

Examining the Impact of Taxes on Import Expenditures in Türkiye

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Abstract

Research Originality: In the literature, import taxes are generally ignored as determinants of import expenditures. This study presents a rare and original contribution by evaluating the effects of import taxes on import expenditures and their functionality as a foreign trade policy tool in the case of Türkiye.

Research Objectives: This study determines the possible effects of import taxes on aggregate import expenditures by using the ARDL approach and reveals the policy effectiveness of import taxes in light of the findings for the Türkiye economy.

Research Methods: The aggregate import expenditure function for the study was estimated using the linear ARDL approach, which yields short- and long-run findings. The period subject to analysis is 1980-2022.

Empirical Result: According to ARDL findings, import taxes have no effect on aggregate import expenditures in the short run, but taxes adversely affect import expenditures in the long run.

Implications: The findings suggest that import taxes may not have a short-run effect in reducing import expenditures. However, in the long run, import taxes may be a viable tool to reduce import dependency and support national industries.

Keywords:

aggregate import expenditures; import duties; real exchange rate; ARDL approach

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INTRODUCTION

Throughout history, differences in state systems, economic, political, social, or ideological approaches, and even historical periods examined, cannot change one fact: taxes will exist regardless of the state. The role of taxes may also differ depending on the situation. These tax developments raise the question of which economic rationale underlies the financial instrument. In this context, the basic economic reasons for taxes are to eliminate macroeconomic instability, ensure economic growth and development, promote efficient resource and income distribution, and maintain balance in foreign trade. It is almost impossible for the public sector to achieve the goals mentioned above across all countries. Because the socioeconomic and demographic structures of each country differ, these changes may prevent the formation of a standard for tax purposes. The economic effectiveness of taxes can be shaped by changes and developments in society as a whole, population fluctuations, political preferences, and the external environment and processes in which foreign trade is conducted. Therefore, it is essential to examine the role of taxes in shaping import strategies. When modern applications of international trade taxes are examined, the emphasis is primarily on import taxes. Import taxes play an important role in shaping a country's economy.

In economic policy, tax is defined as the share of income and expenditure that governments obtain to finance their expenditures. Import is the purchase of goods and services produced abroad by economic units in the country. These two important macroeconomic variables are interrelated. Today, taxation is an important and effective policy tool in the public sector's hands to stimulate economic activity, increase economic growth, correct income distribution, and address problems such as inflation, external deficits, and unemployment. The main purpose is to reduce imports by increasing the price of goods through a palliative tax supplement. Conversely, the primary purpose of a domestically implemented expenditure or sales tax is to maximize tax revenues. Therefore, customs duties can restrict imports and generate income for the public sector. The purpose of such a tax is to protect domestic industry and labor from foreign competition by limiting imports. For these reasons, taxes are important for correcting the deteriorated price balance in favor of domestic goods.

Imports are an important factor that affects a country's foreign trade balance. The important variables that determine the level of import expenditures in any economy are the economy's income level, the real exchange rate, relative prices, and taxes. The number of imports made by any economy is positively related to the income level (Kreuter & Riccaboni, 2023). There is a direct relationship between imports and income level, and an inverse relationship between imports, real exchange rate, and taxes. The higher the national income level, the higher the import level. In terms of the real exchange rate, an increase means foreign prices rise faster than domestic prices, but imports can become more expensive in the national currency. In other words, an increase in the exchange rate can decrease imports.

In contrast, a low exchange rate, which makes imports cheaper, can boost demand for foreign goods (Kolcu & Yamak, 2022; Tweneboah & Alagidede, 2019). In terms

of taxes on import activities, the tax imposed can effectively correct the imbalance of payments by restricting imports, protecting domestic production, and providing income to the public sector (Brown, 2017). Imports and taxes are important macroeconomic variables that affect various aspects, including foreign trade, economic growth, exports, and welfare levels (Bond et al., 2023). Discussions in the economic literature regarding the impact of taxes on import spending date back to ancient times. An examination of empirical studies reveals a complex picture, with various scholars examining the relationship between taxes and import spending (Lindé & Pescatori, 2019; Yoon & Kim, 2019; Abdulla & Ali, 2019; Mukit, 2020; Ülkü & Açıkgöz, 2020; Azar, 2021; Turna, 2021; Khan et al., 2022; Srdelić & Dávila-Fernández, 2024).

Any policy change implemented through foreign trade taxes can affect imports by varying magnitudes. Many tools were used, such as tax instruments imposed to reduce import expenditures, which are important factors in implementing the targeted policy. Beyond these, trade policy choices towards protectionism, liberalization, and practices related to economic integration can affect imports. Tariffs and similar regulations are also theoretical elements that determine import demand. Thus, political authorities can intervene in imports with taxes and/or equivalent policy tools. Limiting the import of goods that are not important for economic development is only possible with this type of tax. On the other hand, the balance of payments may sometimes be in deficit for different reasons in various countries. Applying customs duties to reduce imports may be one of the first policies considered.

Looking at the relevant empirical literature, we see that the effect of traditional variables in the import function has been investigated and interpreted in detail in many developed/developing countries for a long time. However, few studies have examined the effect of taxation on the import function. Muhammad and Zafar (2016) used the Autoregressive Distributed Lag model to estimate the long- and short-run import demand functions for Pakistan from 1973 to 2013. The results indicate that imports have both long and short-run relationships with relevant independent variables. Senadza and Diaba (2017) examined Sub-Saharan African economies during 1993-2014 using panel data and found that exchange rate volatility is not significantly related to imports. Hor et al. (2018) examined Cambodia's import demand function using time-series data from 1993 to 2015 by using the Autoregressive Distributed Lag (ARDL) model, and found that relative prices and exchange rates negatively affect import demand in Cambodia in both the short and long run. Keho (2019) examined the total import demand function for the Ivory Coast from 1980 to 2017, revealing a long-run relationship among imports, income, domestic, and import prices. In the long and short run, imports are positively related to real income and domestic prices, and negatively related to foreign prices. Bahmani-Oskooee and Arize (2019) examined the USA and 20 African countries using ARDL and NARDL methods. They found a long-run relationship between the exchange rate and the trade balance. Ngoma (2020) empirically examined the factors determining import demand in Zimbabwe. Using the least-squares method on data for the period 2004-2017, the study found that gross domestic product and trade openness positively

affect import demand in Zimbabwe. Uğur (2021) showed that a decrease in the real effective exchange rate in Fragile Five economies reduces imports but has no effect on exports.

Holzner et al. (2021) studied the impact of corporate taxes on international trade in 34 EU and OECD countries from 2005 to 2014 using mathematical models. They found that minimum level taxes did not negatively affect international trade. Alessandria and Choi (2021) found that the exchange rate and trade balance are cointegrated in the long run. Malefane (2023) estimated Botswana's import demand function using the ARDL approach and found that import demand is inelastic to changes in imports. Kathuria and Kumar (2021) estimated a disaggregated import demand function for India using annual time-series data for 1995-2017. The estimated linear ARDL model shows that gross capital formation, exports, and relative prices positively and significantly affect import demand in the short- and long-run. Bussy (2023) tested the effects of corporate tax evasion on international trade for 30 OECD countries over the period 2011-2017 using panel data analysis. According to the empirical results, there is no statistically significant relationship between corporate tax evasion and international trade in countries with larger shadow economies. Keskin and Aydoğdu Bağcı (2024) revealed that both higher taxes on international trade and higher exchange rates reduced import volumes. Arize and Malindretos (2024) found a statistically significant long-run equilibrium relationship among real imports, real income, relative price, and real foreign exchange reserves in three African economies (Kenya, Nigeria, and South Africa).

Among the studies on the Türkiye economy on this subject, Yavuz and Beşel (2015) identified a one-way, temporary causal relationship between economic growth and tax revenues from international trade and transactions. Durmaz and Lee (2015) revealed a long-run relationship between the variables, and all independent variables were statistically significant in the long and short run. All explanatory variables, except total consumption, had an inelastic effect on imports. Bayramoğlu and Şükrüoğlu (2016) show that non-energy imports are flexible with respect to income and prices in the long run. Çulha et al. (2018) estimated the import demand function for Türkiye. In this context, different import demand functions were estimated for the period 2003-2017, and the time-varying elasticity coefficients were obtained using the Kalman filter. It was determined that total imports were explained by income and relative price increases at a significant level. Bari (2020) used the VAR method to examine the exchange rate and import price pass-through in Türkiye for 2003-2019 and found that imported consumer goods and intermediate goods used in production significantly affected the exchange rate pass-through. However, the study found that import prices affect domestic price movements due to chronic economic problems. Daş (2021) investigated the long-run relationship between inequality and import demand in Türkiye. These findings indicate a positive relationship between inequality and real imports in Türkiye. Varlık (2023) found that, based on impulse response functions and variance decompositions, the exchange rate increases following a one-standard-deviation structural shock in the import unit value index, and that this increase in turn causes the production deficit to increase.

Import duties are frequently employed as policy instruments, particularly in developing economies, to maintain external balance, generate fiscal revenue, and protect domestic industries from foreign competition. The role and effectiveness of such taxes have long been subjects of both academic and policy debate. From classical and neoliberal perspectives, import duties are often criticized for distorting markets, reducing efficiency, and hindering international competitiveness. In contrast, structuralist and development economics approaches highlight their potential role in protecting infant industries, fostering industrialization, and improving the balance of payments in import-dependent economies. Consequently, the impact of import duties on economic performance remains theoretically ambiguous and empirically country-specific.

This debate has gained renewed relevance in the case of Türkiye, which has pursued an outward-oriented growth strategy since the early 1980s. Over the past four decades, Türkiye's trade structure has become increasingly integrated into global markets, resulting in a high level of import dependency, particularly for intermediate and capital goods. Given this structural dependence, understanding how import taxes influence import expenditure and foreign trade dynamics is essential for designing effective trade and fiscal policies. Although a substantial body of literature has examined the macroeconomic impacts of import tariffs and trade liberalization, empirical studies directly analyzing the relationship between import taxes and import expenditure in Türkiye remain relatively scarce.

This study seeks to fill this research gap by empirically investigating the short- and long-term effects of import taxes on import expenditure in Türkiye for the period 1980–2022. By employing econometric techniques that capture dynamic relationships over time, the study provides new evidence on whether import taxes exert immediate or delayed effects on import demand. Unlike most previous research focusing on aggregate macroeconomic indicators, this study contributes empirically to the literature on foreign trade taxation by directly examining the behavioral response of import expenditure to tax policies.

METHODS

This study aims to test the effect of import taxes on real import expenditure in Türkiye using an ARDL analysis. The period 1980-2022 was analyzed¹. The main reason for starting the analysis period in 1980 is that the post-1980 period was when the Türkiye economy underwent a structural transformation. During this period, with the decisions of January 24, 1980, an open and export-based growth model was adopted, restrictions on imports were gradually lifted, and significant changes were made to import taxes.

¹ The data analyzed in this study cover the period 1980-2022. Although more recent data were available as preliminary data in 2024, the year the econometric analysis was conducted, they were intentionally excluded from the dataset to ensure data consistency and reliability across all variables. Official data published by institutions such as the Turkish Statistical Institute (TurkStat), the Central Bank of the Republic of Turkey (CBRT), and international databases (e.g., the World Bank, the IMF) typically become final with a one to two-year lag due to revisions. Therefore, using data after 2022 may lead to inconsistencies in the statistical findings. For these reasons, 2022 was selected as the endpoint of the analysis period.

In addition, entering the Customs Union with the European Union in 1996 played a decisive role in import policies. Therefore, in terms of analyzing the impact of import taxes on import expenditures, the post-1980 period is meaningful, as both structural changes and policy transformations can be observed. The data is at an annual frequency. Variables and their abbreviations are presented in Table 1.

Table 1. Variables and Abbreviations

Variables	Abbreviation
Real Import Expenditure	LRM
Real Gross Domestic Product	LRGDP
Real Exchange Rate	LREX
Average Import Tax Rate	LATR

The data used in this study were obtained from the CBRT electronic data distribution system, the Ministry of Treasury and Finance of the Republic of Turkiye, and TURKSTAT. Real import expenditure and real gross domestic product are defined in TL. The real exchange rate is expressed in USD. The average import tax rate is calculated as the ratio of total import taxes to gross domestic product. The letter “L” preceding the variable symbols indicates that the logarithm of the variable in question is taken.

Before estimating the total import function, the stationarity properties of the series included in the function were determined. For this purpose, in addition to the Augmented Dickey-Fuller (ADF) unit root test proposed by Dickey and Fuller (1979, 1981), the Phillips-Perron (PP) unit root test, which suggests that the error terms have weak dependence and heterogeneity and was developed by Phillips-Perron (1988), was also used. In the study, the distributed lag autoregressive (ARDL) model developed by Pesaran et al. (2001) was used to examine the short- and long-run effects of the import tax on real import expenditures. The lag lengths of the ARDL model were determined according to the Akaike information criterion, as in the ADF unit root test. To determine the optimal lag lengths, the maximum lag length was set to 4 years for both the dependent and independent variables.

In the econometric analysis of this study, we first assessed the unit-root properties of the time-series data. Next, we examined whether a long-run relationship exists between the variables using the ARDL bounds test statistics. The ARDL model is a widely used econometric method in time-series analysis due to its flexible structure and strong statistical properties. One of the most important advantages of this method is undoubtedly that it allows the dependent and independent variables in the model to be stationary at different levels (some I(0), some I(1)). In this way, it offers a wider range of applications than traditional cointegration tests, such as Johansen-Juselius, which require all variables to have the same degree of integration. In addition, because the ARDL model can provide reliable and consistent estimates even with small sample sizes, it is particularly suitable for analyses using annual data. The fact that the model can analyze both short-run dynamics and long-run relationships within a single framework is an important advantage

for developing policy recommendations. While the Bounds Test approach allows testing for a long-run relationship between variables, it can also be examined how short-run deviations disappear in the long run through the error correction mechanism (ECM) in the model. Finally, the ARDL model is a more robust method against econometric problems such as serial correlation and heteroscedasticity (Shita et al., 2019; Tanriöver & Yamak, 2015). On the other hand, this study focused on symmetrical relationships and examined the relationship between these variables. In this context, the NARDL methodology was not followed, and nonlinear evidence was not sought to determine the relationship between import expenditures and import taxes in Türkiye.

Given these advantages, the ARDL approach was preferred over alternatives for determining the effects of import duties on import expenditures in this study. The ARDL estimation method consists of three stages. First, we estimate an unrestricted error-correction model to determine whether a long-run relationship exists between the variables. Second, the series that are identified as cointegrated are used to derive the long-run coefficients. Finally, we estimate the short-run coefficients and the error correction coefficient. The unrestricted error correction model established for this study is as follows:

$$\Delta LRM_t = \gamma + \beta_1 LRM_{t-1} + \beta_2 LR GDP_{t-1} + \beta_3 LREX_{t-1} + \beta_4 LATR_{t-1} + \sum_{i=1}^m \alpha_i \Delta LRM_{t-i} + \sum_{i=0}^n \lambda_i \Delta LRDGP_{t-i} + \sum_{i=0}^p \delta_i \Delta LREX_{t-i} + \sum_{i=0}^q \theta_i \Delta LATR_{t-i} + \varepsilon_t \quad (1)$$

In the equation, γ represents the regression constant term; β_i , α_i , λ_i , δ_i , and θ_i represent the coefficients of the variables; m , n , p , and q represent the optimal lag lengths; ε_t represents the regression error term; and Δ represents the difference operator. Investigating the possibility of a cointegration relationship between variables requires testing the null hypothesis ($H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$) with the F test. If the calculated F statistic is greater than the upper limit value determined by Pesaran et al. (2001), it is understood that there is a cointegration relationship between the series, and if it is smaller than the lower limit value, it is understood that there is no cointegration relationship. If the calculated F statistic falls between the lower and upper limit values, a definitive decision cannot be made, and other cointegration tests must be performed. If a long-run relationship is detected between the variables, the ARDL (m,n,p,q) model given in equation (3) below is estimated. The long-run import function is naturally obtained from the estimated regression equation.

$$LRM_t = \gamma + \sum_{i=1}^m \alpha_i LRM_{t-i} + \sum_{i=0}^n \lambda_i LRDGP_{t-i} + \sum_{i=0}^p \delta_i LREX_{t-i} + \sum_{i=0}^q \theta_i LATR_{t-i} + \varepsilon_t \quad (2)$$

After estimating the long-run import function, the ARDL error correction model given in equation (4) below is estimated, and thus the short-run variable coefficients are obtained:

$$\Delta LRM_t = \gamma + \beta_1 ECT_{t-1} + \sum_{i=1}^m \alpha_i \Delta LRM_{t-i} + \sum_{i=0}^n \lambda_i \Delta LRDGP_{t-i} + \sum_{i=0}^p \delta_i \Delta LREX_{t-i} + \sum_{i=0}^q \theta_i \Delta LATR_{t-i} + \varepsilon_t \quad (3)$$

ECT_{t-1} in this equation is the one-period lag of the error correction term. The coefficient β_1 is the coefficient of the error correction term and indicates how much of any unit shock in the short run will be eliminated in the long run; it is expected to be between -2 and 0 (Pesaran et al., 2001).

RESULTS AND DISCUSSION

The main findings indicate that import taxes are one of the most significant long-run factors affecting import expenditures. The negative coefficient for the average import tax rate indicates that higher taxes are associated with lower import expenditures. Among the other variables examined, real gross domestic product (GDP) stands out as a crucial factor, showing a statistically significant positive influence on import expenditures in both the short and long run. While the real exchange rate does not have a statistically significant impact, it still plays an important role in influencing import behavior over time.

Table 2. Descriptive Statistics

Series	LRM	LREX	LRGDP	LATR
Mean	2.830	4.516	11.250	-2.038
Maximum	5.067	4.849	12.254	-1.864
Minimum	1.254	3.863	10.322	-2.310
Std. Dev.	0.875	0.209	0.548	0.100

Therefore, the real exchange rate remains relevant for understanding the import expenditure function. This section presents the descriptive statistics (Table 2), the unit root test results (Table 3), and the ARDL bounds test outcomes (Table 4). The ARDL long-run findings are presented in Table 5. The results of the error correction model are presented in Table 6.

This study examines the short and long-run effects of average import tax rates on import expenditures in Turkiye from 1980 to 2022. In this section, descriptive statistics of the variables used are given. The mean, maximum, minimum, and standard deviation values of the real import expenditure (LRM), real exchange rate (LREX), real gross domestic product (LRGDP), and average import tax rates (LATR) variables, after logarithmic transformation, are presented in Table 2. When examining Table 2, the average value of LRM in the period 1980-2022 is approximately 2.83. The average real exchange rate over the relevant period is 4.516. The standard deviation of the real exchange rate (LREX) during the said period was 0.209. Table 2 shows that the average, maximum, minimum, and standard deviation of the average import tax rate (LATR) series are lower than those of the LRM, LRGDP, and LREX variables.

Table 3. Unit Root Test Results

ADF				
Variables	Level		First Difference	
	Constant	Constant+Trend	Constant	Constant+Trend
LRM	0.563 (0)	-2.138 (0)	-4.413*** (0)	-4.355*** (0)
LRGDP	0.212 (0)	-2.398 (0)	-6.092*** (0)	-4.859*** (3)
LREX	-1.142(0)	-1.125 (0)	-6.487*** (0)	-7.012*** (0)
LATR	-2.884(0)	-2.796 (0)	-7.673*** (0)	-7.672*** (0)

Note: *** indicates that the relevant coefficient is significant at the 1% level. Values in parentheses are lag lengths. Optimal lag lengths were determined according to the Akaike information criterion.

PP				
Variables	Level		First Difference	
	Constant	Constant+Trend	Constant	Constant+Trend
LRM	0.736 (4)	-2.341 (2)	-4.189*** (3)	-4.120** (3)
LRGDP	0.700 (10)	-2.480 (1)	-5.752*** (10)	-8.812*** (10)
LREX	-1.470 (3)	-1.339 (3)	-6.498*** (3)	-7.005*** (2)
LATR	-2.901(2)	-2.746 (1)	-8.024*** (6)	-8.397*** (9)

Note: * and ** indicate that the relevant coefficient is significant at 1% and 5% levels, respectively. Values in parentheses indicate the window width.

Before testing for the existence of a long-run relationship between the total real import expenditure of the Turkiye economy and the real gross domestic product, real exchange rate, and average import tax rate for the period 1980-2022, the stationarity of the variables was examined using the ADF and PP unit root tests. The unit root test statistics obtained are presented in Table 3. According to the table, both the ADF and PP unit root tests indicate that all series are stationary in first differences.

At this stage of the econometric analysis, the existence of a long-run relationship between the dependent and independent variables in the import function was investigated with the ARDL bounds test. Table 4 reports the lag lengths of the ARDL model determined by the Akaike information criterion, along with the bounds test statistics calculated under these lag lengths. As shown in the table, the ARDL model degree is (1,4,2,0), and the calculated F-statistic is 4.608. This calculated F-statistic is statistically significant at 1% level. Accordingly, the calculated bounds test statistic indicates that the real import function is cointegrated at the 1% significance level for 1980-2022. In other words, a long-run relationship has existed among real import expenditure and real income, the real exchange rate, and average import tax rates during the analyzed period. This relationship was found to be statistically quite strong².

² In order to determine whether import duties have an asymmetric effect on import expenditure, non-linear ARDL approach was also used. The most suitable model was found to have lag lengths of 4 and 1 for negative and positive tax shocks, respectively. However, no long run relationship was found in real import expenditure and right hand side variables. The calculated F-statistic was 2.96. This statistic was not found to be statistically significant. As a result, there is no asymmetric effect of import taxes on import expenditure.

Table 4. ARDL Bounds Test Statistics

Model	Model I	
Autoselected lag structure	(1,4,2,0)	
F-statistic	4.608***	
Table Critical Values	Lower bounds I(0)	Upper bounds I(1)
1%	3.65	4.66
5%	2.75	3.67
%10	2.37	3.21

Note: *** indicates that the relevant statistic is significant at the 1% level.

In the ARDL model, which determines the cointegrated relationship, the long-run coefficients of the independent variables are presented in Table 5. According to the table, the coefficient of the income variable is positive and statistically significant at the 1% level. This coefficient, which also represents the income elasticity, is estimated at 1.754. As expected, higher income positively affects import expenditures. In the event of a 10% increase in real income, real import expenditure is expected to increase by approximately 18%. This can be explained by the fact that during periods of economic growth in Türkiye, import requirements and the import bill increase in absolute terms. As a result, higher real income increases imports. According to economic theory, while exports depend on the national income of other countries, imports are a function of the country's own national income. An increase in national income in other countries to which exports are made will positively impact the exporting country's exports, production, national income, and thus economic growth.

Similarly, while an increase in a country's own national income directly negatively impacts national income by stimulating imports, an increase in imports indirectly contributes to national income by ensuring the procurement of intermediate and investment goods necessary for production (and therefore economic growth) from abroad. The findings confirm Türkiye's foreign-dependent economic structure. The coefficient on the import tax variable is negative, as expected. This coefficient is statistically significant at the 10% level. The sensitivity of import expenditure to import taxes is determined as -1.122. In the event of a 10% increase in the average import tax rate, an 11% decrease in real import expenditure is predicted. This result aligns with those of Keho (2019) and Ngoma (2020). The substantial impact of the average import tax rate on import expenditures stems from the government's foreign trade policy. Therefore, while import control is necessary, it is also clear that economic decisions that directly restrict imports should not be used. According to this situation, a possible import restriction could disrupt economic growth. On the other hand, although the coefficient of the real exchange rate variable in the long-run import function has a negative sign, it is statistically insignificant. This shows that the real exchange rate is not a long-run determinant of real import expenditure in the period 1980-2022, specific to Türkiye. These results are like those of Kayani et al. (2023), Çelik and Petek, Aytekin and Uçan (2022), and Ünlü (2024).

Table 5. ARDL Long-Run Coefficients

Variables	Variable Coefficients
Constant	-16.394 ***
LRGDP	1.754 ***
LREX	-0.544
LATR	-1.122 *

Note: *** and * indicate that the relevant statistic is significant at the 1% and 10% levels, respectively.

Table 6 presents the error-correction estimation results for the ARDL model, which indicates a cointegrated relationship. According to the model results based on the Akaike information criterion, the real exchange rate positively affects real import expenditure with a one-period lag. However, the real exchange rate has no statistical effect on real import expenditure in the current period. Average import taxes have also not been found to affect real import expenditure in the short run. This result can be interpreted as tax changes aimed at affecting import demand will not affect import expenditures in the short run. This situation indicates that most import-related tax measures in Turkiye are not applicable in the short term. In Turkiye, structuring tax policies regulating imports in line with long-run goals comes to the fore. The income variable affects the real import expenditure in the short run, with a lag of three periods and the current period. This effect, which is positive in the current period, is negative in the lagged periods. The error-correction term coefficient in the model is estimated at -0.466 and is statistically significant at the 1% level. This result shows that the real import expenditure will reach equilibrium within approximately two years, even in the face of short-run imbalances. The results are inconsistent with the findings of previous studies by Khan et al. (2022), Alakbarov et al. (2018), Barkat et al. (2024), Chiu and Ren (2019), Atkin and Donaldson (2021), and Erceg et al. (2023). The differences in the findings may be due to differences in the countries' economic structures, the data set, and the econometric method used.

The findings of this study for the period 1980-2022 of the Turkiye economy indicate that import taxes affect real import expenditure only in the long run, not in the short run. The fact that import taxes have no short-run effect on real import expenditures but an adverse impact in the long run shows that economic actors cannot react instantly to import tax changes, but they can react in the long run. The most important reason imports expenditures remain insensitive to import taxes in the short run is the presence of existing contracts and the inadequacy of domestic product substitution. The fact that import taxes have an adverse effect on real import expenditures in the long run shows that the price mechanism works over time, the substitution effect occurs, and the dependency on imports decreases. This finding reveals that the protective and guiding effects of import taxes do not occur in the short run but are evident in the long run.

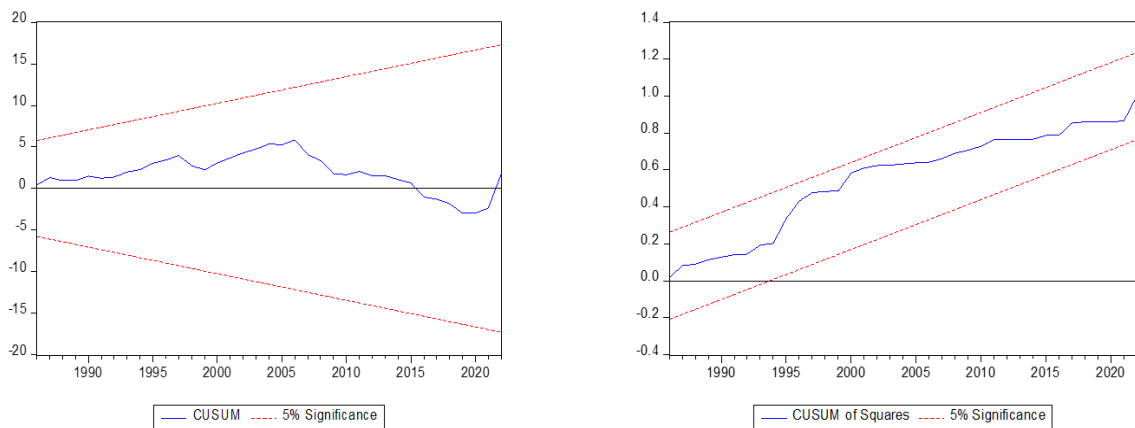
Table 6. Error Correction Model Results

Variables	Variable Coefficients
ΔLRGDP_t	1.305 ***
$\Delta \text{LRGDP}_{t-1}$	-0.445
$\Delta \text{LRGDP}_{t-2}$	-1.046 **
$\Delta \text{LRGDP}_{t-3}$	-1.300 **
ΔLREX_t	0.361
ΔLREX_{t-1}	0.511 **
ECT_{t-1}	-0.466 ***
R^2	0.565
Adj- R^2	0.484
$X^2_{\text{(autocorrelation)}}$	0.019
$X^2_{\text{(heteroscedasticity)}}$	13.471
CUSUM	stable
CUSUMSQ	stable

Note: *** and ** indicate that the relevant statistic is significant at the 1% and 5% levels, respectively.

According to the CUSUM and CUSUMSQ graphs in Figure 1, the estimated import function appears stable and shows no structural break. The findings from this study for the period 1980-2022 in Turkiye are generally consistent with those of empirical studies in the national and international literature. For example, the study by Demirhan and Aydın (2018) revealed that import demand in Turkiye is sensitive to factors such as the exchange rate and income level rather than to tax policy in the short run, but tax policies have contractionary effects on import volume in the long run. Other studies that provide results consistent with the study's findings include those by Tunçsiper et al. (2017) and Yeldan (2022). These studies argue that the structural effects of import policies emerge over time and that import dependency may decrease in the long run.

Figure 1. CUSUM and CUSUMSQ Test Statistics



At the international level, Rodrik's (2017) study found that import taxes will have a limited effect in the short run. Still, it will negatively affect imports by shifting the production structure toward import substitution in the long run. On the other hand, the study's findings contradict those of some studies in the relevant literature. For example, Keskin and Bağcı (2024) argue that import taxes in Türkiye may limit imports through the price channel even in the short run. Internationally, Erceg et al. (2023) and Madzivanyika (2016) argue that import taxes applied in developing countries may trigger market reactions quickly and suppress imports in the short run, contradicting the short-run ineffectiveness finding of the present study. This suggests that the effects of import taxes may differ across countries depending on the implementation method, market structure, and complementary policies. In conclusion, the findings of this study are consistent with the general trends in the literature, given Türkiye's structural characteristics and the evolution of its foreign trade regime throughout the historical process, and reveal that the effects of import duties have a structural character that persists over time.

CONCLUSION

Import taxes, as one of the key determinants of import expenditures, can significantly influence the overall trajectory of an economy and the dynamics of international trade. As such, many economists have long studied the determinants of import expenditures. However, the existing literature has primarily focused on traditional variables such as exchange rates, relative prices, and income variables. This makes the relationship between import expenditures and import taxes a subject of considerable practical importance. Moreover, the fragile structure of the Türkiye economy necessitates an empirical investigation of this relationship. A review of the applied economics literature reveals that the role of import taxes is often overlooked in the analysis of import functions. In the case of Türkiye, studies focusing specifically on tax-related determinants are nearly absent compared to the extensive research on other macroeconomic indicators such as national income and exchange rates. Most existing studies examine the effects of traditional variables on imports either in the long run or through causality analysis frameworks. In contrast, this study aims to explore the impact of the average import tax rate, an often-neglected variable in the Türkiye context, on import expenditures for the period 1980-2022, considering both the short and long run perspectives.

The econometric findings indicate that import taxes are among the most significant long-run determinants of import expenditures. The coefficient of the average import tax rate is negative, implying that higher taxes are associated with lower import expenditures. Among the other variables analyzed, real gross domestic product emerges as a critical factor, exerting a statistically significant and positive influence on import expenditures in both the short and long run. Although the real exchange rate is not statistically significant, it still exerts a meaningful influence on import behavior over time. Thus, the real exchange rate remains a relevant factor in understanding the

import expenditure function. Based on the empirical findings, it can be concluded that import taxation is an important policy tool for protecting the domestic market. On the one hand, reducing import tax rates can enhance the global competitiveness of domestic producers; on the other hand, it can increase competition within the domestic market.

Given the open and vulnerable nature of the Turkiye economy and its external dependencies, policymakers must implement tax policies prudently, ensuring they align with broader macroeconomic stability. In this regard, it would be appropriate to review the legal duties imposed on imports. Additionally, import taxes should be simplified and streamlined to better meet the needs of the national economy and international trade. In this way, imports of products that will increase the production capacity of the Turkiye economy can be encouraged through tax and incentive practices. Besides, import duties should not be used as a sanction mechanism. Future research should investigate the macroeconomic determinants of import expenditures in Turkiye and other developing economies using diverse econometric techniques. Such studies will contribute to the limited literature in this field and support the development of more effective fiscal policy frameworks.

REFERENCES

- Abdulla, S. M. K., & Ali, H. K. (2019). An Analysis of Exports and Imports and Their Effect on the Economic Growth in Iraq. *UKH Journal of Social Sciences*, 3(2), 68–76.
- Alakbarov, N., Özkaya, M. H., Gündüz, M., & Şaşmaz, M. Ü. (2018). Estimation of Turkey's Import Demand Function with Structural Cointegration Analysis. *Journal of Abant Social Sciences*, 18(4), 67–84.
- Alessandria, G., & Choi, H. (2021). The Dynamics of the U.S. Trade Balance and Real Exchange Rate: The J Curve and Trade Costs. *Journal of International Economics*, 132, 103511. <https://doi.org/10.1016/j.jinteco.2021.103511>.
- Arize, A. C., & Malindretos, J. (2024). Foreign Exchange Reserves in Asia and Its Impact on Import Demand. *International Journal of Economics and Finance*, 4(3), 21–32.
- Atkin, D., & Donaldson, D. (2021). The Role of Trade in Economic Development, *National Bureau of Economic Research (NBER) Working Papers*, 29314, 1–115.
- Aytekin, I., & Uçan, O. (2022). An Econometric Analysis of the Relationship between Exchange Rate Inflation and Foreign Trade: Turkey Case. *Academic Review of Economics and Administrative Sciences*, 15(2), 460–475.
- Azar, S. A. (2021). The US Fiscal Multiplier and Income-Driven Taxes and Imports. *Journal of Business, Economics and Finance (JBEB)*, 10(4), 148–156.
- Bahmani-Oskooee, M., & Arize, A. C. (2019). U.S.-Africa Trade Balance and the J-curve: An Asymmetry Analysis. *The International Trade Journal*, 33(4), 322–343.

- Barkat, K., Jarallah, S. & Alsamara, M. (2024). Do Exchange Rate Changes Improve the Trade Balance in GCC Countries: Evidence from Nonlinear Panel Cointegration. *The International Trade Journal*, 38(2), 184–200. <https://doi.org/10.1080/08853908.2022.2121341>.
- Bari, B. (2020). Exchange Rate and Import Price Pass-Through in Turkey. *Business and Economics Research Journal*, 11(3), 609–620.
- Bayramoglu A. T. & Sukruoglu D. (2016). Non-Energy Import Demand Function in Turkey: New Evidence. *Asian Economic and Financial Review*, 6(12), 750–761.
- Bond, E. W., Duan, Y., Ji, T. & Yi, L. (2023). Trade and Welfare Effects of Export Tax: Theory and Evidence from China's Incomplete Export VAT Rebate. *Journal of Economic Behavior & Organization*, 214, 542–560. <https://doi.org/10.1016/j.jebo.2023.08.007>.
- Brown, K. (2017). *Taxation and Development - A Comparative Study*. Switzerland: Springer International Publishing.
- Bussy, A. (2023). Corporate Tax Evasion: Evidence from International Trade. *European Economic Review*, 159, 1–19. <https://doi.org/10.1016/j.euroecorev.2023.104571>.
- Chiu, Y., & Ren, R. (2019). Trade Balance, Savings Rate, and Real Exchange Rate: Evidence from China and Its Trading Partners. *Emerging Markets Finance and Trade*, 55(2), 351–364. <https://doi.org/10.1080/1540496X.2018.1431882>.
- Çelik, A. & Petek, A. (2017). An Econometric Analysis of the Relationship between Inflation, Exchange Rate, Export, and Import in Turkey (1990-2015). *Finance, Political and Economic Comments*. 626, 69–87.
- Çulha, O. Y., Eren, O. & Ögünç, F. (2018). Import Demand Function for Türkiye. *TCMB Working Paper*, 18(3), 1–17.
- Demirhan, E., & Aydın, B. (2018). Import Demand in Turkey: An Analysis with ARDL Bounds Testing Approach. *Economic Approach*, 29(107), 45–66.
- Dickey, D., & Fuller, W. (1979). Distribution of the Estimators for Autoregressive Time Series with a Unit Root. *Journal of the American Statistical Association*, 74(366), 427–431.
- Dickey, D., & Fuller, W. (1981). Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root. *Econometrica*, 49(4), 1057–1072.
- Durmaz, N., & Lee, J. (2015). An Empirical Analysis of Import Demand Function for Turkey: An ARDL Bounds Testing Approach. *The Journal of Developing Areas*, 49(4), 215–226.
- Erceg, C., Prestipino, A., & Raffo, A. (2023). Trade Policies and Fiscal Devaluations. *American Economic Journal: Macroeconomics*, 15(4), 104–140.
- Holzner, M., Jovanović, B., & Vukšić, G. (2021). How Do Corporate Taxes Affect International Trade? *Working Paper No. 212*. The Vienna Institute for International Economic Studies, WIIW.

- Hor. C., Keo, K., & C. Suttiprapa (2018). An Empirical Analysis of Cambodia's Import Demand Function. *Journal of Management, Economics, and Industrial Organization*, 2(1), 1–12. <https://doi.org/10.31039/jomeino.2018.2.1.1>.
- Kathuria, K., & Kumar, N. (2021). An Empirical Investigation of the Disaggregated Import Demand Function: Non-linear ARDL framework. *Foreign Trade Review*, 56(2), 197–205.
- Kayani, U. N., Aysan, A. F., Gul, A., Haider, S. A., & Ahmad, S. (2023). Unpacking the Asymmetric Impact of Exchange Rate Volatility on Trade Flows: A Study of Selected Developed and Developing Asian Economies. *PLoS ONE*, 18(10), 1–16.
- Keho, Y. (2019). An Econometric Testing of the Traditional Import Demand Function for Côte d'Ivoire. *Journal of Economics and Business*, 2(3), 608–616.
- Keskin, M., & Bağcı Aydoğdu, S. (2024). The Impact of Taxation on International Commerce and Exchange Rate on Imports, *Politik Ekonomik Kuram*, 8(3), 798–813.
- Khan, U., Khan, A. M., Alam, M. S., & AlKatheery, N. (2022). Causation Between Consumption, Exports, Imports, and Economic Growth in Oman. *Etikonomi*, 21(1), 67–78. <https://doi.org/10.15408/etk.v21i1.20034>.
- Kolcu, F., & Yamak, R. (2022). Asymmetric Effect of Exchange Rate on Deposit Dollarization. *İzmir Journal of Economics*, 37(2), 481–500.
- Kreuter, H. & Riccaboni, M. (2023). The Impact of Import Tariffs on GDP and Consumer Welfare: A Production Network Approach. *Economic Modelling*, 126, 1–10. <https://doi.org/10.1016/j.econmod.2023.106374>.
- Lindé, J., & Pescatori, A. (2019). The Macroeconomic Effects of Trade Tariffs: Revisiting the Lerner Symmetry Result. *Journal of International Money and Finance*, 95, 52–69.
- Madzivanyika, E. (2016). Customs Duty Incentives and Their Effects on Customs Revenue Mobilization: The Case of Zimbabwe. *Public and Municipal Finance*, 5(1), 6–13.
- Malefane, M. R. (2023). Dynamic Estimation of a Traditional Import Demand Function for Botswana. *Global Journal of Emerging Market Economies*, 15(3), 436–448.
- Muhammad, S. D., & Zafar, S. (2016). Determinants of Imports Demand Functions of Pakistan: An ARDL Bound Testing Approach. *International Journal of Business, Economics and Management*, 3(9), 113–121.
- Mukit, M. H. (2020). An Econometric Analysis of the Macroeconomic Determinants Impact of Gross Domestic Product (GDP) in Bangladesh. *Atlantic Review of Economics*, 5(2), 9–20.
- Ngoma G. (2020). What Determines Import Demand in Zimbabwe? Evidence from a Gravity Model. *Cogent Economics and Finance*, 8(1), 1–16.
- Özbay-Daş, Z. (2021). Inequality and the Import Demand in Turkey. *Istanbul Journal of Economics*, 71(2), 395–410.

- Senadza, B., & Diaba, D. D. (2017). Effect of Exchange Rate Volatility on Trade in Sub-Saharan Africa. *Journal of African Trade*, 4(1-2), 20–36.
- Shita, A., Kumar, N., & Singh, S. (2019). The Impact of Technology Adoption on Agricultural Productivity in Ethiopia: ARDL Approach. *Indian Journal of Economics & Business*, 19(1), 255–262.
- Srdelić, L., & Dávila-Fernández, M. J. (2024). International Trade and Economic Growth in Croatia. *Structural Change and Economic Dynamics*, 68, 240–258. <https://doi.org/10.1016/j.strueco.2023.10.018>.
- Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds Testing Approaches to the Analysis of Level Relationships. *Journal of Applied Econometrics*, 16(3), 289–326.
- Phillips, P. C. B., & Perron, P. (1988). Testing for a Unit Root in Time Series Regressions. *Biometrika*, 75(2), 335–346. <https://doi.org/10.2307/2336182>.
- Rodrik, D. (2017). Populism and the Economics of Globalization. *NBER Working Paper No. 23559*, 1–43.
- Tanrıöver, B., & Yamak, N. (2015). Analysis of the Nominal Interest Rate-General Price Level Relationship within the Framework of the Gibson Paradox. *Journal of Public Finance*, 168, 186–200.
- Tunçsiper, B., & Rençber, E. Z. (2017). The Causality Relationship Between Foreign Trade and Economic Growth: The Case of Turkey. *International Journal of Social Sciences and Education Research*, 3(2), 619–630.
- Turna, Y. (2021). Development of Import-Based Exports in Turkey: The ARDL Approach. *Istanbul Business Research*. 50(1), 1–14.
- Tweneboah, G., & Alagidede, P. (2019). Dollarization, Inflation Targeting, and Inflationary Dynamics in Ghana. *Journal of African Business*, 20(3), 358–375.
- Uğur, B. (2021). The Effect of Real Effective Exchange Rate on Imports and Exports: The Case of the Fragile Five. *Equinox. Journal of Economics, Business & Political Studies*, 8(2), 222-242.
- Ülkü, Y. E., & Açıkgöz, Ş. (2020). A Study on the Tax Structure and Economic Growth Relationship in Turkey within the Production Function Framework. *Ekonomik Yaklaşım*, 31(116), 251–299. <https://doi.org/http://dx.doi.org/10.5455/ey.17103>.
- Ünlü, F. (2024). Trade Balance, Real Exchange Rate and Trade Policy Uncertainty in Türkiye: Evidence from the SVAR Approach. *EKOIST Journal of Econometrics and Statistics*, 40, 63–75. <https://doi.org/10.26650/ekoist.2024.40.1354907>.
- Varlık, N. (2023). Import Price Pass-Through in Turkey. *Journal of Social, Humanities and Administrative Sciences*, 70, 3897–3907.
- Yavuz, H., & Beşel, F. (2015). Relationship between Taxes on International Trade and Transactions Income and Economic Growth in Türkiye: Frequency Domain Causality Analysis. *Journal of Politics, Economics and Management Research*, 3(1), 45–55.

- Yeldan, E. (2022). *The Turkish Economy in the Globalization Process: Distribution, Accumulation, and Growth*. İstanbul: İletişim Publications.
- Yoon, I. H., & Kim, Y. M. (2019). Estimating Import Demand Function for the United States. *Asia-Pacific Journal of Business*, 10(2), 13–26. <http://doi.org/10.32599/apjb.10.2.201906.13>.