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Does External Debts Affect Economic Growth: The Case of E7 Countries

Dış Borçlar Ekonomik Büyümeyi Etkiler mi: E7 Ülkeleri Örneği

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Abstract: Developing countries, which mostly face financing problems, often have to use external debt. On the one hand, external debt stands out as an important source of financing investments but on the other hand, due to inefficient use or administrative failures, it may harm the macroeconomic indicators of countries, rather than benefit, with parameters such as exchange rate, bad governance, and corruption. One of these macroeconomic indicators is undoubtedly economic growth. In this context, the effect of external debt on economic growth is discussed for the E7 countries in the period 1992-2020. First of all, the relationship between external debt growth was analyzed using Westerlund cointegration analysis. According to analysis findings, there is a long-term co-integration relationship between external debt and economic growth in E7 countries. Common Correlated Effects Estimator (CCE) and Augmented Mean Group Estimator (AMG) models were used for the coefficient estimation. The findings obtained from both models indicate that external debt affects growth negatively. When the findings are analyzed by country, according to the AMG model, foreign aid affects growth negatively in China, India, Russia, Brazil and Mexico. According to the CCE model findings, foreign aid negatively affects growth in India, Brazil, Mexico and Indonesia. However, according to the findings of both models, the effect of foreign aid on growth in Turkey is statistically insignificant. Panel group analysis results support the debt overhang hypothesis for E7 countries

Keywords: External Debt, Economic Growth, AMG, CCE

Öz: Çoğunlukla finansman sorunu yaşayan gelişmekte olan ülkeler sıklıkla dış borç kullanmak zorunda kalmaktadırlar. Dış borçlar bir yandan yatırımların finansmanında önemli bir kaynak olarak öne çıkmakta, ancak diğer yandan verimsiz kullanım veya idari başarısızlıklar nedeniyle döviz kuru, kötü yönetişim, yolsuzluk gibi parametrelerle ülkelerin makroekonomik göstergelerine faydadan çok zarar verebilmektedir. Bu makroekonomik göstergelerden biri de şüphesiz ekonomik büyümedir. Bu kapsamda çalışmada 1992-2020 döneminde E7 ülkelerinde dış borçların ekonomik büyüme üzerindeki etkisi tartışılmaktadır. Öncelikle dış borç büyüme arasındaki ilişki Westerlund eş-bütünleşme analizi kullanılarak incelemiştir. Analiz bulgularına göre, E7 ülkelerinde dış borç ile ekonomik büyüme arasında uzun dönemli eş-bütünleşme ilişkisi bulunmaktadır. Katsayı tahmini için Ortak İlişkili Etkiler Tahmincisi (CCE) ve Genişletilmiş Ortalama Grup Tahmincisi (AMG) modelleri kullanılmıştır. Her iki modelden elde edilen bulgular, dış borcun ekonomik büyümeyi olumsuz etkilediği yönündedir. Bulgular ülkelere göre incelendiğinde, AMG modeline göre, ‚dış yardımlar Çin, Hindistan, Rusya,

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Brezilya, Meksika'da büyümeyi negatif etkilemektedir. CCE model bulgularına göre, dış yardımlar Hindistan, Brezilya, Meksika ve Endonezya'da büyümeyi negatif etkilemektedir. Ancak Türkiye'de her iki model bulgularına göre dış yardımların büyümeye etkisi istatistiksel olarak anlamsızdır. Panel grup analiz bulguları E7 ülkeleri için borç fazlalığı hipotezini desteklemektedir.

Anahtar Kelimeler: Dış Borç, Ekonomik Büyüme, AMG, CCE

Introduction

The inadequacy of domestic savings, which will finance investments, is one of the important problems in achieving the targeted growth in developing countries. In addition, the low export revenues in these countries cause foreign exchange scarcity. For this reason, these countries frequently use external debt to achieve their economic goals (Bilginoğlu and Aysu, 2008). In this context, if governments do not want to compromise macroeconomic stability by printing more money and the government's taxation capacity is limited, external debt may become an option the government can use to provide additional social capital for citizens (Ogunmuyiwa, 2011).

Fixed capital formation is the key to economic growth. High fiscal imbalances in developing economies restrict investment opportunities for growth. Therefore, the dependence of these economies on foreign borrowing is increasing and this leads to a significant external debt stock over time. (Shabbir, 2013). For example, the increasing demand for capital stock in the 1950s caused countries to turn to external debt and current account deficits were considered normal for thirty years. In these periods, countries turned to external debt and creating favorable conditions for foreign investment for economic goals (Were, 2001). This trend has continued in recent years. As a matter of fact, external debt has played a major role in supporting economic development, especially in developing countries, in the last 30 years. Many East Asian countries have benefited greatly from external debt (Safdari and Mehrizi, 2011).

Economic growth is one of the prominent topics regarding the effects of external debt. External debt can have a positive effect on growth overall in the first phase. However, the increase in financial imbalances over time and the inability to use the resources provided through external debt optimally led to higher external debt stock and increased debt service. In addition, after insufficient exports, inelastic imports and less capital inflows, external debt repayment becomes more difficult, especially in low-income countries. Sometimes more external debt is used to repay current debt and this further enlarges the debt spiral (Shabbir, 2013).

There is a cyclical relationship between external debt, budget deficits, and economic growth. Budget deficits are used to stimulate growth in times of depression. Debt will grow unless the combination of budget deficits and external borrowing is at an optimum sustainable level and the debt-financed deficit will absorb the initial growth benefits and possibly more. This could lead to a deeper depression of the economy. At this point, prominent approaches often emphasize debt stability and debt sustainability (Osinubi and Olaleru, 2006).

The external debt spiral affects countries with limited financial resources more deeply. If these countries do not effectively channel external funds into their financial systems to increase productivity and create new employment opportunities, they will eventually face lower tax revenues and higher debt servicing and this leads to higher deficits. In addition, delayed debt repayment may adversely affect the aid that developing countries receive from donors. In addition, the process may increase the country risk. This can reduce the flow of foreign direct investment into the country and increase the country's dependence on local resources. In addition, this process, which can disrupt the balance between fiscal and monetary policies, can lead to exclusion and further slowdown economic growth (Shabbir, 2013).

The controversial relationship between growth and external debt has led to different theories in the literature. The external debt growth relationship started with Keynes, who advocated public intervention in the economy. The Keynesian approach has argued that external debt can contribute

positively to growth in developing countries. And Harrod-Domar emphasizes that growth can only be achieved if borrowing is used in investments (Gül et al. 2012).

One of the current approaches is the debt overhang theory. This approach pioneered by Krugman (1988) and Sachs (1989) is based on the negative effects of high levels of external debt on economic growth. According to this, external debt negatively affects growth when a country's debt accumulation is greater than its future repayment capacity. If the resources obtained from external debts are used inefficiently and are not directed to investments, the debt stock will increase. This may cause investors who will invest in these countries to avoid transferring new funds. In this case, investments decrease and economic growth tends to decrease (Odubuasi, 2018; Shah and Pervin, 2012; Bilginoğlu and Aysu, 2008; Krugman, 1988; Sachs, 1989). Laffer curve, which is a continuation of the debt overhang theory, deals with the relationship between external debt and growth in a non-linear form. Accordingly, there is an optimal level of debt that a nation can sustain without experiencing debt excess. This threshold is represented by the peak of the Laffer curve. (Osinubi and Olaleru, 2006; Sachs, 1989).

Another approach that focuses on the debt-growth relationship is the growth-cum-debt model. This approach focuses on debt sustainability by analyzing debt growth capacity. The sustainability of debt also depends on how much it can contribute to growth (Gül et al. 2012; Bilginoğlu and Aysu, 2008).

One of the theories discussing the external debt-growth relationship is intertemporal borrowing. This model is an extension of consumption optimization theory and focuses on the sensitivity of current and future income-consumption level to the amount of borrowing. According to this approach, external debt plays a critical role in closing the savings gap in the country. Thanks to borrowing, a country has the opportunity to invest more and so economic growth may tend to increase (Umutlu et al., 2011).

In this study, the effect of external debt on growth is discussed in E7 countries the period of 1992-2020. The remainder of the paper is organized as follows. Literature review discussed in section 2, Data and methods are included in section 3, and analysis findings are discussed in section 4.

Literature

The use of external debt for effective and productive investments is one of the main parameters in increasing growth. In some studies, it is argued that external debt affects growth negatively by excluding private investments (Kharusi and Ada, 2018) or by causing excessive debt burden (Erataş and Nur (2013). According to some studies, if external debt is directed to optimal projects and sectors, it affects growth positively (Kasidi and Said, 2013; Shah and Pervin, 2012). In this sense, the findings in the literature differ considerably.

There is a large literature discussing the external debt and growth relationship within the framework of the debt overhang theory. For example, Yıldız and Sağdıç (2021) tested the effect of external debt components on economic growth in BRICS-T countries. According to the study, private sector external debt, public external debt and total external debt affect economic growth negatively in the long run. The debt component that most affects economic growth is public borrowing. The empirical results of the research are compatible with the debt overhang theory which argues that economic growth will be low in countries with high levels of indebtedness. Doğan and Bilgili (2014) argued that the relationship between external debt and growth is not linear. According to the study, private and/or public external borrowing affects growth negatively both in the contraction period and in the expansion period. In addition, the negative impact of public borrowing is higher than private borrowing in all periods. Erataş and Nur (2013) discussed the relationship between growth and external debt in 10 countries that are called "Emerging Market Economies". According to the findings, external debt has a negative effect on growth in parallel with the emergence of excessive indebtedness. According to the study, external debt affects positively growth up to a certain level, and in case of exceeding this level, the relationship is reversed. Bilginoğlu and Aysu (2008) tested the effect of external debt on growth in Turkey based on the debt overhang theory. According to the study, external debt reduces economic growth in Turkey. As a policy proposal in the study, it was emphasized that the country's external debt should be reduced.

Unlike these studies, Ejigayehu (2013) tested the effect of external debt on growth with debt surplus and debt crowding out for selected heavily indebted poor African countries. According to the findings of the study, external debt affects growth with debt exclusion effect.

Yıldız (2019), one of the studies suggesting that external debt has a positive effect on growth, revealed that there is a bidirectional causality relationship between external debt stock and GDP in Turkey. In the study, which includes impulse-response functions, it is concluded that external debt has a positive effect on economic growth. According to Kasidi and Said (2013), external debt has a positive effect on Tanzania's economic growth. According to the study, this is the result of using external debt predominantly in the development sectors. Shah and Pervin (2012) found that external debt stock in Bangladesh has a positive and significant effect on growth in the long run, but not in the short run. According to the study, as the debt stock increases, more capital is accumulated, which supports growth in the long run. The use of some of the external debts to finance the investment positively affects the capital stock. On the other hand, Hotunluoğlu and Yavuzer (2020) found positive relationship between external debt and growth in the long term. Findings indicate that this process, which is called the "Debt Overhang Model", is valid for Turkey. In addition, Öztürk and Çınar (2018) and Hulled (2019) in Turkey, Matuka and Asafo (2018) in Ghana, Odubuasi (2018), Ndubuisi (2017) and Sulaiman and Azeez (2012) in Nigeria, Abdelhadi (2013) in Jordan, Uzun et al. (2012) in transition countries, they concluded that external debt positively affects growth.

Some studies suggest that external debt negatively affects growth. For example, Biçer (2020) analyzed the external debt and growth relationship in Turkey using different external debt indicators. According to the analysis findings, external debt reduces growth in all models with different external debt indicators. These findings indicate that external debt is not used efficiently in Turkey and it causes a serious debt problem. Çöğürcü and Çoban (2011) and Bayır (2020) also reached similar findings for Turkey. According to Malik et al. (2010) external debt negatively affects economic growth in Pakistan. According to the study, the reason for this is that external debts are not used effectively and efficiently. Kharusi and Ada (2018) revealed that external debt negatively effect economic growth in Oman. According to the study, this is due to the crowding out effect of external debt on private investment. According to Udeh et al (2016), there is a positive relationship between external debt and economic growth in Nigeria in the short term, and there is a negative relationship between variables in the long term. Because external debts provide the needed funds, but sometimes the returns may be lower than the interest to be paid. This may be due to poor policy formulation, abuse, embezzlement and other corrupt practices. Shabbir (2013) found that the increase in external debt stock slowed down economic growth in 70 developing countries. According to the study, external debt can reduce private fixed capital formation. Ajayi and Oke (2012) revealed that the external debt burden has a negative impact on Nigeria's national income and per capita income. Because high levels of external debt have led to devaluation, unemployment, industrial strikes and a weak education system. All this has caused the Nigerian economy to fall into a depression. Fosu (1999) analyzed the effect of external debt on economic growth in Sub-Saharan Africa countries. According to the study, external debt reduces economic growth. In this context, it is estimated that the growth of these countries will be 50% higher without the external debt burden. In addition, Beyene and Kotosz (2021) in heavily indebted poor countries, Moh'd AL-Tamimi and Mohammad (2019) in Jordan, Siddique et al. (2017) in Pakistan, Azam et al. (2013) in Indonesia, Atique and Malik (2012) in Pakistan, Safdari and Mehrizi (2011) in Iran, Were (2001) in Kenya, they concluded that external debt negatively affects growth.

There are also studies suggesting that there is no relationship between external debt and growth. In this framework, Eren (2020) found that there is no cointegration and causality relationship between external and domestic debt and economic growth in BRICS-TM countries. According to the study, these results indicate that the high growth rates are not supported by domestic and external debt. Doruk (2018) emphasized that Turkey's external debt is not effective on economic growth in the long run.

Gülcemal (2021) analyzed the growth-external debt relationship in the context of causality, and he found that there is a causal relationship from economic growth to external debt burden in Turkey, but

not from external debt to economic growth. Having reached similar findings, Çapık and Kösekahyaoğlu (2019) argued that there is no significant causal relationship between growth and external debt in Turkey. However, Kutlu and Yurttagüler (2016) found that there is a unidirectional causality relationship from external debt to economic growth in Turkey. Kamacı (2016) concluded that there is a unidirectional causality relationship from external debt to growth in 6 Central Asian Republics and Turkey. Gül et al., (2012) tested the relationship between external debt and growth in Turkey with 6 Turkish Republics that gained independence with the collapse of the Eastern Bloc. As a result of the analysis, unidirectional causality was found from external debt to growth only in the long run. Çevik and Cural (2013) categorized external debt as public and private sector external debt and found that both variables are the Granger cause of economic growth. Nawaz (2012) suggested that there is a long-run relationship between growth and external debt in Pakistan. According to the study, in the short run, there is bidirectional causality between growth and external debt. Besides, Güneş (2019) in 22 underdeveloped and developing countries, Ogunmuyiwa (2011) in Nigeria, they did not find a causal relationship from external debt to growth.

In addition, Maghyereh and Omet (2002) emphasized the threshold value in the external debt growth relationship in Jordan. According to the study, external debt affects growth positively, but when the debt exceeds the threshold level, this effect turns negative. In a similar study, Makun (2021) analyzed growth and external debt relationship in Fiji. According to the study, external debt reduces growth in linear models. In the nonlinear model, as borrowing increases, external debt has a stronger negative impact on growth than domestic debt. According to the study, which also emphasizes the threshold point, debts affect growth more after a certain threshold. Lin and Sosin (2001) suggesting that results may differ by region or country. They analyzed the relationship between external debt growth in 77 countries. In the study, countries were classified as industrialized, African, Asian and Latin American countries and other countries. According to the study, the relationship between variables differs by region. In this context, only a negative relationship was found between external debt and economic growth in African countries. In other countries, this relationship is statistically insignificant. Metin, Times New Roman fontuyla 11 punto, tek satır aralığı, 1 paragraf girintisi ve önce 6 sonra 0 nk paragraf boşluğuna göre düzenlenmelidir. Kenar boşlukları alt üst sağ ve sol 2,5 cm olmalıdır. Metin, Times New Roman fontuyla 11 punto, tek satır aralığı, 1 paragraf girintisi ve önce 6 sonra 0 nk paragraf boşluğuna göre düzenlenmelidir. Kenar boşlukları alt üst sağ ve sol 2,5 cm olmalıdır. Metin, Times New Roman fontuyla 11 punto, tek satır aralığı, 1 paragraf girintisi ve önce 6 sonra 0 nk paragraf boşluğuna göre düzenlenmelidir. Kenar boşlukları alt üst sağ ve sol 2,5 cm olmalıdır.

Data and Methodology

In this study, the impact of external debt on growth is analyzed for E7 countries in the period of 1992-2020. The dependent variable in the study is GDP per capita, which is the indicator of economic growth. The share of external debt in GDP was used as the independent variable. The model used in the study is as in equation (1):

$$LPERGDP_{it} = \beta_1 LDEPT_{it} + \beta_2 FDI_{it} + \beta_3 LCAPITAL_{it} + \beta_4 POP_{it} + v_{it} \quad (1)$$

Variables and data sources in the model are as in Table 1.

Table 1. Description of Variables and Sources

Variables	Description	Sources
LPERGDP	GDP per capita (constant 2015 US$)	WDI
LDEBT	External debt stocks (% of GDP)	WDI
FDI	Foreign direct investment (net inflows (% of GDP)	WDI
LCAPITAL	Gross capital formation (% of GDP)	WDI
POP	Population growth (annual %)	WDI

L indicates the logarithmic form of the variables.

In the study, first of all, the existence of cross-section dependence was examined. The LM_{adj} test was used for cross-sectional dependence. In cases where the T>N, the LM test is used. However, this test is biased when the individual mean is different from zero and the group mean is zero and the. Pesaran et al. (2008) adding the variance and mean to the test statistic, corrected this deviation So, the name of the test is expressed as the deviation corrected LM (LM_{adj}) test (Mercan, 2014; Göçer et al., 2012). In this framework, the LM_{adj} test was used for cross-section dependence, considering the data set in the study.

Since there is a cross-section dependency in the series and the cointegration equation in the study, for both unit root and cointegration relationship, tests taking into account cross-section dependency were used. In this framework, Multivariate Augmented Dickey-Fuller (MADF) test developed by Taylor and Sarno (1998) and cross-sectionally augmented IPS (CIPS) developed by Pesaran's (2007) test are used for the unit root. Westerlund (2008) cointegration test is also used for the cointegration relationship.

For coefficient estimation, CCE and AMG estimators were used. The CCE developed by Pesaran (2006) considers the cross-section dependency and can produce results that provide consistent and asymptotic normal distribution when the time dimension is larger or smaller than the cross-section dimension and can calculate the long-term equilibrium values for individual cross-section units. (Göçer et al., 2013).

The other model used for coefficient estimation is AMG. In the AMG estimator developed by Bond and Eberhardt (2009) and Eberhardt & Teal (2010), in the first stage, the error correction model is estimated by the first difference method with the addition of T-1 time shadow variables. Then, using the Pesaran and Smith MG method, the AMG estimator for the whole panel is formed by taking the average on the basis of units (Tatoğlu, 2017).

Results

In the study, first of all, the cross-section dependence was tested. Table 2 indicates the results of the cross-section dependence and the unit root test results determined according to the results of the cross-section dependence.

Table 2. Cross-Section Dependence and Unit Root Tests Result

Variables	CIPS Constant	CIPS Constant +Trends	MADF Constant	LM_{Adj} Constant	LM_{Adj} Constant +Trends
LGROW	-2.011	-1.838	29.590**	60.541 ***	56.524***
LDEBT	-2.062	-2.563	41.889**	72.145***	68.651***
FDI	-2.948***	-3.404***	62.771 **	70.878***	67.879***
LCAPITAL	-2.007	-2.492	48.005**	70.827*	62.635*
POP	-2.672***	-4.027***	177.857**	59.333*	56.502*
ΔLGROW	-2.532**		103.999**	69.490***	
ΔLDEBT	-3.541***		186.502**	66.954***	
ΔFDI	-4.698***		364.341**	67.428***	
ΔLCAPİTAL	-3.509***		244.596**	64.827*	
Δ POP	-3.823***		51.459**	52.563*	

Statistically, the critical value for the MADF test at the 5% significance level is 28.150 for the level, and 28.894 for first dif. For other test *<0.10, **<0.05, ***<0.01

According to the probability values in the LM_{Adj} cross-section dependency test results, the H_0 hypotheses are rejected. Accordingly, there is a cross-section dependency in the equation and the series. For this reason, 2nd generation unit root tests were used in the study. In this context MADF (Taylor and Sarno, 1998) and Pesaran's (2007) CIPS) tests used for unit root test. According to test result, some series are stationary at level I (0) and some are I (1).

After cross-section dependency and unit root tests slope homogeneity was tested. According to these test results, Westerlund co-integration test used and all results are indicated in Table 3.

Table 3. Homogeneity and Westerlund Cointegration Test Results

Homogeneity Tests	**Coef.**
Swamy Shat	132.9324***
$\tilde{\Delta}$	48056.1341***
$\tilde{\Delta}_{Adj}$	54883.9728***
$\hat{\Delta}$	14.0222***
$\hat{\Delta}_{Adj}$	0.5500
Westerlund Cointegration	
DH-g	-0.681
DH-p	2.433 ***

*<0.10, **<0.05, ***<0.01

According to Swamy Shat, $\tilde{\Delta}$, $\tilde{\Delta}_{Adj}$ *and* $\hat{\Delta}$ test results, H_0 hypothesis based on homogeneity of slope coefficients was rejected. On the other hand, according to the Westerlund cointegration test, there is a long-term co-integration relationship between the series for panel. AMG and CCE models were used for coefficient estimation and findings are presented in Table 4.

Table 4. Analysis Results

COUNTRIES	**LDEBT**	**FDI**	**LCAPITAL**	**POP**
MODEL I (AMG)				
All Panels	**-0.0850522*** **	**0.0131062***	**0.273038*** **	**-0.1579087***
	(0.0318544)	**(0.0068)**	**(0.0688705)**	**(0.0874261)**
China	-0.1630904***	0.0257498**	0.2362988**	-0.2818441***
	(0.0521112)	(0.0101977)	(0.1098065)	(0.0677193)
India	-0.1033517***	-0.0010609	-0.0256446	0.0950259
	(0.0289348)	(0.0065053)	(0.035553)	(0.1755037)
Russia	-0.2069633**	0.0486056***	.1586069	-0.0376941
	(0.0865493)	(0.0111965)	(0.1671001)	(0.0789321)
Brazil	-0.0782982***	0.0064623**	0.2304853***	-0.0355513
	(0.0131872)	(0.0033051)	(0.0363681)	(0.0576037)
Mexico	-.0618429***	0.0040896	0.4937793***	-0.2948726***
	(0.0127009)	(0.00591)	(0.0807552)	(0.0564586)
Indonesia	-0.0297705	0.0076978	0.472582***	-0.5632933***
	(0.0221388)	(0.0058461)	(0.0644485)	(0.1143166)
Turkey	0.0479518	0.0001991	0.345158***	0.0128687
	(0.0359857)	(0.0068964)	(0.0490564)	(0.029091)
MODEL II (CCE)				
All Panels	**-0.0978398*** **	**0.0115655** **	**0.2270462*** **	**-.2885697** **
	(0.0258731)	**(0.0051373)**	**(0.0458974)**	**(0.1648199)**
China	-0.1106248	0.0143932	0.1931476	-0.3552993
	(0.0932734)	0.0184145)	(0.3130593)	(0.3612178)
India	-0.1927481**	0.0115219	-0.0111225	0.3179272
	(0.0754884)	(0.0102191)	(0.059899)	(0.2135808)
Russia	-0.0231067	0.0389986	0.2558465	-0.0997204
	(0.1328526)	(0.0245134)	(0.190662)	(0.2291802)
Brazil	-0.0877203***	0.0051584	0.2022476***	-0.3551997**
	(0.0208419)	(0.0048008)	(0 .061839)	(0.1537322)
Mexico	-0.1102785***	-0.0046428	0.2986537***	-0.29712***
	(0.0243602)	(0.0063613)	(0.090679)	(0.0986639)
Indonesia	-0.1591936***	0.0105258***	0.2766306***	-1.122731***

	(0.0221297)	(0.0034898)	(0.0630089)	(0.1862889)
Turkey	-0.0012066	0.0050033	0.37392***	-0.1078444**
	0(.0322488)	(0.0069977)	(0.047408)	(0.045813)

*<0.10, **<0.05, ***<0.01

According to the Model I findings in Table 3, external debt has a statistically significant and negative effect on growth across the panel. When analyzed by country, external debts affect growth statistically significant and negative in China, India, Russian, Brazil and Mexico. However, the effect of external debt on growth is statistically insignificant in Indonesia and Turkey.

According to the Model II findings, external debts affect growth statistically significantly and negatively across the panel. However, the results differ according to the country. For example, the effect of external debt on growth is statistically significant and negative in India, Brazil, Mexico and Indonesia. However, the effect of external debt on growth is statistically insignificant in China, Russia and Turkey. When country data are analyzed, Turkey is the only country where the effect of external debt on growth is statistically insignificant in both models.

Findings of other control variables are similar in both models. FDI has a statistically significant and positive effect on growth across the panel in both models. When analyzed in terms of country, it is seen that the effect of FDI on growth is statistically insignificant in most of the countries. The effect of capital stock on growth is statistically significant and positive in both models. The effect of capital stock on growth is relatively stronger than other variables. Looking at the country specific, it is seen that the capital stock has a positive effect on growth in most of the countries. On the other hand, in both models, population growth affects growth in a statistically significant and negative.

Conclusion

External debt is one of the financing methods frequently used by countries with capital insufficiency. Discussions on the effectiveness of this borrowing mostly focus on the economic growth dimension. At this point, there is no single point of view regarding the positive or negative effects of external debt on economic growth. Because, when the current literature is examined, external debts reduce growth in some countries and increases growth in others. Therefore, the issues that need to be discussed are how borrowing is used, whether debt interest payments exceed the returns on investments.

In this study, the effect of external debt on growth was analyzed in E7 countries the period of 1992-2020. First of all, Westerlund cointegration analysis was used in the study. According to the analysis findings, there is a cointegration relationship between external debt and economic growth for the panel. AMG and CCE models were used for coefficient estimation. According to findings, in both models, external debt reduces economic growth. Therefore, the findings support the debt overhang hypothesis for E7 countries.

In addition to external debt, foreign direct investments, population growth and gross capital formation variables are also used in the model. In both models, foreign direct investment and gross capital formation increase growth, but population decreases growth. Some of the necessary conditions for external borrowing to be effective on growth are as follows i) Using external debt in productive sectors and investments, ii) Ensuring administrative parameters such as corruption, transparency and institutionalization and establishing a control mechanism, iii) Sustainability of the debt threshold, iv) Strong monetary and exchange rate policies should be implemented to prevent borrowing from exceeding the yield.

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