ISSN: 2149-5203

MAD
Maliye Araştırmaları Dergisi

THE RELATİONSHİP BETWEEN FOREİGN AİD AND ECONOMİC GROWTH

Dış Yardım ve Ekonomik Büyüme Arasındaki İlişki

Atıf / Citation

Özyılmaz, A. (2022). "The Relationship Between Foreign Aid and Economic Growth". *Maliye Araştırmaları Dergisi* ,*8*(1), 21-36.

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Makale Bilgisi

Makale Türü: Araştırma Makalesi
Article Type: Research Article

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The Relationship Between Foreign Aid and Economic Growth

Abstract

In developing countries, capital insufficiency is one of the main problems in economic growth. In these countries, foreign direct investments, foreign debts, and foreign aid are important sources of financing in overcoming the financing problems. When we focus on the growth problem of external financing, how foreign aid affects economic growth is one of the important topics of discussion. In this study, the effect of foreign aid on economic growth is investigated in 20 developing countries that receive the most foreign aid in the world. Random effects, fixed effects, and pooled least squares methods were used for the analysis. According to the findings, foreign aid is statistically significant in all models and negatively affects economic growth. In addition, inflation, population, and foreign direct investments were used as control variables. The effect of inflation on growth is often statistically insignificant. The effect of population on growth is generally negative however, this effect is positive for foreign direct investments.

Keywords: Foreign Aid, ODA, Economic Growth, Developing Countries

JEL Codes: F35, P45, O10, 050

Özet

Sermaye yetersizliği gelişmekte olan ülkelerde iktisadi büyümenin önündeki temel sorunlardan biridir. Bu ülkelerde finansman sorunlarının aşılmasında doğrudan yabancı yatırımlar, dış borçlar ve dış yardımlar önemli finansman kaynakları arasındadır. Büyüme dış finansman sorunsalına odaklandığımızda, dış yardımların ekonomik büyümeyi ne yönde etkilediği önemli tartışma konularından biridir. Bu çalışmada dünyada en fazla dış yardım alan gelişmekte olan 20 ülkede, dış yardımların ekonomik büyümeye etkisi araştırılmaktadır. Analiz için sabit etkiler, rassal etkiler ve havuzlanmış en küçük kareler yöntemleri kullanılmıştır. Elde edilen bulgulara göre, tüm modellerde dış yardımların ekonomik büyümeye etkisi istatistiksel olarak anlamlı ve negatiftir. Bunun yanı sıra kontrol değişken olarak enflasyon, nüfus ve doğrudan yabancı yatırımlar kullanılmıştır. Enflasyonun büyümeye etkisi çoğunlukla istatistiksel olarak anlamsızdır. Nüfusun büyümeye etkisi genel olarak negatif iken; doğrudan yabancı yabancı yatırımlar için bu etki pozitiftir.

Anahtar Kelimeler: Dış Yardım, RKY, Ekonomik Büyüme, Gelişmekte olan Ülkeler

Introduction

Foreign aid is transferred to developing countries in the form of grants or loans and is known as official development assistance (ODA). In this context, foreign aids are financial resources offered as grants or loans from governments or financial institutions to developing countries for reasons such as economic stability, welfare, and sustainable development. These are in the form of grants -non-refundable or concessional term loans -25% grant amount- (Sahoo and Sethi, 2013). OECD recognizes ODA as an important aid in promoting the well-being and economic growth of developing countries. Although this is seen as grants and loans, it also includes support such as food aid, emergency aid, and construction projects (Tang and Bundhoo, 2017).

Economic growth is one of the priority issues in studies on the effects of foreign aid. Chenery and Strout's (1966) *Theory of Gap Analysis* is at the forefront of the studies dealing with the foreign aid-growth relationship. Accordingly, the first gap is called the savings gap or trade gap and is the difference between the amount of investment and current domestic savings. The second gap is the trade deficit (currency gap) and the negative difference between the foreign exchange required for imports and the foreign exchange provided by exports. Therefore, in case of these deficits, countries generally need foreign capital inflows. At this point, foreign aid plays a complementary role in domestic production by providing the need for foreign exchange. Increasing production level leads to economic growth. Therefore, foreign aid is determinant on economic growth with the financing opportunity it provides (Appiah-Konadu et al. 2016; Liew et al. 2012; Moreira, 2013; Tadesse, 2011; Chenery and Strout, 1966)

Three Gap Models emerged with the inclusion of the public in the gap analysis theory. The three gaps the are trade gap, savings-investment gap, and fiscal deficit. In the case of a fiscal deficit, also called a structural deficit, governments need external resources to close this deficit (Ugwuegbe et al. 2016).

The Marshall Plan provided by the USA constitutes the beginning of foreign aid. These aids formed the basis of fund flows from developed countries to developing countries in the following periods (Girma, 2015). Inadequate capital is an important problem, especially in low-income countries. External financing option comes to the fore in overcoming this problem. Foreign direct investments and foreign aid are prominent channels. However, many low-income countries do not have sufficient infrastructure to attract foreign direct investment. At this point, the prominent channel is foreign aid (Ozekhome, 2017; Abd el Hamid Ali, 2013; Kargbo, 2012).

Foreign aid has basically three purposes. These are as follows. i) Humane/moral reasons. The main purpose here is the incentive to provide humanitarian aid such as helping the poor, reducing income inequality, and minimizing injustices, ii) Economic interest: the effort to create a market for their products by supporting the purchasing power of foreign aid countries, the aim of providing cheap raw materials and labor and earning high profits, iii) Strategic or political interest: Minimizing the threat of war and taking a peaceful role

in the international arena by establishing friendly relations with countries that receive foreign aid (Sahoo and Sethi, 2013).

Foreign aids increase economic growth mainly through two channels. One of them is that it leads to stable economic growth by providing the necessary financing to countries with limited capital. The second transmission channel is provided by governance and technology transfer. Accordingly, foreign aid provides technology transfer and also feeds growth indirectly by positively affecting managerial indicators such as transparency and accountability (Adamu, 2013).

Foreign aid causes some countries to be dependent on aid and this process can negatively affect economic growth. According to, foreign aid can negatively affect aid recipients after a while. For example, systematic aid provided to countries may cause these countries to expect continuous aid. As a result, productivity in those countries may decrease and future plans may be focused on foreign aid. Therefore, dependency on foreign aid can lead countries to get into a debt stalemate. The debt trap of countries may cause macroeconomic problems to deepen (Dağ et al. 2018; Dash, 2021).

The amount of foreign aid as well as its continuity may cause unexpected results for the economy. For example, excessive aid can lead to the "Dutch disease". The basic mechanism here is the expenditure channel. When strong foreign aid is spent on goods and services that are not traded in the country, there is an excessive demand for them. Increasing demand and limited supply lead to an increase in imports, and on the other hand, the increase in the prices of these non-tradable goods and services leads to an increase in the demand for foreign exchange. All these can negatively affect economic growth through the real exchange rate channel (Moreira, 2013).

One of the channels emphasized in studies suggesting that foreign aid will negatively affect growth is crowding out. Accordingly, foreign aid is mostly used in public areas, which may adversely affect private sector investments. In this case, which is called the crowding out effect, foreign aid can negatively affect economic growth (Dağ et al. 2018; Liew et al. 2012).

The effect of foreign aid on growth is directly related to the structural conditions of the countries, especially the administrative parameters. For example, South Korea was one of the countries that received large amounts of foreign aid in the past years. In this context, it was the first country to receive aid for nearly 50 years. South Korea, which was one of the poorest countries in the past and received the most foreign aid, has become one of the most important economies in the world today. Foreign aid has undoubtedly played a critical role in the growth of South Korea. Today, it is one of the important countries providing foreign aid. However, in the case of Cambodia, it can be argued that parameters such as weak institutions and corruption weaken the positive impact of foreign aid (Sothan, 2018; Kim, 2011). Similarly, although Sub-Saharan Africa receives the most foreign aid in the world, it hosts the poorest countries in the world with its human development index and per capita GDP (Tang and Bundhoo, 2017). Therefore, in many

of the sub-Saharan African countries, despite large foreign aid, there has been a slowdown in economic growth and they have fallen into a debt trap over time (Mallik, 2008). Therefore, it is very difficult for foreign aid to positively affect economic growth without strong institutions (Fasanya and Onakoya, 2012).

There is a large literature discussing the relationship between economic growth and foreign aid, but as far as we know, there is no study that examines this debate in the sample of countries that receive the most foreign aid using current data. In this context, in this study, the effect of foreign aid on growth was investigated in the countries that received the most foreign aid in the 1994-2020 period. FE, RE, and OLS were used for analysis. The rest of the study is organized as follows. Literature reviews are given in section 1 and data and methods are presented in section 2. Analysis results are discussed in section 3.

1. Literature Review

One of the important debates is how foreign aid affects growth. The limited financing opportunities in developing countries cause these countries to need funds outside the country's resources, such as foreign borrowing or foreign aid. How these aids will affect growth is directly related to how they are used. If used in productive investments, these aids are expected to have a positive effect on growth. However, reasons such as corruption and bad governance, and dependence on foreign aid may cause foreign aid to negatively affect growth.

There are many studies suggesting that foreign aid has a positive effect on economic growth. For example, Golder et al. (2021) argued that foreign aid has a positive effect on economic growth both in the long and short run in Bangladesh. According to Dash (2021), there is a positive relationship between foreign aid and growth in 8 South Asian countries. Mustafa et al. (2019) found a long-term positive relationship between aid and growth in Sudan. According to Moolio and Kong (2016), there is a long-term cointegration relationship between economic growth and foreign aid in Lao PDR, Cambodia, Vietnam and Myanmar. In addition, they found that foreign aid affects growth positively. Tait and Chatterjee (2015) found that the effect of foreign aid on growth in 25 Sub-Saharan African countries is positive in the long run. In addition, they emphasized that aids for social infrastructure such as health and education have a strong effect on growth. Sahoo and Sethi (2013) analyzed the impact of foreign aid on both development and economic growth in India. According to the study, foreign aid affects both development and economic growth positively; but the growth effect of foreign aid is stronger. Mitra (2013) argued that there is a long-term relationship between aid and growth in Cambodia, and aids have a positive effect on growth. Fasanya and Onakoya (2012) found that foreign aid positively affects economic growth in Nigeria. In addition, they emphasized that the aid also increased domestic investments. Daniel (2011) found that aid positively affects growth in Ghana both in the short and long run. According to Asteriou (2009), in five South Asian countries, there is a positive relationship between aid and growth. Karras

(2006) found that foreign aid has a positive effect on economic growth in 71 developing countries. Irandoust and Hatemi (2005) argued that foreign aid positively affected growth in Ethiopia, Botswana, Kenya, India, Tanzania, and Sri-Lanka. Fayissa and Al-Kaissy (1999), and Adamu (2013) found that foreign aid has a positive effect on growth in 80 developing countries and ECOWAS countries, respectively.

On the contrary, some researchers have argued that foreign aid negatively affects growth. In this context, Adebayo and Kalmaz (2020) found a long-term relationship between growth and foreign aid in Nigeria. In addition, according to the study, the effect of foreign aid on growth is negative. According to Appiah-Konadu et al. (2016), there is a cointegration relationship between foreign aid and economic growth, and foreign aid affects growth negatively in Ghana. Corruption and, high-interest rates paid to aid in the form of loans are shown as the reason for this. Abd el Hamid Ali (2013) found that foreign aid in Egypt negatively affects economic growth in both the short and long run. According to Liew et al. (2012), foreign aid in East African countries negatively affects growth. Mallik (2008) suggested that there is a long-run cointegration relationship between foreign aid and growth in 6 African countries dependent on foreign aid (Malawi, Niger, Central African Republic, Togo, Sierra Leone, and Mali). In addition, in five of the six countries, the effect of foreign aid on growth is negative. According to the study, the dependence on foreign aid in Sub-Saharan African countries is determinant in these findings.

On the other hand, some studies suggest that there is no significant relationship between variables. For example, Kirikkaleli et al. (2021) found that the effect of foreign aid on growth in Chad was statistically insignificant. According to the study, this is because aid is mostly used for consumption. Upadhyaya et al. (2007) found that foreign aid was insignificant to growth in Estenyo, the Czech Republic, Latvia, Poland, and Lithuania. In addition, Mbah and Amassoma (2014), Feeny (2005), and Mbaku (1993) found that the effect of foreign aid on growth was statistically insignificant in Nigeria, Papua NewGuinea, and Cameroon, respectively.

Focusing on interaction variables, Tang and, Bundhoo (2017) argue that foreign aid alone does not have a significant effect on growth in sub-Saharan Africa. According to the study, if foreign aid is used together with the policy index as an interaction variable, the effect is statistically significant and positive. In the study, the two-gap growth model, which suggests that foreign aid will positively affect growth through imports and investment channels, has been tested. Findings are that foreign aid is a good component that provides import and investment requirements in these countries. Girma (2015) emphasized that foreign aid affects growth negatively in Ethiopia. According to the study, the effect of the foreign aid index, which interacts with policy, on growth is positive. On the other hand, Tadesse (2011) argued that foreign aid affects growth positively in Ethiopia. However, when aid interacts with policy, this effect turns negative. According to the study, this is because the policies implemented during the sample period were weak.

In addition, Farahmand (2021), who discussed the relationship between foreign aid and growth in the context of causality/cointegration, found a cointegration relationship between variables in Afghanistan. According to the study, there is a unidirectional causality relationship from foreign aid to economic growth. Jena & Sethi (2019) suggested that there is a long-run relationship between variables in 45 SSA countries, and that there is unidirectional causality from foreign aid to economic growth. Eğri (2018) found that there is no causal relationship between foreign aid and growth in Egypt.

Focusing on the nonlinear relationship in the foreign aid growth debate, Yiew and Lau (2018) found a U-shaped relationship between growth and foreign aid in 95 developing countries. Accordingly, foreign aid affects economic growth negatively at the first stage, but positively affects it afterward. Tüzemen and Tüzemen (2015) argued that there is a non-linear relationship between foreign aid and economic growth in Turkey. Accordingly, foreign aids have an increasing and then decreasing effect on economic growth. Therefore, there is a threshold effect in foreign aid. Tiwari (2011) emphasized that the effect of aid on growth is not linear, in this context, high levels of foreign aid affect growth negatively in 28 Asian countries.

There is a large literature suggesting that the relationship between variables differs according to countries/time or different parameters. In this context, Azam and Feng (2022) investigated the effect of foreign aid on growth in 37 developing countries with different income levels. According to the study, foreign aid affects growth positively across the panel, but this effect is very limited in low-income countries, and foreign aid has a positive effect on growth in low-middle-income countries. On the other hand, foreign aid does not have a positive effect on economic growth in upper-middle-income countries. Babalola and Shittu (2020) argued that foreign aid was not effective on growth in 16 West African countries, but this relationship turned negative if institutional variables were included in the model. Mountain et al. (2018) investigated the effect of foreign aid on growth in countries with different income levels. According to the study, there is a positive relationship between foreign aid and growth in upper-middle and low-income countries, but this relationship is negative in lower-middle-income countries. Sothan (2018) found that foreign aid in Cambodia has a positive effect on growth in the short run, but this effect is negative in the long run. Rahnama et al. (2017) found that foreign aid has a positive effect on growth in high-income developing countries, but this effect is negative in low-income developing countries. Kargbo (2012) argued that foreign aid had a positive effect on economic growth in the pre-war period in Sierra Leone, but this effect was weak or meaningless during the war period. Ekanayake and Chatrna (2010) found that the effect of foreign aid on growth was mixed in 85 developing countries. According to the study, foreign aid has a positive effect on growth in Africa, but this effect is negative in the other three regions. The fact that Africa is the region that receives the most aid is decisive in these findings. If the modeling in the study is based on income levels, foreign aid affects growth negatively in low-middle-income countries and, this effect is positive in other groups. Moreira (2005) differentiated the effect of foreign aid

on growth as micro and macro findings in developing countries. According to micro findings, foreign aid has a positive effect on growth. However, macro findings were inconclusive. This is because of the micro-macro paradox. Durbarry et al. (1998) found that in a large sample of developing countries, under the presence of stable macroeconomic policies, foreign aid has a positive effect on growth, albeit partially. However, these findings differ according to income level, geographical location and, aid rates.

2. Data and Method

In this study, the effect of foreign aid on growth was analyzed in the period 1994-2020 using fixed effects, random effects and, Pooled OLS methods. As a sample, 20 countries that receive the most foreign aid in the world were used. The list of these countries is in Appendix (A1). The model is as in equation (1):

$$\mathrm{GROW}_{it} = \beta_0 + \beta_1 ODA_{it} + \beta_2 INF_{it} + \beta_3 POP_{it} + \beta_4 FDI_{it} + u_{it} \quad (1)$$

GROW represents growth and for this logarithmic form of GDP per capita (constant 2015 US$) is used. ODA is an indicator of foreign aid and Net ODA received (% of GNI) is used. For INF, Inflation, consumer prices (annual %), for POP, Population growth -annual %-, for FDI, Foreign direct investment (net inflows % of GDP) are used. All variables were obtained from the World Bank database.

In the study, first of all, diagnostic tests were included and as a result, a resistant estimator was used. In FE and RE models, there are autocorrelation, heteroscedasticity, and cross-sectional correlation problems together, so Driscoll and Kraay estimator is used. Driscoll and Kraay's (1998) estimator developed the standard non-parametric time series covariance matrix to be resistant to all cases of spatial and periodic correlation (Tatoğlu, 2016).

The Driscoll and Kraay's standard errors of parameter estimates are obtained with the help of the square roots of the diagonal elements of the asymptotic (resistive) covariance matrix.

$$\mathrm{Var}\ (\widehat{\beta}) = (x'x)^{-1}\ \hat{s}_T\ (x'x)^{-1} \quad (2)$$

Here, $\hat{s}_T$a is defined as follows:

$$\hat{s}_T = \hat{\Omega}_0 + (\sum_{j=1=1}^{m(T)}\ w(j,m)\ [\hat{\Omega}_j + \hat{\Omega}'_j] \quad (3)$$

m(T) represents the lag length for autocorrelation. Bartlett weights expressed as W(j,m(T)=1-j/(m(T)+1) ensure that $\hat{s}_T$ is positive definite and allow higher order lags

to take low weights in the sample autocovariance function. The (K+1)x(K+1) dimensional $\hat{\Omega}_j$ matrix is defined as follows:

$$\hat{\Omega}_j \sum_{t=j+1}^{T} \quad h_t\,(\widehat{\beta}) h_{t-j}\,(\widehat{\beta})' \qquad (4)$$

Here, there is the equation $h_1(\widehat{\beta}) = \sum_{i=1}^{N(t)} h_{it}\,(\widehat{\beta})$. The square of the t moment conditions for each unit $h_{it}(\widehat{\beta})$, is calculated for N with different T. With this minor correction, Driscoll Kraay's covariance matrix estimator can also be used in unbalanced panel data models (Tatoğlu, 2016).

Another resistant estimator used in the study is Arellano, Froot, and Rogers. After the Huber, Eicker and, White estimators, studies were developed by Arellano (1987), Froot (1989) and, Rogers (1993), and estimations were also used when the assumption of the independent distribution of residues became flexible. Resistive standard errors were produced when residuals were correlated within the cluster (unit in panel data models) and uncorrelated between clusters. The variance estimator of the parameters is as in equation (5):

$$\text{Var}\,(\widehat{\beta}) = \frac{N-1}{N-k}\frac{M}{M-1}(x'x)^{-1}\left(\sum_{i=1}^{N} x_i' \hat{u}_i \hat{u}'_i X_i\right)(x'x)^{-1} \qquad (5)$$

Here M indicates the number of clusters, and N_j indicates the number of units in the clusters (Tatoğlu, 2016)

3. Empirical Results

In the study, firstly, the stationarities of the series (Appendix A2) were examined with the unit root test, and then the presence of varying variance, autocorrelation, and correlation between units was tested by using the diagnostic tests (Appendix A3). The Driscoll-Kraay estimator was used because there is heteroscedasticity, autocorrelation, and cross-sectional correlation in fixed and random effects models. Since there are heteroscedasticity and autocorrelation problems in the OLS model, the Arellona, Foot, and Rogers estimators were used. The findings are presented in Table 1.

Table 1: Analysis Results

Variables	Driscoll-Kray Fixed Effet	Driscoll- Kray Random Effect	Arellano, Froot and Rogers for Pooled OLS
ODA	-0.018876*** (0.0064629)	-0.01954*** (0.0063052)	-0.0630737*** (0.0141789)
INF	3.73e-06 (3.68e-06)	3.18e-06 (3.11e-06)	-0.0000478*** (0.000011)
POP	-0.1338571** (0.0546757)	.1345561**(0.0610698)	-0.0052204 (0.1634243)
FDI	0.0133821*** (0.0041023)	.0127825** (0.0052183)	-0.0133444 (0.0201111)

CONS.	7.600067***	(0.1493004)	7.606491***	(0.817866)	7.59919*** (0.4083085)
OBS.	540				

** <0.05, *** <0.01

According to the analysis findings, foreign aid has a statistically significant and negative effect on economic growth in all models. The effects of other control variables used in the study are as follows. The effect of inflation on economic growth is statistically insignificant in FE and RE models, but this effect is statistically significant and negative in OLS. The population has a statistically significant and negative effect on growth in FE and RE models but is statistically insignificant in OLS. Foreign direct investments positively affect economic growth according to FE and RE models, but it is statistically insignificant according to OLS.

Conclusion

Capital insufficiency is one of the important structural problems in developing countries. The inadequacy of domestic savings in these countries leads to the need for additional resources. One of these channels is foreign aid. Foreign aid can be an important source of economic growth when used optimally. One of the best examples of this is South Korea, which has received foreign aid for many years. In this context, foreign aid used in productive investments is expected to have a positive effect on economic growth. However, developing countries often face structural problems such as a lack of institutionalization, political or economic instability, and corruption. All these can lead to the ineffectiveness of foreign aid. In addition, the dependency of foreign aid has a negative impact on the country's economy. When interest payments are included in this, aid is expected to harm economic growth rather than benefit.

In this study, the effect of foreign aid on economic growth was investigated in the 20 countries that received the most foreign aid during the period 1994-2020. For robust results for FE and RE Driscoll-Kraay, for OLS model Arellano, Froot, and Rogers estimator are used in the study. According to the analysis findings, foreign aid increases economic growth in all models. Considering the other control variable findings, inflation is statistically insignificant according to the FE and RE models. On the other hand, population reduces economic growth, but foreign direct investment increases it. According to the OLS model findings, inflation affects economic growth negatively. The effect of population and FDI on growth is statistically insignificant.

Factors that can be effective in reducing the economic growth of foreign aid are as follows. i) corruption, ii) institutional weakness, iii) lack of control, iv) socio-economic and political instability, v) use of capital in non-productive sectors, vi) inefficiency and lack of production caused by dependence on foreign aid, vii) crowding-out effect.

Considering all these parameters, it is important that foreign aid can positively affect economic growth, primarily that institutions are transparent. In addition, aid should be

used for optimal projects, because foreign aid interest expenses exceeding the investment return rates cause foreign aid to be a burden, not a benefit to the economy.

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Appendix

Table A1:Countries Included in the Analysis

Ethiopia	Nigeri	Bangladesh	Indonesia	Uganda
Jordan	Sudan	Morocco	Kenya	Egypt
Congo, Dem. Rep.	India	Vietnam	Myanmar	Pakistan
Yemen	Turkiye	Iraq	Tanzania	Mozambique

Table A2: Unit Root Test Results

	CIPS Unit Root Test		
Variables	Cons.	Cons.+ Trend	First Dif.
GROW	-1.773	-1.900	-2.443***
ODA	-2.665***	-3.250***	-4.234
INF	-2.573***	-3.081***	-4.400***
POP	-3.261***	-5.218***	-4.917***
FDI	-2.326***	-2.434	-3.828***

*** indicate that the series is stationary at 99% confidence

Table A3: Diagnostic Tests Results

Test	Problem	Result (FE)	Result (RE)	Result (OLS)
Modified Wald test	Heteroscedast.	5780.91***	-	
Levene, Brown and Forsythe	Heteroscedast.		W0 = 16.592292*** W50 = 14.096003*** W10 = 16.378194***	
Breusch-Pagan				36.37***
M. Bhargava et al. D.W	Autocorrelation	.13888225	.13888225	
Baltagi-Wu LBI	Autocorrelation	.28639396	.28639396	
Wooldridge test				29.597***
Pesaran	CSD	42.226***	42.141***	

Friedman	CSD	319.183***	319.095***
Frees	CSD	10.910***	10.881***

*** <0.01