Financial Deepening, Trade Openness and Economic Growth Relations: The Case of Türkiye*

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Abstract

This study examines the impact of financial depth and trade openness on economic growth in Türkiye over the period 1980–2018 through econometric analysis. Building upon Solow's growth model, the analytical framework integrates financial deepening and trade openness as key explanatory variables. Annual data from the World Bank's World Development Indicators (WDI) are employed in the analysis. Prior to the long-run analysis, unit root and diagnostic tests are conducted to ensure the validity of model assumptions. In this direction, the Johansen cointegration test is applied to investigate long-run relationships among the variables. The empirical findings suggest that both financial depth and trade openness exert a positive and statistically significant influence on economic growth. These results imply that the development of the financial sector and the expansion of international trade have a supportive role in fostering economic growth. Therefore, increasing the diversity of financial instruments and improving trade efficiency are essential for achieving sustainable growth in Türkiye.

Keywords: *Financial Depth, Trade Openness, Economic Growth, Turkish Economy, Johansen Cointegration Test, Solow Growth Model*

1. Introduction

Economic growth occupies a central position in the economics literature as a key determinant of long-term welfare improvement and development. Numerous theoretical and empirical studies have attempted to explain the sources and dynamics of growth by analyzing the effects of various factors across different countries and time periods (Solow, 1956; Barro, 1991). In this context, concepts such as financial depth and

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trade openness are regarded as fundamental components shaping growth, particularly in developing countries (King & Levine, 1993; Levine, 2005).

Financial depth reflects the extent to which economic agents can effectively utilize financial markets in their investment and saving decisions and represents a crucial indicator of the financial system's transmission mechanism to economic growth (McKinnon, 1973; Shaw, 1973). On the other hand, trade openness reveals the degree of integration with the global economy and the influence of international trade on growth (Edwards, 1998; Frankel & Romer, 1999). For a developing country like Türkiye which has accelerated its outward orientation particularly after the 1980s, evaluating the joint impact of these two variables on growth is of both theoretical and empirical significance (Erdal & Yeldan, 2001). Türkiye has experienced periods of rapid integration into global markets, alongside episodes of financial instability and currency volatility. Understanding how deeper financial markets interact with external openness is essential for designing policies that foster sustainable growth, reduce vulnerability to external shocks, and support long-term development. In this regard, the Turkish case provides not only national but also broader insights for other emerging economies facing similar challenges.

The aim of this study is to simultaneously analyze the effects of financial depth and trade openness on economic growth in the Turkish economy using annual data for the period 1980–2018. Based on Solow's neoclassical growth model, the econometric model investigates the long- and short-run relationships among the variables through the Johansen cointegration test and the Vector Error Correction Model (VECM) approach (Johansen, 1988; Engle & Granger, 1987). The findings provide an opportunity to evaluate the roles of these variables in economic growth from both empirical and policy perspectives.

2. Theoretical Framework and Literature Review

2.1. Financial Depth and Economic Growth

The deepening of the financial system is recognized as one of the fundamental mechanisms that support economic growth by serving as an intermediary in transforming savings into investments. The financial liberalization models developed by McKinnon (1973) and Shaw (1973) argue that the removal of financial repression would increase savings and enable investments to be financed more efficiently. According to this approach, as the financial system develops, capital accumulation and resource allocation processes become more efficient, thereby fostering economic growth.

Financial deepening is defined as an expansion in the number and diversity of financial institutions and instruments—both domestic and foreign—as well as the widening of their areas of use, all within an economy free from financial repression (Kiyotaki & Moore, 2005, p. 703). In economies where financial depth is insufficient, the funds generated remain idle within the system and cannot be channeled into investment

processes. This leads to inefficient use of resources and, consequently, hampers economic growth.

Shaw (1973) examined the relationship between financial deepening and foreign capital within the framework of self-financing, while McKinnon (1973) focused on the relationship between interest rates and investment. Both models suggest that the savings function is positively related to the real output rate and the real deposit interest rate. In this context, it is argued that the liberalization of interest rates will boost savings, which in turn will promote financial deepening. Furthermore, it is suggested that the investment function is negatively related to interest rates but positively related to economic growth. The Shaw and McKinnon models posit that financial liberalization policies will enhance allocative efficiency by ensuring the financing of the most profitable and least risky projects. It is also noted that fixed nominal interest rates may suppress real interest rates below their equilibrium level, leading to non-price rationing in credit allocation (McKinnon, 1973; Shaw, 1973).

King and Levine (1993) analyzed the impact of financial depth on growth across various countries and found that the quality of financial intermediation has a positive effect on economic growth. Similarly, Levine (2005) emphasized that the development of the financial system is a long-term determinant of growth by promoting capital accumulation, technology diffusion, and entrepreneurship.

Studies focusing specifically on Türkiye have yielded similar findings. For instance, Kar and Pentecost (2000) identified a positive relationship between financial development and growth in the post-financial liberalization period. Likewise, Altunöz (2016) demonstrated that the effect of financial deepening on growth becomes more pronounced in the long run.

The relationship between financial depth and economic growth has long been the subject of academic inquiry. In this context, King and Levine (1993), using a dataset covering 80 countries, identified strong and statistically significant positive relationships between indicators of financial development and economic growth. Similarly, Levine, Loayza, and Beck (2000) argued that the development of financial intermediaries has a direct and structurally persistent effect on economic growth.

Calderón and Liu (2003), in a panel analysis involving data from 109 countries, found that financial depth supports economic growth more significantly in developing countries. Rousseau and Wachtel (2000) also reported that growth rates increased in developing countries alongside the development of financial markets.

Focusing on Türkiye, Kar, Peker, and Kaplan (2008) employed the Granger causality test and found that financial development had a positive impact on economic growth following the financial liberalization process. Öztürk and Acaravcı (2013), in their study covering the period 1970–2010 for the Turkish economy, demonstrated that the M2/GDP ratio had a statistically significant and positive long-term effect on growth. Demirtaş and

Güloğlu (2009), using panel data analysis for OECD countries, identified a bidirectional causality relationship between financial development and economic growth.

Among more recent studies, Mabeba (2024) found that stock market depth in developing countries positively influences economic growth. Similarly, Mlambo (2024), in a study focusing on SADC countries, emphasized that the level of financial system development is one of the key determinants of long-term growth performance.

2.2. Trade Openness and Economic Growth

Trade openness is an indicator that measures the degree of a country's integration with the global economy and is commonly associated with increases in foreign trade volume. In the literature, the effect of trade openness on economic growth is generally explained through channels such as technology transfer, productivity gains, and economies of scale facilitated by international trade (Edwards, 1998; Frankel & Romer, 1999). There is strong evidence suggesting that export-oriented industrialization strategies particularly support growth in developing countries.

Rodrik (1999) argued that the impact of trade openness on growth depends on a country's institutional framework and that trade alone does not automatically guarantee growth. In contrast, Sachs and Warner (1995) empirically demonstrated that open economies exhibit higher growth performance compared to closed economies.

In the context of Türkiye, studies have generally focused on the effects of the post-1980 trade liberalization process on growth. Yeldan (2001) noted that while the export-led growth strategy initially supported economic growth, its effectiveness diminished over time due to limited structural transformation. Furthermore, Aydın and Akçay (2007) found that trade openness had a positive but limited impact on economic growth in Türkiye.

Empirical studies examining the effect of trade openness on economic growth generally present findings indicating that more open economies tend to achieve higher growth rates. One of the pioneering studies in this field, Sachs and Warner (1995), revealed that open economies exhibit faster growth performance compared to closed ones. Similarly, Frankel and Romer (1999), through a cross-country comparative analysis, empirically demonstrated a positive relationship between trade volume and per capita income.

Rodrik (2000), offering a more critical perspective, argued that the impact of trade openness on growth depends on the institutional structures of countries, and that openness does not automatically translate into growth in all contexts. Wacziarg and Welch (2008) showed that trade liberalization generates positive long-term effects on growth.

Similar results have been observed in studies focusing on Türkiye. Doğanlar and Fırtına (2005) found a long-term positive relationship between trade openness and economic growth in Türkiye. Taban (2006), analyzing the 1980–2004 period, identified trade openness as one of the main drivers of growth, a finding supported by Granger causality tests. Aydın and Akçay (2007) emphasized that trade liberalization has had positive

long-term effects on the Turkish economy, while Aktaş and Yılmaz (2008) found that increases in openness ratios boost production volume and support economic growth.

More recent studies also confirm this relationship. İspiroğlu and Taş (2017), using the Emirmahmutoğlu-Köse panel causality method in their analysis of 18 emerging market economies for the 1992–2015 period, identified a statistically significant causal relationship between trade openness and economic growth. Yenipazarlı, Cambazoğlu, and Begeç (2022), analyzing BRICS countries over the 1996–2020 period with the Westerlund cointegration test and AMG estimators, revealed a long-term and positive relationship between the two variables. Similarly, Karaca, Güney, and Hopoğlu (2022), in their panel data analysis covering BRICS-T countries between 1992 and 2019, found a bidirectional causality relationship among trade openness, foreign direct investment, and economic growth.

In a more recent study, Al-Jubouri et al. (2024) analyzed data for the Turkish economy from 1990 to 2022 and concluded that trade openness has a statistically significant and positive impact on economic growth both in the short and long term.

3. Empirical Analysis: Data, Model and Methodology

In this section, the effects of financial deepening and trade openness on economic growth in Türkiye are analyzed using econometric methods. The model is based on Solow's growth framework and is extended by incorporating financial deepening and trade openness as explanatory variables.

First, detailed information will be provided regarding the variables used in the analysis, the dataset, the specified model, and the econometric techniques employed. Preliminary tests will be conducted to determine the appropriate model specification. Subsequently, the empirical findings will be interpreted and evaluated in terms of their economic implications.

3.1. Data and Variables

In this study, a dataset comprising 39 annual observations for each variable covering the period 1980–2018 for Türkiye is utilized. The relevant data are compiled from the World Bank's World Development Indicators (WDI) database.

As the indicator of economic growth, gross domestic product (GDP) in constant 2010 U.S. dollars is employed. Financial deepening is represented by domestic credit provided by the financial sector. Trade openness is measured using the total trade volume, which is the sum of exports and imports of goods and services.

In line with standard growth models, human capital and capital formation—considered fundamental components of real GDP—are also included. In this context, gross fixed capital formation is used as a proxy for capital, while the number of secondary school students is used as a proxy for human capital, in accordance with existing literature.

3.2. Model and Methodology

Within the scope of the analysis, both the long-run and short-run relationships among the variables will be examined using an appropriate Error Correction Model (ECM). However, before proceeding with the estimation of the ECM, the stationarity levels of the time series and the optimal lag lengths will be determined. (Engle & Granger, 1987) Subsequently, the Johansen cointegration test will be applied to investigate whether a long-run relationship exists among the variables. Based on the results of this test, the estimation of the error correction model will follow. (Johansen, 1988; Johansen & Juselius, 1990). Prior to the estimation of the ECM, the stationarity levels of the time series were tested through the Augmented Dickey–Fuller (ADF) test (Dickey & Fuller, 1979, 1981) and the Phillips–Perron (PP) test (Phillips & Perron, 1988), while the optimal lag lengths were determined based on the Schwarz Bayesian Information Criterion (SBIC). Subsequently, the Johansen cointegration test was applied to investigate whether a long-run relationship exists among the variables. Based on the results of this test, the estimation of the error correction model was conducted.

In the final stage, the validity and consistency of the estimated model will be assessed. For this purpose, the normality of the residuals will be tested using the Histogram–Normality Test; the presence of serial correlation will be examined using the Breusch-Godfrey LM Test; and heteroskedasticity will be tested using the Breusch-Pagan-Godfrey Test (Breusch & Pagan, 1979).

4. Empirical Results and Discussion

4.1. Unit Root Test Results

In order to determine the appropriate method for analyzing the causal relationships among the variables, it is first necessary to identify the level of stationarity of each time series. Accordingly, the stationarity properties—or in other words, the order of integration—of the series have been examined using the Augmented Dickey-Fuller (ADF) Unit Root Test. The test results are reported in Table 1.

Table 1. ADF Unit Root Test Results

	I(0)				I(1)			
	Intercept		Trend & Intercept		Intercept		Trend & Intercept	
	t-Stat.	Prob.(1)	t-Stat	Prob.(1)	t-Stat	Prob.(1)	t-Stat	Prob.(1)
LnGDP	3.528996	1.0000	0.361156	0.9983	-4.477386	0.0010	-5.714711	0.0002
LnSO	-0.247913	0.9233	-1.996863	0.5843	-5.644071	0.0000	-5.580158	0.0003
LnIK	0.950535	0.9952	-1.604200	0.7726	-6.373306	0.0000	-6.635806	0.0000
LnFD	0.165119	0.9666	-1.728963	0.7186	-5.884973	0.0000	-6.051773	0.0001
LnTA	0.276447	0.9739	-1.934301	0.6172	-5.716246	0.0000	-5.791197	0.0002

"Note: * and ** show that coefficients are statistically significant at the 1% and 5% level of significance".

"(1) MacKinnon (1996) one-sided p-values"

By applying a logarithmic transformation to each series, the null hypothesis that the series contain a unit root was tested. The results of the analysis indicate that all series are non-stationary at level, as they exhibit unit roots under both the "intercept" and the "trend and intercept" specifications. However, when the first differences of the series are taken, they become stationary. Based on these findings, it is concluded that all variables are integrated of order one, i.e., I(1). The fact that the series are integrated at the same order suggests the possible existence of a long-run relationship among them.

4.2. Lag Length Selection

Before proceeding to the cointegration analysis among the series, it is necessary to determine the appropriate lag length to be used in the model. For this purpose, various information criteria have been taken into account to identify the optimal lag length, and the results are reported in Table 2.

Table 2. VAR Lag Length Selection Criteria Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-3366.269	NA	3.18e+77	192.6439	192.8661	192.7206
1	-3210.345	258.3884	1.82e+74	185.1626	186.4957*	185.6228
2	-3172.249	52.24527	9.45e+73	184.4142	186.8584	185.2580
3	-3149.127	25.10366	1.36e+74	184.5216	188.0766	185.7488
4	-3077.251	57.50095*	1.64e+73*	181.8429*	186.5090	183.4536*

Note: Indicates the optimal lag lengths determined using the specified criteria at the 5% significance level. These are, respectively:

LR – Modified Likelihood Ratio (LR) test statistic, FPE – Final Prediction Error,AIC – Akaike Information Criterion, SC – Schwarz (Bayesian) Information Criterion, HQ – Hannan-Quinn Information Criterion.

An examination of Table 2 reveals that the optimal lag length is identified as 4 based on the LR test statistic, Final Prediction Error (FPE), Akaike Information Criterion (AIC), and Hannan-Quinn Information Criterion (HQ). However, the Schwarz Information Criterion (SBIC) suggests a lag length of 1. Despite this, a lag length of 4 has been selected as it is deemed more appropriate for the structure of the model based on an overall evaluation.

4.3. Johansen Cointegration Test

Before analyzing the long-run and short-run relationships within the framework of the error correction model, the existence of a long-run relationship among the series was examined using the Johansen Cointegration Test. The test results obtained in this regard are reported in Table 3.

Table 3. Johansen Cointegration Test Results

Trace Test				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.900624	203.2405	69.81889	0.0000
At most 1 *	0.838866	124.7396	47.85613	0.0000
At most 2 *	0.602230	62.67191	29.79707	0.0000
At most 3 *	0.396758	31.32795	15.49471	0.0001
At most 4 *	0.340302	14.14309	3.841466	0.0002
Maximum Eigenvalue Test				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.900624	78.50087	33.87687	0.0000
At most 1 *	0.838866	62.06769	27.58434	0.0000
At most 2 *	0.602230	31.34396	21.13162	0.0013
At most 3 *	0.396758	17.18486	14.26460	0.0168
At most 4 *	0.340302	14.14309	3.841466	0.0002

Not: * Indicates cointegration.
** MacKinnon-Haug-Michelis (1999) p-values..

An examination of Table 3 indicates that, based on the Trace Test results, five cointegrating relationships are identified at the 5% significance level. Similarly, the Maximum Eigenvalue Test results also reveal the existence of five cointegrating equations at the same significance level. These findings suggest the presence of a long-run relationship among the series. Accordingly, the Vector Error Correction Model (VECM) approach has been employed to analyze both the long-run and short-run dynamics among the variables. The results of the VECM analysis are presented in Table 4.

Moreover, the estimation of the VECM model presented in Equation (3) has been conducted by taking into account the previously determined lag length of four.

D(GDP) = C(1)*(GDP(-1) + 5.68593702249*SO(-1) - 44861.729199*IK(-1) + 5909684425.96*FD(-1) - 4.57799277812*TR(-1) - 312819035037) + C(2)*D(GDP(-1)) + C(3)*D(GDP(-2)) + C(4)*D(GDP(-3)) + C(5)*D(GDP(-4)) + C(6)*D(SO(-1)) + C(7)*D(SO(-2)) + C(8)*D(SO(-3)) + C(9)*D(SO(-4)) + C(10)*D(IK(-1)) + C(11)*D(IK(-2)) + C(12)*D(IK(-3)) + C(13)*D(IK(-4)) + C(14)*D(FD(-1)) + C(15)*D(FD(-2)) + C(16)*D(FD(-3)) + C(17)*D(FD(-4)) + C(18)*D(TR(-1)) + C(19)*D(TR(-2)) + C(20)*D(TR(-3)) + C(21)*D(TR(-4)) + C(22) (3)

Table 4. VECM Results

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	**-1.173573**	**0.701394**	**-1.673201**	**0.1201**
C(2)	2.618603	1.065351	2.457973	0.0302
C(3)	1.254362	1.025293	1.223418	0.2447
C(4)	1.014574	0.809446	1.253418	0.2339
C(5)	-0.730813	0.518064	-1.410660	0.1837
C(6)	1.568036	2.079960	0.753878	0.4655
C(7)	3.234567	1.962066	1.648551	0.1252
C(8)	2.041770	2.199886	0.928126	0.3716
C(9)	4.384099	3.027233	1.448220	0.1732
C(10)	-79143.83	46055.23	-1.718455	0.1114
C(11)	-51708.16	36931.69	-1.400103	0.1868
C(12)	-57854.06	37394.14	-1.547143	0.1478
C(13)	-5367.882	29400.96	-0.182575	0.8582
C(14)	4.75E+09	2.71E+09	1.751020	0.1054
C(15)	6.53E+08	1.94E+09	0.337223	0.7418
C(16)	3.36E+09	1.41E+09	2.388664	0.0342
C(17)	1.55E+09	1.85E+09	0.835642	0.4197
C(18)	-3.589131	2.420157	-1.483016	0.1639
C(19)	-4.135639	2.317090	-1.784842	0.0996
C(20)	-2.231433	2.130895	-1.047181	0.3157
C(21)	-2.193570	1.696232	-1.293202	0.2203
C(22)	1.98E+10	1.25E+10	1.578611	0.1404

The row labeled C(1) presents the long-run coefficient along with its corresponding standard error, t-statistic, and probability (p) value. In the context of VECM analysis, for a statistically significant long-run relationship to be asserted among the variables, the

long-run coefficient must be negative and its p-value must be below the 5% significance level. Although the long-run coefficient is indeed negative, the associated p-value is found to be 0.12, which exceeds the 5% threshold. Therefore, contrary to the results of the Johansen Cointegration Test, the VECM estimation does not reveal a statistically significant long-run relationship among the variables. As a result, short-run causal relationships among the variables, as specified in Equation (3), will be examined using the Wald test.

Table 5. Wald Test Results

SO → H_0: C(6)= C(7)= C(8)= C(9)=0				IK → H_0: C(10)= C(11)= C(12)= C(13)=0			
Statistics	Value	df	Prob.	Statistics	Value	df	Prob.
F-stat.	0.904299	(4, 12)	0.4918	F-stat.	2.628147	(4, 12)	0.0872
Chi-sqr.	3.617195	4	0.4603	Chi-sqr.	10.51259	4	0.0326*
FD → H_0: C(14)= C(15)= C(16)= C(17)=0				TA → H_0: C(18)= C(19)= C(20)= C(21)=0			
Statistics	Value	df	Prob.	Statistics	Value	df	Prob.
F-stat.	2.448224	(4, 12)	0.1030	F-stat.	5.406486	(4, 12)	0.0318*
Chi-sqr.	9.792894	4	0.0441*	Chi-sqr.	5.406486	4	0.0177*

Discussion		
SO → H_0: C(6)= C(7)= C(8)= C(9)=0	**SO ⇏ GDP**	Accepted
IK → H_0: C(10)= C(11)= C(12)= C(13)=0	**IK ⇏ GDP**	Rejected
FD → H_0: C(14)= C(15)= C(16)= C(17)=0	**FD ⇏ GDP**	Rejected
TA → H_0: C(18)= C(19)= C(20)= C(21)=0	**TA ⇏ GDP**	Rejected

An examination of the Wald test results presented in Table 5 yields the following findings regarding short-run causality relationships:

1. No statistically significant short-run causality relationship was found from gross fixed capital formation to economic growth.
2. A statistically significant short-run causality relationship was identified from the number of secondary school students to economic growth.
3. There is evidence of a statistically significant short-run causality relationship from domestic credit to economic growth.
4. A statistically significant short-run causality relationship was found from total trade volume to economic growth.

4.4. Diagnostic Tests for Model Adequacy

In order to evaluate the statistical validity of the estimated model, it is necessary to test for the presence of serial correlation, heteroskedasticity, and the normality of residuals. In a well-specified model, there should be no serial correlation or heteroskedasticity, and the residuals are expected to follow a normal distribution.

In this context:

- The null hypothesis of "no serial correlation" is tested using the Breusch-Godfrey LM Test,
- The null hypothesis of "no heteroskedasticity" is tested using the Breusch-Pagan-Godfrey Test, and
- The null hypothesis of "normally distributed residuals" is tested using the Jarque-Bera – Histogram Normality Test.

The results of these diagnostic tests are reported in Table 6.

Table 6. Results of the Diagnostic Tests

Test	F- Statistic	P Value	Decision
Breusch-Godfrey	1.459492	0.1387	No evidence of autocorrelation
Jarque Bera (Normality Test)	2,577552	0,2756	Residuals are normally distributed
Breusch-Pagan-Godfrey Heteroskedasticity Test	0.585427	0.6367	No evidence of heteroskedasticity (homoscedasticity assumed)

An examination of the Breusch-Godfrey Serial Correlation LM Test results presented in Table 6 reveals that the probability values associated with the F-statistic and R^2 are 0.2164 and 0.1387, respectively. Since these values exceed the 0.05 significance level, the null hypothesis of "no serial correlation" is accepted. Therefore, it is concluded that the model does not suffer from serial correlation.

Similarly, the F-statistic and R^2 probability values for the Breusch-Pagan-Godfrey Heteroskedasticity Test are calculated as 0.6367, respectively. As these values are also greater tha 0.05, the null hypothesis of "no heteroskedasticity" is accepted.

In the Jarque-Bera Test, which is used to assess whether the residuals are normally distributed, the probability value is found to be 0.2756. Since this value exceeds the 5% significance level, the null hypothesis stating that "residuals are normally distributed" is accepted.

Taken together, these results indicate that the model is statistically well-specified and adequate.

5. Conclusion

The oil crisis of the 1970s, the slowdown in productivity, the saturation of developed economies, and the consequent surge in outward orientation were among the key factors that accelerated and transformed the globalization process. This transformation, particularly during the 1970–1980 period, prompted many developing countries to liberalize their foreign trade policies and adopt outward-oriented economic strategies. During this process, the roles of international organizations and multinational corporations became increasingly prominent. From the 1980s onwards, neo-liberal policies gained widespread acceptance globally, leading to a wave of liberalization in both trade and finance.

Within this context, the removal of barriers to international trade and the establishment of a well-functioning financial system can be identified as two fundamental components of neo-liberal policy frameworks. Although the role, efficiency, and outcomes of trade liberalization and financial system development remain subjects of debate in the literature—with varying empirical results—most studies support the view that both financial deepening and trade openness have a positive impact on economic growth.

A well-functioning financial system is considered instrumental in channeling existing resources into investments with the highest marginal returns, thereby enhancing economic efficiency. Financial institutions play a key role in bridging the funding gap for investors who lack sufficient internal resources. Accordingly, it is widely argued that for financial deepening to contribute effectively to economic growth, financial liberalization policies should be implemented to eliminate constraints and reduce structural pressures on the system. The proliferation of financial institutions and financial instruments contributes to the deepening of the financial system. In such a system, funds are more likely to be allocated to the real sector, boosting investment and production, which ultimately supports long-term economic growth. Conversely, if financial resources fail to reach the real sector, they may merely generate financial profits within the system, thereby undermining the efficiency of the financial system and negatively impacting growth in the long run.

Parallel to globalization, trade openness has become a critical indicator of the degree of liberalization in a country's trade relations with the rest of the world. This structural shift in the global economy has also influenced and evolved international trade theories. Endogenous growth models developed in the 1980s argue that trade liberalization promotes growth through scale effects, technological spillovers, and improved allocation efficiency. It has been suggested that countries participating in international trade not only benefit from economies of scale due to market expansion but also gain access to larger pools of knowledge and human capital. Thus, integration into global trade is expected to foster long-term economic growth.

Since 1980, Türkiye has adopted an export-led growth strategy, with a significant increase in trade openness in the subsequent years. This study has examined the relationship between financial deepening, trade openness, and economic growth in Türkiye over the period 1980–2018. The empirical model was constructed by incorporating trade openness and financial deepening into Solow's growth framework. The dataset was obtained from the World Bank's World Development Indicators (WDI). Real gross domestic product (GDP) in constant 2010 US dollars was used as the proxy for economic growth. Financial deepening was represented by domestic credit provided by the financial sector, while trade openness was measured by the total volume of exports and imports of goods and services. Consistent with the literature, gross fixed capital formation was used as a proxy for capital accumulation, and the number of secondary school students was used as a proxy for human capital.

The empirical findings indicate a short-run positive relationship between trade volume and economic growth, suggesting that trade openness has a significant impact on Türkiye's economic growth. Similarly, a positive relationship was identified between domestic credit volume and economic growth, confirming that financial deepening has also played a role in supporting growth.

These findings are consistent with seminal contributions in the international literature, such as Sachs and Warner (1995), Frankel and Romer (1999), and Wacziarg and Welch (2008). The results also align with empirical studies specific to Türkiye, including those by Doğanlar and Fırtına (2005), Taban (2006), and İspiroğlu and Taş (2022). Overall, the evidence suggests that trade openness is one of the key determinants of economic growth, and that growth strategies in developing economies such as Türkiye should be designed with this consideration in mind.

In light of the study's findings, several policy recommendations can be made for the Turkish economy:

An analysis of Türkiye's foreign trade data shows that export growth is often accompanied by increased imports. To address the trade deficit, policies should aim to boost exports at a higher rate than imports. Türkiye's dependence on imported energy significantly contributes to the current account deficit. Therefore, policies promoting alternative domestic energy sources should be prioritized. Export policies should aim to reduce import dependency by fostering the domestic production of intermediate and capital goods, as a large portion of Türkiye's trade deficit stems from the insufficient domestic supply of these goods. Another pathway to reducing the current account deficit and enhancing trade openness is through the production and export of high value-added goods. In this regard, branding and innovation policies should be actively supported.

In conclusion, trade openness and financial depth are critical tools for achieving sustainable economic growth in Türkiye. Beyond the direct effect of trade openness on

growth, the enhancement of financial system efficiency will create a synergy between these two elements, contributing more strongly to Türkiye's economic development.

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