ANKARA YILDIRIM BEYAZIT UNIVERSITY
AYBU

AYBU Business Journal, 4(2), 1-11

https://dergipark.org.tr/tr/pub/abj
https://aybu.edu.tr/isletme/tr/sayfa/5218/AYBU-BUSINESS-JOURNAL

AYBU Business Journal

Submitted: 7 October 2024
Accepted: 25 October 2024
Published Online: 30 December 2024

RESEARCH ARTICLE

DOI: 10.61725/abj.1330041

The Impact of Real Effective Exchange Rate on Turkish Export Performance: An ARDL Application

Melisa Aydaş[a*], Bilge Canbaloğlu[a]

[a]*International Trade and Business, Ankara Yildirim Beyazit University, Ankara, Turkey*

Abstract

This study investigates the impact of the real effective exchange rate (REER) on Turkiye's aggregate export performance from January 2014 to April 2024, alongside the influences of economic growth and inflation which are vital macroeconomic indicators. Utilizing monthly data, the autoregressive distributed lag (ARDL) bounds-testing approach is employed to assess both long-run and short-run effects of given variables on the exports. The findings reveal significant negative and significant effect of an increasing REER on Turkiye's export performance, indicating that a stronger Turkish lira reduces export competitiveness. Conversely, economic growth positively and significantly affects exports, suggesting that Turkiye's economic growth fosters export levels, and this provides an empirical finding for growth-led export hypothesis in Turkiye. On the other hand, the effect of inflation on Turkish export performance is found as positive but insignificant. The short-run analysis, through the error correction model (ECM), highlights that the model returns to long-term equilibrium after disturbances. These results underscore the negative effect of appreciation of Turkish lira in real terms on exports and the positive role of economic growth in boosting export performance, offering insights for policymakers on managing exchange rate policies and fostering economic growth.

Keyword

Real Effective Exchange Rate, Export Level, Economic Growth, Inflation, ARDL Model

1. INTRODUCTION

The exchange rate is one of the key factors influencing a country's export competitiveness and performance within the dynamics of international trade. Especially, the collapse of fixed exchange rate regime and the adoption of the floating exchange rate in 1973 increase the effects of exchange rate volatility on exports (Ahmad,Qasim and Chani, 2017). According to Yılmaz and Kaya (2007), changes in the real exchange rate

*Corresponding author.
Contact: Melisa Aydaş ✉ melissaaydas99@gmail.com, Bilge Canbaloğlu ✉ bcanbaloglu@aybu.edu.tr

To cite this article: Aydaş, M., & Canbaloğlu, B. (2024). The Impact of Real Effective Exchange Rate on Turkish Export Performance: An ARDL Application. *AYBU Business Journal*,*4*(2), 1-11.

can significantly impact macroeconomic balances. Fluctuations in the real exchange rate, which result in the appreciation or depreciation of the domestic currency in real terms, have become fundamental determinant of a country's competitiveness, hence its foreign trade dynamics. This topic has previously discussed in the literature, with numerous studies examining the effects of exchange rate fluctuations on the export level at international level (Genc and Artar, 2014; Ahmad et al., 2017; Adam, Rosnawintang, Nusantara, Muthalib, 2017). The effects of exchange rate movements on exports have also inspected in the context of Turkiye (Alev, 2020; Karaçor and Gerçeker, 2012; Yurtoğlu, 2017; Kazdal and Gül, 2021).

Although the exchange rate significantly affects exports, other macroeconomic variables also shape export performance. In the literature, there are exist two hypotheses about the association between export and economic growth, namely export-led growth and growth-led export (Giles and Williams, 2000; Şimdi and Şeker, 2018; Ali and Li, 2018). Since the study focuses on the impact of economic growth on export, it is better to understand how growth triggers export performance. According to Helpman and Krugman (1987), export expansion is driven by productivity gains resulting from improvements in labor skills and technology; thus, a higher Total Factor Productivity (TFP) growth implies a greater production capacity, leading to increased participation in the international market. In addition, Giles and Williams (2000) assert that economic growth influences the domestic industry by boosting the intensity of skills and technology. This rises efficiency in the domestic economy and reinforces the comparative advantages, which in turn accelerates its export performance. As empirical findings, Abu-Qarn and Abu-Bader (2004) find empirical findings that economic growth causes total export performance in Turkiye. Moreover, Şimdi and Şeker (2018) provide that economic growth in Turkiye is found as Granger-cause of Turkish exports to England, Italy, Spain and total world.

In addition to the real exchange rate and economic growth, another important factor that influencing export performance is inflation. Higher level of money supply in a country increases the demand for goods and services, which in turn results in rise in the prices. As the prices rises, the demand for domestic goods and services from other countries tend to decrease and this leads to decreasing exports in the country. (Jacob, Raphael and V.S, 2021). Furthermore, Ilmas, Amelia and Risandi (2022) also support the same view that higher inflation brings about high level of production costs, hence expensive export goods. Higher prices of export goods hamper the export competitiveness of a country. Yet, the negative or positive relationship between export and inflation depends on the level of inflation in the country (Jacob et al., 2021). For instance, Purusa and Istiqomah (2018), and Ilmas et al. (2022) prove the negative effect of inflation for 5 ASEAN countries, whereas Jacob et al. (2021) finds positive relationship between inflation and export performance in India.

This study examines the effects of the real exchange rate on exports while also considering vital macroeconomic variables namely; economic growth and inflation. The study has a timeline from January 2014 to April 2024, with all variables collected on a monthly basis and utilize autoregressive distributed lag model (ARDL). This study contributes to the existing literature by offering recent empirical findings about the impacts of real exchange rate on Turkish export level by also deeming the effects of significant macroeconomic variables such as economic growth and inflation. In addition, this relationship is investigated by the use of ARDL technique which is more preferable methodology when compared to other causality approaches due to the different integration orders of variables.

The remainder of the paper is structured as follows: Section 2 provides a review of the literature. Section 3 outlines the data and details the methodology used. Section 4 presents and discusses the empirical findings. Finally, Section 5 summarizes the conclusions of the study.

1. Literature Review

Many global studies have examined the impacts of the exchange rate on exports. These studies have provided a broad literature on the impacts of exchange rate fluctuations on export performance by considering different

countries and various time periods. Kemal and Qadir (2005) analyze the relationships between real exchange rates, exports, and imports using a triple analysis. The study has identified high correlations between the real exchange rate and exports (0.90) and imports (0.88). In current conditions with reduced tariff rates and decreased trade barriers, the exchange rate has played a critical role in influencing trade deficits. The high correlation between exports and imports (0.97) indicates a strong relationship between imports and exports. Long-term relationships show a negative relationship between the real exchange rate and exports, and a positive relationship with imports. In the short term, both imports and exports have tended to revert to equilibrium, but adjustments in imports have larger than those in exports. Additionally, sudden changes in the real exchange rate have not affect exports, while imports have responded to these sudden changes. Genc and Artar (2014) select 22 emerging countries to explore the impact of real exchange rate on export and import of these countries by using panel cointegration model over the period of 1985 and 2012. Their results prove the existence of cointegration between effective exchange rate and export and import levels of the countries in the long-run. Ahmad, Qasim, and Chani (2017) investigate the effect of the nominal exchange rate on Pakistan's exports. Using annual data from 1970 to 2015, the study has applied the Augmented Dickey-Fuller (ADF) and Phillip-Perron (PP) tests to check for stationarity. The Autoregressive Distributed Lag (ARDL) model has used to examine the relationship between variables. The results offer that the nominal exchange rate has had a negative but statistically insignificant effect on Pakistan's exports, while the country's GDP has a positive impact on its export. Adam et al., (2017) examine the impact of the Rupiah/USD nominal exchange rate on Indonesia's export volume. Using data from January 2001 to November 2015 and employing the difference equation model, their results show that 1% increase in the nominal exchange rate leads to a 0.24% decrease in exports. The negative impact of the exchange rate on exports has also observed in the short term. Aro-Gordon (2017) explores the relationship between the nominal exchange rate (EXR) and export growth (EXP) in Nigeria. Analysis of annual data from 1970 to 2014 has revealed that EXR and EXP are not co-integrated and do not exhibit a long-term equilibrium relationship. The Granger causality test has shown a unidirectional causality from EXR to EXP. These findings suggests that while the nominal exchange rate affects exports, exports have minimal effect on the nominal exchange rate.

In addition to global studies on the effects of the exchange rate on exports, there are many studies related to this topic specific to Turkiye. Özmen (2008) analyzed Turkiye's foreign trade dynamics and the effects of real exchange rate changes from the perspective of the manufacturing industry (MI) sectors. The study has revealed that a significant portion of Turkiye's trade deficit is derived from high-tech products and integration into global value chains has increased in the 2000s. However, this integration reduced the domestic value-added share in exports. The effects of real exchange rate changes vary by sector. In the study of Karaçor and Gerçeker (2012), the relationship between the real exchange rate and foreign trade for the period 2003-2010 analyzed using monthly data through methods including the Stationarity Test (Unit Root Analysis), VAR Model, Cointegration Analysis, and Error Correction Model. The results indicate a long-term cointegration between the real exchange rate and foreign trade volume, as well as a bidirectional causality in the short term.

Yurtoğlu (2017) examine the relationship between the real exchange rate and exports in Turkiye by employing monthly data for the period 1997:01-2015:06. The cointegration test has analyzed long-term relationships, while the error correction model has assessed both short- and long-term relationships. A long-term relationship identified, but any short-term relationship has found. The Granger causality test has revealed no causality from the real exchange rate to exports or from exports to the real exchange rate. In addition, Karaş and Karaş (2017) investigate the relationship between real effective exchange rate and exports and imports in Turkiye using data from January 2003 to June 2017. The study has investigated the effects of exchange rates on foreign trade. The stationarity of the data is tested using Augmented Dickey-Fuller (ADF), Phillips-Perron (PP) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) unit root tests. The results reveal a cointegration relationship between the real effective exchange rate and exports and imports. The Granger causality analysis shows bidirectional causality between the real effective exchange rate and imports and unidirectional causality from

exports to the real effective exchange rate. These findings provide important insights into understanding the effects of exchange rates on foreign trade.

Alev (2020) investigated the effects of exchange rates and exchange rate volatility on Turkiye's exports and imports. The monthly data for the period January 2010 - May 2019 is analyzed using the ARDL test approach. The results reveal that exchange rate volatility has a negative impact on exports in the short term and a significant negative effect of the real effective exchange rate on exports in the long term. For imports, exchange rate volatility has a negative effect in both the short and long term, while the real effective exchange rate has no effect in the short term but a negative effect in the long term on imports. Bozdan, Özenci, and Benli (2018) study the impact of exchange rates on Turkiye's exports and imports by utilizing ARDL Cointegration test and Granger causality analyses. By using monthly data for the period January 2010 - October 2017, the ARDL Cointegration test results prove a long-term relationship between the exchange rate and both exports and imports. However, the Granger causality analysis is not found any causality relationships between the variables. Değer and Demir (2015) investigate the causality relationship between Turkiye's foreign trade volume and the real effective exchange rate for the period 1997:01 - 2014:12. Granger causality analysis and cointegration (long-term equilibrium) analysis are used to construct the relationship between the real effective exchange rate and foreign trade volume. The results exhibit a causal relationship from the real effective exchange rate to foreign trade volume, there exists no causality from foreign trade volume to the real effective exchange rate.

In the study conducted by Uçar and Alsu (2024), the relationships between imports, exports and real exchange rates in Turkiye is analyzed for the timeline of January 2013- October 2023. As for methodology, they employ ARDL methodology. They regress Turkish export level on both real effective exchange rate and import levels in Turkiye, while they also construct a model with import as a dependent variable and real effective exchange rate and export as independent variables. The results indicate that there exists cointegration in the model where the exports are dependent variable. ARDL results shows a negative and significant impact of real exchange rate on Turkish exports and positive but insignificant effect of import level on exports.

2. Data

The timeline of the study covers the period from January 2014 to April 2024. All the variables used in the study are collected on a montly-basis. The export variable (EXP) is measured as logaritmic aggregate export of Turkiye in terms of US dollars and retrived from electronic data base of Central Bank of Republic of Turkiye (CBRT). The real effective exchange rate (REER) and inflation (INF) based on the change of consumer price index variable are also retrieved from the database of CBTR[2].The economic growth (EG) variable is gauged as the monthly change in the industrial production which is retrieved from the source of Turkish Statistical Institute.

3. Methodology and Empirical Results

In order to analyze the impacts of the real effective exchange rate on the export level in Turkiye, it is required to detect whether the variables are stationary or not. Phillips-Perron (1988) unit root test is applied and its results are offered in Table 1. As seen, real exchange rate variable is found as I (1) (i.e. stationary at 1st difference level). Export variable can be regarded as both I (0) and I (1) and economic growth and inflation series are detected as I (0) (i.e. stationary at level). Since the integration orders of series are mixed, the ARDL bounds-testing approach can be applicable in order to detected whether the series are cointegrated or not as

[2] Logaritmic transformation is applied to the data of the export and real effective exchange rate variables.

offered Pesaran, Shin and Smith (2001), and Pesaran and Persaran (2009). We also apply the steps of ARDL analysis in the study of Sari, Uzunkaya and Hammoudeh (2013). The following model as given in Eq. 1 is constructed to obtain cointegration and long-run relations results. The lag lengths of optimal ARDL (x,y,z,t) model are determined by using Akaike Information Criteria (AIC) and the final model is offered as ARDL (3,0,4,2). The null hypothesis of no cointegration ($\emptyset_1 = \emptyset_2 = \emptyset_3 = \emptyset_4 = 0$) is tested at first before examining the long-run and the short-run relationships.

$$\Delta EXP_t = \partial_0 + \sum_{i=1}^{q} b_i \Delta EXP_{t-i} + \sum_{i=0}^{q} c_i \Delta REER_{t-i} + \sum_{i=0}^{q} d_i \Delta EG_{t-i} + \sum_{i=0}^{q} d_i \Delta INF_{t-i} + \emptyset_1 EXP_{t-1} + \emptyset_2 REEeR_{t-1} + +\emptyset_3 EG_{t-1} + \emptyset_4 INF_{t-1} + e_t$$

Eq.1

According to the ARDL bounds-test results as observed in Table 2, the cointegration among the given variables exist since the F-value is larger than all the boundary values in each significance level. When it comes to the long-run relationship given in Table 3, the long-run impact of reel exchange rate on the export level in Turkiye is negative and significant indicating a rise in REER (i.e. increases of Turkish lira against foreign currencies) deteoriates its export performance. This result is also consistent with the findings of Uçar and Alsu (2024). On the other hand, the impact of economic growth on the export is found as positive and significant, which indicates that the economic growth fosters export level in Turkiye. The growth-led export hypothesis for Turkiye is also proved in the study of Abu-Qarn and Abu-Bader (2004). As for inflation, the impact of inflation on the export is detected as positive but statistically insignificant.

Table 1 The PP unit root test results

	EXP	REER	EG	INF
Level				
Intercept	0.0524	0.8434	0.0000	0.0000
Intercept & Trend	0.0000	0.1183	0.0000	0.0000
1st Difference				
Intercept	0.0001	0.0000	0.0001	0.0001
Intercept & Trend	0.0001	0.0000	0.0001	0.0001

Note: * and ** denote the 1% and 5% significance levels, respectively.

Table 2 ARDL Bounds-Test Cointegration Results

		Significance	I(0)	I(1)
		10%	2.37	3.2
F-statistic	7.6886	5%	2.79	3.67
k	3	2.5%	3.15	4.08
		1%	3.65	4.66

Table 3 ARDL Long-Run Relationship Test Results

Variable	Coefficient	Std. Error	t-Stat	Prob.
REER	-0.600445	0.221754	-2.707711	0.0079**
EG	0.130454	0.061587	2.118220	0.0365**
INF	0.043897	0.028538	1.538168	0.1270
Constant	19.02826	0.995470	19.11486	0.0000*

Note: * and ** denote the 1% and 5% significance levels, respectively.

The short-run ARDL test results are offered in Table 4. The error correction model (ECM) term is found as negative and statistically significant, which points out that the model comes to the long-run balance after disturbances. The constructed ARDL (3,0,4,2) model is also tested for various diagnostics as presented in Table 5 and there is no violation of assumption for each test. Both the cumulative sum of recursive residuals (CUSUM) is and the cumulative sum of squares of recursive residuals (CUSUMSQ) tests graphs, offered in Figure 1 and Figure 2, respectively, imply no parameter stability problem for the given model.

Table 4 The ARDL ECM test Results

Variable	Coefficient	Std. Error	t-Stat	Prob.
ECM (-1)	-0.227762	0.036066	-6.315104	0.0000*
D (EXP (-1))	-0.422078	0.083470	-5.056619	0.0000*
D (EXP (-2))	-0.214464	0.082171	-2.609968	0.0104**
D(EG)	0.012551	0.001844	6.805595	0.0000*
D (EG (-1))	-0.010356	0.003646	-2.840178	0.0054**
D (EG (-2))	-0.005313	0.002817	-1.886492	0.0619***
D (EG (-3))	-0.005399	0.001901	-2.839330	0.0054*
D (INF)	-0.000299	0.004451	-0.067140	0.9466
D (INF (-1))	-0.013125	0.004518	-2.904985	0.0045**

Note: *** denotes the 10% significance level.

Table 5 ARDL (3,0,4,2) Model Diaognastic Test Results

White Test (Homoskedastic Variance)	F-stat 0.7492 (Prob. 0.8512)
Breusch-Godfrey Serial Correlation LM Test (No Serial Correlation)	F-stat 1.3551 (Prob. 0.2624)
Normality Test	JB 2.7851 (Prob. 0.2484)

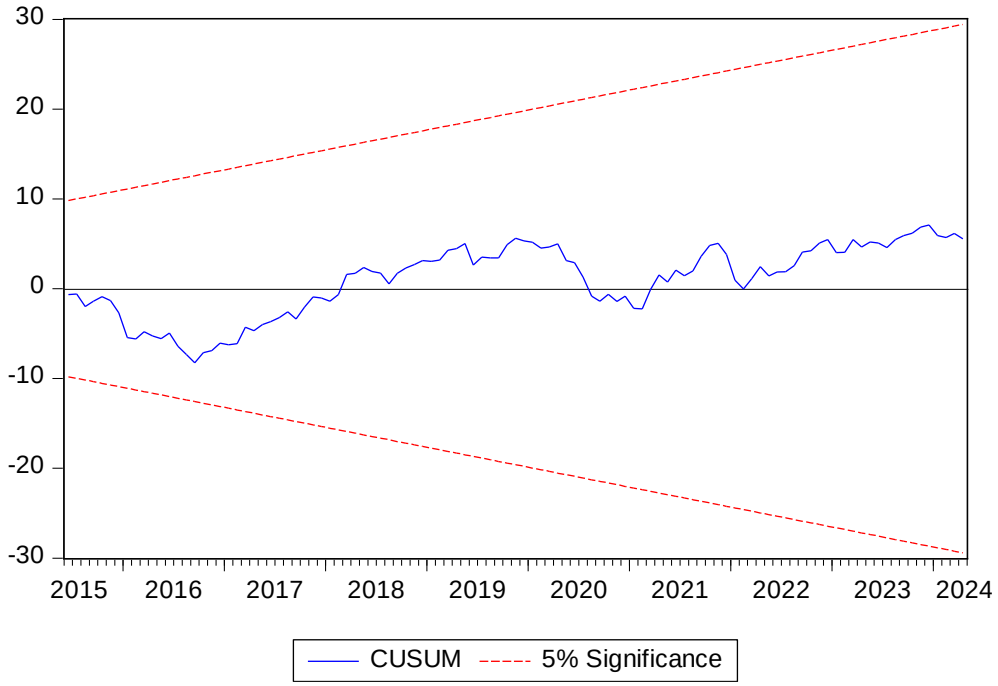

Figure 1 ARDL (3,0,4,2) Model CUSUM-Plot

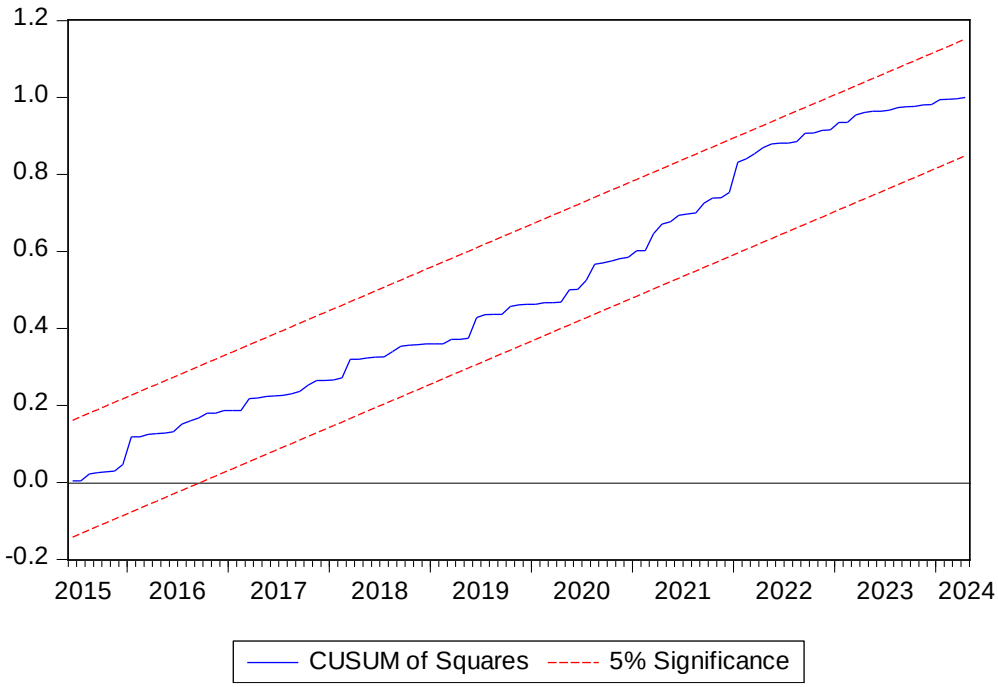

Figure 2 ARDL (3,0,4,2) Model CUSUM-Plot

4. Conclusion

This study, covering the period from January 2014 to April 2024, examines the impact of the real effective exchange rate (REER) on Turkiye's export levels, alongside other factors namely, economic growth and inflation. Using monthly data, the Phillips-Perron unit root test is employed to assess the stationarity of the variables, and the ARDL bounds-testing approach is utilized to explore both long-run and short-run relationships. The results indicate that the real effective exchange rate has a significant negative impact on

exports. Specifically, an increase in the REER, which signifies an appreciation of the Turkish lira against foreign currencies, leads to deterioration in Turkiye's export performance. This finding aligns with previous research suggesting that a stronger domestic currency reduces the competitiveness exports. In addition, economic growth is found to have a positive and significant effect on exports, highlighting that an increase in industrial production supports higher export levels. This result underscores the role of economic expansion in enhancing export performance. In contrast, inflation does not significantly affect export levels. This indicates that variations in inflation rates have a minimal direct impact on exports in Turkiye during the study period. The short-run analysis, through the error correction model (ECM), the model returns to long-term equilibrium after disturbances. Furthermore, diagnostic checks confirm the robustness and reliability of the ARDL (3,0,4,2) model, with no issues related to parameter stability detected throughout the study. Overall, the study emphasizes the negative effect of an appreciating Turkish lira in real terms on its exports and highlights the positive contribution of economic growth to export performance. Although weaker Turkish lira seems to increase the export performance in Turkiye, the policy applications in fostering production reinforced by advanced technologies and methods, hence offering highly economic-value added and sophisticated products for exports may increase the export competitiveness of Turkiye. The implementation of advanced technologies to make highly efficient production also contributes to economic development, which in turn also improves the export performance in Turkiye.

References

Abu-Qarn, A. S., & Abu-Bader, S. (2004). The Validity of The ELG Hypothesis in The MENA Region: Cointegration and Error Correction Model Analysis. *Applied Economics*, *36*(15), 1685-1695.

Açcı,Y. (2016). Türkiye'de Reel Döviz Kuru ve Dış Ticaret İlişkisinin Var Analizi ile İncelenmesi. *Akademik Araştırmalar ve Çalışmalar Dergisi*, 8(14), 41-53.

Adam, P., Nusantara, A. W., & Muthalib, A. A. (2017). A Model of the Dynamic of the Relationship between Exchange Rate and Indonesia's Export. *International Journal of Economics and Financial Issues*, *7*(1), 255-261.

Adler, G., Meleshchuk, S., & Buitron, M. C. O. (2019). *Global Value Chains And External Adjustment: Do Exchange Rates Still Matter?*. International Monetary Fund.

Ağca, A., Uçar, O., & Uladi, Ş. U. (2024). Linking Economic Growth and International Trade Taxes in Turkey: A Fourier Approach. *Heliyon*, *10*(7).

Ahmad, K, Qasim, M. and Chani, M. I. (2017). Impact of Exchange rate on Exports in Case of Pakistan. Bulletin of Business and Economics, 6(2), 98-102.

Ahmed, S., Appendino, M., & Ruta, M. (2015). Depreciations Without Exports? Global Value Chains and The Exchange Rate Elasticity of Exports. *Global Value Chains and the Exchange Rate Elasticity of Exports (August 11, 2015). World Bank Policy Research Working Paper*, (7390).

Aktaş, C. (2010). Türkiye'de Reel Döviz Kuru ile İhracat ve İthalat Arasındaki İlişkinin VAR Tekniğiyle Analizi. *ZKÜ Sosyal Bilimler Dergisi*, 6(11), 123-140.

Akpiliç, F., & Yurdakul, F. (2022). Reel döviz kurunun Türkiye imalat sanayi ihracatı üzerine etkisi: doğrusal olmayan panel ARDL yaklaşımı. *Maliye Dergisi, 182*, 1-29.

Alev, N. (2020). Döviz Kuru ve Döviz Kuru Volatilitesinin İhracat ve İthalata Etkisi. Ömer Halisdemir Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 13(4), 606-623.

Ali, G., & Li, Z. (2018). Exports-Led Growth or Growth-Led Exports in The Case of China and Pakistan: An Empirical Investigation from The ARDL And Granger Causality Approach. *The International Trade Journal, 32*(3), 293-314.

Araujo, R. A., Teixeira, J. R., & Soares, C. (2015). Export-Led Growth Vs Growth-Led Exports: What Matters For The Brazilian Growth Experience After Trade Liberalization?. *Review of Keynesian Economics, 3*(1), 108-128.

Aro-Gordon, S. (2017). Econometric Analysis of Exchange Rate and Export Performance in A Developing Economy. *Asian Economic and Financial Review, 7*(4), 334-348.

Bailey, M.J., Tavlas, G.S., Ulan, M. (1987) The Impact of Exchange-Rate Volatility on Export Growth: Some Theoretical Considerations and Empirical Results. Journal of Policy Modeling, 9(1), 225-243

Bahmani-Oskooee, M., & Niroomand, F. (1998). Long-Run Price Elasticities and The Marshall–Lerner Condition Revisited. *Economics Letters, 61*(1), 101-109.

Bilgin, C., & Şahbaz, A. (2009). Türkiye'de Büyüme ve İhracat Arasındaki Nedensellik İlişkileri. *Gaziantep University Journal of Social Sciences, 8*(1).

Bozdan, D., Özenci, İ., & Benli, Y. K. (2018). DÖVİZ KURU İLE İHRACAT VE İTHALAT ARASINDAKİ İLİŞKİNİN ANALİZİ: AMPİRİK BİR ÇALIŞMA-ANALYSIS OF THE RELATIONSHIP BETWEEN EXCHANGE RATE AND EXPORT AND IMPORT: AN EMPIRICAL STUDY. Mehmet Akif Ersoy Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 10(25), 638-649.

Bozok, İ., Doğan, B.Ş. & Yunculr, C. (2015). Estimating Income and Price Elasticity of Turkish Exports with Heterogeneous Panel Time-Series Methods. C.B.R.T Working P.

Cimoli, M., Fleitas, S., & Porcile, G. (2011). Real Exchange Rate and the Structure of Exports. MPRA Paper.

Culha, O. Y., & Kalafatcilar, M. K. (2014). *Turkiye'de ihracatin gelir ve fiyat esnekliklerine bir bakis: Bolgesel farkliliklarin onemi* (No. 1405). Research and Monetary Policy Department, Central Bank of the Republic of Turkey.

Değer, O., & Demir, M. (2015). Reel Efektif Döviz Kuru ve Dış Ticaret Hacmi Arasındaki Nedensellik İlişkisi: Türkiye Örneği. Finans Politik ve Ekonomik Yorumlar, (604), 7-21.

Erçevik, B. (2011). Döviz Kuru ve Faiz Oranının Dış Ticaret Üzerine Etkisi: Türkiye Uygulaması. İstanbul Üniversitesi Sosyal Bilimler Enstitüsü, Para Sermaye Piyasaları ve Finansal Kurumlar Anabilim Dalı Yüksek Lisans Tezi.

Ergun, S., & Taşar, İ. (2014). Döviz Kuru, Verimlilik ve İhracat Nedensellik Analizi. Akademik Yaklaşımlar Dergisi, 5(1), 1-12

Genc, E. G., & Artar, O. K. (2014). The effect of exchange rates on exports and imports of emerging countries. *European Scientific Journal, 10*(13), 128-141.

Giles, J.A. and Williams, C.L. (2000) Export-Led Growth: A Survey of the Empirical Literature and Some Non-Causality Results, Part I. Journal of International Trade & Economic Development, 9, 261-337.

Gül, E., & Ekinci, A. (2006). Türkiye'de Reel Döviz Kuru İle İhracat Ve İthalat Arasindaki Nedensellik İlişkisi: 1990-2006. *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi*, (16).

Gul, S. (2018). *Turkiye'de Reel Kur Hareketlerinin İhracat Uzerindeki Asimetrik Etkileri (Asymmetric Effects of Real Exchange Rate Movements on Turkish Exports)* (No. 1812).MB.

Helpman, E., & Krugman, P. (1987). *Market structure and foreign trade: Increasing returns, imperfect competition, and the international economy*. MIT press.

Ilmas, N., Amelia, M., & Risandi, R. (2022). Analysis of the effect of inflation and exchange rate on exports in 5-year ASEAN countries (Years 2010–2020). *Jurnal Ekonomi Trisakti*, *2*(1), 121-132.

Jacob, T., Raphael, R., & V. S, A. (2021). Impact of exchange rate and inflation on the export performance of the Indian economy: An empirical analysis. *BIMTECH Business Perspective*, 1-13.

Karaçor, Z., & Gerçeker, M. (2012). REEL DÖVİZ KURU VE DIŞ TİCARET İLİŞKİSİ: TÜRKİYE ÖRNEĞİ (2003- 2010). Sosyal Ekonomik Araştırmalar Dergisi, 12(23), 289-312

Karagöz, M., & Doğan, Ç. (2005). Döviz Kuru Dış Ticaret İlişkisi: Türkiye Örneği. Fırat Üniversitesi Sosyal Bilimler Dergisi, 15(2), 219-228

Karaş, G., & Karaş, E. (2017). Reel Efektif Döviz Kuru, Ihracat Ve Ithalat Arasındaki Ilişki: Türkiye Özelinde Ekonometrik Bir Değerlendirme. *Uşak Üniversitesi Sosyal Bilimler Dergisi*, *10*(IASOS Özel Sayısı-), 27-46.

Kasman, A. (2003). "Türkiye'de Reel Döviz Kuru Oynaklığı ve Bunun İhracat Üzerine Etkisi: Sektörel Bir Analiz" Uludağ Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 22(2),169-186

Kazdal, A., & Gül, S. (2021). Türkiye'de İhracat ve Reel Kur Arasında Zamana Göre Değişen İlişki: Sektörel Düzeyde Güncel Bir İnceleme. *Türkiye Cumhuriyet Merkez Bankası Working Paper*, (21/38).

Krugman, P. (1989). Differences in income elasticities and trends in real exchange rates. *European Economic Review*, *33*(5), 1031-1046.

Kemal, M. A., & Qadir, U. (2005). Real exchange rate, exports, and imports movements: A trivariate analysis. *The Pakistan Development Review*, 177-195.

Kızıltan, A., & Ciğerlioğlu, O. (2008). Türkiye'de Reel Döviz Kuru Değişmelerinin İhracat ve İthalata Etkisi. Ekev Akademi Dergisi, 12(36), 36-51.

Köse, N., Ay, A., & Topallı, N. (2008). DÖVİZ KURU OYNAKLIĞININ İHRACATA ETKİSİ: TÜRKİYE ÖRNEĞİ (1995–2008). Gazi Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 10(2), 25-45.

Leigh, M. D., Lian, W., Poplawski-Ribeiro, M., Szymanski, R., Tsyrennikov, V., & Yang, H. (2017). *Exchange rates and trade: A disconnect?*. International Monetary Fund.

Ordu, C. F. (2013). Döviz Kuru Dış Ticaret İlişkisi: Türkiye Örneği (Master's thesis, Adnan Menderes Üniversitesi, Sosyal Bilimler Enstitüsü).

Ousseini, A. M., Hu, X., & Aboubacar, B. (2017). WAEMU Trade and Current Account Balance Deficit Analysis: A Panel VAR Approach. *Theoretical Economics Letters*, *7*(4), 834-861.

Özmen, E. (2008). Reel Döviz Kuru ve Türkiye Dış Ticaret Dinamikleri. Journal of Economic Dynamics, 15(2), 79-95.

Pesaran, M.H., and B. Pesaran. (2009). Time Series Econometrics Using Microfit 5.0. New York: Oxford University Press.

Pesaran, M.H.; Y. Shin; and R.J. Smith. (2001). "Bounds Testing Approaches to the Analysis of Level Relationships." Journal of Applied Econometrics 16, no. 3: 289–326.

Purusa, N. A., & Istiqomah, N. (2018). Impact of FDI, COP, and inflation to export in five asean countries. *Jurnal Ekonomi Pembangunan: Kajian Masalah Ekonomi Dan Pembangunan*, *19*(1), 94-101.

Rahman, S., & Serletis, A. (2009). The Effects of Exchange Rate Uncertainty on Exports. *Journal of Macroeconomics, 31*(3), 500-507.

Sari, R., Uzunkaya, M., & Hammoudeh, S. (2013). The relationship between disaggregated country risk ratings and stock market movements: An ARDL approach. *Emerging markets finance and trade*, *49*(1), 4-16.

Sweidan, O. D. (2013). The Effect of Exchange Rate on Exports and Imports: The Case of Jordan. International Trade Journal, *27*(2), 156-172.

Şahin, D., & Durmuş, S. (2019). Türkiye'de Reel Efektif Döviz Kuru, İhracat ve İthalat Arasındaki Nedensellik İlişkisinin Analizi. Karabük Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 9(1), 210-223.

Şimdi, H., & Şeker, A. (2018). BÜYÜK İHRACAT PAZARLARI EKONOMİK BÜYÜMEYİ ETKİLİYOR MU? TÜRKİYE ÖRNEĞİ. *Kafkas Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, *9*(18), 485-499.

Uçar, İ. H., & Alsu, E. (2024). DÖVİZ KURU DIŞ TİCARET İLİŞKİSİ: TÜRKİYE ÖRNEĞİ. ASSAM Uluslararası Hakemli Dergi, 24, 78-93.

Uğurca, F. E., & Sağlam, M. (2019). Döviz Kuru, İthalat ve İhracat İlişkisi: Türkiye Örneği. The Journal of Academic Social Science, 57(57), 455-465.

Yamak, R., & Korkmaz, A. (2005). Reel Döviz Kuru ve Dış Ticaret Dengesi İlişkisi. Istanbul University Econometrics and Statistics e-Journal, 2, 16-38.

Yılmaz, Ö., & Kaya, V. (2007). İhracat, ithalat ve reel döviz kuru ilişkisi: Türkiye için bir VAR modeli. *Iktisat Isletme ve Finans*, *22*(250), 69-84.

Yurtoğlu, Y. (2017). REEL DÖVİZ KURU İLE İHRACAT ARASINDAKİ NEDENSELLİK İLİŞKİSİ: TÜRKİYE ÖRNEĞİ (1997-2015). Gazi İktisat ve İşletme Dergisi, 3(1), 71-88.