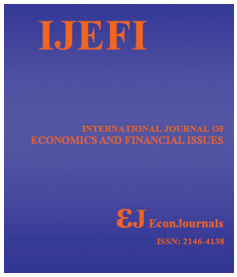

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The Relationship among Gross Barter Terms of Trade, Exchange Rates, and Economic Growth: A Case in Turkey

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ABSTRACT

The terms of trade are related to the measurement of foreign trade performance in open economies and are based on the comparison of export and import price ratios of a country. Since the definition of terms of trade lacks an interpretation regarding export and import volumes, calculation of gross barter terms of trade which takes the amounts into account is brought out. In this study, the relationship of gross barter terms of trade with foreign exchange rates and industrial production index representing economic growth is analyzed in Turkey between 2005: 01 and 2015: 06 by using the autoregressive distributed lag boundary test approach.

Keywords: Terms of Trade, Gross Barter Terms of Trade, Autoregressive Distributed Lag Boundary Test Approach
JEL Classifications: B17, F02, F43, O44

1. INTRODUCTION

As mentioned above, the point to be considered in interpreting the change between foreign trade rates and economic growth is the type of estimated terms of trade. The considered type of terms of trade is the net barter terms of trade in which only sales and purchases of goods are taken into account. Therefore misleading results occur in the measurement of the trading parties' productivity levels. In income terms of trade, however, the purchasing power of exports are determined but productivity changes are ignored since import capacity of the country is explained through exports.

The study comprises four parts. The first part contains the description of the terms of trade and the descriptions of the different types of terms of trade. In the second part, the exchange rate and the theoretical explanation of the terms of trade and the situation in Turkey are included. In the third part, where the literature review is made, the relationships among the growth of the Turkish economy, terms of trade and foreign exchange rates are analyzed with the autoregressive distributed lag (ARDL) boundary test approach. In our study, "gross barter terms of trade" index is utilized. The first characteristic that distinguishes this study from the others is that the selected index variable removes the drawbacks of the price indices. The second characteristic is that the gross barter terms of trade index calculated as the ratio of the import volume index to the export volume index are related to growth.

2. A THEORETICAL PERSPECTIVE ON TERMS OF TRADE AND THE TYPES OF TERMS OF TRADE

The terms of trade is defined as the relationship between the export price index and the import price index (Parasız and Ekren, 2013. p. 72), while relative prices (the rate of exchange of export goods with import goods) are used on behalf of the terms of trade (Seyidoğlu, 2007. p. 55). There are also various terms of trade types in the literature which are coined by different schools; such as, the rate of exchange by Marshall, the real exchange rate by Pigou (1965) and the barter terms of trade by Taussug (1966) (Aydoğuş and Diler, 2006. p. 90).

Although it is known that studies related to terms of trade have started in the second half of the 19th century, consideration of the concept began with the classical economists' following question: "Which goods will be subject to trade and which goods will be

imported and which goods will be exported by the countries?" (Hepaktan and Karakayalı, 2009. p. 182).

As it is understood from the definitions above, it is thought that the terms of trade, being regarded as a meaningful indicator of the foreign trade performance, has a direct impact on the country's economic growth (Turan et al., 2016. p. 42). In other words, resources being transferred from the developing countries are seen to account for the rapid development of the developed countries as much as their efforts. It is found out that terms of trade estimated higher than 100 according to the base year indicates foreign trade gains (the terms of trade exhibits favorable development for the country). However, terms of trade estimated lower than 100 indicates foreign trade losses (the terms of trade exhibits unfavorable developments against the country) (BIAMER, 2014).

Again, when the export prices remain unchanged while the import prices decline or when the import prices remain unchanged while the export prices increase, both price indices will increase. Even if the export price increase exceeds the import price increase, terms of trade will be in favor of the country. In this case, real national income will increase faster than production since the purchasing power will increase in international markets, thus increasing economic welfare level of the country by allowing it to obtain more imported goods than exported goods compared to the base year (Yıldırım, 2005. p. 154).

Regarding determining the development levels and competitiveness of the countries, the importance of foreign trade is subject to various definitions by different economic schools due to problems arising in the course of their use. While the exchange of goods is taken into account by the above-mentioned differences in the preference of foreign trade data, some consider the exchange of production factors. Another definition is on benefit terms of trade and the following Table 1 briefly discusses these variations.

2.1. The Relationship between Terms of Trade and Exchange Rate

The exchange rate is domestic currency equivalent of foreign currency. If exchange rate rises, domestic currency depreciates, whereas if exchange rate falls, domestic currency appreciates (İyibozkurt, 1985. p. 240-241). The nominal exchange rate is the relative prices of two countries' currencies, while the real exchange rate is the relative prices of two countries' goods (Parasız, 1999. p. 316). In other words, real exchange rate shows the ratio at which a country's goods are traded with another country's goods. The real exchange rate is sometimes referred to as terms of trade. Real exchange rate calculated on nominal effective exchange rates considering inflation rate in the related period is expressed as the relative price of foreign-produced goods and services to domestic-produced goods and services (Gedik, 2014. p. 6).

International monetary systems are classified according to the flexibility of exchange rates. Fixed exchange rate systems are systems in which exchange rates can be altered by government decisions. The increase in official exchange rate volatility is defined as a devaluation, while the decrease is a revaluation. Following a devaluation, it takes time for the distorted trade balance to recover. Since these developments resemble the letter J, it is called J-Curve effect. This effect occurs when the Marshall-Lerner condition is not satisfied. In the flexible exchange system, automatic equilibrium is obtained by exchange rate changes. External balance is attained at the exchange rate level that equals total foreign exchange demand to total foreign exchange supply. The attainment of external balance is based on the fulfillment of Marshall-Lerner condition (Tapşın and Karabulut, 2013. p. 192).

The quantity effect of real exchange rate change is the adaptation of Marshall's price elasticity analysis to foreign trade. In the elasticity approach, a partial equilibrium analysis is carried out in which the foreign exchange supply and demand balances are provided, and the total size of the economy is ignored in relation to the supply and demand balance of the goods and services subject to foreign trade. The relationship between foreign exchange rates and terms of trade is established through supply and demand elasticities of both exports and imports. The lower the price elasticity of the foreign demand for exported goods and the higher the price elasticity of the domestic supply of exported goods, the smaller the decrease in the foreign prices of these goods. On the other hand, the higher the domestic demand elasticity of imported goods and the lower the foreign supply elasticity of imported goods, the higher the decrease in prices of these goods. Thus, if the foreign demand elasticity of the export goods equals the foreign supply elasticity of the import goods and the elasticity of the domestic demand elasticity of the export goods is equal to the domestic demand elasticity; terms of trade will not change since an increase in the foreign exchange rate will affect the goods prices at the same rate. Nonetheless, if the foreign supply elasticity of the imported goods is larger than the foreign demand elasticity of the exported goods as much as then the domestic demand elasticity of the imported goods exceeds the domestic supply elasticity of the exported goods, then again terms of trade will not be affected (Diler, 2006. p. 52-53).

According to the elasticity approach, the main determinant of foreign trade balance among the main items of the current account balance is the relative international prices. Accordingly, the decline in value of the national currency against foreign currencies increases the price of import goods and reduces imports due to decreasing demand. Meanwhile, the price of export goods decreases and exports increase with the rise in foreign demand. Thus, the foreign trade deficit will be closed due to decreasing import expenses and increasing export revenues. In this context, the depreciation of the national currency depends on the Marshall-Lerner condition in the international economics literature to bring about a healing result of the foreign trade balance. Assuming that supply elasticities are infinite, this condition is expressed as the sum of domestic demand elasticity (e_m) of the imported goods and foreign demand elasticity (e_x) of the exported goods being ≥ 1 (Ordu, 2013. p. 45).

The change in the direction of exchange rates is based on the assumption that imports are reduced, foreign exchange savings are achieved, and import prices are unchanged. This depends on the supply elasticity of the imported goods. If the supply of the imported goods is elastic, the prices remain stable. Otherwise, they fall. The decrease in the prices of the imported goods reduces the

Table 1: Variations of terms of trade and their explanations

Definition of terms of trade considering product exchange		
Type of terms of trade	**Formula**	**Explanation**
Net Barter Terms of Trade (N)	$N=P_X/P_M$ P_X: Export price ındex, P_M: Import price ındex	It is obtained by equalizing the export prices, even though being a definition based on the concept of foreign trade. Since it merely involves buying and selling goods, it can give misleading results in measuring the productivity of the trading parties. Its advantage is that it exhibits short-term cyclical changes
Gross barter terms of trade (G)	$G=Q_M/Q_X$ Q_M: Import quantity ındex, Q_X: Export quantity ındex	It is the ratio of the import volume index to the export volume index. The index is used to eliminate the drawbacks of price indices. It faces similar criticisms as net barter terms of trade does
Income terms of trade (I)	$I=D_X/P_X=(P_X/P_M).Q_X$ D_X: Export value ındex	Since the import capacity of a country is explained through exports, it indicates the purchasing power of exports. Therefore, it is also known as the import capacity index based on exports. It is criticized for not taking productivity changes into account
Definition of terms of trade considering factor exchange		
Single factoral terms of trade (S)	$S=(P_X/P_M)*V_X$ V_X: The index of export productivity	While it is described as a good indicator in showing the gains from foreign trade as a sign of economic prosperity, productivity changes of resources are difficult to calculate in practice
Double Factoral Terms of Trade (D)	$D=(P_X/P_M)*(V_X/V_M)$ V_M: The index of import productivity	An increase in double-factoral terms of trade indicates that a unit of input used in the export segment can be replaced by more foreign inputs. However, it is important for a country to know what amount of imports will be imported despite the change in exports, but there is uncertainty in this calculation
Definition of terms of trade considering utility		
Real cost terms of trade (R)	$R=S*E$ R: Real cost terms of trade, E: The index of the amount of disutility per unit of productive resource used in producing exports	The increase in the index of disutility of exports indicates that the real cost of each unit of import increases
Utility terms of trade (F)	$F=R*(U_O^M/U_O^A)$ U_O^M/U_O^A: The index of relative utility of import and domestic goods foregone to produce exports	In the formula, and U represents the utility index. It is not used because it is not possible to measure technical and utility coefficients of imports and exports

Source: It is prepared by the authors by utilizing the findings of Aslan and Yörük (2005)

foreign exchange savings. The explanations above as to whether depreciation of the national currency would provide foreign exchange savings to the extent of import elasticity of demand are based on the assumption that "import goods have the infinite elasticity of supply" while there is no change in import prices regarding foreign currencies.

However, the possibility of a contraction in demand for imports in the country whose national currency is depreciated may lead to a decrease in the prices of imported goods in terms of foreign currency due to the low elasticity of supply of imported goods. Thus, the increase in the domestic prices of imported goods, which occurs at a lower rate than expected due to the relative price effect, would weaken the shifting effect of spending expected from the exchange rate change. Nevertheless, it is expected that such a compensatory decline in imported goods' foreign currency and therefore in national currency prices; due to the low level of supply elasticity, will only occur if the national currency of the country which has a significant share in world trade volume is depreciated. Since the changes in national currency values of the countries with insignificant world trade shares have no effects on the international trade volume, the exchange rate policy effects in a small-open economy are analyzed within the framework of the assumption of infinite import supply elasticity (Aldemir, 2005. p. 9).

In response to a 1% change in real exchange rate, export demand elasticity that measures the percentage change in foreign demand for export goods is the ratio of the percentage change in the exported amount to the percentage change in the export price regarding foreign currency. In response to a 1% change in real exchange rate, export supply elasticity that measures the percentage change in the domestic supply of export goods is the ratio of the percentage change in the exported amount to the percentage change in the export price in terms of foreign currency. The most favorable condition for export supply elasticity is the existence of an infinitely elastic supply curve that allows

production to be increased at constant prices. As the value of elasticity decreases, since the increase in production requires the increase in prices, the potential relative price effect will weaken and the potential foreign exchange gain will also decrease. When foreign trade supply elasticities are assumed to be infinite, the decline in value in the national currency provides not only foreign exchange savings as long as import demand elasticity is greater than zero; but also increases foreign exchange earnings as long as export demand elasticity is >1.

Therefore, since (+) or neutral foreign exchange saving effects of national currency depreciation will never be (-), foreign trade balance expressed in "foreign currency" will improve to the extent that possible foreign exchange loss that will arise due to the fact that the elasticity of export demand is smaller than unity (Aldemir, 2005. p. 12).

2.2. Real Foreign Exchange Rate and Foreign Trade Dynamics in Turkey

The main determinant of the current account balance in the Turkish economy is the difference between imports of goods and exports of goods. In 2015, exports decreased by 8.7% from $157.610 to $143.935 million, while imports decreased by 14.4% from $242.177 to $207.203 million in comparison to 2014. Thus, Turkey's foreign trade deficit narrowed by 25.2% to $63.268 million in 2015 as a result of a faster decrease in imports than exports. Foreign trade volume which decreased by 0.9% in 2014, has narrowed by 12.2% to $351.138 million in 2015 due to the effect of exports and imports (TOBB, 2015. p. 133). When the change in import and export values in Turkey between the years 2005 and 2015 is examined in Graph 1, it is seen that the import ratio is higher than the exports in every period.

The exchange rates of Turkish Lira in 2015 are given in Table 2. At the end of the year, the average nominal value of the USD against the Turkish lira has increased by 24.3-2.718% TL, the Euro has appreciated by 3.9-3.018% TL, the GBP has risen by 15.4-4.150% TL, and the Japanese Yen has gained value by 8.5-2.240% TL (TOBB, 2015. p. 130).

3. LITERATURE REVIEW ON TERMS OF TRADE, FOREIGN EXCHANGE RATES AND ECONOMIC GROWTH IN TURKEY

The rise of the foreign exchange rate in the economy means the depreciation of the national currency which, in turn, leads to obtaining an advantage in exports. The fall of the foreign exchange rate will create an import increasing effect since the value of the national currency is increased. As a result of this situation, it can be said that there is a negative relationship between the real foreign exchange rate and imports, and a positive relationship between real foreign exchange rates and exports (Tapşın and Karabulut, 2013. p. 191).

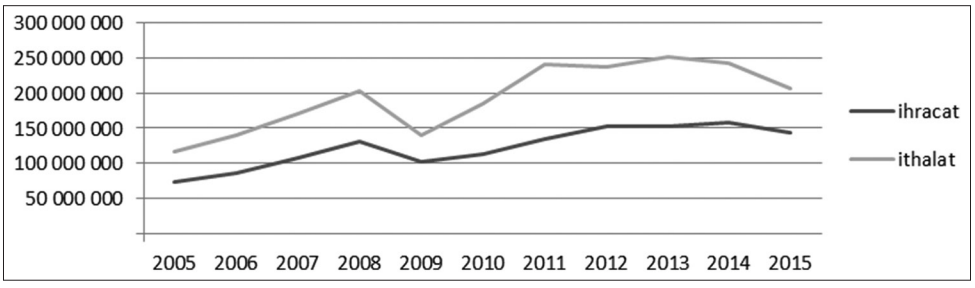
There is no decision about the direction of causality relation in accordance with the results obtained from the conducted studies in the economic literature. The results of the studies conducted to determine the short and long-term relationships between the foreign exchange rate and the trade balances vary depending on the applied methods and data obtained from developed or developing countries (Vergil and Erdoğan, 2009. p. 36).

There are many studies that have been examined in the literature to determine the effects of foreign exchange rates on foreign trade. In these studies, variables such as real effective exchange rate index, imports, exports, foreign trade balance, and foreign trade volume are utilized. Some of those conducted studies can be summarized as follows:

Ata and Arslan (2003) used annual data for the period between the years 1980-2000 and performed cointegration analysis and Granger causality test in their study. As a result of the study, they found direct and indirect causality relationships between foreign exchange rate and foreign trade volume in Turkey.

Barışık and Demircioğlu (2006) examined the relationship between foreign exchange rate, import and export variables between 1980 and 2001 period by performing Engle-Granger,

Graph 1: Foreign trade indicators (×1,000 USD)



Source: TUİK

Table 2: Foreign exchange rates in years (annual average)

Years	USD	Change (%)	Euro	Change (%)	British Pound	Change (%)	Japanese Yen	Change (%)
2013	1.902	6.1	2.527	9.7	2.973	4.8	1.946	−13.3
2014	2.186	15.0	2.905	15.0	3.595	20.9	2.066	6.2
2015	2.718	24.3	3.018	3.9	4.150	15.4	2.240	8.5

Source: TOBB

Johansen cointegration test, and variance decomposition. They detected a long-term relationship between real exchange rates and import-export changes throughout the 1980-2001 period.

Tarı and Yıldırım (2009) investigated the relationship between foreign exchange rate uncertainty and the volume of exports by using the data for the period of 1989-2007. The variables such as real exports, comparative price index, real foreign exchange rate and real foreign exchange rate uncertainty are used in their analysis. As a result of analysis, they claimed that foreign exchange rate uncertainty had no effect on the volume of exports in the short-term, and the exchange rate uncertainty negatively affected the volume of exports in the long-term.

Hepaktan et al. (2011) investigated the relationship between the real foreign exchange rates and foreign trade for the Turkish economy by using monthly data for the 1982-2011 period. In their study, Johansen cointegration and Granger causality tests are performed. The result of their study indicated that foreign exchange rate policies could not be applied effectively in maintaining foreign trade balances.

Tapşın and Karabulut (2013) examined the relationship between real foreign exchange rate, import, and export in Turkish economy for the period of 1980-2011. As a result of the study, causality relationships from the import variable to the export variable and from the real foreign exchange rate variable to the import variable are detected.

Ordu (2013) examined the directions of the causality relationships among the foreign exchange rate, import, and export series for Turkey between 1989: Q1 and 2012: Q4 period by using the Granger causality analysis method. The study detected the existence of bilateral relationships among all variables and a unilateral causality relationship from the exports to imports.

Kızıldere et al. (2013) used explanatory variables such as real foreign exchange rates, GDP, foreign income and political rights in the studies conducted for Turkish economy between 1980-2010 period and performed cointegration and error correction test models to determine short-long term relationships. The study determined that exchange rates not be effective on foreign trade and Turkish foreign trade structure had a tendency to export based on imports.

There are also research studies conducted on foreign exchange rates, terms of trade and growth in Turkey.

Bilgin and Şahbaz (2009) investigated the relationship between exports and growth in Turkey by using monthly data for the period of 1987-2007. Their findings, supporting the export-based growth hypothesis, are in favor of a unilateral Granger causality from exports towards export-based industrial production index, and a bilateral causality relationship between exports and foreign trade rates.

Korkmaz and Aydın (2015) investigated the relationship between foreign trade and economic growth in Turkey between 2002: Q1 and 2014: Q2 periods by utilizing quarterly data obtained for such variables as the export-unit value index, the import unit value index and the economic growth (GDP) in order to examine causality relationships with vector autoregressions model. The Granger causality test results revealed a bilateral causality relationship between imports and economic growth in Turkey.

Kesgingöz and Karamelikli (2015) also detected the existence of a long-term relationship between foreign trade and growth through the ARDL boundary test approach by using data obtained between the years 1960 and 2011.

Şerefli (2016) analyzed whether or not Turkey's foreign trade had an effect on economic growth between the years 1975 and 2014 and performed Granger causality and unit root tests. The test results revealed no causality relationship between growth and foreign trade.

4. ARDL MODEL ESTIMATION OF THE RELATIONSHIPS AMONG GROSS BARTER TERMS OF TRADE, FOREIGN EXCHANGE RATE, AND GDP

In this part of the study, to determine whether or not there is a relationship between exchange rate changes and foreign trade rates in the Turkish economy, "boundary test approach" cointegration test developed by Pesaran et al. (2001) is applied with licensed Eviews 9 software.

Although it is accepted that the boundary test approach is relatively useful compared to the cointegration methods developed by Engle-Granger (1987), Johansen (1988), and Johansen-Juselius (1990); not all series included in the analysis are stationary at level values, and they have to become stationary when their differences are taken. In the boundary test approach, if the dependent variable is I(1), it is not a problem that the explanatory variables are I(0) or I(1) (Pesaran, et al., 2001).

4.1. Data Used and Their Definitions

Monthly data obtained from the CBRT and TURKSTAT electronic data distribution system covering the period January 2005 and June 2015 are used in the study. In the examined model, three variables are used: Gross barter terms of trade as the ratio of import and export quantity indices, industrial production index and foreign exchange rate. In order to make the data ready for analysis, firstly the seasonality of the series is examined, and corrections are made for the series with seasonality. Later on, the series are evaluated with the help of hypothesis tests whether or not they met the stationarity condition (Table 3).

Table 3: Definitions of data and data sources

Data symbols	Definitions of data	Data source
I_p	Industry production index	TUIK
E_r	Foreign exchange	TCMB
Gsdth	Gross barter terms of trade ($G=Q_M/Q_X$)	TUIK

Figure 1: Durbin-Watson d test decision rules

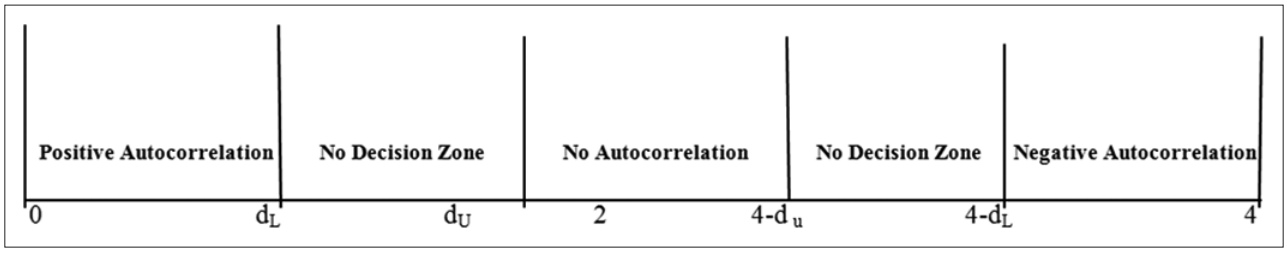


Table 4: 2005-2015 period unit root test results

	Level (constant and trend)		First difference (constant and trend)	
Variables	ADF values	Probability values	ADF values	Probability values
I_p	−2.779422	0.2080	−22.73045	0.0000
E_r	−0.823195	0.9597	−8.433747	0.0000
Gsdth	−7.681767	0.0000	-	-

4.2. Unit Root Test (2005-2015 Period) and ARDL Results

The unit root test results for the period between 2005 and 2015 are given in Table 4.

ADF unit root test results of all variables are given according to the information obtained from Table 4. The ADF test indicates that I_p and E_r variables are non-stationary in level values. Accordingly, when the first differences of the non-stationary series are taken, the series becomes stationary at the level of 5% significance. That is to say, I_p and E_r series are I(1), and gsdh series is I(0). After this phase, the variables are subjected to the ARDL boundary test, and the estimation results are compiled in the Table 5. In order to examine the long-term relationship between the variables, the ARDL model is set as follows along with Table 5.

$I_p = 54.890 + 0.431\ I_p(-1) + 0.303\ I_p(-2) + 4.898\ E_r - 58.085$ Gsdth + 18.422 Gsdh(−1)

The decision rules of the Durbin-Watson d test are used to decide whether or not an autocorrelation problem exists among the data of the examined periods.

Comparing the Durbin-Watson d statistic actually obtained with the critical values can produce one of the following results indicated in Figure 1:
if $0 < d < d_L \rightarrow$Significant positive autocorrelation,
if $d_L \leq d \leq d_U \rightarrow$No decision,
if $d_U < d < 4\text{-}d_U \rightarrow$No statistically significant autocorrelation,
if $4\text{-}d_U \leq d \leq 4\text{-}d_L \rightarrow$No decision, and
if $4\text{-}d_L < d < 4 \rightarrow$Significant negative autocorrelation (Tarı, 2012. p. 200).

Accordingly, when the critical values are checked, the Durbin-Watson statistic (d) is calculated as 2.091 with $d_L = 1.57$, $d_U = 1.78$ and $4\text{-}d_U = 2.22$. This result ($1.78 < 2.091 < 2.22$) indicates no autocorrelation problem among the series. Again, according to the estimation results, a significant correlation is found among industrial production index and all other variables. The direction of the relationship between foreign exchange rate and ındustrial production ındex is positive, and the coefficient is 4.897. This coefficient can be interpreted as an increase of 4.897 units in industrial production index as a result of 1 unit increase in foreign exchange rate.

Table 5: ARDL (2, 0, 1) boundary test estimation results

Variables	Coefficients	T statistics	Probability
$I_p(-1)$	0.431	4.898	0.000
$I_p(-2)$	0.303	4.151	0.000
E_r	4.897	2.191	0.030
Gsdth	−58.085	−7.622	0.000
Gsdth(−1)	18.422	2.030	0.044
C	54.890	4.238	0.000
Descriptive statistics results			
R^2	0.819		
Adjusted R^2	0.811		
F statistics (probability value)	96.477 (0.000)		
Durbin-Watson statistics	2.091		

Moreover, the direction of the relationship between gross barter terms of trade and industrial production index is negative in the first period and becomes positive in the first lag. The coefficients of the related relationship are estimated as −58.085 and 18.422, respectively. Apparently, 1 unit increase in Gsdth leads to a decrease of 58.085 units in industrial production index, while 1 unit increase in Gsdth in the first lag leads to an increase of 18.422 units in industrial production index.

5. CONCLUSION

In this study; the effects of gross barter terms of trade rates and foreign exchange rates, which are calculated by taking the amounts of foreign trade in Turkey into account, on the industrial production index is examined within the framework of data covering the period 2005-2015. While the data of gross barter terms of trade are static at the level, the relationship between industrial production index and exchange rate variables the variables of interest is

examined with the boundary test approach developed by Pesaran et al. (2001) since these variables become static when their first differences are taken. According to the results of the boundary test conducted by considering the time interval between the years 2005 and 2015, it is observed that the change in the foreign exchange rates positively affected the dependent variable, namely, the industrial production index.

In this context, it is thought that the total expenditures increased due to the equation AD = C + I + G + NX (X-M) caused a positive effect on the industrial production index; when increasing foreign exchange rates increased net exports. On the other hand, the imported intermediate goods used in the production of export goods in Turkey gain more prominence. Even though it is thought that the increasing cost of the foreign exchange rate will decrease industrial production index, recent studies conducted in Turkey indicate that the foreign exchange rate changes are less reflected on the imported goods prices. The results we obtain also support this situation. The increase in gross barter terms of trade, which is calculated as the ratio of the import volume index to the export volume index, can have a negative impact on industrial production index.

Increasing export ratios may cause a decrease in gross barter terms of trade while leading to an increase in industrial production. In addition, after a certain period, increasing import ratios lead to a decrease in the production of the country which is dependent on the imports in terms of intermediate goods and raw materials.

On the other hand, the relationship between foreign trade and the industrial production index as a proxy for growth has been discussed in many studies. However, the results are still not clear. In this context, despite the recent significant increases in exports of Turkey, the higher increases in imports of intermediate goods cause an increase in gross barter terms of trade which constitutes an important problem for the country.

Although the negative relationship between gross barter terms of trade and growth is gaining momentum, import-based cost, namely, the increase of gross barter terms of trade may increase in industrial production index after a certain period. That is, the rates of increase in both industrial product index and gross barter terms of trade are parallel to each other.

The main objective of foreign trade should be to increase economic growth. When the import structure of the Turkish economy is examined, the share of imported inputs is seen to be high in its production. In order to accelerate economic growth, domestic production of basic, intermediate and investment goods should be increased, and export-incentive policies should be applied. In addition, production-enhancing applications should be encouraged in the sectors included in industrial production index, which has an impact on the gross barter terms of trade.

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