

IMPACT OF FOREIGN AID ON ECONOMIC GROWTH IN NIGERIA

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Abstract

The recession of 2016 caused the overall real GDP to contract, and despite the efforts of the government through the Economic Recovery and Growth Plan (EGRP) launched in 2017, inflation, especially of food prices, has remained high. Unemployment worsened, low tax revenues and corruption coupled with fluctuating oil prices have left the Nigerian economy vulnerable to external shocks and high fiscal deficit, leading to more government borrowing and need for foreign aid interventions. Foreign aid comprises of various aid types and the effect of each on the economy may differ from the other. This study therefore disaggregated foreign aid into health aid, education aid, industry aid, and economic infrastructure aid to ascertain how each aid affected Nigeria's economic growth from 1995 to 2017 using time series data. The Canonical Cointegrating Regression (CCR) procedure was employed to guarantee the robustness of the estimates. Empirical results indicate that within the study period, the impacts of education aid, health aid, industry aid, and economic infrastructure aid on economic growth varied. The study obtained evidence that only education aid drives economic growth significantly in Nigeria. However, the impact of health aid on growth was positive, its effect is insignificant; industry and economic infrastructure aid also impede economic growth. This led to the conclusion that foreign aid effect on the Nigerian economy depends on the aid type being considered.

Keywords: Foreign Aid, Economic Growth, Canonical Cointegrating Regression, Nigeria

JEL Classifications: F35, O40, O47

Introduction

Economic growth can be defined as the increase in the production possibility frontier (PPF) that results from an increase in the supply of resources and improvement in technology (Adekunle & Alokpa, 2018). To improve economic growth and living standards significantly, developing countries must produce much by initiating and maintaining long-run cumulative processes to build physical and human capital, acquire technology, and nurture institutions that facilitate growth, and the role of foreign aid, as broadly conceived, is to support these long-run cumulative processes (Tarp, 2009). Foreign aid

flows are defined as those flows to countries and territories on the Development Assistance Committee (DAC) List of Organization for Economic Co-operation and Development (ODA) recipients and to multilateral development institutions which are provided by official agencies, including state and local governments, or by their executive agencies; and each transaction of which is administered with the promotion of economic development and welfare of the developing countries as its main objective; which is concessional (Organization for Economic Co-operation and Development, 2019).

According to its proponents, foreign aid can relieve credit shortages faced by the governments. This will allow them to invest in the development of public infrastructure and human capital, which will increase growth. Recipient countries use resources obtained from foreign aid to cover the saving gap and the foreign exchange gap. Also, if the effect of aid on domestic savings is positive, then it can spur growth. Otherwise, aid will probably be detrimental to the economic growth of developing countries. Many scholars argue that foreign aid works better in countries with good policies. This means that for countries with good fiscal, monetary, institutional quality and trade policies, foreign aid promotes growth and development (Eroglu & Yavuz, 2009).

Given that foreign aid comes in different forms (e.g. social and economic infrastructure aid, industry aid, etc.), neglecting the issue of disaggregation in its research and evaluation process, does not portray a clear picture of aid performances, and most importantly, leads to misleading policy recommendations. Disaggregation of aid matters for deriving robust conclusions on aid effectiveness on an economy. Previous studies (Kolawole, 2013; Bakere, 2011; and Amassoma & Mbah, 2014) concluded that foreign aid is harmful to economic growth in Nigeria, but they did not specify which aid type that was harmful and same with studies that concluded otherwise, such as Fasanya and Onakoya (2012). Thus, any policy decision made on these findings can never be informed because foreign aid comes in many forms. At the empirical level, some non-Nigerian authors have also stated the importance of aid disaggregation on the basis that different types of aid exert different effects on the recipient economies (Javid & Qayyum, 2011; Kargbo & Sen, 2014), but to the best of our knowledge, only Iyabo and Taofik (2015) made an attempt to disaggregate aid but classified foreign aid broadly into bilateral and multilateral aid for Nigeria. Thus, research work on more detailed aid for Nigeria becomes necessary.

The paper is organized into five sections. Following the introduction in section one (current section) is a review of relevant literature in section two. Section three outlines the research methods while section four presents the empirical results and discussion of findings. Section five concludes the study.

Literature Review

Theoretically, the Harrod (1939) and Domar (1946) growth model of economic growth emphasized the importance of investment and savings in the growth of an economy. The

two-gap model of economic growth of Chenery and Strout (1966) established the importance of foreign aid in augmenting shortfalls in savings and foreign exchange earnings necessary for a desirable economic growth rate. The exogenous growth theory of Solow (1956) on the other hand stated the importance of labour-augmenting improvement in technology for enhanced economic growth, determined by factors that existed outside the given economy as opposed to internal factors.

Empirical literature reviewed showed that the effect of foreign aid could be positive or negative based on overseas and Nigerian studies. Some overseas studies that found a positive relationship between foreign aid and economic growth include Ali, Dalmar & Ali, (2018), Ebaidalla, Elshakh, & Mustaf (2018), Giri, Mohapatra, & Sehwat (2016) and Tadesse, (2011). Those that found a negative relationship were Abokyi, Forster, Konadu, & Twerefou (2016), Javid & Qayyum (2011), Tendongho (2016). Similarly, in Nigeria, Amassoma & Mbah (2014), Bakare (2011), Kolawole (2013) concluded that aggregate foreign aid hurt economic growth. Other studies that found a positive effect of aggregate foreign aid on the economy are Akarogbe, Okafor & Ugwuegbe, (2016); Asaleye, Fashina, Lawal & Ogunjobi, (2018); Fasanya & Onakoya, (2012) and Nwosu, (2018). Studies on the effect of disaggregated foreign aid reviewed agreed that when foreign aid is disaggregated, each component affected the economy differently and the results were quite different from what was obtainable using aggregate foreign aid. (Javid & Qayyum, 2011; Kargbo & Sen, 2014; and Iyabo & Taofik, 2015).

In Nigeria, most studies focused on the use of aggregate foreign aid to examine how aid affected Nigeria's economy but little effort has been made so far to consider the disaggregated approach. Examples of aggregate studies include; Bakare (2011), Mbah & Amassoma (2014), Kolawole (2013), Fasanya & Onakoya (2012), Ugwuegbe, Okafor & Akarogbe (2016), Nwosu (2018) and their conclusions that foreign aid had a negative or positive effect on growth result in an unhealthy generalization of aid effects. This informed the need for this present study that disaggregated foreign aid to analyse specific effects of each aid type on Nigeria's economic growth.

Research Method

The procedures for data analysis and model estimation are as follows: First, the time-series properties of the data were examined using the unit root test before the cointegration test. While the unit root test examined the stationarity status of the time series, the cointegration test examined the existence of long-run relationships. Second, we proceeded to estimate the models using CCR method. Third, the efficiency and robustness properties of the estimates and error term were evaluated through the various diagnostic tests.

Theoretical Framework and the Model The theoretical framework adopted in this study is the Solow growth model (1956), which is an exogenous model of economic growth which states that economic prosperity is not only determined by internal factors but also by

factors which exist outside of the economy of interest. The exogenous model of growth is an extension of the Harrod-Domar model of growth, incorporating technology. It assumes technological knowledge as coming from research and innovation happening around the world. This knowledge is not the outcome of activity in an economy and it affects the efficiency of labour. As technology is 'given', it is exogenous to the model. In Solow's model, savings, population growth, and technological progress affect growth but they are all exogenous. An increase in the savings rate in the Solow model results in a short-term increase in growth during the transitional period; however, because of the diminishing returns to capital, the per capita growth in the economy occurs only when the capital stock reaches a steady state.

Moreover, with the achievement of that state, there is equilibrium and intensive growth rate becomes zero. Experiencing per capita growth means an exogenous technological change occurs or savings rate increases or population growth rate falls. However, the effect of all these factors on growth is only transitory. Given that economic growth is not just dependent on endogenous factors, the need to consider foreign aid as part of the exogenous variables expected to affect the domestic economy becomes relevant. Following the discussions in the theoretical framework, the study assumes a simple production function where the factors of production in the economy determine the level of economic output. It is summarized as:

$$Y=f(K, L) \tag{1}$$

Where Y measures economic growth rate (a proxy for the growth rate of real GDP), K denotes the amount of capital (measured by gross fixed capital formation), and L denotes the amount of labour (measured by labour force participation rate). Considering a Cobb-Douglas type of production (although restrictive), equation 3.1 is re-specified as follows;

$$Y= AL^\alpha K^\beta \tag{2}$$

Where L and K are as previously defined and A is a parameter that captures the effects of other factors of production. Technically speaking, A is a measure of total factor productivity but it was through it that this study captures foreign aid. Traditionally, changes in A were assumed to capture technological changes but these may not necessarily be due to technology. The effects of other factors like oil revenue, savings, and institutions may also stem from A channels. Based on this, we, therefore, specify an explicit model with some other control variables and thus we have the model for this study.

In line with the objective of this study, a single-equation model is specified as follows:

$$RGDPG = (CAP, LAB, OILR, INST, EFAID, IAID, EAID, HAID, SAV) \tag{3}$$

where RGDPG is the real gross domestic product growth rate, CAP is capital (measured by gross fixed capital formation), LAB is labour (measured by labour force participation rate), OILR is oil revenue, INST is the institution (measured by the quality of institution

index), EFAID is economic infrastructure aid, IAID is industry aid, EAID is education aid, HAID is health aid, SAV is domestic savings. Specifying equation 3 in its mathematical form, we have;

$$RGDPG_t = \alpha_0 + \alpha_1 t + \alpha_2 t^2 + \Pi_1 CAP_t + \Pi_2 LAB_t + \Pi_3 OILR_t + \Pi_4 INST_t + \Pi_5 EFAID_t + \Pi_6 IAID_t + \Pi_7 EAID_t + \Pi_8 HAID_t + \Pi_9 SAV_t \quad 4$$

where $\alpha_0, \alpha_1, \alpha_2$ are the parameter estimates for the intercept, linear, and quadratic trend respectively. The control variables are capital, labour, oil revenue, institutions, domestic savings, the core variables are the disaggregated foreign aids which are economic infrastructure aid, industry aid, education aid and health aid; t represent time series. Π_i is the parameter estimate for the i^{th} non-deterministic regressor; t and t^2 are linear and quadratic trends respectively. Specifying equation 4 in its full econometric form, we obtained equation 5 as follows;

$$RGDPG_t = \alpha_0 + a_1 t + a_2 t^2 + \Pi_1 CAP_t + \Pi_2 LAB_t + \Pi_3 OILR_t + \Pi_4 INST_t + \Pi_5 EFAID_t + \Pi_6 IAID_t + \Pi_7 EAID_t + \Pi_8 HAID_t + \Pi_9 SAV_t + \varepsilon_t \quad 5$$

Where \mathcal{E} is the white noise with zero mean and constant covariance (i.e. $\varepsilon \sim i.i.i[0, \Phi]$)

Taking the natural logarithm of all variables in the model which will effectively change the case from a unit change to a per cent change and normalize the dataset for highly skewed variables (and representing logged variables in lower case), and specifying within the framework of the canonical cointegrating regression (CCR), equation 5 becomes;

$$rgdpg_t = \alpha_0 + \alpha_1 t + \alpha_2 t^2 + \Pi_1 cap_t + \Pi_2 lab_t + \Pi_3 Oilr_t + \Pi_4 inst_t + \Pi_5 efaid_t + \Pi_6 iaid_t + \Pi_7 eaid_t + \Pi_8 haid_t + \Pi_9 sav_t + \Psi_1 rgdpg_{t-1} + \Psi_2 efaid_{t-1} + \Psi_3 iaid_{t-1} + \Psi_4 eaid_{t-1} + \Psi_5 haid_{t-1} + \Psi_6 sav_{t-1} + \varepsilon_t \quad 6$$

Ψ_p is the parameter estimates for the p^{th} lagged regressor;

Apriori Specification: $\Pi_i, \Psi_p \cdot > 0$

Empirical Results and Discussion of Findings

In this subsection, the results of several empirical estimations are presented and analysed. The results include the Ng-Perron unit root test, the ARDL bound cointegration test, the Engel-Granger Error Correction Model, and the Canonical Cointegration Regression (CCR).

Stationarity Test

Table 1: SUMMARY OF RESULT OF NG-PERRON UNIT ROOT TEST

Variable	MZa	MZt	MSB	MPT	I(d)
RGDPG	-11.57**	-2.38**	0.21**	2.22**	I(1)
EFAID	-9.98**	-2.18**	0.22**	2.67**	I(0)
IAID	-11.99**	-2.45**	0.20**	2.05**	I(1)
SAV	-10.41**	-3.88*	1.54	1.04	I(1)
EAID	-8.03***	-2.00***	0.25***	3.06***	I(1)
HAID	-10.67**	-4.41*	1.21**	3.11**	I(0)
LAB	-9.60**	-2.01**	0.22**	2.11**	I(0)
CAP	-10.07**	-2.36**	0.21**	2.13**	I(0)
INST	-10.41**	-3.88*	1.54	1.04	I(1)
OILR	-10.82**	-2.32**	0.21**	2.27**	I(0)

NB: (*)(**)(***) implies significant at 10%, 5% and 1% level respectively.

Source: Authors' Computation using Eviews 10

As shown in Table 1, the null hypothesis of the presence of unit root in EFAID, HAID, LAB, CAP, and OILR was rejected at levels, while that of RGDP, IAID, SAV, and INST was rejected at first differences. This implies that the relevant variables of this study were a combination of I(0) and I(1), with the dependent variable (RGDPG) being an I(1) variable, thereby validating the use of ARDL bound cointegration procedure.

Cointegration Result

Given that the time series are not integrated of the same order, Johansen maximum likelihood procedure and Engel Granger residual-based cointegration may not generate efficient outcomes. Thus, the ARDL bound cointegration test was carried out and the result is reported in Table 2.

Table 2: SUMMARY OF ARDL BOUND TESTS RESULTS

Test Statistic		
K	10	
F-statistic	8.056522**	
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	4.04	4.78
5%	4.94	5.73
2.5%	5.77	6.68
1%	6.84	7.84

NB: ** implies significant at the 1% level.

Source: Authors' Computation using Eviews 10

As shown in Table 2, the F-statistic (8.05) is above the upper bound (5.73) at 5% significance level. This suggests that the time series are cointegrated, meaning that there is a long-run relationship between economic growth and the various components of foreign aids and other control variables.

Estimated Short Run Dynamic Model (ECM)

The result of the Engel-Granger Error Correction procedure showed that deviations in the short run among the cointegrated processes were corrected in the long run to attain a stable equilibrium. The error correction term, ECM(-1) is negative as expected and statistically significant. The statistical significance of the negatively signed error correction term further lends credence to the co-integration among the variables under investigation. The coefficient of ECM(-1) is -0.52, suggesting that about 52% of last quarter's disequilibrium is corrected in the current quarter.

Table 3: SUMMARY OF ERROR CORRECTION MODEL ESTIMATES

Variables	Estimated Coefficients
D(EAID(-1))	-0.804247
D(EFAID(-1))	-0.671908
DCAP(-1))	-0.000344
D(HAID(-1))	-1.405133
D(IAID(-1))	-0.150879
D(INST(-1))	56455.76
D(LAB(-1))	-0.037734
D(OILR(-1))	0.642319
D(SAV(-2))	2180.050
ECM(-1)	-0.521605
C	-326.4668

Source: Authors' Computation using Eviews 10

Impact of Foreign Aid on Economic Growth

To investigate the impact of foreign aid on economic growth, the model of the study was estimated using CCR procedure. The CCR was employed with the assumption of quadratic trend and Newey-West fixed bandwidth method and the result is summarized in Table 4. From the result, a percentage increase in education aid, health aid, gross fixed capital formation, labour, oil price and domestic saving may raise growth by 0.004%, 0.018%, 0.0003%, 5.30%, 0.19% and 0.11% respectively. The statistics are significant except HAID, CAP, EFAID and INST. This result is robust to different diagnostic tests including the R² and S.E of the regression equation. The R² is 0.97 which indicates that the explanatory variables of this model explained about 97% of the changes in the explained variable. The minimal S. E. of the equation also suggests that the estimated model is efficient. Thus, the model is robust with efficient and unbiased estimates. Put differently, the model is fit for inferences and empirical generalization. Other relevant diagnostic tests including the Breusch-Godfrey Serial Correlation LM test, the Breusch-Pagan-Godfrey heteroskedasticity test, the Jaque-Bera Normality test, and the Ramsey RESET test of model specification error. These tests show that the estimated model is robust.

Table 4: SUMMARY OF LONG RUN ESTIMATES OF THE IMPACT OF FOREIGN AID ON ECONOMIC GROWTH

Dependent Variable: RGDPG

Variable	Coefficient	Std. Error	t-Statistic	Prob.
E Aid	0.003837	0.001327	2.889890	0.0036
EFAID	-0.034148	0.020499	-1.665850	0.1010
CAP	0.000308	0.002850	0.107932	0.9144
HAID	0.017476	0.025405	0.687898	0.4942
IAID	-0.019257	0.003563	-5.405104	0.0000
LAB	5.297019	2.624531	2.018273	0.0481
OILR	0.190229	0.067306	2.826340	0.0064
SAV	0.106274	0.020098	5.287804	0.0000
E Aid(-1)	0.008167	0.012969	0.629731	0.5313
INST	-0.403705	1.763347	-0.228942	0.8197
EFAID(-1)	0.018260	0.019764	0.923891	0.3593
HAID(-1)	0.006508	0.024677	0.263733	0.7929
IAID(-1)	-0.010167	0.009209	-1.104042	0.2741
C	-13.70782	10.68557	-1.282835	0.2046
@TREND	0.016738	0.009489	1.763839	0.0829
@TREND^2	-6.63E-05	2.71E-05	-2.445572	0.0175
R-squared	0.975986	Mean dependent var		10.58744
Adjusted R-squared	0.965034	S.D. dependent var		0.389091
S.E. of regression	0.027419	Sum squared resid		0.044358
Durbin-Watson stat	1.862785	Long-run variance		0.000400

Source: Authors' Computation using Eviews 10

With regards to Table 4, the study obtained evidence that only education aid drives growth significantly in Nigeria. Health aid drives growth, but its effect is insignificant; industry aid impedes growth significantly while economic infrastructure aid insignificantly impedes growth. Education aid can affect growth by increasing investment in education in recipient countries thereby raising the stock of human capital. The claim that education aid enhances human capital accumulation is reasonable as it supports the study of Aboubacar, Xu, and Oussein (2015) and Chatterjee, Siddique and Tait (2016) who found that education aid positively affects the economic growth of Sub-Saharan African countries. Although health aid maintained a positive relationship with economic growth, this relationship is not significant. In other words, one could conclude that health aid does not significantly drive growth in Nigeria. This finding supports the findings by Dolan, et al. (2017); Halemariam and Negeri (2016) and Becker and Rajlakshmi (2015) that found health aid to have a positive impact on the economy of Malawi and Sub Saharan Africa.

The insignificant contribution of economic infrastructure aid and industry aid to the growth of Nigeria's economy is not surprising. The focus of the development assistance agencies is fast shifting to social development in line with the sustainable development goals. This finding supports the study of Bjørnskov (2013) that found that aid for economic infrastructure purpose does not affect growth. Domestic saving was also found to drive growth at least in the current period. This finding corroborates Duruechi, Makwe & Ojiegbe (2016) and Egoro & Obah (2017) that domestic saving is critical for the growth process and also support Harrod-Domar growth theory which emphasised that saving is a major growth determinant such that, as saving rises, investment increases thereby raising aggregate demand.

Conclusion/Policy Recommendations

The key finding of this study is that foreign aid affects economic growth based on the aid type involved. Contrary to the opinion in some quarters, that foreign aid as a whole is inimical or supports economic growth. Specifically, education aid is a major growth driver and this is in line with the studies carried out for some Sub-Saharan African countries and supports economic growth theories that emphasized the role of human capital in economic growth. The significance of education aid is also in line with the developed country's move for the promotion of the knowledge economy globally which is economic growth driven by intellectual capabilities instead of natural resources. Although health aid is necessary for the growth of the Nigerian economy, the effect is quite insignificant and this suggests that health aid into Nigeria may not have been channelled towards providing health services for a greater number of the citizens, which could have enhanced labour efficiency and output.

Economic infrastructure aid and industry aid do not contribute to the growth of Nigeria economy and hence should be discouraged. In essence, the government will have

to finance its industry and infrastructure needs through its domestic savings which are found to be very significant in driving economic growth from this study. The study debunks the claim by previous Nigerian studies that foreign aid is harmful to economic growth as this study found that education and health aid drives growth. It also debunks the claim of previous studies that foreign aid contributes positively to growth since this study also found that both economic infrastructure and industry aid does not contribute to the wellbeing of the economy. It, therefore, implies that foreign aid effect on Nigeria's economic growth is mixed depending on the type of foreign aid being considered.

Given the significant contribution of education aid, we recommend that the government and policymakers need to create an enabling policy environment for aid inflow as the review of development plans of Nigeria since independence revealed the absence of policy thrust of government towards appropriating foreign aid in its quest for enhancing economic growth. This move will enhance proper accountability of foreign aid inflow and reduce aid fungibility.

Second, health aid has a positive but insignificant impact on economic growth in Nigeria. It implies that the Nigeria government will have to look inward to finance its health care needs by increasing its budgetary allocation to the health sector to augment the insignificant contribution of health aid to the economy. Globally, following the sustainable development goals of 2015, there has been a rise in social aid, which comprised health aid as a major component. It becomes needful that the government and policymakers ensure that aid donors like the WHO, UNESCO and others are given quality support and partnership where aid condition demands, to allow effective utilization of aid funds, towards providing free medical services, building well-equipped hospitals and laboratories, and training the health service providers. This will increase the percentage of the healthy population in general and the output of the labour force in particular which is necessary for economic growth. Third, since from our study savings is found to drive growth, it is therefore required that the government will increase its revenue through economic diversification, building up its foreign reserve, expanding its tax base for more tax revenue, ensuring accountability in the management of public funds and creating enabling environment for business to thrive. These and more will increase the earning of government to industrialize the economy and provide the basic economic infrastructures that will enhance ease of doing business in Nigeria.

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