

Foreign Aid And Economic Growth In Nigeria: An Empirical Analysis

By Eseosa Joy Sowemimo* and Milton Iyoha, Ph.D

Department of Economics and Statistics
University of Benin, Benin City, Nigeria

*Corresponding author. Email: eseosa.idemudia@uniben.edu

ABSTRACT

Foreign aid is considered a crucial tool for lifting African countries out of poverty and for fast-tracking their economic and social development. Nigeria has the highest official development Assistance receipts in Africa but despite this, her macroeconomic performance is largely underwhelming. Existing literature is divided on the effectiveness or otherwise of aid in propelling growth. This paper investigates this issue using data from Nigeria. Interestingly, analysis from this study found a “U” shaped curve which implies that the benefit from aid is first negative before it becomes positive. The study posits that the reason for this peculiar aid-growth relationship in Nigeria is the rigidities in our macroeconomic and institutional frameworks. The study rather emphasizes government expenditure as a veritable tool for driving growth. It concludes that if government expenditure is channelled towards boosting domestic savings and investment as well as used for funding human capital development projects, it is likely that foreign aid will become an additional source of funding that can produce a significantly positive effect on the growth rate of the Nigerian economy.

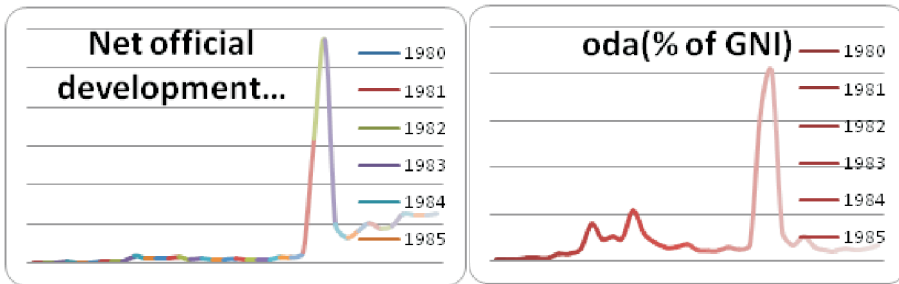
I. INTRODUCTION

Foreign aid or development assistance on concessional terms is often channelled to developing countries, either directly or indirectly through multilateral institutions or private voluntary organizations in order to support social and economic development. However, the beneficial effect of concessions on economic growth in these economies has been a subject of controversy. Some researchers believe it has taken from government the burden of providing basic services to its citizens, increased the incidence of corruption and other rent-seeking behaviour and might even be responsible for the phenomenon of Dutch disease in some of the aid-dependent countries (Svensson, 2000; Rajan and Subramanian, 2005; Auty, 2007). However, many other researchers have identified foreign aid as being crucial for the development of sub-Saharan African countries, including Nigeria (Iyoha 2004a; Collier, 2006; Adamu, 2013). This is because it is a supplementary source of finance in countries characterised by low savings, inadequate export earnings and a narrow tax base.

Recent years have seen a surge in calls for more Official Development Assistance (ODA) to developing countries, including Nigeria. Despite the laudable prospects that foreign aid holds for the recipient countries as well as increasing efforts on the part of developed nations, international non-governmental agencies and other philanthropic organizations to provide a larger share of their GNP to ODA, the pace of development has been quite slow in the region. Rather the incidence of poverty, disease and illiteracy is on the rise. Data from the Human Development Index (HDI, which is a composite index measures three dimensions of human development; a long and healthy life, access to knowledge and a decent standard living) supports this assertion. For instance, in the periods between 1990 and 2017, sub-Saharan Africa consistently lagged behind other regions with the HDI for 1990, 2000, 2010 and 2017 being 0.398, 0.421, 0.498 and 0.537 compared to the global averages of 0.598, 0.642, 0.698 and 0.728 respectively (UNDP, 2018).

Conversely, this sub-optimal performance in Sub-Saharan Africa's developmental performance is troubling given the size of the ODA she received in the same period. Take the case of Nigeria, despite her vast oil wealth, the country have received a sizeable chunk of ODA over the years. Notably, she received an average of \$1billion as development aid in the period between the years 1980-2014 according to data from the World Bank. More specifically, in 1980, aid inflow stood at \$433 million, but by 1989 it has risen to \$473.63million. By 2005, Nigeria experienced a sharp increase in her aid receipts from \$360.78million in 2003 to \$6799.81million in 2005. 2006 saw almost double the 2005 figure at \$11781.51million. It should be noted that a significant increase in the 2005 figures was mainly due to debt cancellation actively campaigned for by the Obasanjo government. In 2007, the amount fell to

\$1385.2million; however, it increased marginally to \$1401million in 2008 and inched up to \$1638million in 2009. As of 2013, ODA receipts stood at \$2476million (World Development Indicators, 2018).



Authors' compilation based on data from WDI, 2018

Despite these sizeable inflows of capital (Nigeria stands as the largest recipient of ODA in Africa in terms of total aid received over the years.) and the potential posed by her huge human capital, Nigeria has fallen from being one of the world's fifty richest countries in the 1970's to become one of the twenty-five poorest countries today. According to the OECD (2007) Nigeria's macroeconomic performance has remained weak. This underperformance has been largely blamed on corruption and other bureaucratic inefficiencies.²

To better comprehend the dynamics of the aid-growth nexus, we present a comparative analysis of aid receipts and growth indicators for Nigeria using a five-year interval for the periods 1980 - 2014. (See appendix 1). We find that even though foreign aid receipts has on average been rising, the growth rate of the gross domestic product has not been commensurate or particularly impressive. The highest point in the growth statistics was the period following the return to democracy in 1999. It is also significant that this period coincides with a 60% jump in aid receipts into the country. Even though; foreign aid rose well over 100% in the next period, as we have pointed out earlier, it was mainly due to the debt cancellation activities of President Obasanjo and hence did not significantly impact the growth rate of the economy.

We further review sectoral allocations within the economy (Appendix 2). We find that these disbursements show a glaring imbalance in aid allotment within sectors in the economy. It seems to be that aid inflows have been geared towards sectors that have no direct impact on economic growth and human capital development. This trend has severely limited the effectiveness of foreign aid in Nigeria. We observe, for instance, that public administration took the largest share at 26.73%. Productive sectors like

2- For instance, in 2006, Nigeria's Economic and Financial Crimes Commission (EFCC) admitted that military dictators had stolen or squandered more than \$380 billion which is equivalent to all western aid to Africa in the previous 4 decades. (BBC News, 2006).

agriculture (9.32%), education (9.03%), Industry and trade (6.56%) only got meagre shares. The analysis presented in this section shows that aid inflow into the country has been quite significant although the sectoral allotments had been heavily tilted towards administration rather than growth-inducing sectors like agriculture, energy and mining, education as well as industry and trade.

More generally, the benefits of foreign aid is considered as not just another source for much needed development funds but as a tool for democratization, as a basis for the transfer of technical know-how and finally as a propelling force for economic growth, (Knack, 2003). Thus, for countries like Nigeria, where aid accounts for a sizeable proportion of their development funding, the importance of determining the impact of such finance cannot be overemphasized. This is because it will allow policymakers and other stakeholders to properly allocate such funding. It would also allow aid donors to be certain that their resources would serve the purpose for which they were provided. However, economic theory is not categorical about how aid funding impacts the recipient nation. Previous studies have found that there are two contrasting sides to the effectiveness of foreign aid as a tool for economic growth. Economists like Boone, (1995) believe that aid has no significant effect on country growth rate whereas Burnside and Dollar (2000) argue that if recipient countries implement appropriate and relevant policies to best utilize aid, it will make significant contributions to their growth rates. Specific studies on the impact of foreign aid on growth in Nigeria have included a varied number of macroeconomic variables to explain how aid impact the economy, but none to the best of our knowledge has explicitly incorporated institutional variables in their model.(see Bakare (2011), Kolawole (2013) Mbah and Amassoma (2014), Nwosu (2018). Economic theory on aid effectiveness posits that aid fungibility occurs when there is a misalignment between donors intentions for aid and what recipient countries do with it. The institutional environment in an economy is an important factor in determining how well foreign aid is assimilated, and the incidence of fungibility is minimised. It is against this backdrop that this paper seeks to empirically determine the relationship between foreign aid and economic growth in Nigeria by considering specifically the role of institutions in aid effectiveness. The rest of the paper is divided into four sections. Section two reviews the relevant literature; section three establishes the methodology, while section four presents the analysis of results. Section five contains the conclusion and policy implications.

II. REVIEW OF LITERATURE

Theoretical Literature

The literature on foreign aid and its impact on growth follow two opposing paths, the Extensionist and the Non-Extensionist Schools of thought. The extensionist school believes that aid promotes growth. Probably the most vocal voices in this school are Hollis Chenery and Alan M. Strout. They argue that foreign aid promotes structural

transformation, which in turn, spurs growth. Using the Two-Gap model of economic development, they posit that the savings gap and foreign exchange gap are the two major constraints on the attainment of the ideal growth rate in LDCs. There is also the skills gap defined by the below par capacity of the labour force and the lack of managerial abilities of the government and other relevant private sector participants. The Extensionists see foreign aid as the means of plugging these gaps and hence promoting economic progress. For the model to be effective; there is an assumption of a positive marginal propensity to save which is necessary in order for the country in question to achieve self-sustaining growth. Also, the country will need to put in place suitable measures and adequate policies that will promote high productivity and encourage appropriate utilization of foreign technical assistance to ensure that the local economy provides a conducive environment for investment growth. The Chenery-Strout model was widely popular in the 70's and highly influential in America's foreign assistance policy both as a basis for the administration of aid programs in various countries and as a global measure of aid development requirement.

Non-Extensionists, on the other hand, argue that aid does not promote growth but may rather retard growth by substituting for rather than supplementing domestic savings and investment. Furthermore, aid is more likely to worsen balance-of-payments deficits in the recipient nations. This aid pessimism is partly based on statistical findings that foreign assistance does not increase investment funds by the equivalent amount. Aid funds are in fact either partially or fully consumed or were found to actually reduce the savings rate. The reduction in the savings rate is attributed to the government shifting some of her expenditure from investment projects funded by aid to social programs.

Empirical Literature

There is ample empirical literature to support the extensionist's viewpoint. Gupta and Islam (1983) using data from 52 developing countries sought to determine whether the effect of foreign aid is dependent on the economic stage of development of a country. They found that the effect of foreign aid is positive and significant. Hansen and Tarp (2000) provide a survey of 131 studies of the aid-growth relationship. They found that aid indeed was responsible for an increase in aggregate savings, investment and capital accumulation, which in turn spurs growth.

The study by Burnside and Dollar (2000) demonstrated the importance of country specific economic policies. They found that aid has a positive impact on growth in developing countries with good fiscal, monetary and trade policies. McGilivray (2005) focusing on aid received by sub-Saharan African countries, found that aid not only increased growth but had the added advantage of reducing poverty. The study

concluded that the amount of aid received was directly linked to the policy regime (in terms of inflation control and trade openness) of the recipient country.

Girma and Morrissay (2005) did an interesting study on the mechanism through which aid impacts economic growth. Analysing data from 25 Sub-Saharan Africa, they found that investment was the most significant channel. Karras (2006) using data from 71 aid recipient countries, concluded that the impact of foreign aid on economic growth was statistically significant and positive. The benefits of aid to the economy were also found to be far reaching and long-lasting. Adamu (2013) employed panel data for 1990-2009 and a 3-equation simultaneous-equations model to study the impact of foreign aid on economic growth among ECOWAS countries. She found that the effect of foreign aid on economic growth in ECOWAS countries was positive and strong. Implicit in the various findings discussed here is the need for strong institutions as an enabler of growth.

Ugwuebe et al. (2016) employed time-series approach in analysing the effect of external borrowing and foreign aid on Nigeria's economic growth between the periods 1980 to 2013 using the ordinary least squares technique. The authors found evidence that in the short run, exchange rate and foreign reserve and ODA exhibit a positive and significant impact on economic growth in Nigeria. However, in the long run, only external debt was positive and significant while ODA though positive, was insignificant result. The authors, therefore, concluded that although aid exacts a positive impact on economic growth in Nigeria but is insignificant because aid funds are expended on consumption rather than investment.

Similarly, Fasanya and Onakoya (2012) utilized a time series approach to analyze the impact of foreign aid on economic growth using data spanning from 1970 to 2010. They employed the neoclassical modelling framework and estimated their model using OLS and ECM estimation techniques. Their results showed that in the short run, investment is positive but insignificant, government expenditure is negative and significant, population growth and inflation are negative and insignificant and foreign aid is positive and significant. The coefficient on aid is positive and significantly larger than the various control variables included in the model. They, therefore, conclude that foreign aid has a larger effect on economic growth relative to other determinants of growth in Nigeria.

Nwosu (2018) examined data covering 1981-2016 for Nigeria and employed the two-stage least squares (2SLS). The results show a positive and significant, albeit marginal aid-growth relationship. This suggests that although foreign aid is relevant for economic growth in Nigeria, it is not among the economy's major growth drivers.

Better macroeconomic policies and strengthening of relevant institutions may help to improve the effect of foreign aid received by the country.

The non-enthusiasts have also found some empirical support. For instance, various cross-sectional studies on the impact of capital inflows on domestic savings for a number of LDCs have produced conflicting results. Gupta, (1970) using cross-sectional data from 50 countries found that capital inflow has no effect on domestic savings. Dacy, (1975) carried out a simulation analysis to determine conditions under which post-aid growth rates could rise or fall as compared with a no-aid growth scenario. He concluded that “a given amount of aid is more likely to stimulate the post-aid growth rate the higher the domestic savings ratio, the lower the percentage of aid tapped for government consumption and the longer the term of aid.

Mosley (1987) in a study using cross-sectional data for 80 developing countries found that aid has no effect on economic growth in recipient countries. He opined that one reason for this is that aid flows are diverted into less productive activities and suggested that aid flows should be channelled to countries with proven track record of harnessing them effectively. He also suggested that aid receipts should have conditionalities attached.

Boone (1994) carried out a study on the impact of foreign aid on savings and growth. He found no significant correlation between aid and growth. Rajan and Subramanian (2008) using cross-sectional data for countries in sub-Saharan Africa and East Asia found no robust correlation between aid and growth. Interestingly, their findings contradicted the idea that aid effectiveness was a function of the policy framework of the recipient country or the type of aid dispensed.

Mbah and Amassoma (2014) used time-series data spanning 1981-2012 to investigate the effect of foreign aid on economic growth in Nigeria. The authors employed various econometric techniques, including Ordinary Least Squares. They found that export and investment are both positive and significant, while imports and foreign aid are negative and insignificant. The study concludes that the insignificant relationship between foreign aid and growth in Nigeria may be attributed to corruption and aid fungibility.

Similarly, Kolawole (2013) examined the impact of Official Development Assistance and Foreign Direct Investment (FDI) on real growth in Nigeria from 1980-2011, using the two-gap model framework. Various econometric techniques, including Granger causality test and Error Correction Method (ECM) were utilized. The study found that while FDI showed a negative effect, ODA revealed an insignificant effect on economic growth in Nigeria. The author concluded that the reason for such an insignificant aid-growth relationship may be attributed to the fact that aid funds are either looted or diverted into unproductive uses.

Critics of the non-attentionists School agree that foreign aid is not always a net addition to domestic savings. However, they question the methodology employed since statistical correlation does not necessarily imply causality. Another consideration is that most of the literature that found no or a negative linkage between aid and growth suffered from a specification problem. According to Hansen and Tarp (2000), the aid-growth nexus is non-linear as opposed to the linear specification adopted by Boone (1994), for instance. The choice of an estimator was also another important factor; they opined that the effect of aid is likely to be higher when the Generalized Method of Moments was adopted as opposed to the Ordinary Least Squares estimator. Critics have also opined that cross country data tell us little on the actual impact of aid on growth, especially in the light of country-specific characteristics playing a significant role in determining aid correlation and effectiveness. Papanek, (1972) put it succinctly when he said “only careful analysis of individual countries can really shed any light on the impact of foreign inflows on savings, exports or growth, and even such analyses are invariably subject to disagreement and dispute”. Mikesell, (1982) corroborated this further by opining that there is not much support in the literature for generalizations with regard to the relationship between aid, savings rate and growth based on cross country evidence. Rather he concludes that better answers can be found by looking at individual country experiences. Also, he advocates the use of micro-economic analysis, rather macro growth models using cross-sectional statistics.

From the literature surveyed, we observe that there is no consensus on the empirical relationship between aid and growth. Even in terms of the methodology adopted, there is no agreement on the most suitable estimator considering that each estimator comes with certain peculiarities. Another salient critique is that most of extant literature especially those from Nigeria, have adopted a linear specification even though the aid-growth nexus is most likely non-linear. Again, it can also be argued that country specific studies may be more useful especially from a policy-making perspective compared with cross country analysis where it may be challenging to disaggregate country effects from more general effects and therefore policy relevant characteristics. Another important consideration is that in the case of Nigeria, even though most of the surveyed literature sighted institutional failings as been the likely cause of the poor aid nexus, none attempted to incorporate this variable into the model. A study such as ours is therefore important because it seeks to enrich the literature by specifying a non-linear model as well as incorporating some institutional variables into the aid-growth nexus in Nigeria.

II. METHODOLOGY

Theoretical framework

The model used in this paper will be a variation of the standard neoclassical growth

model where foreign aid enters the model directly as an input in addition to labour and domestic capital.

$$Y=f(L,K,FA) \dots\dots\dots 1$$

Where Y = Gross domestic product
L = labour input
K = Capital stock
FA = Foreign aid

Following Feeny and McGillivray (2008), the functional form of the model will incorporate an absorptive capacity measure for foreign aid into the model. This criterion is necessary as recent studies have shown that country specific characteristics determine the effectiveness of aid receipts. Typically, this expectation is represented by a non-linear model generally of the form

$$g_t = \alpha + \beta_1 a_t + \beta_2 Z_t + \beta_3 \mu_t \dots\dots\dots 2$$

Where g_t is per capita GDP growth in aid receiving country, a_t is the ratio of aid to GDP, is a vector of macroeconomic and institutional variables that are likely to affect the receipt and absorptive capacity of foreign aid. α and β_i are parameters. μ_t is the stochastic error term.

The relationship between aid and economic growth typified by the above equation is expected to result in an “inverted U” shape. This is because benefits from aid are expected to be increasingly positive up to point a^* (growth efficient aid). After this point (turning/saturation point) benefits from aid is expected to be declining. This makes intuitive sense because as the income level in the aid receiving country rises, overtime, they would need less and less aid to meet their developmental needs.

Model specification

For this study, we employ a polynomial modification of equation 2 where the model specification takes the form of a quadratic function. The reason for this is because of the ambiguity in the literature concerning the nature of the impact of aid on the growth rate of the economy. The quadratic model captures the possibility that aid may have a positive or negative impact on economic growth. It also captures the diminishing nature of aid effectiveness. Thus, we utilize the following mathematical model;

$$GDP = \beta_0 + \beta_1 ODA + \beta_2 ODA^2 + \beta_3 GFCF + \beta_4 POPGR + \beta_5 GOVTEXP + \beta_6 GOVTEFF + \beta_7 CONCORR + \mu_t \dots\dots 3$$

Where GDP = Gross Domestic Product, ODA = Official Development Assistance as a share of GNI; GFCF = Gross fixed capital formation; POPGR = Population Growth; GOVTEXP = Government Expenditure; GOVTEFF = Government Effectiveness; CONCORR = control of corruption.

Estimation Method and Data Sources

Our research hypothesis is analysed within the autoregressive distributed lag (ARDL) model framework. This approach has three advantages in comparison with commonly employed methodologies in the literature, such as the ordinary least squares-techniques, cointegration and the traditional error correction models. First, the ARDL does not need all the variables under study to be integrated of the same order and can be applied when the underlying variables are integrated of order one, order zero or mixed. Secondly, the ARDL test is relatively more efficient in the case of small and finite sample data sizes. Lastly, by applying the ARDL technique, the long-run unbiased estimates of the model are obtained (Harris and Sollis 2003; Belloumi 2014; Kripfganz and Schneider 2016). Therefore, the ARDL provide important econometric advantages in examining the relationship between ODA and economic growth within the framework of an ARDL model. Thus, following Kripfganz and Schneider (2016), we modify the

ARDL (p, q, \dots, q) model as:

$$Y_t = \varphi_0 + \sum_{i=1}^p \delta Y_{t-i} + \sum_{i=1}^q \beta_i X_{t-i} + \varepsilon_{it} \quad 5$$

Where: Y_t represents economic growth; and the variables in $(X't)$ are allowed to be purely $I(0)$ or $I(1)$ or co-integrated; β and δ are coefficients; φ is the constant; p, q , are optimal lag orders; ε_{it} is a vector of the error terms – unobservable zero mean white noise vector process (serially uncorrelated or independent).

The data set utilized covered the period 1980-2016 and were sourced from the World Bank’s Development Indicators.

IV. PRESENTATION AND DISCUSSION OF RESULTS

The results for the descriptive statistics, the unit root tests, bounds testing for cointegration tests as well as the error correction model using the ARDL technique are presented below.

Table 1:	GDP	ODA__GNI	GFCF	POPGR	GOVTEXP	GOVTEFF	CONCORR
Mean	24.93655	0.612931	23.99839	2.596288	25.83631	1.189189	5987889.
Median	24.56026	0.438191	23.64689	2.596229	25.57547	1.000000	2.000000
Maximum	27.06627	4.939039	25.36728	2.861355	26.83000	2.000000	55784248
Minimum	23.48258	0.024093	22.98240	2.495003	25.11040	0.000000	1.000000
Std. Dev.	1.084688	0.965424	0.642847	0.082951	0.523599	0.527284	17437637
Skewness	0.702235	3.632060	0.513753	0.823072	0.547489	0.183940	2.524950
Kurtosis	2.186917	15.53531	1.933637	3.833806	1.830190	3.007597	7.377104
Jarque-Bera	4.060198	323.5979	3.380719	5.249412	3.958126	0.208732	68.85164
Probability	0.131323	0.000000	0.184453	0.072461	0.138199	0.900896	0.000000

The major characteristics of the data employed for the empirical analysis of the study are demonstrated both in terms of description and time-series trends in Table 1. The results show that both the mean and median values for all the variables are in line with normal random time series trend. Also, the standard deviation statistics show that the variables are well spread or distributed with both positive and negative skewness values that are close to zero. The results further suggest that the distribution is quite a peak as indicated by the kurtosis statistics of all the variables. Importantly, the result indicates the possibility of a normal distribution since their skewness values are relatively close to zero for most of the variables

Unit Roots Test

The Augmented Dicker Fuller, as well as the Philips Perron test for stationarity, were carried out on the selected time-series data. The augmented Dickey-Fuller (ADF) unit root test results are presented in Table 1 below.

TABLE 2. UNIT TEST RESULTS

VARIABLES	Augmented Dickey-Fuller			Philips Perron		
	level	Ist Difference	Order of integration	level	Ist Difference	Order of integration
GDP	-0.6839	-3.7142*	I(1)	-0.8101	-3.6791	I(1)
ODA	-4.0407*	-	I(0)	-3.0760*	-	I(0)
ODA ²	-3.6821*	-	I(0)	-3.5008*	-	I(0)
GFCF	-0.0423	-2.2370**	I(1)	-0.5959	-4.4893*	I(1)
POPGR	-1.5806	-3.9377*	I(1)	-3.3979*	-	I(0)
GOVTEXP	1.0389	-5.4777*	I(1)	0.8384	-5.5037*	I(1)
GOVTEFF	-2.5556	-4.2036*	I(1)	-2.6806***	-	I(0)
CONCORR	-1.5733	-4.2718*	I(1)	-0.2638	-5.7505*	I(1)

*** ** * represents significance at the 1%, 5% and 10% respectively. Authors' compilation based on results from Eviews.

From the table, we see that our variables are a mix of $I(0)$ and $I(1)$ and there is consistency in the test output for both the augmented dickey fuller and the Philips Perron statistics except with regard to Population growth and Government effectiveness which showed divergence.

Bounds Testing for cointegration

Having successfully established that the variables are integrated of orders $I(0)$ and $I(1)$, we proceed to test for the existence of cointegration among the variables using the ARDL bounds test approach as developed by Pesaran, Shin and Smith (2001).

The bounds test is mainly based on the joint F -statistic whose asymptotic distribution is nonstandard under the null hypothesis of no cointegration (i.e. $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = 0$) against the alternative hypothesis of a cointegrating relationship (i.e.

$\beta_1 \dots \beta_2 \dots \beta_3 \dots \beta_4 \dots \beta_5 \dots \beta_6 \dots \beta_7 \dots 0$). Under the bounds test, it is assumed that the model comprises both $I(0)$ and $I(1)$ variables and two levels of critical values are obtained. The first level is calculated on the assumption that all variables included in the ARDL model are integrated of order zero, while the second one is calculated on the assumption that the variables are integrated of order one. The null hypothesis of no cointegration is rejected if the F -statistic is higher than the critical value of both the $I(0)$ and $I(1)$ regressors, and not rejected if otherwise (Belloumi 2014). The results are shown in Table 3.

Table 3: Testing the Existence of a Long-Run Relationship (Bounds Cointegration Test Result)

Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	k
F-statistic	3.6758**	7
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.03	3.13
5%	2.32	3.5
2.5%	2.6	3.84
1%	3.96	4.26

Source: Author's computation.

Table 3 shows the result of the Bounds test of long run effects using the ARDL representation. The evaluation of the results is based on the critical F-statistic values for the lower and upper bounds as also reported in the results. If at any significance level, the estimated F-value is greater than both the lower test (I0 Bounds) and the upper test (I1 Bounds) values, then there is no cointegration among the variables. If the estimated F-value lies between the two Bounds values, then there is a need to proceed with a lesser structure of the ECM analysis. However, if the estimated value lies above both Bounds test values, then there is clear cointegration among the variables. From the Table, it is seen that the computed F-value lies above the lower and upper bounds. These results show there is cointegration among the variables selected for our study.

In other words, we find that the null hypothesis of no long-run relationship in the case of unrestricted regressions of economic growth on the independent variables is rejected at all the significance level (note that the estimated F-value of 3.68 is greater than both the upper and lower Bound values at 5% level of significance). These results reveal that for each of the measurements, the independent variables had significant and strong long-run relationships with economic growth in Nigeria.

ARDL Estimation Results

The Autoregressive distributed lag (ARDL) technique is a flexible form of operationalizing the adjustment required to reconcile the short-run deviations to long-run equilibrium. Generally, according to Iyoha (2004b), the ARDL involves the estimation of an over-parameterised model with an arbitrary number of lags for both the dependent and independent variables. It is then possible to choose the parsimonious representation of the ECM by examining the maximum R-bar squared, Akaike information criterion or the Schwarz Bayesian criterion. This paper employs the maximum Schwarz Bayesian criterion to select the optimal error correction representation.

Having established cointegration, we proceed to analyse the long-run relationships and short-run dynamics using a log-level autoregressive distributed lag (ARDL) error correction representation approach. The utilized specification is presented below:

$$\Delta \ln GDP_t = \alpha_0 - \gamma(\ln GDP_t - 1 - \theta X_t) + \sum_{i=1}^p \omega_{\ln GDP_i} \Delta \ln GDP_{t-i} + \sum_{i=0}^{q-1} \omega_{X_i} \Delta \ln X_{t-i} + \varepsilon_{1t} \quad 6$$

where Δ is the difference operator; $\gamma = 1 - \sum_{j=1}^p \delta_j$ is the speed of adjustment coefficient; $\theta = \sum_{i=0}^q \beta_j / \alpha$ is the long-run coefficient. The results are presented in the table below.

Equation 6 state that $\Delta \ln GDGP$ depends on its lag, the different explanatory variables and also on the equilibrium error term. If the latter is nonzero, then the model is out of equilibrium. Since γ is expected to be negative, its absolute value decides how quickly equilibrium is restored. The result is presented in the table below.

Table 4: ARDL Short-run Equation Estimates

Variable	Coefficient	t-Statistic	Prob.
GDP(-1)	0.460036**	2.209975	0.0373
ODA	-0.621048*	-2.515786	0.0193
ODA ²	0.097796**	2.028772	0.0542
GFCF	-0.714935*	-2.991932	0.0065
GFCF(-1)	-0.473381**	-2.118700	0.0451
POPGR	-4.779791*	-2.700361	0.0128
POPGR(-1)	6.188792*	3.502199	0.0019
GOVTEXP	0.615614	1.275759	0.2148
GOVTEXP(-1)	1.948768*	3.229077	0.0037
GOVTEFF	0.103367	0.925049	0.3645
CONCORR	3.42E09	0.714925	0.4818
CONCORR(-1)	-9.00E-09***	-1.852872	0.0768
C	-27.75758*	-4.642002	0.0001
R ² = 0.97 R ⁻² = 0.96	F-stat = 71.39 DW Stat = 2.09		

Note *** ** and * indicate significance at 10, 5 and 1 percent levels respectively. Source: Author's computation

An examination of the regression result presented in Table 4 shows that the overall fit of the model is satisfactory with an R^2 and R^2 of 0.97 and 0.96, respectively. Thus, 97% of the systematic variation in GDP is explained by the ARDL model. This is further confirmed by F-stat of 71.39, which is significant at 1%. The DW statistics of 2.09 is within the accepted bounds confirming the absence of serial correlation in the model. The short-run estimates of the ARDL model shows that the coefficient of GDP is significant at the chosen lag level, showing that one period lag of GDP has a significant impact on economic performance in Nigeria.

Interestingly, ODA and ODA² are significant but in terms of apriori expectations, whereas we expected foreign aid to be positively related to growth but as the absorptive capacity of the economy for aid funds shrinks, and the economy becomes more productive, the relationship between aid and growth will become negative. Our study instead shows the existence of a “U” shaped curve as opposed to expected hypothesis of an inverted “U” shaped curve in the relationship between economic growth and foreign aid. A possible explanation for this is that institutional and macroeconomic bottlenecks serve as constraints to the absorptive capacity of aid reducing its ability to benefit the economy. Hence, the absorptive capacity of aid recipient countries should be an important consideration in aid allocation. It also signifies that the benefits of aid flows may not be felt immediately but are likely to be spread out over time in the recipient countries.

The coefficients of the current GFCF, as well as its one period lag value, are negative; indicating that investment has an immediate and intermediate negative impact on economic performance in the short run. This is a source of concern as it signifies that the level of investment in the economy is depleting the growth rate. This may be attributed to the fact that the direction of investment in terms of the sectors that pool majority of investments maybe questionable. Investments channelled towards the right sectors are likely to be growth enhancing. Similarly, current labour proxied by population growth is significant but negative. This is against apriori expectation as economic theory postulates that investment and labour are key determinants of economic growth and should have positive impacts on growth. A possible explanation for this is that “learning-by-doing” is implicit in the neoclassical growth model, and it is the factor that transforms knowledge accumulated through the gradual build-up of capital and Labour to economic growth. However, in Nigeria, the deficit in education has resulted in a huge gap in knowledge and skills transfers. Population growth would only be beneficial to an economy if such increases produce an efficient workforce. On the flipside, an efficient workforce is a product of a structured and productive economy Interestingly, one period lagged labour is both significant and positive implying the possibility that the delayed impact of labour on growth is positive and in line with apriori expectation.

Current government expenditure is positive and insignificant, but the delayed impact is positive and significant. Thus, it is seen that in the short run, government expenditure has a significant positive impact on economic performance. The institutional variables provide some interesting results. Government effectiveness and current period control of corruption are positive but insignificant. However, when control of corruption is lagged one period, its delayed impact on the economy becomes noticeable. We find that it exerts a significant and negative effect on economic growth in Nigeria. Aid fungibility is concerned with the extent to which aid funding gets diverted away from donor purpose to other areas. In highly corrupted and opaque societies combined with poor government effectiveness, the degree is expected to be high as agents divert resources away from productive sectors to consumption activities.

Table 5: cointegrating Short-run Equation Estimates

Variable	Coefficient	t-Statistic	Prob.
D(ODA)	-0.621048*	-2.515786	0.0193
D(ODA ²)	0.097796**	2.028772	0.0542
D(GFCF)	-0.714935*	-2.991932	0.0065
D(POPGR)	-4.779791*	-2.700361	0.0128
D(GOVTEXP)	0.615614	1.275759	0.2148
D(GOVTEFF)	0.103367	0.925049	0.3645
D(CONCORR)	3.42E -09	0.714925	0.4818
CointEq(-1)	-0.539964*	-2.593944	0.0162

Note *** ** and * indicate significance at 10, 5 and 1 percent levels respectively. Source: Author's computation

Next, we consider the error correction representation in the ARDL model presented in Table 5. The ECM term is found to be negative and significant. This term shows the speed of adjustment back to equilibrium following a shock in the long-run equilibrium relationship. A negative and significant error correction term implies how quickly variables return to equilibrium. A relatively high adjustment coefficient (in absolute term) indicates a faster adjustment process. The significant and negative coefficient found in our study indicates that there is a capacity for restoring long-run stability following any short-run deviation of the economy from their equilibrium position. In particular, the results show that economic growth in Nigeria is a mean-reverting process, especially when foreign aid and other relevant variables exert remarkable influences. For instance, this result implies that almost 54 percent of the disequilibrium of the previous year's shocks are corrected back to the long-run equilibrium in the current year thus signifying that adjustment process is fast in Nigeria.

Table 6: Cointegrating equation Long-run Relationships

Variable	Coefficient	t-Statistic	Prob.
ODA__GNI	-1.150166***	-1.841361	0.0785
ODA_2	0.181116	1.611736	0.1207
GFCF	-2.200731**	-2.221463	0.0364
POPGR	2.609435***	1.740495	0.0951
GOVTEXP	4.749170*	3.535514	0.0018
GOVT_EFFECT	0.191432	0.785663	0.4401
CONCORR	-0.000000	-1.158439	0.2586
C	-51.406334	-4.146151	0.0004

Note: * indicates significance at 5 percent level. Source: Author’s computation

The results of the expected long-run relationships is presented in Table 6 above. The results obtained are largely consistent with the short-run estimations, the contributions of foreign aid to GDP again take the “U” shaped curve. However, initial contributions of ODA to growth is negative and significant, later contributions, although positive, are insignificant. Also, GFCF is significant but negative. The population growth rate is positive and significant as is government expenditure but government effectiveness and control of corruption although correctly signed, are not significant. The findings of this study majorly signify that it may be necessary to reconsider the value of ODA and that the supposed benefits from foreign aid may be over-emphasised. Our study show that government spending is more effective in stimulating the economy, the emphasis should, therefore, be focused on making policies that channel government expenditure on productive activities as opposed to consumptive activities. One way to achieve this is to strengthen weak institutions and punish corruption. In this way, funds whether flows from outside or sourced domestically would be effectively harnessed to boost economic growth.

Diagnostic Test Results

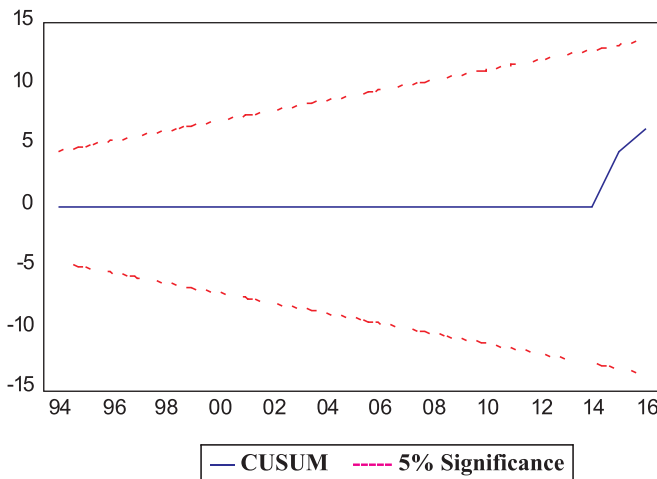
In order to validate the performance of the model, a series of diagnostic and stability tests were carried out. The diagnostic tests examine serial correlation, heteroscedasticity, conditional heteroscedasticity, Ramsey’s RESET test and normality. The results reported in Table 7 indicate that there are no challenges of misspecification, heteroscedasticity, higher-order autocorrelation or normality in the model. Therefore, the results from our analyses are robust and reliable for making inferences.

Table 7: Diagnostic Test Results

Specification	Ramsey Reset	Normality test	Heteroscedasticity		Autocorrelation	
		Jarque Bera	ARCH LM	Bruesch Pagan	Bruesch Godfrey	Durbin Watson
Stat	8.196148	0.13507	0.9017	1.7889	1.3326	2.09
P-Value	0.0090	0.93469	0.3492	0.1115	0.2852	
Remarks	No omitted variables	Evidence of normality	No conditional heteroscedasticity	No heteroscedasticity	No higher-order autocorrelation	No autocorrelation

Source: Author’s computation

Finally, the plot of the CUSUM shows that the model is stable as the graph lies within the 5% significance level boundaries.



IV. CONCLUSION

This paper examined the linkages between foreign aid receipts and economic growth in Nigeria with emphasis on effectiveness of aid. It found that although foreign aid has huge potential to reduce the savings and investment gap, the policy framework and other absorptive capacity bottlenecks like corruption, graft, and bureaucratic red tape have tended to reduce aid efficiency. Accordingly, the paper has recommended that government as a matter of urgency should address these bottlenecks and establish a more strategic and conducive macroeconomic policy framework while focusing on its expenditure as the most effective way of stimulating economic progress.

Policy Implications

This study was carried out to determine the possible effectiveness of foreign aid as a source of economic growth in Nigeria. The empirical analysis carried out produced several key issues which have significant implication for policy making. One salient issue is the need for a cogent and relevant policy framework for Nigeria. The literature on foreign aid is mostly in agreement on the importance of individual country experiences in terms of the policy regime (macroeconomic variables like investment, labour force, government etc and institutional frameworks like government effectiveness and control of corruption) on aid effectiveness. The result of this study corroborates this stance. Therefore, if aid inflows is channelled towards boosting domestic savings and investment as proposed in the literature, if it is used in funding human capital development projects, it is likely that it will produce a commensurate effect on the growth rate of the economy.

Another important policy consideration that this study supports is that there is indeed a saturation point for aid benefits. According to McGillivray (2008), there is a saturation point for aid effectiveness, this point is known as the growth-efficient level of aid. Foreign aid effectiveness beyond this point is negative due to the absorptive capacity constraints. In the literature, the average range of this saturation point lies between 17% and 24%. Interestingly, analysis from this study found a “U” shaped curve which implies that the benefit from aid is first negative before it becomes positive. We posit that the reason for this peculiar aid-growth relationship in Nigeria is the rigidities in our macroeconomic and institutional frameworks. We, therefore, argue for a more strategic government expenditure policy as a veritable tool for driving growth. If government expenditure is channelled towards boosting domestic savings and investment as well as used for funding human capital development projects, it is likely that foreign aid will become an additional source of funding that can produce a significantly positive effect on the growth rate of the Nigerian economy.

REFERENCES

- Abdulhamid, Y. (2008), 'Nigeria Received N696 Billion Foreign Aid in 8 Years'. [Online] Available <http://allafrican.com/stories/200809250385.html>
- Adamu, P. A. (2013). "The Impact of Foreign Aid on Economic Growth in ECOWAS Countries: A Simultaneous-equations model". UNU-WIDER Working Paper No. WP2013/143, December.
- Addison, T., Mavrotas, G. and McGillivray, M., (2005). 'Development Assistance and Development Finance: Evidence and Global Policy Agendas', *Journal of International Development*, 17:819–36.
- Bakare, A.S., (2011). The Macroeconomic Impact of Foreign Aid in Sub-Saharan Africa: The Case of Nigeria. *Business and Management Review*. 1(5), 24-32.
- BBC News (2006) Nigerian Leaders 'stole' \$380bn. Available Online at <http://news.bbc.co.uk/2/hi/africa/6069230>
- Belloumi, Mounir. 2014. "The Relationship Between Trade, FDI and Economic Growth in Tunisia: An Application of the Autoregressive Distributed Lag Model." *Economic Systems* 38 (2): 269-287
- Boone, P. (1994). The Impact of Foreign Aid on Savings and Growth. Mimeo, London School of Economics.
- Boone, P (1996). "Politics and the Effectiveness of Foreign Aid". *European Economic Review*. 40 (2), pp. 289 -329.
- Burnside, C and Dollar, D. (2000) "Aid, Policies and Growth", *American Economic Review* 90 (4): 847-868.
- Chenery, H.B, & Strout, A. (1966) Foreign Assistance and Economic Development, *American Economic Review*. Vol 66, pp. 679 -733.
- Dutt S.D, and Ghosh D. "The export Growth-Economic Growth Nexus: A Causality Analysis" *The Journal of Developing Areas*. Vol 30, No2. Pp 167-182
- Gupta, K.L and M.A. Islam (1983) Foreign Capital, Savings and Growth: An International Cross-Section Study. D. Reidel Publishing Company.
-

- Fasanya, I.O. and Onakoya, A.B.O., (2012). Does Foreign Aid Accelerate Economic Growth? An Empirical Analysis for Nigeria. *International Journal of Economics and Financial Issues*. 2(4), 423-431
- Feeny S and McGillivray, M (2008) “Do Pacific Countries Receive Too Much Foreign Aid? Pacific Economic Bulletin, Vol 23, no 2, pp 166 -178.
- Gomanee K, Girma, S. and O. Morrissey (2005) “Aid and Growth in Sub-Saharan Africa: Accounting for Transmission Mechanisms” WIDER Working Paper60/2005. UNU-WIDER
- Hansen H and Tarp F (2008) “Aid and Growth Regressions”. DERG, University of Copenhagen, Denmark.
- Harris, R., and R. Sollis. 2003. *Applied Time Series Modeling and Forecasting*. West Sussex: Wiley.
- Iyoha, M. A. (2004a). “Foreign Aid and Economic Development in Africa”. In Iyoha, M.A. *Macroeconomics: Theory and Policy*. Benin City: Mindex Publishing.
- Iyoha, M. A. (2004b). *Applied Econometrics*. Benin City: Mindex Publishing.
- Karras, G (2006) “Foreign Aid And Long-Run Economic Growth: Empirical Evidence for a Panel of Developing Countries” *Journal of International Development*. Vol. 18, 1, p. 15 – 23.
- Kaushik K.K. and Klein, K. K(n.d) ‘Does Exports Instability Depress Economic Growth? Evidence from Error Correction Models.
- Kolawole, B.O., (2013). Foreign Assistance and Economic Growth in Nigeria: The Two-Gap Model Framework. *American International Journal of Contemporary Research*. 3(10),153-160.
- Kripfganz, Sebastian, and Daniel C. Schneider. 2016. “ARDL: Stata Module to Estimate Autoregressive Distributed Lag Models.” Stata Conference, Chicago, July 29, 2016
- McGillivray, M., 2003. ‘Aid effectiveness and selectivity: integrating multiple objectives in aid allocations’, *DAC Journal*, 4(3):23–36.
- Mbah, S. and Amassoma, D., (2014). The Linkage Between Foreign Aid and Economic Growth in Nigeria. *International Journal of Economic Practices and Theories*. 4(6), 1007-1017.
-

Nwosu U.C (2018) Nigeria's Economic growth; Does Foreign Aid Really Matter? A Thesis presented to the University of Sheffield.

Rajan, R.G. and Subramanian, A., (2005). Aid and Growth: What Does The Cross-Country Evidence Really Show? IMF Working Paper No.127, International Monetary Fund, Washington, DC.

Ugwuebe et al., (2016). Effect of External Borrowing and Foreign Aid on Economic Growth in Nigeria. *International Journal of Academic Research in Business and Social Sciences*. 6(4), 155-175.

APPENDICES

APPENDIX 1

YEAR	FOREIGN AID	GDP	GDP GROWTH RATE
1980 – 1984	37548000	48125624861	-3.4096
1985 – 1989	123906000	24238402047	0.5653
1990 – 1994	250060000	24265257687	3.1164
1995 – 1999	190882000	33446531874	2.1356
2000 – 2004	306592000	61028424492	11.5207
2005 – 2009	4548064000	160335324605.5	6.3377
2010 – 2014	2145078000	465045464570.4	6.5710

Source: Author's compilation based on data from the World Bank

FIVE YEAR AVERAGE IBRD/IDA DISBURSEMENT BY SECTORS (2010-2014)

SECTORS	DISBURSEMENT IN PERCENTAGES
Public Administration, Law	26.73
Health and Social Service	16.54
Water and Sanitation	10.58
Finance	1.07
Education	9.03
Energy and Mining	5.88
Transportation	14.23
Agriculture	9.32
Industry and Trade	6.56

Source: authors' compilation based on data from www.aidflows.org, 2014