic growth in the context of Turkey, focusing on key economic indicators and their influence on growth.

Design/methodology/approach: The study employs econometric techniques, including Vector Error Correction Model and regression analysis, to investigate the short-term and long-term interactions among variables such as foreign direct investments inflows and outflows, inflation, labor market indicators, research and development expenditures, openness ratio, interest rate, and real effective exchange rate indices.

Findings: The findings reveal that foreign direct investments inflows and trade openness positively impact economic growth, while foreign direct investments outflows and inflation exert negative effects. Additionally, the study identifies unexpected relationships, such as a positive link between unemployment and growth, providing new insights into Turkey's economic dynamics.

Research limitations/implications: The research emphasizes the need for further investigation into country-specific factors and external shocks that influence the interplay between foreign direct investments, trade, and economic growth in Turkey. Future studies could expand the scope to include comparative analyses with other emerging economies.

Originality/value: This paper contributes to the understanding of how foreign direct investments and international trade shape economic growth in Turkey, offering policymakers valuable insights for designing strategies to manage external shocks and promote sustainable growth in a globalized economic environment.

Keywords: Foreign Direct Investments, International Trade, Economic Growth, Turkey, Vector Error Correction Model

1. Foreing Direct Investments, International Trade and Growth

Foreign direct investment (FDI) gains enhanced significance due to its multifaceted contributions, including managerial expertise, the spread of technology, market-oriented regulations, and the shared allocation of risk among nations and corporations. This heightened importance of foreign direct investment becomes particularly evident when contrasted with traditional borrowing methods. Notably, foreign direct investment establishes a mutually beneficial relationship, providing advantages to both the

home country, the source of capital, and the host country, the recipient of the invested capital. It's crucial to emphasize that unrestricted access to cutting-edge technology plays a vital role in driving sustainable economic progress.

As capital flows serve as conduits for both technological diffusion and financial assets, a holistic process unfolds. This leads to a consequential outcome where the host country witnesses an inevitable increase in per capita Gross Domestic Product, underscoring the transformative potential of foreign direct investment.[1]

Investors exhibit a pronounced inclination towards exerting control over direct investment initiatives for two fundamental motives. Primarily, this proclivity originates from the imperative to safeguard the integrity of the investment, a paramount concern encompassing the preemptive mitigation of potential exploitation vis-à-vis patented and technology-intensive proprietary assets. This pertains not solely to the purview of cross-border investment endeavors but also resonates within the ambit of domestic investment undertakings. Notably, commodities characterized by their technology-intensive nature incur substantial costs attributed to the exigencies of research and development (R&D) outlays. In consequence, the proclivity for investor control stems from the imperatives of curbing unapproved recourse to these assets, thereby safeguarding their integrity and potential value augmentation.[2]

According to the World Bank's 2017/2018 Global Investment Competitiveness Report, when considering making foreign direct investment decisions in developing countries, several factors hold particular significance. These factors, when ranked in order of importance, include: political and political stability, existence of legal and regulatory framework, market size, macroeconomic stability and appropriate exchange rate, skilled and well-educated workforce, physical infrastructure, low tax rates, low labor and input costs, accessibility in domestic market and access to investment land and real estate. [3]

In summary, when making decisions to allocate capital across international borders, all these factors are considered, and ultimately, a comprehensive investment decision is reached.

Dunning explicates the potential benefits of various types of international capital investments for enhancing the host country's competitiveness in the following manner. Resource-seeking Foreign Direct Investments contribute to the augmentation of the host nation's competitive prowess through the acquisition of complementary assets, such as technological, managerial, and organizational proficiencies, alongside facilitating access to foreign markets and fostering elevated production quality. Additionally, it can lead to partial reconfiguration such as secondary processing activities on industrial customers. Market-seeking FDI, while also bestowing complementary assets, encourages feedback loops, fortifies specialized labor markets, and reinforces economies of scale, consequently expanding the customer base in consonance with the anticipations of indigenous competitors. Efficiency-seeking FDI, while elevating production quality and aiding structural reforms, simultaneously catalyzes the evolution of division of labor and cross-border networks. Lastly, strategic asset-seeking FDI can accrue benefits by endowing new capital and complementary assets on a financial scale. [4]

What makes international trade significant is its direct impact within the framework of economic growth and development. The theory of absolute and comparative advantages, as expounded by Adam Smith and David Ricardo, highlights that countries tend to specialize in goods with relatively lower opportunity costs. Through this specialization, they aim to achieve the highest profit possible in mutual trade between two countries. The paramount objective is to maximize profit, enhance national welfare, and improve the quality of life.

In the context of international trade, when exports experience an upswing, it triggers an upward trajectory in production. This occurs as long as the external demand for domestic goods increases and doesn't result in a reduction of internal demand for these goods. Furthermore, it's preferable that the reinforcement of domestic demand through imports doesn't surpass the magnitude of export activities. Inevitably, the surge in exports stimulates a heightened competitive environment in domestic markets. Simultaneously, it nurtures the realization of economies of scale and paves the way for technological advancements. [5]

2. International Trade Policies of Turkey

Following its decision to transition to outward-oriented industrialization policies on January 24, 1980, Turkey underwent a discernible escalation in its foreign trade engagements. Over the ensuing years, this strategic shift engendered a marked augmentation in the proportions of both exports and imports. This phenomenon was chiefly propelled by the heightened volume of trade transactions that ensued as a direct consequence of the nation's intensified involvement in international trade.

In light of global and regional economic relations, examining the provisional foreign trade data for July 2018 from the "Foreign Trade Statistics Bulletin" issued by the Turkish Statistical Institute (TÜİK) on August 29, 2018, reveals notable insights regarding Turkey's economic performance. In this context, it is evident that Turkey exhibited a substantial 11.6% increase in its export volume, reaching USD 14,077 billion, when compared to the corresponding month of 2017. Conversely, the import rate experienced a contraction of 6.7%, settling at USD 20,059 billion. [6]

Table 1: Foreign Trade Data in Turkey by Years, 1980-2017 [6]

Years	Balance of Foreign Trade (Thousand $)	Volume of Foreign Trade (Thousand $)	Proportion of Import Covered by Exports (%)
1980	-4,999,242	10,819,486	36,8
1985	-3,385,367	19,301,386	70,2
1990	-9,342,838	35,261,413	58,1
1995	-14,071,970	57,346,052	60,6
2000	-26,727,914	82,277,727	51,0
2005	-43,297,743	190,250,559	62,9
2010	-71,661,113	299,427,551	61,4
2015	-63,395,487	351,073,230	69,4
2016	-56,088,651	341,147,819	71,8
2017	-76,806,711	390,792,592	67,1

As portrayed in Table 1, the ratio of exports to imports registered a decline, plummeting to 67.2%. Noteworthy is the fact that Germany, the United Kingdom, and the United States emerged as the foremost export destinations for Turkey. Industries exhibiting the most notable increase in exports included jewelry (177.2%), steel (43%), and fresh fruits and vegetables (10.2%). The sectors contributing significantly to Turkey's export activity encompass the automotive, ready-made garments and clothing, chemical substances and products, steel, and jewelry industries.When scrutinizing foreign trade data based on technological intensity, the proportion of manufacturing industry products in total exports is notable, constituting 94.9%. Within this framework, the share of high-technology products in manufacturing industry exports stands at 2.8%, whereas moderately high-technology products contribute to 37.1% of the total. In terms of imports, manufacturing industry products account for a substantial 78% of the total. Specifically, in July 2018, the share of high-technology products within the scope of manufacturing industry imports was 13.5%, while moderately high-technology products constituted 42.8% of the overall figure. [6]

After 1980, we observe a shift in Turkey's economic strategy from import-substitution industrialization to an outward-oriented industrialization and growth policy. As a result of this transition, there has been a notable increase in foreign trade figures. During this period, the volume of foreign trade expanded significantly. However, it's noteworthy that the trade balance consistently exhibited a growing deficit.

Upon examining Table 1, it becomes feasible to interpret the trajectory of foreign trade in conjunction with the structural and strategic transformations implemented in the economy after the decisions of January 24, 1980. Following these shifts, the evolution of foreign trade can be analyzed as follows: While the volume of foreign trade consistently exhibited growth in the post-1980 period, the trade balance consistently registered deficits that expanded over time.

The implication of this trend necessitates a deeper analysis: Over the past 38 years, both export and import ratios have increased. However, this increase is not characterized by stability, indicating fluctuations and variations in the trade dynamics.

A. Research study

In this section of our study, we will analyze the relationships between foreign direct investment, international trade, and economic growth within the framework of international capital flows. This examination will be conducted from an econometric perspective, utilizing time series data from the specified period for the Turkish economy. Specifically, the impacts of foreign direct investment on international trade and economic growth will be explored, focusing on their influence on economic growth in relation to trade volume and capacity. The interdependencies between these three parameters will also be discussed, and their significance will be rigorously tested.

B. Literature review

The International Monetary Agreement signed at the 1944 Bretton Woods Conference brought about a revision of the international monetary system and facilitated the swift and effective transcending of capital flows to a supranational status. Academics like Hymer, Dunning, and Kojima have pioneered research on the mobility of capital and production, conducting both regional and global-scale studies. [7][4][8]

Writer	Country	Years	Method	Result
O'Sullivan (1993) [9]	UK	1960-1980	2SLS method	Positive and significant relationship between FDI and various aspects including export

Writer	Country	Years	Method	Result
				orientation, domestic capital creation, and more.
Lin (1995)[10]	Taiwan, Asia	-	Least Squares method	Positive relationship between trade and FDI, world trade's positive impact on FDI.
Stone & Jeon (2000)[11]	Asia-Pacific	1987-1993	Cross-sectional analysis	Significant and positive relationship between trade and FDI, complementarity observed.
Pantulu & Poon (2003)[2]	USA, Japan	-	Spatial Proximity model	Positive and significant relationship between FDI and trade, FDI's complementarity with trade.
Makki & Somwaru (2004)[12]	Developing nations	-	Panel data analysis	Strong and positive relationship between FDI and trade, contribution to economic growth.
Pacheco-Lopez (2005)[13]	Mexico	1970-2000	Granger causality test	Long-term and bidirectional causality between FDI and trade.
Mangalhaes & Africano (2007)[14]	Portugal	1995-2000	Panel data analysis	Complementary relationship observed between FDI and trade.
Alagöz, Erdoğan, Topallı (2008)[15]	Turkey	1992-2007	ADF unit root, Granger causality	No significant mutual causality between FDI and economic growth, positive correlation between FDI magnitude and economic growth.
Altıntaş (2009)[16]	Turkey	1996-2007	VAR method, Granger causality	Long-term causality between import, export, and FDI, FDI increase leads to export increase.
Hailu (2010)[17]	Africa	1980-2007	Least Squares Dummy Variable	Positive relationship between FDI and trade balance.
Collie (2010)[18]	-	-	Cournot duopoly model	High transportation costs increase trade volume paradoxically.
Göçer, Bulut, Dam (2012)[19]	Turkey	2000-2010	Cointegration analysis	Long-term positive effect of FDI on export, short-term positive lagged effect.
Kim, Lin, Suen (2013)[20]	85 countries	-	Nonlinear threshold regression	Trade beneficial for high-income nations, FDI beneficial for low-income nations.

Writer	Country	Years	Method	Result
Wagner (2014)[21]	-	-	Regression, distribution analysis	FDI firms less productive in exports, no hierarchy in service sector firms.
Taşpınar (2014)[22]	Turkey	-	ECM, Error Correction Model	Changes in FDI and domestic savings affect real income in Turkey.
Üçler (2017)[23]	20 developing countries	1990-2014	Cross-sectional analysis, ECM test	Institutional quality positively impacts FDI.
Hüseyni (2017)[24]	BRICS, Turkey	-	Index-based analysis	Positive effect of FDI on export sophistication.
Erdoğan (2017)[25]	Latin America, Turkey	1980-2012	Linear regression, ARDL model	Short and long-term relationships between FDI and macroeconomic determinants.

In the realm of academia, upon delving into the chronological review of literature, it becomes apparent that a multitude of studies have been conducted pertaining to the interplay between international capital flows and international trade. However, what stands out prominently is the contemporary trend of scholarly focus on the intricate nexus between trade and capital, underscoring the heightened significance that the notion of "capital" and the dynamics of global capital movements have assumed in recent times.

C. Research data

The variables utilized within the scope of the analysis are annual data covering the period from 1990 to 2016. The data has been obtained from multiple sources, namely the World Bank, United Nations Conference on Trade and Development (UNCTAD), and the Electronic Data Distribution System (EVDS) of the Central Bank of the Republic of Turkey. The symbols corresponding to each variable, along with their respective sources, are depicted in Table 2.

Throughout our analysis, the aforementioned symbols denoting each variable are employed, with their data originating from the specified sources.

Table 2: Definition of Data

Variable	Description	Source	Unit
FDIin	FDI Inflows	UNCTAD	Million Dollars ($)
FDIout	FDI Outflows	UNCTAD	Million Dollars ($)
CPI	Inflation Rate	World Bank	Percentage (%)
GDPCAP	GDP per Capita	World Bank	Million Dollars ($)

RD	R&D Expenditures (% of GDP)	World Bank	Percentage (%)
DAO	Openness Ratio (Ratio of Foreign Trade parameters to GDP)	World Bank	Percentage (%)
FAİZ	Interest Rate	TCMB - EVDS	Percentage (%)
REEL	Real Effective Exchange Rate	TCMB - EVDS	Percentage (%)
UNEMP	Unemployment Rate	World Bank	Percentage (%)

D. Model and Methodology

Analyses were conducted on the defined dataset, utilizing annual data for the period spanning from 1990 to 2016. The purpose was to explore the effects of macroeconomic indicators encompassing international trade and growth, as well as foreign direct investment. This allowed for a comparative analysis of the included variables. The analytical process unfolded in the following sequence: The stationarity of time series data was assessed using Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests. [26] [27] This preliminary step aimed to ensure the suitability of the data for further analysis. Granger causality tests were employed to ascertain the direction of causality between the variables. [28] This step provided insights into whether one variable could be used to predict the behavior of another variable. The relationship between economic growth, represented by per capita GDP, and the variables of interest was explored. To this end, the Johansen cointegration test and Vector Error Correction Model (VECM) were utilized to determine the presence of short-term and/or long-term relationships. [29][30]This approach shed light on whether the variables exhibited a significant relationship with economic growth.

The conducted tests and analyses yielded detailed results, enabling a comprehensive understanding of the interactions between the variables under investigation.

Table 3: Stationarity Results with ADF and Phillips-Perron Unit Root Tests

Period		1990-2016	
Variable		ADF	PP
FDIin	Stationary	-1.043	-1.301
	Stationary and Trended	-1.945	-2.197
FDIout	Stationary	1.099	-1.414
	Stationary and Trended	-0.681	-2.773
GDPCAP	Stationary	-0.701	-0.521
	Stationary and Trended	-1.583	-2.041
CPI	Stationary	-4.333***	-0.776
	Stationary and Trended	-2.386	-2.262
UNEMP	Stationary	-1.110	-1.791
	Stationary and Trended	-2.252	-2.277
RD	Stationary	0.090	0.049
	Stationary and Trended	-2.125	-2.280

DAO	Stationary	-2.775*	-2.473
	Stationary and Trended	-3.700**	-2.254
FAİZ	Stationary	-1.122	-0.903
	Stationary and Trended	-2.387	-3.059
REEL	Stationary	-1.595	-2.651*
	Stationary and Trended	-0.224	-2.964

Note: *, **, and *** indicate significance levels of 10%, 5%, and 1%, respectively. Critical values for the ADF and PP tests are -2.630, -3.000, and -3.750 for the level model, and -3.240, -3.600, and -4.380 for the trend model. The lag length is set to 1.

Table 3 presents the results of the extended Dickey-Fuller and Phillips-Perron unit root tests. In this table, the stationarity of the T-statistic values in relation to the critical values for the ADF and PP unit root tests is examined. According to the results of the ADF test, within the modeling framework where all series for the given period are considered as a whole, the CPI variable is found to be stationary within the 1% significance level under the stationary model. Additionally, the DAO variable is stationary at the 10% significance level under the stationary model and at the 5% significance level under the stationary and trended model. However, the other variables used for the 1990-2016 period are found to be non-stationary. The null hypothesis indicating the presence of significance-containing variables is rejected.

Analyzing the results of the PP test for the same period, it is observed that only the real effective exchange rate variable exhibits stationarity at the 10% significance level. As for the other variables, they are non-stationary; the null hypothesis cannot be rejected, indicating the presence of a unit root.

It should be noted that the MacKinnon p-statistic values for variables that do not exhibit a stationary relationship for all series are greater than 0.05 at the 0.05 confidence level. In other words, if $p > 0.05$, the series is non-stationary and contains a unit root. [31]

So, based on the results of the stationarity and unit root tests, it is assumed that all variables will remain constant at a certain level and will become stationary after taking their first differences. This assumption has been tested.

Table 4 presents only the results of the causality tests that establish the cause-and-effect relationships. Analyzing the Granger causality test results, it is observed that the variable of GDP per capita, which we used as the dependent variable in our model, does not affect any of our independent variables.

Table 4: Granger Causality Test Results

Period		1990 -2016
Direction of Causality		Prob > F
RD →	CPI	0.0944*
RD →	DAO	0.0453**
RD →	REEL	0.0413**
RD →	ALL	0.0780*
UNEMP →	GDPCAP	0.0012***
UNEMP →	FDI_{in}	0.0012***
UNEMP →	FDI_{out}	0.0082***
UNEMP →	RD	0.0809*

UNEMP→	CPI	0.0013***
UNEMP→	FAİZ	0.0206**
UNEMP→	REEL	0.0007***
UNEMP→	ALL	0.0003***
FAİZ→	FDI$_{in}$	0.0812*
FAİZ→	FDI$_{out}$	0.0960*
FAİZ→	UNEMP	0.0434**
FAİZ→	CPI	0.0028***
FAİZ→	DAO	0.0212**
FAİZ→	REEL	0.0086***
FAİZ→	ALL	0.0103**

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

Examining the results of the Granger causality test in Table 4, it can be generally observed that the variables of R&D, unemployment, and interest rates have an impact on some of the other variables. The causality results observed for the time series can be explained as follows:

The R&D variable can be identified as a cause for the CPI and all other variables at the significance level of 10%, and as a cause for the trade openness ratio and the real effective exchange rate at the significance level of 5%.

The unemployment variable is a cause for GDP, inward FDI, outward FDI, CPI, real effective exchange rate, and all other variables simultaneously at the significance level of 1%. Additionally, unemployment is identified as a cause at the significance level of 10% for the R&D variable and at the significance level of 5% for the interest rate variable.

The interest rate variable, on the other hand, is found to be a cause at the 10% significance level for FDI inflow and FDI outflow, and at the 5% significance level for unemployment, openness ratio, and all other variables. Moreover, it is identified that the interest rate variable is a cause at the 1% significance level for both the Consumer Price Index and the real effective exchange rate. It should be noted that there is a bidirectional relationship between the unemployment and interest rate variables, meaning that these two variables influence each other reciprocally.

In this context, it is observed that three variables, namely R&D, unemployment, and interest rates, predominantly affect the other variables. However, the crucial point, as mentioned earlier, is that the dependent variable, which is the GDP per capita, is not caused by any of the other independent variables in any form.

Co-integration analysis examines the relationship between time series variables that individually lack stationarity but become stationary when combined. This helps identify links between non-stationary variables. For valid co-integration tests, variables must not be stationary at I(0) but should be at I(1) when differenced. Co-integration tests are crucial for assessing both short and long-term effects without removing them.

Table 5: Determination of Delay Lengths

Variable	Delay	LL	LR	FPE	AIC	HQIC	SBIC
FDI$_{in}$	1	-409.254	68.905	1.7e+13	36.109	36.1835*	36.4052*

FDI$_{out}$	1	-373.635	73.814	7.5e+11*	33.0118	33.0863*	33.308*
RD	1	-147.714	91.679*	2194.42*	13.3664*	13.4409*	13.6627*
CPI	1	-275.005	87.879*	1.4e+08*	24.4352*	24.5097*	24.7314*
DAO	1	-249.999	66.488*	1.6e+07*	22.2608*	22.3353*	22.557*
FAİZ	1	-277.317	77.203*	1.7e+08*	24.6363*	24.7108*	24.9325*
REEL	1	-278.244	69.677	1.9e+08*	24.7169	24.7914	25.0131*
UNEMP	1	-220.801	80.97*	1.3e+06*	19.7218*	19.7963*	20.018*

Tablo 5, selected delay lengths for the variables. The reason for providing separate delay lengths for all variables is to individually evaluate the person per GDP values, which are the dependent variable in the model, with all other variables. The information criteria used here are Log-likelihood (LL), Likelihood-ratio (LR), Hannan-Quinn (HQIC), Schwarz-Bayesian (SBIC), and Akaike (AIC). The chosen information criterion is Schwarz-Bayesian, and the analysis proceeds based on this criterion.

The Johansen co-integration test is conducted by establishing a Vector Autoregressive (VAR) model. The appropriate delay length is determined for the VAR model. This forms the second phase of the co-integration test. After identifying the suitable delay length, the most appropriate model is chosen from the applicable models. This selection relies on the values where Akaike (AIC), Schwarz (SIC), and Log-Likelihood information criteria are minimized, determining the potential models with co-integration. Ultimately, after determining the appropriate model, the significance of the obtained statistical values is evaluated in terms of the Eigenvalue statistic (Trace-stat) and the maximum eigenvalue. The significance is indicated by the p-value being below the critical level ($p < 0.05$), which informs us about the presence of co-integration.

Tablo 6: Cointegration Test Results

Max Rank	Parms	LL	Eigen Value	Trace-Stat	Critical Value (%5)
0	9	-1035.1539	-	199.3207	192.89
1*	26	-1006.0346	0.89354	141.0822*	156.00
2	41	-987.39798	0.76155	103.8088	124.24
3	54	-970.10895	0.73550	69.2308	94.15
4	65	-956.88339	0.63845	42.7797	68.52
5	74	-948.51764	0.47456	26.0482	47.21
6	81	-943.35159	0.32793	15.7161	29.68
7	86	-939.09617	0.27916	7.2052	15.41
8	89	-935.712	0.22920	0.4369	3.76
9	90	-935.49356	0.01666	-	-

The results from the Johansen co-integration test, as presented in Table 6, indicate a delay length of 1 and a presence of a constant trend in the test statistics. Thus, it can be concluded that there exists a long-term relationship among the variables used in the model. The co-integration test, as shown in Table 6, demonstrates the presence of co-integration, signifying a long-term relationship between the variables.

In the context of Turkey, our model examines the long-term relationship among nine macroeconomic indicators, as described earlier. However, before delving into this, it's necessary to determine the delay

lengths required for co-integration. In this regard, a VAR model with an I(1) variable can be informative for identifying the appropriate delay length.

The Johansen co-integration analysis for the existence of a long-term relationship and the presence of a short-term relationship for the vector error correction model are used in accordance with the outlined modeling approach and the following function.

GDPCAP = f(FDI$_{in}$, FDI$_{out}$, CPI, RD, DAO, REEL, FAİZ)   (1)

Tablo 7: Vector Error Correction Model Results

Variables	Coefficients	Standard Error	P-value
GDPCAP	1	-	-
FDI$_{in}$	0.0435703	.0210401	0.038
FDI$_{out}$	-0.9020891	.090914	0.000
CPI	-65.27416	1111.464	0.002
UNEMP	393.9574	86.89321	0.000
RD	-3414.291	8.84131	0.000
DAO	-43.49322	14.10339	0.002
FAİZ	115.1975	8.634491	0.000
REEL	-84.67524	9.066773	0.000
Constant (α)	2681.938	-	-

The Vector Error Correction Model (VECM) provides insights into the short-term relationships between variables. Examining Table 7 reveals that there is a positive relationship between Gross Domestic Product (GDP), namely economic growth, and Foreign Direct Investment (FDI) inflows, unemployment, and interest rates. On the other hand, there exists a negative relationship between FDI outflows, inflation, R&D expenditures, openness ratio, and real effective exchange rate.

Variables with positive coefficients have a favorable impact on economic growth performance, while variables with negative coefficients have an adverse effect. This signifies that if Turkey aims to achieve high economic growth, policies that consistently promote direct foreign investment should be implemented alongside incentives and infrastructure development. The unemployment rate, significantly above the natural rate of unemployment, can limit a country's production and productivity. However, countries experiencing capital inflows require an accessible workforce to sustain production in the subsequent stages of investment.

Furthermore, it is expected that positive interest rates will contribute to economic growth performance by encouraging capital inflow. In conclusion, these observations underscore the importance of policies that encourage foreign direct investment and address unemployment and interest rates, ultimately fostering sustainable economic growth.

The outflow of Foreign Direct Investment (FDI) negatively affects economic growth. This is because the investments anticipated to take place in the domestic market are diverted abroad due to various internal and external factors. Naturally, a decrease in domestic production and productivity is expected due to this shift. Similarly, a high inflation rate in a country increases the costs of investments. In an environment of such instability, firms or investors are reluctant to allocate their capital and efforts in the domestic markets. As a result, economic growth slows down and could even lead to contraction.

Regression analysis is used for the analysis of time series with at least two quantitative variables, where one of them is considered to be random. It helps uncover the relationship between two variables, where information obtained from one variable assists in explaining the other variable. When conducting multiple linear regression, some variables included in the model might have insignificant contributions. To address this, selecting the most relevant explanatory variables among the independent variables that effectively explain the dependent variable (also known as the response variable) is crucial for a more accurate analysis.

Based on econometric analyses employed in the literature, our study includes a multiple linear regression model to make predictions through this equation. The dependent variable chosen here represents economic growth performance, specifically the GDP per capita. Our other macroeconomic variables, which include direct foreign capital inflows and outflows, inflation rate, labor market indicators, R&D expenditures, openness ratio, interest rate, and real effective exchange rate indices, serve as independent variables. These independent variables will help us understand to what extent they influence GDP per capita, our dependent variable, in terms of their magnitude.

The interpretation of the short-term relationship between growth and other variables using the VECM conducted above, as presented in Table 7, is as follows. As envisaged during the development of the econometric model in this study, an increase in direct foreign capital inflows has been found to positively impact economic growth, while direct foreign capital outflows have a negative effect on economic growth. There is a positive relationship between the interest rate variable and GDP per capita, whereas an inverse relationship is observed with the real effective exchange rate. An unexpected outcome in the model is the positive relationship between the unemployment parameter and GDP per capita.

3. Conclusion

Following the economic and structural reforms undertaken by Turkey in the wake of decisions made on January 24, 1980, the country endeavored to align its trade and growth policies with the evolving global economic landscape. However, given its classification as a developing nation and its struggle to translate savings into substantial investments, the imperative arose to devise a strategy conducive to incentivizing foreign capital inflows. Consequently, the role of various forms of international capital flows, with particular emphasis on foreign direct investment contributing to enhanced production capacities and productivity gains, gained paramount importance. The era of globalization engendered a competitive environment among nations to attract and accommodate capital flows in diverse forms.

Turkey experienced a discernible escalation in FDI, particularly after 1990, with a pronounced intensification culminating in 2016. The influx of FDI exerted a discernibly constructive impact on stimulating economic growth, particularly within the realms of the finance and manufacturing sectors. Concurrently, Turkey's involvement in international trade exhibited a pronounced expansion, thus accentuating its economic performance. Notwithstanding this trajectory, to effectively rival the benchmarks set by industrialized and economically advanced nations, Turkey must bolster its physical capital stock, concomitantly prioritizing knowledge and technological services, underpinning the fact that the present economic environment underscores augmented capital mobility and global interconnectivity.

The intricate interplay between economic growth and a myriad of macroeconomic indicators was scrutinized through time series analysis. Turkey's economic growth has demonstrated oscillatory patterns since 1990, frequently influenced by exogenous factors and global crises, accentuating the country's susceptibility to external shocks. Historical episodes, such as the foreign exchange crisis of 1994, the

banking crisis of 2001, and the global financial turmoil of 2008, have underscored Turkey's vulnerability to such perturbations. As such, the necessity of calibrated policymaking aligned with pragmatic foresight is accentuated.

The relationship between FDI and economic growth underscored the favorable impact of capital inflows on the latter, underscoring the role of attracting foreign investments as a growth catalyst. Conversely, outflows of foreign capital have deleterious consequences for growth dynamics, reinforcing the import of retaining capital within domestic bounds. Meanwhile, inflation was found to detrimentally affect economic growth by augmenting investment costs, unsettling trade balances, and curtailing savings.

The positive nexus between trade openness and economic growth in Turkey emphasizes the imperative of export-oriented strategies to catalyze growth effectively. Intriguingly, the correlation between unemployment and growth diverged from conventional expectations, potentially stemming from nuanced factors such as the quality of employment opportunities and the developmental trajectory of skills.

In essence, this study underscores the necessity of continual economic policy analysis and adaptive strategies to cultivate sustainable growth. While FDI and trade openness generally fostered growth, the intricate dynamics between variables remained susceptible to the vicissitudes of evolving economic landscapes. In this pursuit, Turkey's pursuit of growth necessitates calibrated vulnerability management and strategic adaptability to sustain equilibrium and progression.

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Conflicts of Interest

The authors declare no conflict of interest related to this study.

Author Contributions

This study is a result of collaborative effort, with the main contents produced as part of a graduate thesis. Contributions included conceptualization, methodology, analysis, and interpretation of results.

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