Trade Liberalization and Some Macroeconomic Indicators in Turkey (1980-2018)

Authors

Nader Alzabadi[1], Prof. Dr. Natalya Ketenci[2]*

Affiliations

[1]Graduate Program in Economics/ Graduate School of Social Sciences/Yeditepe University, Istanbul, 34755, Turkey

[2]Graduate Program in Economics/ Graduate School of Social Sciences/Yeditepe University, Istanbul, 34755, Turkey

*To whom correspondence should be addressed; E-mail: nketenci@yeditepe.edu.tr

Abstract

This study aims to examine the impact of trade liberalization on some macroeconomic indicators (foreign direct investment, exports, imports, trade balance, and government size) in Turkey. Our study employed the autoregressive distributed lag bound test (ARDL) approach, unit root test, bound test for long-run estimation, and error correction term (EC).

Findings show that trade liberalization does not have a positive impact on foreign direct investment inflow into the Turkish market, as well as that currency depreciation accompanied by an open economy decreases foreign capital inflow. Trade liberalization impacts positively on exports to the G7 by enhancing technological competitiveness. Moreover, foreign income impacts positively on exports, compared to pre-liberalization exports increased gradually, based on econometric results compared to some advanced countries, where short-run policies will lead to increased exports. Consequently, intermediate imports influenced manufacturing exports positively; this result confirms the cointegration relationship matching advanced economies.

To show the impact of trade liberalization on the trade balance, a dummy variable was introduced as a liberalization indicator. The results reveal that trade liberalization has a positive impact on the trade balance. Last but not least, trade liberalization has a negative impact on government size.

The study recommended that a strong currency be considered the short way to attract foreign direct investment. To increase exports to the G7, innovation is the best factor. Exporting to high-income countries should be a priority. Importing sophisticated inputs will lead to increased exports. Increasing government spending on education, health, and social protection will compensate for losses from trade liberalization.

Keywords; Macroeconomic indicators; Trade liberalization; Turkey.

INTRODUCTION

Globalization is the integration process of world economic, political, cultural, and social variables that are transforming into "a global village" at an accelerating pace. This process has been driven by three factors. One involves technological progress, which has led to lower production costs; the second factor is the increasing wave of trade liberalization since 1980. Third, the role of the World Trade Organization (WTO), the World Bank, and the International Monetary Fund (IMF) is crucial. According to these institutions, trade liberalization acts as an "engine of growth".

The most important merits of the globalization era are innovation, investment, transactions, trade exchange, and welfare. Integration into the global economy accelerates trade movement and capital mobility. The dynamic of trade liberalization maintains trade ties and expands investment opportunities.

The economic theory deals with international trade and has passed through many stages, starting with Adam Smith (1776) and passing through modern economic theories like Solow (1956) and Romer (1991). Previously, theories focused on self-sufficiency, therefore, this did not require attention to international trade, and more restrictions were adopted. Modern theories, they see that the expansion of intra-trade will contribute to achieving growth and prosperity and allocating resources to a higher degree of efficiency. Trade liberalization has emerged as a modern philosophy to restore growth.

The rise of globalization since 1980 has transformed the world at an accelerated pace. Integration of the world continues, broadening and increasing international linkages in economic, political, and social relations. Unambiguously, liberalization of trade and finance, greased by innovative changes in information technology, has resulted in substantial changes embodied by economic growth at the global level. Contrarily, the process of globalization is changing the nature of production patterns, dismantling nation-states' responsibilities, and allowing the market to drive economic activity.

Globalization is associated with policies of openness, high competition, innovation, privatization, and an influx of foreign investment. Trade liberalization and capital movements open the possibility of global growth, according to the prevalent neoclassical theory. Economically, globalization facilitates trade movement across countries and integrates the world market closely. For example, in 1977, the global trade volume was 2.687 trillion USD; after 41 years, this volume had skyrocketed to 49.990 trillion USD in 2018, (www.worldbank.org).

International trade has paved the way for firms and individuals to access more markets, inducing innovation and lowering production costs. Hence, consumers benefited from low prices as well as a greater variety of products. Although some home firms will lose this type of international exchange, internal industrial exchanges do not affect revenue and employment significantly.

In the era of globalization, there have been many changes. International trade has increased significantly. Free trade has become the title of growth, economies of scale, and innovation, and it plays a substantial role in welfare as well as product variety. Free trade agreements are among countries willing to encourage and activate trade and investment. The European Union (1991), the North American Free Trade Agreement (NAFTA) between the United States, Canada, and Mexico (1994), and others have contributed significantly to the globalization of international trade.

The dynamic of trade liberalization increases the geographic dispersion of production and accelerates trade between cities and countries. Therefore, trade liberalization will have an effective impact on connectivity and progress between the old and new production arts.

Unambiguously, trade liberalization enables countries to modernize the manufacturing sector through access to advanced technology embodied by intermediate imports that raise productivity. Free trade will lead to improving the economic performance of the industrial sector through increasing productivity and more specialization in production (Fan et al. 2019).

Globalization will compel domestic manufacturers to maintain product competitiveness through high product manifestations based on complex technological design and efficient logistic chains.

However, trade liberalization may affect economic growth negatively for countries that specialize in low-quality products. For instance, countries exporting primary goods are vulnerable to terms of trade shocks if products have elastic demand (Haussman and Rodrik, 2007).

International trade is one of the most significant foundations of the success and prosperity of the global economy. Through integration into international trade, reciprocal benefits, investments, technology spillover, cheap and sophisticated inputs, and product varieties have contributed significantly to augmenting the production base.

Trade liberalization policies are associated with removing barriers, relaxing previous government restrictions, and facilitating commercial activities. These policies expose the national economy to global competition, which requires allocating resources with high efficiency (Black et al. 2009). Typically, trade liberalization involves relaxing trade protection; opening up the economy to foreign investment; and adopting flexible exchange rates (Ingham, 2004, pp. 102).

Correspondingly, countries depend on trade liberalization programs to sustain high growth based on export-led growth. Economies of scale and innovation should be employed to be able to access global markets. High levels of productivity are considered the main engine of trade liberalization (Krugman, 1994).

In the trade liberalization context, economic growth was collaborative with increasing productivity, high competition, and high efficiency. Productivity in the manufacturing sector drives fierce competition among producers to use the most advanced and effective production arts, which increase output, reduce costs, and offer low-cost goods (Aghion et al. 2003). (Melitz, 2008).

Kreuger (1978) and Balassa (1981) indicated that the countries that enjoy free markets are the fastest-growing. Trade liberalization forces sectors toward resource allocation, which leads to a positive impact on productivity if countries can achieve production shocks based on many factors: (a) Low tariffs: As a result of liberalization, competition plays an important role in lowering costs, and industries can shift productivity gains from lower input tariffs to more diverse inputs (Grossman and Helpman,1991).

(b) Scale economies: trade liberalization encourages domestic firms to produce for both global and domestic markets. When economies of scale and imperfect competition exist, further efficiency from trade liberalization gains.

By liberalization, a new production process was employed, and a large output was achieved. Trade liberalization offers many opportunities which allow a greater variety of final goods and intermediate inputs to be reached (Dunn, 2004, 171).

(c) Increased competition: Import liberalization increases competition between domestic industries and foreign products, which causes domestic producers to improve productivity and quality in order to maintain their market share. Severe competition induces producers to think strategically about distinct products depending on innovation which is followed by high productivity (Dijkstra, 2000).

(d) Externalities: Externalities are achieved when exports and imports lead to shifting interactions with global markets and, as a result, increase acquisition of advanced technology, learning by doing, ease of obtaining a variety of imported inputs, spillover benefits to non-trading firms, and quality.

(e) Residual effects: it's difficult to observe residual effects and measure them. These effects may be gains from rising capacity utilization in the long run, but residual effects improved after trade liberalization in two ways: First, it leads to lower prices for imported intermediate goods. Second, orthodox theory suggests that by augmented competition from imported goods forces, national producers strongly compete with imported goods to become more effective, resulting in high effectiveness (Dijkstra, 2000).

Trade liberalization works to entice countries to specialize through the benefits they derive from trade liberalization, whether static or dynamic. Static benefits: Smith (1776), Recardo (1817), documented that the exchange rate among nations requires division of labor and improves productivity as a result. Specialization will be held. The extent of the home and foreign market plays a crucial effect on specialization degrees (Balassa, 1969, pp 69-93).

The emerging benefits of international trade argue that trade will lead to growth. Over time, the cumulated small increase in economic growth will yield a large gain. The intuition behind it is that economic growth depends on two sources: the first, increasing production inputs (Newquist et al. 1993); the second, making those inputs more productive, via investment in innovation and technology, better education, and so on. Dynamic gains increase with static benefits. The joint relationship between static and dynamic benefits will rationalize the allocation of labor and capital, which are considered the engine of specialization.

Learning by doing results in improved productivity, thus sustaining economic growth, trade liberalization influences industry specialization through two channels: the first is inter-industry specialization, which is influenced by the dynamic of trade liberalization that focuses on economies of scale, more goods produced, and experience accumulation (Weinhold and Rauch, 1999).

The second, intra-industry trade, integration in global trade, allows countries to import specialized inputs. Through liberalization, countries can access foreign accumulated experience in the production of specialized inputs, more intermediate input will lead to specialization and more growth.

Successful trade liberalization programs aim to achieve a set of goals such as improving dynamic productivity and employing innovation as an essential incentive for the manufacturing sector to expand production and increase competitiveness. Within liberalization, many countries achieved economic stabilization by stimulating economic growth, exchange rate stabilization, promoting investment, reforming the financial system,

reducing or controlling unemployment, market liberalization, international economic integration, resulting in high economic growth.

RESULTS

1. Trade liberalization and Foreign direct investment

1.1 Long run estimation

Once we found the long run cointegration relationship among the variables of our study, results obtained by FDI as a (dependent variable) in the long run are reported in Table 1.1.

Table 1.1 Long run coefficients

variable	coefficient	St. Error	t-statistic	Prob.
Log(GDP)	1.775	0.283	6.259	0.000
Log(OP)	0.783	0.868	0.902	0.373
Log(RER)	-0.338	0.961	-0.352	0.726
c	-10.594	4.444	-2.383	0.023

Long run equation,

$$LnFDI = \alpha + \beta1 lnGDP + \beta2 lnOP + \beta3 lnRER + \hat{u}$$

$$Log(FDI) = -10.59 + 1.77\log(GDP) + 0.78\log(OP) - 0.338\log(RER)$$

Table 1.1shows that the estimated coefficient of the long-run relationship reveals that GDP has a positive long-run effect on the inflow of foreign direct investment in Turkey. This signifies that an increase in GDP will lead to an increase in the inflow of FDI. A 1% increase in GDP increases FDI inflows to Turkey by 1.77%. Interestingly, *T*-statistics display that the variable is significant at a 5% level of significance as the probability value (p-value 0.05). From the statistical results, it is confidently assumed that GDP has a positive and significant effect on FDI inflow to Turkey over 1980-2018. Our result was consistent with Tari and Bidirdi (2009).

Considering the effect of openness degree as a trade liberalization indicator on FDI, it has a positive impact on FDI. The results indicate that an increase in openness of 1% leads to an increase of 0.78% in FDI, but the result is insignificant, based on the probability value greater than (P-value $\geq$ 0.05). Moreover, the coefficient of trade openness is less than 1, which indicates that trade openness is not followed by FDI inflow significantly. The result is consistent with Koyunca and Cinar (2009).

However, the relationship between currency depreciation as one of the trade liberalizations features and FDI is negative. This result refutes the apriori expectation (currency depreciation attracts FDI. The depreciation of the Turkish currency by 1% will decrease FDI inflow to Turkey by 0.33%. T-statistics displays that the variable is insignificant at a 5% level of significance as the probability value (p-value $\geq$ 0.05). From the statistical results, it is confidently assumed that currency depreciation has a negative and insignificant effect on FDI inflow to Turkey over 1980-2018. The result was not consistent with Cambazoğlu and Güneş (2016). Our result explains that a currency depreciation leads a decline FDI inflow into the Turkish market in 2019. FDI decreased by 0.30%. This result indicated that foreign investors prefer macroeconomic stability rather than other variables. Globally, FDI in 2019 grew sharply by 59%. (Source: www.Worldbank.org).

Based on the above results, the only factor impacting attracting FDI is GDP. Trade liberalization programs can't significantly attract foreign direct investments.

1.2 Short Run Results

The error correction model obtained from ARDL test, provides knowledge about short run effects of variables on exports, Table 1.2 contains the estimation results from the error correction model, results explain that the short run effects of GDP, on FDI is significantly positive.

Table 1.2 Short run coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob*.
DLn(GDP)	1.152	0.6306	3.196	0.0252

DLn(OP)	0.509	0.563	0.904	0.372
DLn(RER)	-0.220	0.634	-0.346	0.731
CointEq(-1)*	-0.649	0.119	-5.43	0.000
R-squared	0.3889	Mean dependent var		0.1736
Adjusted R-squared	0.3889	S.D. dependent var		0.5606
S.E. of regression	0.4382	Akaike info criterion		1.213
Sum squared resid	7.105	Schwarz criterion		1.256
Log likelihood	-22.06	Hannan-Quinn criter.		1.229
Durbin-Watson stat	1.688			

Table 1.10 shows that an increase of 1% in the GDP of Turkey will increase foreign direct investment inflows by 1.15% in the short run. Concerning openness degree as a trade liberalization indicator, results show that an increase in openness degree of 1% in the short run attracts foreign direct investments by 0.51%. However, an increase of 1% in the real exchange rate (currency depreciation) led to a decline in foreign direct investments by 0.22%. Based on the above results, trade liberalization in Turkey over the last period (1980-2018) was unable to attract foreign direct investments.

1.3 Granger causality test

Granger cuaslity test show show that turkey not has directional relationship between trade openness, real exchange rate and FDI, however, Turkey has direction of GDP to foreign direct investment. Our results not consistent with Şahbaz et al. (2016).

Table 1.3 Granger cuasality test

Null Hypothesis	F- statistics	Probability
OP does not Granger cause FDI	2.709	0.0818
FDI does not Granger cause OP	0.763	0.4743
RER does not Granger cause FDI	2.707	0.0819
FDI does not Granger cause RER	0.856	0.4343
GDP does not Granger cause FDI	6.787	0.0035
FDI does not Granger cause GDP	0.502	0.6099

2. Innovation and Exports

2.1 Long run results of Turkey's export to the World

Table 2.1 Long run coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob*.
Ln(RER)	0.80	0.32	2.48	0.018
Ln(TW)	0.09	0.07	1.27	0.212
Ln(YW)	1.50	0.10	14.3	0.000
c	-4.78	1.78	-2.67	0.0011

Long run equation,

$$lnX_{it} = \beta_0 + \beta_1 lnYW_{it} + \beta_2 lnRER_{X_{it}} + \beta_3 lnTW_{it} + u_{it}$$

$$lnX_{it} = -4.78 + 1.5lnYW_{it} + 0.80\ lnRER_{X_{it}} + 0.09lnTW_{it} + u_{it}$$

Above results show that the estimated coefficients of the long-run relationship impact on manufacturing exports. Price competitiveness has an essential impact on export volume in both developing and developed countries. Results show that an increase of 1% in RER (currency depreciation) leads to an increase in manufacturing exports by 0.8%. T-statistics indicates the variable is significant at 5% as the probability value is less than 0.05. From this result, it is concluded that the currency depreciation has a positive impact on manufacturing exports.

Considering the impact of technological competitiveness when Turkey moves toward full liberalizing trade with world countries, results reveal that an increase of 1% in technological competitiveness leads to an increase of 0.09% in exports. The T-statistic is not significant and the positive impact is too tiny. Our result is consistent with Aghion and Jaravel (2015), that trading with advanced countries leads to increased technological competitiveness and vice versa.

Regarding the trade-weighted income of Turkey, the results show that an increase of 1% leads to an increase of 1.50% in manufacturing exports. Foreign income plays a significant role in surviving exports.

2.2 Short run results of Turkey's export to the World

Table 2.2 Short run coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob*.
ΔLn(RER)	0.351	0.140	2.50	0.0174
ΔLn(TW)	0.043	0.035	1.23	0.2257
ΔLn(YW)	1.508	0.311	4.84	0.000
c	-2.076	0.85	-2.43	0.020
CointEq(-1)*	-0.434	0.073	-5.92	0.000

According to short-run results, an increase of 1% in RER leads to an increase of 0.35% in manufacturing exports. Furthermore, for technological competitiveness as a trade liberalization proxy variable, results reveal that an increase of 1% in technological competitiveness leads to an increase of 0.04% in exports. For the trade-weighted income of Turkey, results show that an increase of 1% in RER leads to an increase of 1.50% in manufacturing exports.

The ECM value of -0.43 suggests a relatively high speed of adjustment from the short-run deviation to the long-run equilibrium of intermediate imports. Therefore, 43.4% of all errors or disequilibrium in the short term will be adjusted in the long term in the coming period. This indicates the disequilibrium percentage in the previous equilibrium, which corrected it in the next period as shocks happened in independent study variables that impacted dependent variables.

2.3 Long run results of Turkey's export to G7

Table 2.3 Long run coefficients of function to G7

Variable	Coefficient	Std. Error	t-Statistic	Prob*.
Ln(RER)	0.97	0.42	2.28	0.029
Ln(TW)	0.39	0.05	7.72	0.000
Ln(YW)	1.28	0.11	11.6	0.000
c	-.88	2.07	-0.42	0.67

Long run equation,

$$lnX_{it} = \beta_0 + \beta_1 lnYW_{Gt} + \beta_2 lnRER_{X_{it}} + \beta_3 lnTW_{Gt} + u_{it}$$
$$lnX_{it} = -0.88 + 1.28lnYW_{Gt} + 0.97lnRER_{X_{it}} + 0.97lnTW_{Gt} + u_{it}$$

Above results show that a 1% increase in RER (currency depreciation) leads to a 0.97% increase in exports to the G7, indicating that the positive impact of currency depreciation is greater when Turkey trades with the G7 than when Turkey trades with all countries. One of the main trade liberalization features is innovation. Technological competitiveness is considered the result of innovation. Results show that an increase of 1% in technological competitiveness leads to an increase of exports to the G7 by 0.39%. *The T-statistics* are significant. This result confirms that it is preferable to maintain trade with the G7 if Turkey is willing to diversify its exports by introducing products infused with advanced technology. Finally, results show that an increase of 1% in the trade-weighted income of Turkey will lead to an increase in exports of 1.28%. All the coefficients are significant. Our results are consistent with Damijan et al. (2009), Todaro, & Smith (2012), that exporting to advanced markets leads to more technical learning and more technology absorption.

2.4 Short run results of Turkey's export to G7

Table 2.4 Short run coefficients to G7

Variable	Coefficient	Std. Error	t-Statistic	Prob*.

ΔLn(RER)	0.34	0.152	2.240	0.0319
ΔLn(TW)	0.13	0.040	3.390	0.0018
ΔLn(YW)	0.45	0.123	3.642	0.0009
c	-0.30	0.718	-0.428	0.6709
CointEq(-1)*	-0.349	0.041	-8.39	0.000

As represented in above results, In the short run, Turkey's exports to the G7 show that a 1% increase in RER (currency depreciation) results in a 0.34% increase in exports. However, a 1% increase in technological competitiveness leads to a 0.13% increase in G7 exports, indicating that technological competitiveness is important in increasing exports to advanced economies. Exporting to advanced economies necessitates more innovation in Turkish products. Price competitiveness is important in low-income markets, but technological competitiveness is important in high-income markets. our result not consistent with Kirim (1990). Furthermore, results show that an increase of 1% in the trade-weighted income of Turkey leads to an increase of 0.45% in exports. All the coefficients are significant.

The ECM value of -0.34 suggests a relatively high speed of adjustment from the short-run deviation to the long-run equilibrium of intermediate imports. Therefore, 34.9% of all errors or disequilibrium in the short term will be adjusted in the long term in the coming period. This indicates the disequilibrium percentage in the previous equilibrium, which corrected it in the next period as shocks happened in independent study variables that impacted dependent variables.

3. Trade liberalization and exports

3.1 Long Run Coefficients of Manufacturing Exports

Once we found the long run cointegration relationship among the variables of our study, results obtained by export as a (dependent variable) in the long run are reported in Table 3.1.

Table 3.1 Long run coefficients of manufacturing export's function

Variable	Coefficient	Std. Error	t-Statistic	Prob*.
C	-32.2774	1.4154	-22.8039	0.0000
Ln(GDP_f)	1.8605	0.1073	17.332	0.0000
Ln(RER)	0.7449	0.3355	2.220	0.0334

Long run equation:

$$\ln X_m = \alpha + \beta_1 \ln GDP_f + \beta_2 \ln RER + \hat{u}$$

$$EC = Ln(X_m) - (0.7449*Ln(RER) + 1.860*Ln(GDPF) -32.277)$$

The estimated coefficient of the long-run relationship shows that GDP_f has a positive impact on export growth in Turkey under the study review. This signifies that an increase in GDP_f will lead to an increase in export growth in Turkey. An increase of 1% in GDP growth leads to an increase of 1.86% in manufacturing export growth. Remarkably, *T*-statistics shows the variable is significant at a 5% level of significance as the probability value is less than 0.05 (p-value 0.05). From the statistical results, it is confidently concluded that GDP_f has a positive and significant impact on the export growth of Turkey. Findings by Gururaj et al. (2016) show that foreign gross domestic product impacts exports positively.

Moreover, the real exchange rate has a positive long-run impact on exports in Turkey at a statistically significant level of 5%. This indicates that a 1% increase in the real exchange rate (depreciation currency) leads to 0.744 % in manufacturing export growth in Turkey, but the price elasticity of exports is less than1, which means that currency depreciation can't lead to real growth in manufacturing exports. Our findings were consistent with those of Karagöz (2016). Turkish exports increased due to currency depreciation. Additionally, our results consist of Lohrmann (2000), who ensured that trade liberalization had a positive impact on exports in Turkey.

Moreover, Bahmani-Oskooee and Kara (2005) estimated income and price elasticities of trade in 28 countries, including Turkey, over 1973–1999, and the majority of them advanced. The results show that the income and price elasticities of Turkey's exports are 1.29 and 0.68, respectively. By comparing our results with Bahmani-Oskooee and Kara (2005), our results confirm that trade liberalization has an impact positively on Turkey's exports.

3.2 Short Run Results

The error correction model obtained from ARDL test, provides knowledge about short run effects of variables on exports, Table 3.2 contains the estimation results from the error correction model, results explain that the short run effects of GDP_f and exchange rate on manufacturing exports is significant and positive.

Table 3.2 Short run coefficients of manufacturing export's function

Variable	Coefficient	Std. Error	t-Statistic	Prob*.
DLn(RER)	0.317799	0.128220	2.478540	0.0185
DLn(GDP$_F$)	1.814169	0.399896	4.536598	0.0001
CointEq(-1)*	-0.426581	0.050056	-8.522143	0.0000
R-squared	0.656507	Mean dependent var		0.136701
Adjusted R-squared	0.646965	S.D. dependent var		0.175043
S.E. of regression	0.104005	Akaike info criterion		-1.637568
Sum squared resid	0.389410	Schwarz criterion		-1.551379
Log likelihood	33.11379	Hannan-Quinn criter.		-1.606902
Durbin-Watson stat	1.796590			

In contrast to the long-run, real exchange rate having no effect on manufacturing exports, a 1% increase in the real exchange rate (currency depreciation) leads to a 0.317% increase in manufacturing exports in the short run, consistent with Toraganli and Yalçin (2016).

However, foreign income has a statistically significant impact, indicating that an increase of 1% in foreign income will lead to an increase in manufacturing exports by 1.81%. In the

short run, the growth in foreign income collaborated with temporary global demand as well as foreign importers' not having enough time to look for new suppliers (Berument et al. 2014).

To show the difference in export income elasticity before and after trade liberalization, Bairam (1988) displays that the income elasticity export of the Republic of Turkey (1970-1985) is 3.75. This indicates that trade liberalization decreases the positive impact of foreign income on home exports. But our result is different because Bairam depends on constant exchange rate and mix period.

In the short run, the real exchange rate does not have a significant impact on manufacturing export volume, as shown in Table 3. 2. This leads us to investigate how disequilibrium in the short run moves to equilibrium in the long run. ECM Investigates the short-run and long-run cointegration over time, the negative sign of the ECM coefficient and significant shows the existence of disequilibrium in the short run and convergence in the long run.

This value indicates the disequilibrium percentage in the previous equilibrium, which was corrected in the next period as shocks happened in independent study variables that impacted dependent variables. This percentage equals 42.6% in the real model equation. In other words, errors are corrected in the present period and tied to long-run equilibrium with 42.6%. In other words, ECM notifies us that 42.6% of all errors or disequilibrium in the short term are adjusted for in the long term.

The statistical value of the Durbin Watson is 1.79, which indicates that no autocorrelation exists between the variables. The value of $R2$ is 0.65, which suggests that 65.0% of the change in variation in the dependent variable is due to changes in independent variables.

In order to grasp a robust result about the impact of trade liberalization on Turkish manufacturing exports, a comparison between foreign income and price elasticities of exports regards to pre-liberalization and post-liberalization on the one hand, and on the other hand the impact of exporting to developed countries and exporting to the rest of the world.

Interestingly, the performance of exports in the short term is better than in the long run during the period 1960-1980. Unambiguously, Turkish manufacturing exports' share of the world market in the short term is not much different after trade liberalization.

Table 3.3 shows that it's better for Turkey to export to developed countries. Definitely, the penetration of Turkish manufacturing exports to developed markets avoids crises that occur in global growth, especially since these countries enjoy sustainable economic growth on the one hand, and on the other hand, these exports can increase the degree of specialization by exporting inputs. When the price and income elasticities of exports to the G7 and exports to the rest of the world are compared, the results show that exports to the G7 have a higher income elasticity than exports to the rest of the world.

Table 3.3 Turkey manufacturing export's elasticity's (1960-1980), (1980-2018)

Turkey (1960-1980) *4 lag*		Turkey (1980-2018) *1 lag*	
Long- run		**Long- run**	
Ln(RER)	0.17	Ln(RER)	0.74*
Ln(Y^f)	0.24	Ln(Y^f)	1.86*
Intercept	4.47	Intercept	-32.27
Short -run		**Short -run**	
Error correction term	-0.73	Error correction term	-0.42
Δln(RER)	0.34	Δln(RER)	0.31
Δln(Y^f)	1.70*	Δln(Y^f)	1.81*
Intercept	3.29	Intercept	-5.91
Exports to G7 (1980-2018)		**Exports to the rest of World** (1980-2018)	
Long- run		**Long- run**	
Ln(RER)	.850*	Ln(RER)	0.890*
Ln(Y^f)	1.77*	Ln(Y^f)	1.390*
Intercept	-6.34	Intercept	-4.41
Short -run		**Short -run**	
Error correction term	-0.262*	Error correction term	-0.583*
Δln(RER)	0.224	Δln(RER)	0.519*

$\Delta\ln(Y^f)$	1.586*	$\Delta\ln(Y^f)$		0.813*
Intercept	-1.667	Intercept		-2.573

Notes: * significance at 0.05.

4. Trade liberalization and imports

4.1 Long Run Coefficients

Once we found the long run cointegration relationship among the variables of our study, results obtained by estimate intermediate imports as a (dependent variable) in the long run are reported in Table 4.1.

Table 4. 1 Long run coefficients of intermediate imports function

Variable	Coefficient	Std. Error	t-Statistic	Prob*.
Ln(EX)	-0.104	0.334	-0.312	0.757
Ln(GDP$_d$)	1.139	0.505	2.256	0.032
Ln(RER)	1.193	0.444	2.681	0.012
C	-9.451	4.591	-2.059	0.049

Long run equation:

$$IN_{LR} = \alpha + \pi GDP_d + \rho RER + \varepsilon EXP$$

EC = Ln(IN) - (-0.104*Ln(EXP) + 1.139*Ln(GDP$_d$) + 1.193 *Ln(RER) + (-9.451)

The estimated coefficient of the long-run relationship shows that an increase in manufacturing exports by 1% leads to a decrease in intermediate imports by 0.10%. In the long run, some industries substitute intermediate imports with domestic inputs. Unambiguously, in the long run, many industries specialize in some inputs, so intermediate inputs decrease.

The estimation of the long-run relationship between income and intermediate shows that an increase of each percent in the growth rate of GDP leads to an increase in demand for intermediate imports by 1.135%. Our result is consistent with Durmaz and Lee (2015) and Tuncer (2002).

The results indicate that a depreciation of the currency by 1% will lead to an increase in intermediate imports of 1.19 %. *T*-value is significant. The explanation for this is that during currency depreciation, exports will be increased, thus intermediate imports will increase.

4.2 Short Run Results

The error correction model obtained from ARDL test, provides knowledge about short run effects of variables on exports, Table 4.2 contains the estimation results from the error correction model, results explain that the short run effects of GDP_d and exchange rate, manufacturing exports on intermediate imports.

Table 4.2 Short run coefficients of intermediate import's function

Variable	Coefficient	Std. Error	t-Statistic	Prob*.
DLn(EX)	0.973	0.110	8.786	0.0000
DLn(GDPd)	0.526	0.169	2.681	0.0004
DLn(RER)	0.028	0.207	0.136	0.9328
CointEq(-1)*	-0.461	0.075	-6.136	0.0000
R-squared	0.798	Mean dependent var		0.067
Adjusted R-squared	0.765	S.D. dependent var		0.215
S.E. of regression	0.104	Akaike info criterion		-1.531
Sum squared resid	0.326	Schwarz criterion		-1.267
Log likelihood	33.57	Hannan-Quinn criter.		-1.439
Durbin-Watson stat	1.915			

In the short run, Table 4.2 shows that there is a statistically significant relationship between manufacturing exports and intermediate imports. For each 1% increase in manufacturing

exports, there is an increase in intermediate imports by 0.97%. This result confirms the simultaneous relationship between manufacturing exports and intermediate imports. Our result not consistent with Aker (2008).

Moreover, there is a statistically significant relationship between GDP in Turkey and intermediate imports. For each 1% increase in GDP in the short run, there is a 0.52% increase in intermediate imports. Our results are consistent with Erduman et al. (2019).

Finally, results show that the impact of currency depreciation on intermediate imports in the short run is not observed. For each 1% increase in currency depreciation in the short run, leading to only 0.028% in intermediate imports, our result is consistent with Aldan et al. (2012).

The difference between the long and short-run leads us to investigate how disequilibrium in the short-run moves to equilibrium in the long run, where ECM shows how the short-run and long-run cointegration over time, the negative signs of the ECM coefficient and significant shows the existence of disequilibrium in the short run and convergence in the long run. The ECM value of -0.46 suggests a relatively high speed of adjustment from the short-run deviation to the long-run equilibrium of intermediate imports. Therefore, 46.1% of all errors or disequilibrium in the short term will be adjusted in the long term in the coming period. This indicates the disequilibrium percentage in the previous equilibrium which corrected it in the next period as shocks happened in independent study variables that impact dependent variables.

The statistical value of the Durbin Watson is 1.915, which indicates that no autocorrelation exists between the variables. The value of $R2$ is 0.79, which suggests that 79.0% of the change in variation in the dependent variable is due to changes in independent variables.

5. Trade liberalization and trade balance

5.1 Long Run Coefficients

Once we found the long run cointegration relationship among the variables of our study, results obtained by trade balance as a (dependent variable) in the long run are reported in Table 5.1.

Table 5.1 Long run coefficients of trade balance

Variable	Coefficient	Std. Error	t-Statistic	Prob*.
Ln(GDP$_f$)	-0.744	0.421	-1.766	0.083
Ln(GDP$_d$)	0.456	0.320	1.426	0.160
Ln(RER)	-0.093	0.438	-2.12	0.832
DU	0.762	0.263	2.892	0.0057*
C	-0.608	1.624	-0.374	0.709

Long run equation:

$$LnTB = \alpha + \beta_1 \log\text{GDP}_f + \beta_2 \, Ln\text{RER} + \beta_3 Ln GDP_d + \beta_4 Du + \hat{u}$$

EC = LOG(TB) - 0.7446*LOG(GDPF) - 0.4569*LOG(GDPD)-0.093*LOG(RER) 0.76Du-0.6081)

The estimated coefficient of the long-run relationship shows that foreign income's impact on Turkey's trade balance is negative. An increase in foreign income (GDP$_f$) by 1% leads to a deterioration in Turkey's trade balance by 0.74%. In the global recovery, global demand increased, import prices rose, and Turkey's import bill increased, thus the trade balance deteriorated. This is consistent with Kale (2001).

An increase in 1% of GDP$_d$ leads to improving Turkey's trade balance by 0.45%. As GDP in Turkey increased, saving also increased. As a result, investment increased, particularly in the exporting sector. Moreover, an increase in the real exchange rate (currency depreciation) impacts negatively on the trade balance. A 1% increase in the real exchange rate (depreciation currency) leads to a deteriorating trade balance by 0.09%. Our results are consistent with Durmaz (2015), which indicate that the exchange rate is not an effective tool in improving Turkey's trade balance. Our results are consistent with those of Yazici

and Klasa (2010), who show that currency devaluation impacts negatively on Turkey's trade balance. On the other hand, our results are not consistent with Sezer (2017) that currency devaluation will lead to an improvement in Turkey's trade balance in the long run.

Finally, to show the impact of trade liberalization on trade balance after liberalizing trade, the results show that the impact is positive and statistically significant. An increase of 1% in Turkish openness toward the world will lead to an improvement of 0.76% in the trade balance. To benefit considerably from trade liberalization, trade liberalization (Du) elasticity should be exceeded by 1%. Figure 5.5 shows the trend between the real exchange rate, the trade balance, foreign income, and domestic income over (1981-2018).

Figure 5.1 Trends growth of real exchange rate, trade balance, foreign income, domestic income (1981-2018).
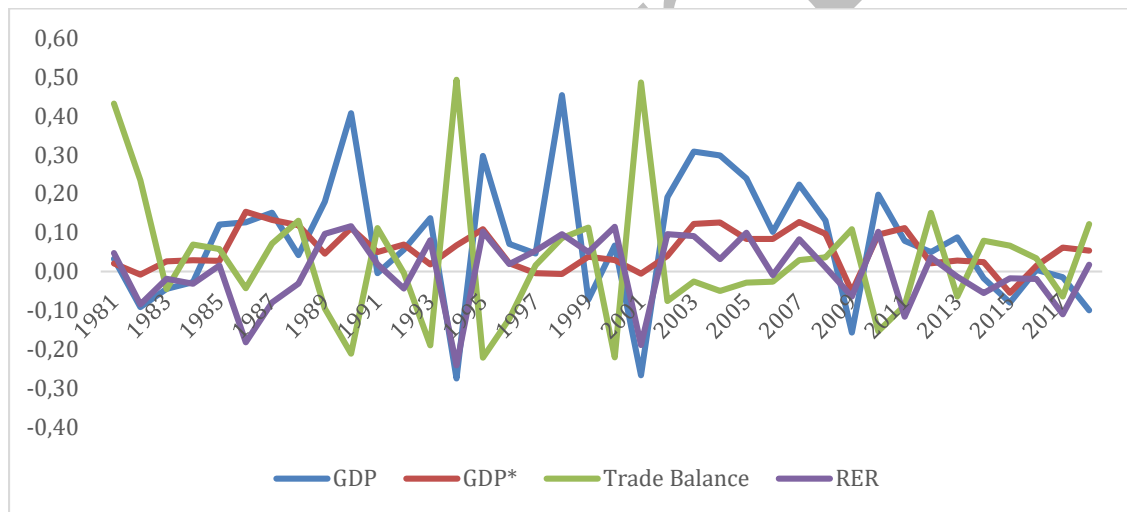
Source: Central Bank of the Republic of Turkey- TCMB

5.2 Short Run Results

The error correction model obtained from ARDL test, provides knowledge about short run effects of variables on exports, Table 5.2 contains the estimation results from the error correction model, results explain that the short run effects of GDP_f and Exchange rate on manufacturing exports is significantly positive.

Table 5.2 Short run coefficients of trade balance

Variable	Coefficient	Std. Error	t-Statistic	Prob*.
Ln(RER)	-0.399	0.108	-2.651	0.01
Ln(GDP$_f$)	-0.310	0.1772	-1.754	0.085
Ln(GDP$_d$)	-0.287	0.108	-2.651	0.010
Du	0.318	0.113	2.801	0.0073
CointEq(-1)*	-0.417	0.080	-5.201	0.000
R-squared	0.481	Mean dependent var		0.0045
Adjusted R-squared	0.462	S.D. dependent var		0.1840
S.E. of regression	0.134	Akaike info criterion		-1.115
Sum squared resid	0.965	Schwarz criterion		-1.0067
Log likelihood	34.227	Hannan-Quinn criter.		-1.0732
Durbin-Watson stat	2.2368			

In the short-run, currency depreciation, foreign income, and domestic income harm the trade balance. Table 5.2 reveals that a 1% appreciation in the Turkish currency leads to a deteriorating trade balance by 0.39%. *T*-value is significant. Results indicate that an increase in foreign income by 1% leads to a decrease in Turkey's trade balance by 0.31%. Furthermore, domestic income has an impact negatively on the trade balance. Findings show that an increase in domestic income by 1% leads to a deteriorating trade balance by 0.28%. *T*-value is significant. Our results are consistent with those of Ari and Cergibozan (2016).

For trade liberalization's impact on the trade balance, results show that an increase in openness of 1% will lead to an improvement in the trade balance of 0.31%, and the T-value is significant.

These results suggest that to investigate how disequilibrium in the short run moves to equilibrium in the long run, ECM investigates the short-run and long-run cointegration over time, the negative sign of the ECM coefficient and significant shows the existence of

disequilibrium in the short run and convergence in the long run. This value indicates the disequilibrium percentage in the previous equilibrium, which was corrected in the next period as shocks happened in independent study variables that impacted dependent variables. This percentage equals 41.74% in the real model equation. In other words, ECM notifies us that 41.7% of all errors or disequilibrium in the short term are adjusted for in the long term.

The statistical value of the Durbin Watson is 2.2, which indicates that no autocorrelation exists between the variables. The value of $R2$ is 0.48, which suggests that a 48.0% change in variation in the dependent variable is due to changes in independent variables.

Trade liberalization and government size

6.1 Long run results

Once we found the long run cointegration relationship among the variables of our study, results obtained by estimating intermediate imports as a (dependent variable) in the long run are reported in Table 6.1.

Table 6.1 Long run coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob*.
Ln(Y)	1.375411	0.200022	6.876317	0.0000
Ln(OP)	-0.265968	0.220676	-1.205241	0.2364
C	-4.058714	1.267590	-3.201915	0.0030

Long run equation:

$$\ln G = \alpha + \beta_1 \ln OP + \beta_2 lny + \hat{u}$$

$$EC = Ln(G) - 0.265*Ln(op) + 1.375*Ln(y) \ -4.058\ )$$

The estimated coefficient of the long-run relationship shows that Y has a positive impact on G in Turkey. This signifies that an increase of 1% in Y leads to an increase of g by

1.37%. For openness as a trade liberalization indicator, the results confirm that an increase of 1% in openness will lead to a decrease in per capita government expenditure by 0.26% in the long run. This means Turkey's government will gradually quit economic activities, revenue will decline, government expenditure will decrease, and ultimately, welfare will be influenced negatively by trade liberalization. Our results were consistent with Turan and Karakas (2016).

6.2 Short run results

The error correction model obtained from the ARDL test, provides knowledge about the short run effects of variables on G, Table 6.1 contains the estimation results from the error correction model. The results explain the short run effects of Y on G.

Table 6.2 Short run coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob*.
Ln(Y)	0.289690	0.045449	6.374022	0.0000
Ln(OP)	-0.056018	0.045190	-1.239608	0.2236
C	-0.854849	0.191908	-4.454460	0.0001
CointEq(-1)*	-0.210621	0.024989	-8.428394	0.0000
R-squared	0.987921	Mean dependent var		7.415211
Adjusted R-squared	0.986855	S.D. dependent var		0.293168
S.E. of regression	0.033612	Akaike info criterion		-3.848547
Sum squared resid	0.038413	Schwarz criterion		-3.676169
Log likelihood	77.12239	Hannan-Quinn criter.		-3.787216
Durbin-Watson stat	2.045607			

According to the short-run result, y has a positive impact on G in Turkey. This signifies that an increase of 1% in Y leads to an increase in G of 0.287%. With regards to openness as a trade liberalization indicator, results confirm that an increase in openness by 1% will lead to a decrease in per capita government expenditure by 0.05% in the short run. Our results were not consistent with Turan and Karakas (2016).

to investigate the difference between the long and the short-run. The ECM test indicates that the short-run and long-run cointegration over time, the negative sign of the ECM coefficient, and significant shows the existence of disequilibrium in the short run and convergence in the long run. ECM equals 21.0% of the real model equation. In other words, errors are corrected in the present period and tied to long-run equilibrium at 21%. In other words, ECM notifies us that 21% of all errors or disequilibrium in the short term are adjusted for in the long term.

6.3 Granger causality test

Previous studies such as Rodrick (1998), Alesina, and Wacziarg (1998), indicated that openness contributed to increase in the size of the government as a percentage of GDP to compensate for what was loses from trade liberalization. Granger causality test shows that openness does not cause an increase in government expenditures, nevertheless, an increase in government expenditures causes openness, this explains the existence of a direct relationship of expenditures towards openness. With regard to the per capita share of the GDP, the increase per capita leads to more spending, it has been found that there is a direct relationship.

Table 6.3 Granger causality test results

Null Hypothesis	F-Statistic	Prob.
OP does not Granger cause G	3.149	0.0564
G does not Granger cause OP	7.582	0.0020
Y does not Granger cause G	12.612	0.000
G does not Granger cause Y	0.4309	0.6536

DISCUSSION

As reported in estimation results, the impact of trade liberalization on attracting investments is slightly low on one hand. On the other hand, currency depreciation is embodied by an open economy, which leads to a negative impact on foreign direct investment.

Based on previous results, the technological competitiveness index is unable to increase exports significantly to foreign countries, while exports to G7 have been increased if Turkey's technological competitiveness index improved.

Trade liberalization has a positive impact on manufacturing export volume. Integration into a global economy opens up new export markets. The results confirm that the price and income elasticities are positive. High foreign income elasticity compared to advanced economies explains the extent of integration in a global economy. More specifically, the findings reveal that the price elasticity of Turkish exports is higher than the price elasticity of imports ($0.31 > 0.028$).

Foreign income Export elasticity is higher than domestic income import elasticity of income ($1.81 > 0.52$). As a result, trade liberalization benefits the export industry.

Results indicate that trade liberalization has a positive impact on access to cheap and quality intermediate inputs. This has injected the export sector with a variety of sophisticated inputs. The results indicate that manufacturing exports impact significantly on intermediate imports. An increase of 1% in manufacturing exports leads to an increase in intermediate imports by 1%.

Moreover, the price elasticity of Turkish imports is lower than that of Turkish exports ($0.028 < 0.31$). Domestic income import elasticities are lower than foreign income export elasticities ($0.52 < 1.81$). As a result, trade liberalization has an impact positively on Turkish imports (imports increases less than exports).

Trade liberalization impacts positively on the trade balance. Integration into the global economy improves the trade balance. In last year's export growth, more than imports.

Finally, according to estimation results, trade liberalization impacts negatively on the Turkish government's size. Trade liberalization and openness stimulate public expenditures on big infrastructure projects, especially in a small open economy.

CONCLUSION

Depending on what has been studied above, the study came out with the following results:

Concerning the impact of trade liberalization on macroeconomic indicators, foreign direct investment, exports, imports, trade balance, and government expenditures, the Republic of Turkey, like any other country, is willing to integrate into the global economy in order to achieve stability and sustain growth.

During the first years of trade liberalization, since Turkey opened to foreign investment, Turkish manufacturing exports have achieved notable growth, indicating economic recovery. A new course of economic policy has been set up. Trade liberalization enables Turkish producers to access a variety of cheap and quality intermediate imports. Cheap inputs stimulate investors in industrialization.

Turkey's trade balance deficit continued through the study period (1980-2018). Turkey's efforts to achieve a surplus in the balance of trade were not seen. Imports still dominated the deficit, especially since Turkey depends on imported energy and intermediate inputs to sustain economic growth with the deficit still under investigation.

By employing econometrics tests based on ARDL methodology to examine the impact of trade liberalization on foreign direct investment, innovation and manufacturing exports, manufacturing exports, intermediate imports, trade balance, government size, results as follows:

1-Trade liberalization impacts negatively on foreign direct investment inflow into the Turkish market. Although Turkey has modern and fit infrastructure, foreign investment inflow compared to other emerging countries is still low. Furthermore, the flexible exchange rate as the first pillar of Turkish trade liberalization does not lead to a stimulating environment for investors toward investing in Turkey.

2-One of the most important merits of globalization is technology advancement and innovation. Capability readiness enables countries to absorb technology and develop it. Improving Turkey's technological competitiveness index will lead to increased exports toward advanced economies more than the rest of the world.

3-There is a positive impact of trade liberalization on Turkish manufacturing exports, openness, and integration into the global economy, opening new markets, and maintaining trade ties between Turkey and the rest of the world. Furthermore, trade liberalization enables Turkey to penetrate advanced economic markets.

4-Access to a variety of quality and cheap inputs contributes significantly to the survival of the manufacturing sector. Openness and trade ties allow industrial agents in Turkey to catch up with technology embodied by inputs. Thus, trade liberalization impacts positively on imported intermediate inputs.

3-The impact of trade liberalization on the trade balance in the long run is positive; the trade balance grew under trade liberalization pressure. The dynamic of trade balance shows the health of the economy's trend over the last three decades (1980-2018).

6-Government expenditures will be influenced negatively by trade liberalization in the long run by financing big infrastructure projects to accelerate trade, accompanied with low education expenditures and low social protection.

Finally, the impact of trade liberalization on macroeconomic indicators varies from one to another. Based on the above results, foreign investment inflow is still low. Innovation compared to advanced economies is one of the biggest puzzles in the industrialization

sector. Manufacturing exports expanded and grew significantly, intermediate inputs increased, the trade balance improved, and welfare decreased.

REFERENCES AND NOTES

Aghion, P, Meghir, C, and J. Vandenbussche (2003*). Productivity Growth and the Composition of Education Spending*, unpublished.

Aghion, Philippe and Xavier Jaravel, (2015)"Knowledge spillovers, innovation and growth," *The Economic Journal*, 2015, 125 (583), 533–5.

Aker, Şule L. (2008). Major Determinants of Imports in Turkey*, Journal Turkish Studies*, Volume 9, 2008 - Issue 1.

Aldan Altan, İhsan Bozok and Mahmut Gunay (2021). Short Run Import Dynamics in Turkey, Working Papers from Research and Monetary Policy Department, Central Bank of the Republic of Turkey.

Alesina, A. and Wacziarg, R., (1998). Openness, Country Size and Government, *Journal of Public Economics*, 69, pp. 305–321.

Ari Ali, Raif Cergibozan (2016). *Determinants of the Trade Balance in the Turkish Economy*, EBEEC Conference Proceedings the Economies of Balkan and Eastern Europe Countries in the Changed World, Volume 2017.

Bahmani-Oskooee Mohsen & Orhan Kara (2005). Income and price elasticities of trade: Some New Estimates, *The International Trade Journal*, 19:2, 165-178.

Bairam, Erkin (1988), Balance of Payments, the Harrod Foreign Trade Multiplier and Economic Growth: The European and North American Experience: 1970-85, *Applied Economics*, Vol 20:12 p. 1635-1643.

Balassa, B. (1969). *Trade Liberalization among Industrial Countries*. Objectives and Alternatives, McGraw-Hill Book Company.

Berument M. Hakan, N. Nergiz Dincer, Zafer Mustafaoglu (2014). External income shocks and Turkish exports: A sectoral analysis, *Economic Modelling* 37 (2014) 476–484.

Black J., Hashimzade N., Myles G., (2009) A *Dictionary of Economics*, Oxford University Press, Oxford.

Cambazoglu, Birgul, and Sevcan Gunes. (2016). The relationship between foreign exchange rate and foreign direct investment in Turkey. *Economics, Management, and Financial Markets*, vol. 11, no. 1, Mar. 2016, pp. 284.

Damijan JP, De Sousa J, Lamotte O (2009). Does international openness affect the productivity of local firms?'. *Econ Transit*, 17(3):559–586.

Dijkstra, A.G. (2000). Trade Liberalization and the Industrial Development in Latin America. *World Development*, 28, no. 9: 1567-1582.

Dunn Jr, R. M., & Mutti, J. H. (2004). *International Economics*. Sixth Edition. London: Routledge.

Durmaz, N., Lee, J., (2015). An empirical analysis of import demand function for Turkey: an ARDL bounds testing approach. *J. Dev*. Areas 49 (4), 215e226.

Erduman, Y., Eren, O., & Gül, S. (2019). Import Content of Turkish Production and Exports: A sectoral Analysis. *Central Bank Review*, 20(4), 155-168.

Fan Haichao, Edwin L. C, Han Qi (2019). Trade liberalization and firms export performance in China: theory and evidence, *Journal of comparative economics, Economics Bulletin,* 5 (18):1–13.

Global trade indicators, March 10, 2022. Accessed March 10, 2022.

https://data.worldbank.org/indicator/NE.TRD.GNFS.ZS.

Gökmen, A. &Hamsıoglu, A. B. (2009). Previous developments and the current situation in the Turkish banking sector: foreign entry and its reflections on the national banking industry. *International Journal of Economics and Finance Studies*, 1(1), 47–58.

Grossman, G. and Helpman, E. (1991). *Innovation and Growth in the Global Economy*. Cambridge, MA: MIT Press.

Gururaj B., Satishkumar M. , M.K. Aravinda Kumar (2016) Analysis of factors affecting the performance of exports in India, *International Journal of Agriculture Environment and Biotechnology*, 9(4):613, DOI:10.5958/2230-732X.2016.00079.6.

Haussmann, R, Hwang, J & Rodrik, D (2007). What you export matters. *Journal of economic growth*, 12.1-25.

Ingham, Barbara. (2004). *International Economics. A European Focus*. Harlow, UK: Prentice Hall.

Kale, Pelin (2001) Turkey's trade balance in the short and the long run: Error correction modelling and cointegration, *The International Trade Journal*, 15(1):27-56, DOI:10.1080/088539001300005440.

Karagoz Kadir (2016). Determining Factors of turkey's Exports Performance: An Empirical Analysis*, Procedia Economics and Finance* 38, 446-457.

Kirim Arman (1991). Technology and exports: the case of the Turkish Manufacturing Industries, *World Development*. Vol. 18. No.10. pp.1351-1362.

Koyuncu, C. ve Cınar, T., İ. (2009). Ticari dışa açıklı ve doğrudan yabancı sermaye yatırımlarının iş gücü verimliliğine etkisi: 1980 – 2005 *Türkiye uygulaması. Dumlupınar Üniversitesi İktisadi ve İdari Bilimler Dergisi*, 1(23), 309-326.

Krueger, Anne O., (1978). *Foreign Trade Regimes and Economic Development: Liberalization Attempts and Consequences*, Cambridge, MA: Ballinger Publishing Co. for NBER.

Lohrmann Astrid-Marina (2000) Development Effects of the Customs Union between Turkey and the European Union: Catching-Up-Or the Heckscher-Ohlin Trap?, *Russian & East European Finance and Trade*, Vol. 36, No. 4 (Jul. - Aug., 2000), pp. 26-44.

Melitz, Marc J., and Gianmarco I. P. Ottaviano. (2008). Market Size, Trade, and Productivity. *Review of Economic Studies*, 75(1): 295–316.

Newquist Don E., peter S. Watson, david B. Rohr, anne E. Brunsdale, carol T. Crawford, janet A. Nuzum (1993). The dynamic effects of trade Liberalization: a survey, united states

international trade commission, *Report on Investigation No*. 332-324, Washington, DC 20436.

Ricardo, D. (1817). *On The Principles of Political Economy and Taxation*. John Murray, 1821, 3th, Michigan Uni.

Rodrik D (1998). Why do more open economies have bigger governments? *Journal of Political Economy*, 106(5):997–1032.

Romer P. (1991). International Trade with Endogenous Technological Change, *European Economic Review*, 35(4).

Şahbaz Ahmet; Abdül kadirBuluş; Fatih Kaleci (2016). The Relationship between Openness, Foreign Direct Investment, and Poverty: The Case of Turkey, *Gaziantep University Journal of Social Sciences*, Volume 15, Number 4, 2016, pp. 1106-1117(12).

Sezer, Sevgi (2017). The effects of real exchange rates and income on the trade balance: A second generation panel data analysis for transition economies and Turkey, *Theoretical and Applied Economics*, 2017, vol. XXIV, issue 2(611), Summer, 171-186.

Smith, Adam, (1776). *An Inquiry into the Nature and Causes of the Wealth of Nations*, London: Methuen & Co. 1904 5th.

Solow, R.M (1956). A Contribution to the Theory of Economic Growth, *Quarterly J. of Economics*, 70. 65-94.

Tarı, R. ve Bıdırdı, H. (2009). Turkiye'de doğrudan yabancı sermaye yatırımlarının temel belirleyicileri: 1990-2006 dönemine ilişkin ekonometrik analiz. Dumlupınar *Üniversitesi Sosyal Bilimler Dergisi*, 24, 253- 268.

Todaro, M. P., & Smith, S. C. (2012). *Economic development*. Boston, MA: Pearson Addison- Wesley.

Toraganlı Nazlı, and Cihan Yalçın (2016) Exports, Real Exchange Rates and External Exposures: Empirical Evidence from Turkish Manufacturing Firms, working paper no: 16/24, Central Bank of the Republic of Turkey.

Tuncer, İ. (2002). Türkiye'de İhracat, İthalat ve Büyüme: Toda-Yamamoto Yöntemiyle Granger Nedensellik Analizleri (1980-2000), Çukurova Üniversitesi *Sosyal Bilimler Enstitüsü Dergisi*, 9(9): 90-106.

Turan Taner, Mesut Karakas (2016). The effect of trade openness and income on the size of a government, *transylvanian review of administrative sciences*, no. 47 e/2016, pp. 164-178.

Weinhold, D. and Rauch, J. E. (1999). Openness, Specialization, and Productivity Growth in Less Developed Countries. *Canadian Journal of Economics,* 32, 1009-1027.

Yazici, M. and Klasra, M.A. (2010). Import-content of exports and J-curve effect, *Applied Economics*, 42 (6), 769–776. DOI: 10.1080/00036840701720846.