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## THE EFFECTS OF EXTERNAL DEBT ON ECONOMIC GROWTH: FOURIER ARDL APPROACH

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### Abstract

External debt serves as a significant financial tool within fiscal policy for various reasons, including the shortfall of public revenues to cover expenditures, inadequate domestic savings, financing economic development and growth, addressing extraordinary expenses, and managing current account deficits. The impact of external debt on the economy hinges on its effective utilization. The use of external debt to finance economic development and growth has positive effects on the economy. In the literature, studies examining the relationship between external debt and economic growth have reached different results. While some of the studies have found that external debt has a positive effect on economic growth, other studies have found that external debt has a negative effect on economic growth. This study employs the Fourier ARDL approach to investigate the influence of external debt on economic growth in Türkiye during the period 1980-2022. The findings reveal the absence of a long-term relationship between external debt and economic growth in Türkiye over the specified period.

**Keywords:** External Debt, Economic Growth, Fourier ARDL

## DIŞ BORÇLARIN EKONOMİK BÜYÜME ÜZERİNDEKİ ETKİLERİ: FOURIER ARDL YAKLAŞIMI

### Öz

Kamu gelirlerinin kamu harcamalarının finansmanını sağlamaması, yurtiçi tasarrufların yetersizliği, ekonomik kalkınmanın ve büyümenin finansmanını sağlanması, olağanüstü harcamaların finansmanı ve cari açığın finansmanı gibi çeşitli nedenlerle başvurulmuş dış borçlar önemli bir mali araç olarak maliye politikası içerisinde yer almaktadır. Dış borçların kullanım etkinliği ise ekonomi üzerinde yaratacağı etkilerin belirleyicisi olmaktadır. Dış borçların ekonomik kalkınma ve büyümenin finansmanında kullanılması ekonomi üzerinde olumlu etkiler meydana getirmektedir. Literatürde de dış borçlar ve ekonomik büyüme arasındaki ilişkiyi inceleyen çalışmalarda farklı sonuçlara ulaşılmıştır. Çalışmaların bir kısmı dış borçların ekonomik büyümeyi pozitif yönde etkilediğini tespit ederken diğer çalışmalar ise dış borçların ekonomik büyümeyi negatif yönde etkilediği sonucunu tespit etmişlerdir. Bu çalışmada, Türkiye’de 1980-2022 döneminde dış borçların ekonomik büyüme üzerinde yarattığı etkiler Fourier ARDL yaklaşımı ile incelenmiştir. Elde edilen bulgular göre, Türkiye’de 1980-2022 döneminde dış borçlar ile ekonomik büyüme arasında uzun dönem ilişkisi tespit edilememiştir.

**Anahtar Kelimeler:** Dış Borç, Ekonomik Büyüme, Fourier ARDL

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## Introduction

External debts, utilised to finance public budget gaps, address the insufficiency of savings, and promote economic growth. However, the impact of these debts on macroeconomic factors may vary depending on the economic structure of countries and how the borrowed funds are used. Developing countries often rely on foreign borrowing to fund new initiatives, primarily because they have insufficient savings. Unlike taxes, which are the main source of revenue for governments, the repayment of external debts in foreign currency together with the principal and interest burden due to their reciprocal nature leads to the transfer of resources in the national economy. This situation causes various effects on indicators such as current account deficit, foreign exchange supply, and budget income-expenditure balance.

Foreign funds obtained through external borrowing allow governments to access additional resources beyond their domestic production of products and services. In this respect, external borrowing offers additional financing opportunities without limiting the activities of economic units. Therefore, it is seen as an important tool in ensuring economic growth and development. The ability of external debt to have positive effects on economic growth and development depends on the effectiveness of debt management. As long as external debts are utilised in productive areas and no serious economic crisis is encountered, external debts are expected to have positive effects on economic growth. In order for this prediction to be realised, external debt must be used to finance economic growth and development in accordance with the purpose for which it was borrowed. However, when used for other purposes or depending on the economic conjuncture, external debts may cause negative effects on macroeconomic indicators rather than contributing to economic growth and development.

In the literature, studies analysing the relationship between external debt and economic growth have yielded different results. While certain research has discovered a favourable correlation between external debt and economic growth, other studies have identified a detrimental impact of external debt on economic growth. In this study, the Fourier ARDL approach, which is a time series method in econometrics, will be employed to investigate the impact of external debt on economic growth in the Turkish economy. The focus will be on examining the relationship between external borrowing and economic growth in Türkiye, where external borrowing is consistently rising. The study differs from other studies in terms of the period covered and the methodology used. The first part of the study analyses the relationship between external borrowing and economic growth. The second section presents the empirical literature. In the third section, an econometric application is made with the data obtained from the World Bank based on the years 1980-2022 in Türkiye, and in the conclusion section, the findings are interpreted and policy recommendations are presented.

## **The Theoretical Dimension of the Relationship between External Borrowing and Economic Growth**

External debt is defined as a type of public revenue that has an increasing effect on national income when it is acquired and a decreasing effect on national income when it is repaid. In the case of external debt, there is an inflow of resources into the country from outside the political borders of the country. In return for this resource transfer, there is an obligation to pay a return or a price from the country that obtains the resource to the country that gives the resource. The obligation is contingent upon the agreement that specifies the interest rate, maturity, and other conditions for the payment in exchange for the transfer of resources (Erdem, 2019: 47). Fiscal policy, which is defined as borrowing policy and is carried out by adjusting the amount and composition of borrowing, aims not only to generate public revenue through external resource inflows, but also to realise economic and social objectives such as domestic and external economic stability, growth, and development, and improving income distribution (Tokathioğlu & Selen, 2017: 39).

Schools of economic thought have put forward different views on whether the borrowing policy should be used as an instrument of fiscal policy. While classical economists argued that the state can borrow only in extraordinary situations such as war and disasters, Keynesian economists argued that the state can also use borrowing as a policy tool to ensure economic balance. Keynesian thought accepted borrowing as an ordinary public revenue (Akan & Kanca, 2015: 4). The Keynesian perspective posits that state intervention in the economy is essential for achieving economic growth. It says that developing countries, in particular, may address the shortcomings in their economic systems and foster dynamic growth by taking on foreign debt (Gürdal & Yavuz, 2015: 156). The external debt growth theory, which started with Keynes, continued with the Harrod-Domar growth model. The Harrod-Domar growth model has contended that the rate of economic growth is correlated with the level of investment-savings in an economy, that foreign aid will stimulate investment, and that economic growth will be attained as a result of increased investment (Çöğürçü & Çoban, 2011: 135).

Chenery and Strout (1966) developed the Harrod-Domar model and emphasised that developing countries have a savings gap and foreign exchange gap with the two-gap model. The lack of funding for new investments, caused by a gap in savings and a scarcity of financing for both capital goods utilised in production and intermediate goods imported due to a foreign exchange gap, would result in a negative impact on economic growth. The two-gap approach attributes the source of economic growth to the resources to be provided by external borrowing to close the savings gap and foreign exchange gap.

In the neo-classical economic growth model, the impact of external debt on economic growth becomes apparent over a lengthy period of time. According to the neo-classicals, the fact that the taxes needed to finance the interest payments arising from external debt will reduce individual consumption in the long run due to the taxes paid by taxpayers and the decrease in individual savings and thus capital

accumulation due to the decrease in disposable income negatively affects economic growth in the long run (Kutlu & Yurttagüler, 2016: 233).

In his debt overhang approach, Krugman (1988) emphasised that if a country's debt exceeds its projected debt repayment capacity, it will negatively affect economic growth. According to this approach, it is argued that increasing debt stocks due to excessive borrowing may discourage investments and adversely affect economic growth by increasing the borrowing costs of external creditors (tax, risk premium, etc.).

Another approach that analyses the relationship between external debt and economic growth is the public choice theory. This concept posits that public income, particularly in developing nations, is mishandled by the public sector due to various public failings. Consequently, the public sector resorts to unsustainable borrowing, potentially resulting in a decline in economic growth (Sandow et al., 2022: 3).

### **Empirical Literature**

In the literature, there are many studies analysing the relationship between external debt and economic growth. When these studies are analysed, it is seen that econometric time series methods or panel data analysis methods are generally used.

Bilginoğlu and Aysu (2008) conducted a study in Türkiye, using the regression approach to analyse the period from 1968 to 2005. They discovered that external debt had a detrimental effect on economic growth. In the study, it was suggested that external debt should be reduced in order to accelerate economic growth. Uysal et al. (2009) conducted a time series analysis in Türkiye from 1965 to 2007 and discovered that external debt has a detrimental effect on both short-term and long-term economic growth. Çiçek et al. (2010), in their analysis for the period 1990:Q1-2009:Q3 in Türkiye by taking structural breaks into account, found that increases in external debt stock have a negative effect on GDP. In their study, Çöğürçü and Çoban (2011) found that external debt has a negative impact on economic growth in Türkiye for the period 1980-2009 by using time series analysis methods. In their study, Erataş and Başçı Nur (2013) analysed 10 emerging market economies (China, India, Indonesia, South Korea, Türkiye, Poland, Mexico, Brazil, Argentina, and the Republic of South Africa) and found that external debt has a negative impact on economic growth. Akan and Kanca (2015) analysed the relationship between external debt, economic growth, and inflation in Türkiye for the period 1980-2013. As a result of the analysis, they found that there is a unidirectional causality relationship from economic growth to external debt, and that shocks to economic growth have a strong impact on external debt. In their study, Gürdal and Yavuz (2015) found a cointegration relationship between external borrowing and economic growth and a unidirectional causality relationship from economic growth to external debt in the period 1990:Q1-2013:Q12 in Türkiye using time series analysis methods. In their study, Kutlu and Yurttagüler (2016) examined the relationship between net external debt stock and economic growth in Türkiye for the period 1998:01-2014:02 using Granger causality analysis and found a unidirectional causality

relationship from external debt to economic growth. Gövdeli (2019) analysed the 1970-2016 period in Türkiye using the ARDL bounds test approach and found a cointegration relationship between external debt and economic growth. According to the results of the analyses, external debt has a positive effect on economic growth. The openness index and consumer price index used in the study were found to have a negative effect on economic growth. Gülcemal (2021) found that there is no causality relationship from external debt to economic growth in the period 1990-2019 in Türkiye. Uslu (2021) found a cointegration relationship between external debt and economic growth in Türkiye for the period 1970-2016 using the ARDL bounds test. According to the findings obtained from the analysis, a 1% increase in external debt stock increases economic growth by 0.13%. In their study, Mohsin et al. (2021) conducted a panel data analysis for South Asian countries for the period 2000-2018 and found that external debt has a negative impact on economic growth. Wang et al. (2021) analysed low- and middle-income countries for the period 1970-2018 using the panel regression method and found that the increase in long-term debt and public external debt negatively affected economic growth in the short and medium term. In addition, the findings obtained from the PVAR analysis conducted in the study also show that the increase in external debt leads to a slowdown in economic growth. Makun (2021) analysed the relationship between economic growth and external debt in Fiji for the period 1980-2018 with the ARDL model and found that external debt has a negative effect on economic growth in the long run. Agyeman et al. (2022) conducted a panel data analysis for 27 selected countries in Sub-Saharan Africa for the period 2000-2015 and found that external debt has a negative impact on economic growth. Sandow et al. (2022) conducted a panel data analysis for 31 selected sub-Saharan African countries for the period 2005-2017 and found that the effect of external debt on economic growth is negative. The findings obtained as a result of the analysis conducted by including the quality of public sector management as a variable in the model in the study indicate that the effect of external debt on economic growth is positive in countries with high-quality of public sector management. Roy (2023) analysed the contribution of external debt to economic growth using DARDL and ARDL methods for India for the period 1990-2020 and found that external debt has a negative impact on economic growth in the short and long run. Triatmanto et al. (2023) analysed a negative relationship between economic growth and external debt for Indonesia, Thailand, Vietnam, and the Philippines for the period 2000-2020 using the Panel VAR model.

### **Econometric Analysis**

In the econometric analysis of the study, the Fourier Autoregressive Distributed Lag (FARDL) model developed by (Yılancı et al., 2020) by including Fourier functions in the Autoregressive Distributed Lag (ARDL) model first developed by (Pesaran, Shin, & Smith, 2001) was used. In general, the ARDL test is preferred because it allows variables to be stationary at different levels. It can be used with small samples and tests the long-run cointegration relationship (Yılancı et al., 2022).

In this study, for the analysis of external debt and economic growth in Türkiye, equation no. 1 is considered in order to examine the long-run relationship between economic growth ‘eb’ and external debt ‘debt’ variables:

$$eb_t = \beta_0 + \beta_1 borc_t + \mu_t \quad (1)$$

In equation 1, ‘eb’ is the dependent variable and ‘debt’ is the independent variable. The relationship in this model can be expressed as in equation 2 using the ARDL test approach developed by Pesaran et al. (2001):

$$eb_t = \beta_0 + \beta_1 eb_{t-1} + \beta_2 borc_{t-1} + \sum_{i=1}^{p-1} \delta'_i \Delta eb_{t-i} + \sum_{i=1}^{p-1} \varphi'_i \Delta borc_{t-i} + \varepsilon_t \quad (2)$$

If Equation 2 is rewritten by including the error correction model, it can be shown as Equation 3:

$$eb_t = \beta_0 + \beta_1 eb_{t-1} + \beta_2 EC_{t-1} + \beta_3 borc_{t-1} + \sum_{i=1}^{p-1} \delta'_i \Delta eb_{t-i} + \sum_{i=1}^{p-1} \lambda'_i \Delta EC_{t-i} + \sum_{i=1}^{p-1} \varphi'_i \Delta borc_{t-i} + \varepsilon_t \quad (3)$$

$\varepsilon_t$  denotes an independent and identically distributed error term with finite variance and zero mean.  $\Delta$  and  $p$  denote the first difference operator and lag length. The optimal lag length is determined by considering the Akaike Information Criteria (AIC). The existence of a long-run relationship in the ARDL model depends on the rejection of the main hypotheses  $H_{0A} = \beta_1 = \beta_2 = \beta_3 = 0$  and  $H_{0B} = \beta_1 = 0$  F-test ( $F_A$ ) and t-test (t) are used to test the main hypotheses (Pesaran, Shin, & Smith, 2001; Yılanç, Bozok, & Gorus, 2020).

McNown et al. (2018) suggest the use of an additional F-test (FB) to complement the existing tests of (Pesaran, Shin, & Smith, 2001). The hypothesis of this test is as follows:

$$H_{0C} = \beta_2 = \beta_3 = 0 \quad (4)$$

In Equation 3 and Equation 4 above, lagged values of dependent and independent variables, the lagged value of the dependent variable and the lagged value of the independent variable are tested, respectively. According to the results of FA, FB and t-tests, four different situations emerge: (Yılanç, Bozok, & Gorus, 2020: 5):

- i. If the results of FA, FB and t-tests are significant, a cointegration relationship exists.
- ii. If the results of FA, FB and t-tests are insignificant, there is no cointegration relationship.
- iii. If FA ve FB are significant and the t-test result is insignificant, the first degenerate state is in question.
- iv. If FA and t-test are significant and FB is insignificant, the second degenerate state is in question.

Degenerate states imply that there is no long-run cointegration relationship between the variables, and the Fourier ARDL (FARDL) form extended by (Yılanç, Bozok, & Gorus, 2020: 6) by including the Fourier function is shown as follows:

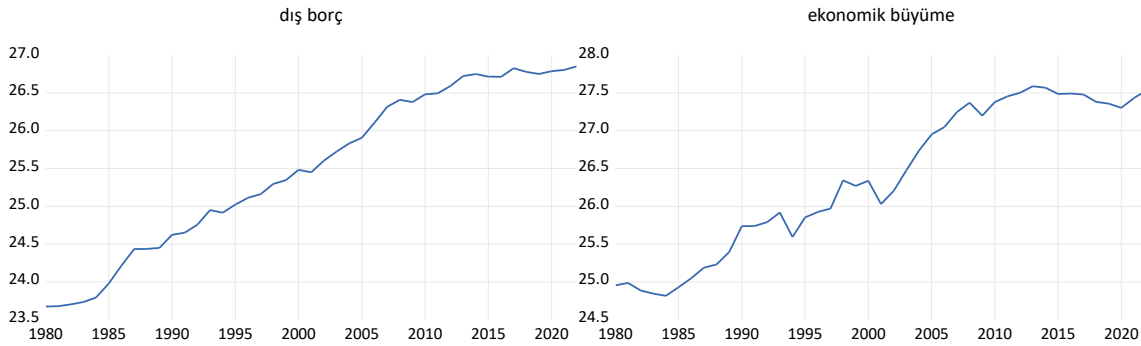
$$eb_t = \beta_0 + \gamma_1 \sin\left(\frac{2\pi kt}{T}\right) + \gamma_2 \cos\left(\frac{2\pi kt}{T}\right) + \beta_1 eb_{t-1} + \beta_2 EC_{t-1} + \beta_3 borc_{t-1} + \sum_{i=1}^{p-1} \delta'_i \Delta eb_{t-i} + \sum_{i=1}^{p-1} \lambda'_i \Delta EC_{t-i} + \sum_{i=1}^{p-1} \varphi'_i \Delta borc_{t-i} + \varepsilon_t \quad (5)$$

The model in Equation 5 is estimated by selecting the ‘k’ value that minimises the sum of least squares [ k=(0.1,0.2,.....,5)]. Critical values for FA, FB and t-tests are obtained through bootstrap simulation (Yılanıcı, Bozok, & Gorus, 2020, s. 6).

In the analysis of the study, the annual data set of economic growth ‘eb’ and external debt ‘debt’ variables covering the period 1980-2022 was obtained from the World Bank's database. The data of the variables are in dollars and are included in the analysis by taking their natural logarithms. The series of variables are presented in Figure 1.

**Figure 1.**

*Series of Variables*



When Figure 1, which presents the series of variables, is analysed, it is seen that the variables are in a continuous upward trend. It can be seen from the graph of the series that there is a decrease in the ‘eb’ variable due to the economic crises in 1994, 2001 and 2008.

Augmented Dickey-Fuller (ADF) and Phillips-Peron (PP) unit root tests were used to analyse the stationarity of the series of variables and the results are presented in Table 1.

**Table 1.**

*Unit Root Analysis Results*

Variable		ADF		PP	
		Fixed-Trend	Fixed	Fixed-Trend	Fixed
debt		-0.259121	-1.697207	-0.259121	-1.697207
$\Delta$ debt		-5.890977*	-5.455009*	-5.919153*	-5.451138*
eb		-1.600694	-0.853866	-1.874355	-0.852240
$\Delta$ eb		-6.373795*	-6.409021*	-6.373723*	-6.409035*
Critical	1%	-4.192337	-3.596616	-4.192337	-3.596616
Values	5%	-3.520787	-2.933158	-3.520787	-2.933158
	10%	-3.191277	-2.604867	-3.191277	-2.604867

**Note:** The \* sign indicates that the 1% variable is stationary. The sign ‘ $\Delta$ ’ denotes the difference operator, i.e. the first difference values.

According to the results of ADF and PP unit root tests, ‘debt’ and ‘eb’ variables are found to be non-stationary at level and stationary when first differences are taken. Since ADF and PP unit root tests do not take into account the structural breaks in time series, we will test whether the series of variables contain unit roots by applying the unit root test that also takes into account the structural breaks. In this context, the RALS-ADF unit root test method developed by Im et al. (2014) by adapting the ‘Residual Augmented Least Squares’ (RALS) method proposed by Im and Schmidt (2008) to the ADF unit root test is utilised. RALS-ADF test results are presented in Table 2.

**Table 2.**

*RALS-ADF Unit Root Test Results*

Variables	Test Statistic	Rho ( $\rho^2$ )
debt	-1.913327	0.363612
$\Delta$ debt	-7.204384	0.449238
eb	-1.004776	0.965082
$\Delta$ eb	-6.317926	0.986385

**Note:** The critical values comparing the statistics are taken from Im et al. (2014: 341) Table 10.9. Since the series of variables consist of 43 observations, critical values are determined based on  $T=50$ . The critical values for Rho value 0.4 are -3.447, -2.879 and -2.556 for 1%, 5% and 10%, respectively. The critical values for Rho value 0.9 are -3.750, -3.303 and -3.053 for 1%, 5% and 10%, respectively.

According to the results of the RALS-ADF unit root test in Table 2, since the test statistics calculated for the level values of ‘debt’ and ‘eb’ variables are smaller than the critical values in absolute terms, the main hypothesis ‘ $H_0$ : The Series Contain Unit Root’ cannot be rejected, which means that the series are unit rooted. Since the test statistics calculated by taking the first differences of ‘debt’ and ‘eb’ variables are greater than the critical values in absolute terms, the main hypothesis ‘ $H_0$ : The Series Contain Unit Root’ null hypothesis is rejected. This indicates that the series do not contain a unit root, i.e. they are stationary.

According to the results of the unit root test, the ‘debt’ and ‘eb’ variables are stationary when first differences are taken. After determining the stationarity levels of the variables, the Fourier ARDL test was applied to determine the long-run relationship between the variables. Fourier ARDL test results are presented in Table 3.

**Table 3.**

*Fourier ARDL Test Results*

Frequency	AIC	$F_A$	Bootstrap Critical Values			t-ist	Bootstrap Critical Values			$F_B$	Bootstrap Critical Values			
			1%	5%	10%		1%	5%	10%		1%	5%	10%	
0.1	-1.83	4.15	13.46	9.66	8.13	-2.44	-4.79	-4.08	-3.73	0	1.4	-0.24	-0.93	1.34



In the Fourier ARDL cointegration results in Table 3, 'F<sub>A</sub>', 't-ist' and 'F<sub>B</sub>' statistics are calculated. F<sub>A</sub> test statistic is used to test the significance of the dependent and independent variable in the model, 't-ist' test statistic is used to test the significance of the lagged value of the dependent variable and F<sub>B</sub> test statistic is used to test the significance of the lagged value of the independent variable. For cointegration to exist, all three test statistics should be greater than the Bootstrap critical values in absolute value. When the test results in Table 3 were analysed, it was found that the frequency value was 0.1. 'F<sub>A</sub>,' "t-ist" and "F<sub>B</sub>" test statistics are smaller than the Bootstrap critical values at a 5% significance level. This shows that there is no cointegration relationship between the variables.

## Result

According to the findings of the empirical analysis, there is no long-run relationship between economic growth and external debt in the period 1980-2022 in Türkiye. This is similar to Çöğürçü and Çoban (2011), Çiçek et al. (2010), Akan and Kanca (2015) in the literature on Türkiye. It can be stated that one of the most important reasons for the lack of effect of external debt on economic growth in Türkiye is the excessive debt burden. Since Türkiye has transitioned to a market economy, especially after 1980, it has frequently used external borrowing instruments to close the resource deficit due to fluctuations in exchange rate policies and the increase in budget deficit. Türkiye's increasing external debt burden has negative effects on economic growth. While external debts create economic relief by providing an inflow of resources at the time of borrowing, they cause an outflow of resources from the national economy with the principal and interest burden at the time of repayment. Debt management policies also significantly affect the functioning of this process and the effects of borrowing on the economy. Domestic and external political instabilities have also been determining factors affecting debt management in Türkiye during the 1980-2000 period. The 1990 Gulf War, the economic crisis in 1994, the Marmara Earthquake in 1999 and many other factors both increased the country's need for external debt and adversely affected debt management. The increasing external debt burden and the fragile structure of the Turkish economy limited the effectiveness of external debt on economic growth.

Failure to achieve fiscal discipline in Türkiye between 1980 and 2000 increased budget deficits, and public investments and social transfer expenditures decreased in order to repay foreign debts. In particular, capital accumulation could not be achieved due to the decrease in investments, and the decrease in social transfer expenditures reduced the development of human capital. The decline in capital accumulation and human capital had a negative impact on economic growth. After 2000, although fiscal discipline was achieved, the current account deficit increased rapidly and the increase in the external debt burden did not decrease. This shows that the Turkish economy is dependent on foreign production.

As a policy recommendation within the scope of the study, in order to reduce the external debt of the Turkish economy, it should prioritise policies to reduce the current account deficit and budget deficit.

In this context, the ratio of exports to imports should be increased by prioritising the production of high-value-added products, and the production of products that will meet the need for intermediate goods should be encouraged and supported, especially in order to reduce the import of intermediate goods used in production. For the development of the human capital factor that will take part in ensuring qualified production, both education policies should be reviewed and vocational education should be encouraged. In order to reduce the budget deficit, public expenditures should be cut and fiscal discipline should be ensured by implementing fiscal rules.

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**Yazarın/Yazarların Katkısı:**

- Doç. Dr. Adil AKINCI: %100

**Destek ve Teşekkür Beyanı:**

Bu çalışma herhangi bir kurum veya kuruluş tarafından desteklenmemiştir.

**Etik Onay:**

Bu çalışma, etik onay gerektiren insan veya hayvan deneyi içermemektedir.

**Çıkar Çatışması Beyanı:**

Yazarlar, bu çalışma ile ilgili herhangi bir çıkar çatışması bulunmadığını beyan ederler.

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**Kaynakça**

Agyeman, G., Sakyi, D. ve Oteng-Abayie, E. F. (2022), “External Debt and Economic Growth in Selected Sub-Saharan African Countries: The Role of Capital Flight”, *Research on Globalization*, 5, 100091, DOI: <https://doi.org/10.1016/j.resglo.2022.100091>

Akan, Y. ve Kanca, O. C. (2015), “Türkiye’de Dış Borçlanma, Büyüme ve Enflasyon İlişkisi: VAR Yaklaşımı (1980-2013)”, *Hacettepe Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 33(3), 1-22.

Bilginoğlu, M. A. ve Aysu, A. (2008), “Dış Borçların Ekonomik Büyüme Üzerindeki Etkisi: Türkiye Örneği”, *Erciyes Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 31, 1-12.

Chenery, H. B. ve Strout, A. M. (1966), “Foreign Assistance and Economic Development”, *American Economic Review*, 56, 679-733.

- Çiçek, H., Gözegir, S. ve Çevik, E. (2010), “Bir Maliye Politikası Aracı Olarak Borçlanma ve Ekonomik Büyüme İlişkisi: Türkiye Örneği (1990–2009)”, *C.Ü. İktisadi ve İdari Bilimler Dergisi*, 11(1), 141-156.
- Çöğürçü, İ. ve Çoban, O. (2011), “Dış Borç Ekonomik Büyüme İlişkisi: Türkiye Örneği (1980-2009)”, *KMÜ Sosyal ve Ekonomik Araştırmalar Dergisi*, 13(21), 133-149.
- Dickey, D., ve Fuller, W. (1979), “Distribution of the Estimators for Autoregressive Time Series with a Unit Root”, *Journal of the American Statistical Association*, 74(366a), 427-431.
- Erataş, F. ve Başçı Nur, H. (2013), “Dış Borç ve Ekonomik Büyüme İlişkisi: ‘Yükselen Piyasa Ekonomileri’ Örneği”, *Marmara Üniversitesi İktisadi ve İdari Bilimler Dergisi*, 35(2), 207-230.
- Erdem, M. (2019). *Devlet Borçları*, Ekin Yayınevi, 9. Baskı, Bursa.
- Gövdeli, T. (2019), “External Debt and Economic Growth in Turkey: An Empirical Analysis”, *Sosyoekonomi*, 27(40), 119-130.
- Gülcemal, T. (2021), “Dış Borç Kullanımı ve Ekonomik Büyüme: Türkiye için Ekonometrik Bir Analiz”, *Atatürk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 25 (Özel Sayı), 194-212.
- Gürdal, T. ve Yavuz, H. (2015), “Türkiye’de Dış Borçlanma-Ekonomik Büyüme İlişkisi: 1990-2013 Dönemi”, *Maliye Dergisi*, 168, 154-169.
- Im, K. S., Lee, J., ve Tieslau, M. A. (2014), “More powerful Unit Root Tests with Non-Normal Errors”. *In Festschrift in Honor of Peter Schmidt*, (pp. 315-342). Springer, New York, NY.
- Im, K. S., ve Schmidt, P. (2008), “More Efficient Estimation under Non-Normality When Higher Moments Do Not Depend on the Regressors, Using Residual Augmented Least Squares”, *Journal of Econometrics*, 144(1), 219-233.
- Krugman, P. (1988), “Financing vs. Forgiving a Debt Overhang”. *Journal of Development Economics*, 29(3), 253-268.
- Kutlu, S. ve Yurttagüler, İ. M. (2016), “Türkiye’de Dış Borç ve Ekonomik Büyüme İlişkisi: 1998-2014 Dönemi İçin Bir Nedensellik Analizi”, *Marmara Üniversitesi İktisadi ve İdari Bilimler Dergisi*, 38(1), 229-248.
- Makun, K. (2021), “External Debt and Economic Growth in Pacific Island Countries: A Linear and Nonlinear Analysis of Fiji Islands”, *The Journal of Economic Asymmetries*, 23, e00197, DOI: <https://doi.org/10.1016/j.jeca.2021.e00197>
- McNown, R., Sam, C., ve Goh, S. (2018), “Bootstrapping the Autoregressive Distributed Lag Test for Cointegration”, *Applied Economics*, (50), 1509-1521. doi:<https://doi.org/10.1080/00036846.2017.1366643>

- Mohsin, M., Ullah, H., Iqbal, N., Iqbal, W. ve Taghizadeh-Hesary, F. (2021), “How External Debt Led to Economic Growth in South Asia: A Policy Perspective Analysis from Quantile Regression”, *Economic Analysis and Policy*, 72, 423-437.
- Pesaran, M., Shin, Y., ve Smith, R. (2001), “Bounds Testing Approaches to the Analysis of Level Relationships”, *Journal of Applied Econometrics*, 16(3), 289-326.
- Phillips, P., ve Perron, P. (1988), “Testing for a Unit Root in Time Series Regression”, *Biometrika*, 75, 335–346. <https://doi.org/10.2307/2336182>
- Roy, A. (2023), “Nexus between Economic Growth, External Debt, Oil Price, and Remittances in India: New Insight from Novel DARDL Simulations”, *Resources Policy*, 83, 103742, DOI: <https://doi.org/10.1016/j.resourpol.2023.103742>
- Sandow, J. N., Oteng-Abayie, E. F. ve Duodu, E. (2022), “External Debt and Economic Growth in Sub-Saharan Africa: Does Heterogeneity in the Quality of Public Sector Management Make a Difference?”. *Heliyon*, 1-9. DOI: <https://doi.org/10.1016/j.heliyon.2022.e10627>
- Tokatlıoğlu, M. & Selen, U. (2017). *Maliye Politikası*, Ekin Yayınevi, 1. Baskı, Bursa
- Triatmanto, B., Bawono, S. ve Wahyuni, N. (2023), “The Contribution and Influence of Total External Debt, FDI, and HCI on Economic Growth in Indonesia, Thailand, Vietnam, and Philippines”, *Research in Globalization*, 7, 100136, DOI: <https://doi.org/10.1016/j.resglo.2023.100163>
- Uslu, H. (2021), “Relationship between Economic Growth External Debt: Application to Turkey”, *Manas Sosyal Araştırmalar Dergisi*, 10(1), 272-294.
- Uysal, D., Özer, H. ve Mucuk, M. (2009), “Dış Borçlanma ve Ekonomik Büyüme İlişkisi: Türkiye Örneği (1965-2007)”, *Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi*, 23(4), 161-178.
- Wang, R., Xue, Y. ve Zheng, W. (2021), “Does High External Debt Predict Lower Economic Growth? Role of Sovereign Spreads and Institutional Quality”, *Economic Modelling*, 103, 105591, DOI: <https://doi.org/10.1016/j.econmod.2021.105591>
- Yılancı, İ., Cutcu, İ., ve Cayir, B. (2022), “Is the environmental Kuznets Curve Related to the Fishing Footprint? Evidence from China”, *Fisheries Research*, (254), 1-10.
- Yılancı, V., Bozok, S., ve Gorus, M. (2020), “Are BRICS Countries Pollution Havens? Evidence from a Bootstrap ARDL Bounds Testing Approach with a Fourier Function”. *Sustainable Cities and Society*, (55), 1-12.