The Linkage between Foreign Aid and Economic Growth in Nigeria

by
Stella Mbah, Ditimi Amassoma
Department of Economics and Development Studies
Federal University Oye- Ekiti,
Ekiti State. Nigeria.
Stella.mbah@fuoye.edu.ng, amassoma.dit@gmail.com

Abstract. Nigeria has benefited immensely from foreign aid because she has been identified among the poorest nations in the world inspite of her abundant natural and human resources. Despite the increased flow of foreign aids into Nigeria and the enormous potential of foreign aid in accelerating economic growth through bridging of the savings and foreign exchange gaps, Nigeria economy is still characterized by low level of income, high level of unemployment, very low industrial capacity utilization, and high poverty level. This has informed the need to embark on the present study with a view to analysing the effects of foreign aid on the economic growth of Nigeria. The study employed econometric techniques such as: Ordinary Least Square, Augmented Dickey Fuller (ADF) test, Johansen Cointegration test using data spanning from 1981-2012. The result shows a negative and non- significant relationship between foreign aid to Nigeria and GDP. The study therefore suggests the implementation of political, economic and institutional reforms that will address the problem of pervasive corruption in the country, improve the quality of governance, ensure that foreign aid flows are invested into developmental projects that will boost the nations GDP and reduce the level of poverty in the country.

Key words: Economic Growth, Foreign Aid, Two Gap Model.
JEL classification: C51, F35, O47

1 Introduction

In spite of her abundant natural and human resources, Nigeria has been identified as one of the poorest nations in the world. This follows the successive United Nations Development Programme (UNDP) report on human development (HDR) since 2003 as observed by (Njoku, 2011). Consequently, this suggests the reason why Nigeria is one of the beneficiaries of foreign aid from the developed countries. Basically, economists have defined foreign aid as all forms of grants and loans at concessional financial terms that are aimed at transferring resources from developed to developing countries on development, poverty and income distribution grounds as opined by (Todaro and Smith, 2011).

Foreign aid flows which are in the form of official development assistance (ODA) plays a significant role as complement to domestic financing for development in the Nigerian economy as observed by (Abiola, 2008). In addition, ODA can be critical in enhancing the business environment for the private-sector and indeed quickening growth and development. Abiola (2008) further emphasized that ODA is also a crucial instrument for supporting education, health, public infrastructure development, agriculture and rural development and food security, to mention but a few. In a similar reasoning, Bakare (2011) argues that foreign aid is a means of increasing the capital available for investment and the economic growth needed to reduce poverty and raise living standards in sub-Saharan African. He further stressed that it can provide resources for industrialization, enhance efficiency of resource use, increase product diversity and generate employment, (OECD-DAC (1999). He however observed that in the absence of regulations governing natural resource extraction, or when they are weak or poorly enforced, increased openness to foreign aid can accelerate unsustainable resource use patterns. The ability of developing countries to attract foreign aid, maximize the associated benefits and minimize the risks which is a function of the conditionality of the foreign aid.

Amakom et al (2010) posits that to make sure that aid in the form of ODA in Nigeria becomes effective and efficient; Nigeria first articulated a comprehensive policy on ODA in 1995 when the National Planning Committee (NPC)
launched a document entitled Technical Corporation Policy for Nigeria. The policy has its focus purely on grants and Technical assistance thus leaving out an important element of ODA in form of concessionary loans. According to them, the current Nigeria (ODA) policy benefited from comments and suggestions from stakeholders and is broadly defined to cover concessionary financial flows aimed at promoting economic growth and development. It consists of concessionary loans, grants and technical assistance therefore presenting a window of opportunities available to Nigeria to bridge the resource gap. The share of ODA in the combined Gross Domestic Product of developing countries is estimated at about 8.0% per annum (NPC 2007).

It is interesting to note that in recent years there has been a significant increase in aid flows to Nigeria. This is sequel to the total net aid flows from all donors that Nigeria received which amounted to US$ 152 million in 1999. In 2000, aid flows increased slightly to $185 million and by 2004, it reached $573 million. (Ayodele, et al. 2005). Aid flows thereafter rose to US1.29 billion in 2008 and has been above that till 2011 with US$1.78 billion as aid flow to Nigeria. Nigeria has received foreign aid from a wide array of agencies and countries between 1960 and today.

The main role of foreign aid in stimulating economic growth is to supplement domestic sources of finance such as savings, thus increasing the amount of investment and capital stock. For instance, Morrissey (2001) points out, that there are a number of mechanisms through which aid can contribute to economic growth, these among others include; (a) aid increases investment, in physical and human capital; (b) aid increases the capacity to import capital goods or technology; (c) aid does not have indirect effects that reduce investment or savings rates; and aid is associated with technology transfer that increases the productivity of capital and promotes endogenous technical change. According to McGillivray, et al. (2006), four main alternative views on the effectiveness of aid have been suggested, namely, (a) aid has decreasing returns, (b) aid effectiveness is influenced by external and climatic conditions, (c) aid effectiveness is influenced by political conditions, and (d) aid effectiveness depends on institutional quality. Following the work of Feeny and McGillivray (2008), they indicate that there are diminishing returns to aid due to recipient countries having absorptive capacity constraints. Absorptive capacity relates to an aid recipient's ability to utilize foreign aid inflows effectively.

Despite the increased flow of foreign aids into Nigeria and the enormous potential of foreign aid in accelerating economic growth through bridging of the savings and foreign exchange gaps, Nigeria economy is still characterized by low level of income, high level of unemployment, very low industrial capacity utilization, and high poverty level as observed by Fasanya & Onakoya (2012). Consequently, Njoku (2011) highlighted reasons for the slow economic progress in Nigeria. Furthermore he suggested that the major reason why Nigeria is experiencing slow economic progress is not far-fetched from the monocultural economy that is practised, high population growth rate, import dependency, political instability etc. Therefore, it is discovered that there exist a gap between the domestically available supply of savings, foreign exchange, government revenue and skills and the planned level of the resources necessary to achieve development targets that leads to poverty alleviation in Nigeria. This gap necessitates the need for external resources to augment domestic resources in the country. These external resources can be in the form of foreign aid. The principal economic arguments advanced in support of foreign aid is that it can play a critical role in supplementing domestic resources in order to relieve savings or foreign-exchange bottlenecks. The key question is whether aid has effectively played this role by its effect on Nigeria’s growth and their level of poverty. It is important to note that not only factors such as the amount and type of financial aid impact the effectiveness of available funds but also the appropriate use of these funds by the receiving country plays a vital role. It is against this backdrop that this study aims to analyse the effects of foreign aid on the economic growth of Nigeria. Hence the focal
point of this current study is to ascertain the nature of the relationship that exists between foreign aid and economic growth via the welfare of the overall economy.
The paper is structured as follows: section two presents a survey of literature, whereas section three presents the specification of the econometric model and data sources. The empirical results are presented and discussed in section four and finally, section five summarizes the main results and concludes with some policy implications.

2 Review of literature
2.1 Theoretical framework

The theoretical framework of this study is based on the Harrod-Domar model and Chenery and Strout two-gap model. This is because for many years, the standard model used to justify aid was the “two-gap” model of Chenery and Strout (1966). This economic theory of foreign aid asserts that official development assistance accelerates economic growth by supplementing domestic capital formation. This can be achieved through the two-gap model. The basic argument of the two-gap model is that most developing countries face either a shortage of domestic savings to match investment opportunities or a shortage of foreign exchange to finance needed imports of capital and intermediate goods. The savings-gap and foreign exchange-gap are two separate and independent constraints to the attainment of a target rate of growth in less developed countries (LDCs). The savings gap approach is based on Harrod’s steady economic growths model. According to the Harrod-Domar equation, growth depends on investment, which is financed by savings (domestic plus foreign). Since domestic savings is not sufficient to meet the required investment (capital accumulation) in less developed countries due to their low per capita income, there is need for foreign aid (Dollar & Easterly, 1999). Thus

\[ I - S = F \]  
(1)

In respect of the foreign exchange gap the argument is that another possible growth constraint of many less developed countries arises from their inability to acquire foreign exchange through exports. Thus foreign aid is viewed as supplementing the foreign exchange gap, which arises because the supply of exports is not sufficient to meet the demand of imports. Therefore, foreign aid inflows are needed to fill the prevailing gap, so that countries can grow more rapidly than their internal resources would otherwise allow.

\[ M - X = F \]  
(2)

Equations (i) and (ii) express that the gap in each of savings gap and foreign exchange gap is equal to foreign aid. Following Kolawale (2013), the two gaps are represented structurally in terms of the national income accounting identities as follow using the aggregate expenditure equals aggregate output approach.

\[ E - Y = I - S = M - X = F \]  
(3)

Where \( E \) is national expenditure, \( Y \) is national income, \( I \) is investment, \( S \) is saving, \( M \) is imports, \( X \) is exports and \( F \) is foreign aid. If aggregate expenditure, \( E \) is more than the aggregate output, \( Y \) then the economy requires foreign capital inflow or aid, \( F \) in order to meet the short fall in income.

If these inflows do not exist, the country will experience slower growth and inefficient employment of internal resources (labour and natural resources). The “financing gap” model in which aid increases investment and then that investment increases economic growth has dubious theoretical foundations and numerous empirical failings. Yet no other model of aid and growth has arisen to take its place. According to Easterly (2003), the financing gap model continues to be used today in the World Bank and other institutions making aid policy. Some of the constraints on development arising from the two-gap approach as argued by Todaro and Smith (2011) are that financial assistance needs to be supplemented by technical assistance in the form of high-level worker transfers to ensure that aid funds are used most efficiently to generate economic growth in the recipient countries. This skill-gap-filling
process is analogous to the financial-gap filling process mentioned earlier. Finally, as put forward by Chenery and Strout (1966, 1979), the capacity of foreign aid to accelerate economic growth is contingent upon the absorption capacity of aid recipients, which is its ability to use aid funds wisely and productively. The capacity to make productive use of external resources depends on numerous factors such as the existing infrastructure, the available skilled labour and the institutional and administrative capacity of national and local governments. Excessively high amounts of foreign aid raise problems of absorption capacity and are thus counterproductive.

2.1.1 Empirical evidences

Many researches have been conducted on the impacts of foreign aids on economic growth and other related issues. Previous empirical studies generate mixed results. Prominent among them are mentioned in this study.

For instance, Papanek (1973) utilized a cross-country regression analysis of 34 countries in the 1950s and 51 countries in the 1960s, examined foreign aid, foreign investment, other flows and domestic savings as explanatory variables, found that foreign aid has a substantially greater effect on growth than the other variables. He further explained that —aid, unlike domestic savings, can fill the foreign exchange gap as well as the savings gap. Unlike foreign private investment and other foreign inflows, aid is supposed to be specifically designed to foster growth and, more importantly, is biased toward countries with a balance-of-payment constraint.


Burnside and Dollar (2000) looked at the above from a different perspective by examining the interactions among choice of macroeconomic policies and growth. Their study revealed that aid is more beneficial to countries that adopt appropriate and stable policies. However, the study also revealed no evidence that foreign aid encourages the adoption of good macroeconomic policies, thereby stipulating that foreign aid is a waste to counties without appropriate and stable domestic policies. Hansen and Tarp (2000) examined the relationship between foreign aid and economic growth covering the period up to the mid-nineties. After some theoretical and empirical considerations, they concluded that a positive aid-growth relationship prevails. Feeny and McGillivray (2008) supported Hansen and Tarp (2000) in their findings but argued that the capacity of foreign aid to accelerate economic growth depends on the absorption capacity of aid recipients. The capacity to make productive use of external resources depends on numerous factors such as the existing infrastructure, the available skilled labour and the institutional and administrative capacity of national and local governments. Excessively high amounts of foreign aid raise problems of absorption capacity and are thus counterproductive.

Over and above all, a study by Karras (2006) investigates the correlation between foreign aid and growth in per capita GDP using annual data from the 1960 to 1997 for a sample of 71 aid-receiving developing countries. This paper concludes that the effect of foreign aid on economic growth is positive, permanent, and statistically significant. More specifically, a permanent increase in foreign aid by $20 per person results in a permanent increase in the growth rate of real GDP per capita by 0.16 per cent. These results are obtained without considering the effects of policies. Gomanee, Girma, and Morrissey (2005) address directly the mechanisms via which aid impacts growth. Using a sample of 25 Sub-Saharan African countries over the period 1970 to 1997, the authors determined that foreign aid has a significant positive effect on economic growth. Furthermore, they identified investment as the most significant transmission mechanism. This paper concludes that on average, each one percentage point increase in the aid/GNP ratio contributes one-quarter of one percentage point to the growth rate. As a result, Africa’s poor
growth record needs to be attributed to factors other than aid ineffectiveness. Addison, Mavrotas and McGillivray (2005) examine trends in official aid to Africa over the period 1960 to 2002. They highlighted the decrease in aid flow to African in the previous decade which will impact negatively on African economy as a whole. This paper concludes that aid in fact does promote growth and reduces poverty. Furthermore, it also positively impacts public sector aggregates, contributing to higher public spending and to lower domestic borrowing.

Fasanya & Onakoya (2012) analysed the impact of foreign aid on economic growth in Nigeria during the period of 1970-2010. The empirical analysis rests on the neo-classical modelling analytical framework and combined several procedures in modern econometric analysis/estimation techniques. Their findings show that aid flows has significant impact on economic growth in Nigeria: domestic investment increased in response to aid flows and population growth has no significant effect on aid flows. Aid flows also provides free resources to increase domestic investment, thus confirming the aid-policy-growth hypothesis. Nkoro & Furo (2012) also show that there is a significantly positive effect of foreign aid on real GDP in the country.

In his research, Ram (2004) looks at the issue of poverty and economic growth from the view of recipient country’s policies as being the key role in the effectiveness of foreign aid. Nevertheless, in his paper the author disagrees with the widely-acknowledged view that redirecting aid toward countries with better policies leads to higher economic growth and poverty reduction rates. As a result, based on his research the author concludes that evidence is lacking to support the leading belief that directing foreign assistance to countries with good ‘policy’ will increase the impact on growth or poverty reduction in developing countries.

Duc (2006) in his research on foreign aid and economic growth in the developing countries based his model on the endogenous growth theory as developed by Barro (1991) and this incorporated foreign aid as an additional explanatory variable, he studied 39 countries, 5 countries from East Asia, 3 from South Asia, 2 from Europe and Central Asia, 13 from Latin America and the Caribbean, 5 from the Middle East and North Africa and 11 from Sub-Saharan Africa. Using sub periods 1975 and 1992 – 2000 as well as the overall period from 1975 – 2000 he noticed that economic growth in developing countries has a negative relation with foreign aid and it is highly insignificant. He further argued that in countries where the institutional environment is distorted, aid could be fungible into financing government’s consumption instead of being effectively invested.

Amakom et al (2010) considered the role of improved economic governance in determining the effectiveness of foreign aid for generating economic growth in Nigeria. Employing the coefficient of determination, the paper tested the degree of effectiveness of ODA to the variables (economic governance indicators) and found mixed results. While ODA was effective for some variables like exchange rate and interest, it was less effective for boosting economic growth and making poverty a history in Nigeria because of its volume. Bakare (2011) examined the macroeconomic impact of foreign aid in Sub-Saharan Africa using Nigeria as a case study. He employed Vector Autoregressive Model, (VAR) to determine the sources of shock to growth in Nigeria and treated foreign aid as an endogenous variable. The study found a negative relationship between foreign aid and output growth, which imply that foreign aid tend to worsen output growth in Nigeria rather than improving it

Chenery and Carter (1973), following the previous two-gap derived model of Chenery and Strout (1966) and using data from 50 countries over the period 1960-1970, show that the effects of ODA on the development performance of countries under study are different among certain groups of countries. In five countries, namely Taiwan, Korea, Iran, Thailand and Kenya, foreign assistance accelerated economic growth whereas in six cases it retarded growth, i.e. India, Colombia, Ghana, Tunisia, Ceylon and Chile.
Singh (1985) examined the impact of interventionist state policy on economic growth. The study using cross-sectional OLS method revealed that both the savings rate and the rate of foreign aid were positive and significant. However, when an index of state intervention was introduced into the model, foreign aid became insignificant. With savings as the response variable, foreign aid was negative and significant when the index of state intervention was introduced into the model.

Easterly et al., (2003) conducted a new test on the previous work of Burnside and Dollar (1998). With a larger sample size (1970 to 1997 compared to BD’s 1970-1993), they find that the result is not as robust as before and therefore claim that the question of aid effectiveness is still inconclusive. Burnside and Dollar (2004) revisited the relationship between aid and growth using new data set focusing on the 1990s. Their evidence supports the view that the impact of aid depends on the quality of state institutions and policies. They employed an overall measure of institutions and policies popular in the empirical growth literature. The interaction of aid and institutional quality has a robust positive relationship with growth that is strongest in instrumental variable regressions. There is no support for hypothesis that aid has the same positive effect everywhere.

Murphy and Tresp (2006) reconsidered the role of economic policy in determining the effectiveness of foreign aid for generating economic growth in developing countries. They updated and modified the dataset originally used by Burnside and Dollar (2000) in order to more fully consider the critique presented by Easterly et al. (2003). Their findings suggest that the relationship among foreign aid, government policy, and economic growth is tenuous and depends importantly on the subset of countries included in the analysis. Good policy enhances the effectiveness of foreign aid in spurring growth when we use the original set of countries included in Burnside and Dollar, but this relationship disappears for an expanded set of countries. Because the relationship among aid, policy, and growth is likely to be nonlinear, they presented an alternative probit model emphasizing growth thresholds. Their results from this alternative analysis confirmed the conclusions of Easterly et. al., finding little support for the view that good policy increases the probability that foreign aid contributes to growth.

As pointed out by Feeny and McGillivray (2008), a reasonably robust finding of recent studies is that there is an inverted U-shaped relationship between aid and growth. This finding indicates that there are diminishing returns to aid due to recipient countries having absorptive capacity constraints. Absorptive capacity relates to an aid recipient’s ability to utilize foreign aid inflows effectively. Ekanayake and Chatrna (2010) analysed the effects of foreign aid on the economic growth of developing countries. They used annual data on a group of 85 developing countries covering Asia, Africa, and Latin America and the Caribbean for the period 1980-2007. They explore the hypothesis that foreign aid can promote growth in developing countries. They tested this hypothesis using panel data series for foreign aid, while accounting for regional differences in Asian, African, Latin American, and the Caribbean countries as well as the differences in income levels. Their results indicate that foreign aid has mixed effects on economic growth in developing countries.

Having reviewed several literatures on the relationship between foreign aid and economic growth; Papanek (1973), Fayissa and El-Kaissy (1999), Burnside and Dollar (2000), Hansen and Tarp (2000), Fasanya & Onakoya (2012), Nkoro & Furo (2012) etc. find evidence for positive impact of foreign aid on growth, Duc (2006), Bakare (2011) find evidence for negative impact of foreign aid on growth while Chenery and Carter (1973), Singh (1985), Easterly et al., (2003), Ram (2004), etc. find evidence to suggest that aid has no specific impact on growth. The explanation for the inconclusive results remains unclear, but many authors have suggested theoretical and/or methodological and econometric causes as reported by Moreira (2005). The nature of the relationship in the Nigeria context is subject to empirical investigation. Such enquiry is what this study is set to achieve, to find out if this study will corroborate any of these outcomes.
3 Methodology

3.1 Sources of data

The time series secondary data for this research project were obtained from the following sources: Central Bank of Nigeria Statistical Bulletin for various years; National Statistical Bulletin, National Bureau of Statistics, Penn World Data, World Bank, World Development Indicators database. It spans over the period 1981 – 2012.

3.1.1 Model specification

Following the theoretical literature of the two gap model of economic growth coupled with an assumption of open economy, the functional relationship between foreign aid inflows and economic growth of Nigeria are expressed thus:

\[ \text{GDP} = f(\text{AID}, \text{INV}, \text{EXP}, \text{IMP}) \]

In a linear function, it is represented as follows,

\[ \text{GDP}_t = b_0 + b_1 \text{AID}_t + b_2 \text{INV}_t + b_3 \text{EXP}_t + b_4 \text{IMP}_t + U_t \]

Where GDP = Gross Domestic Product

AID = aid in the form of ODA

INV = investment

EXP = export

IMP = import

\( b_1, \ldots, b_4 \) are coefficients, \( U \) is the error term while \( t \) represents time.

The study employed econometric techniques such as; ordinary least square, cointegration test. Cointegration is important to establish whether the variables under investigation have a long-run relationship. The study adopts the cointegration approach developed by Johansen (1988) and expanded by Johansen and Juselius (1990). However, since most time series are prone to unit root problem, therefore, before carrying out cointegration test, the unit root test is conducted on the series using Augmented Dickey-Fuller (ADF) and Philips Perron test. This enables us test for stationarity of the variables included in the model. In consonance with economic theory, it is expected that \( b_2 \) and \( b_3 \) are positive, \( b_1 \) can either be positive or negative, and \( b_4 \) is negative.

4 Empirical analyses and interpretation

Since the study makes use of time series secondary data, the researcher started the analysis process by first ascertaining the times series properties of the variables. This study adopts the Augmented Dickey Fuller (ADF) and Philip Perron (PP) tests to check for the presence of unit roots in the variables under study. The results of the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit roots test are reported in Table 1 below.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Augmented Dickey Fuller test(ADF)</th>
<th>Philips- Perron test(PP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Level</td>
<td>First Difference</td>
</tr>
<tr>
<td>GDP</td>
<td>2.8001***</td>
<td>-5.6660*</td>
</tr>
<tr>
<td>INV</td>
<td>-1.8182</td>
<td>-2.9350***</td>
</tr>
<tr>
<td>ODA</td>
<td>-2.9737**</td>
<td>-5.6936*</td>
</tr>
<tr>
<td>EXP</td>
<td>3.2749**</td>
<td>-5.7933*</td>
</tr>
<tr>
<td>IMP</td>
<td>-0.2804</td>
<td>-4.7698*</td>
</tr>
<tr>
<td>1%</td>
<td>-3.6702</td>
<td>-3.6702</td>
</tr>
<tr>
<td>5%</td>
<td>-2.9640</td>
<td>-2.9640</td>
</tr>
<tr>
<td>10%</td>
<td>-2.6210</td>
<td>-2.6210</td>
</tr>
</tbody>
</table>

Note: One, two and three asterisk denotes rejection of the null hypothesis at 1%, 5% and 10% respectively based on critical values. The ADF and PP tests depict the same result as shown in table 1. Both tests reveal that all variables are integrated of order one I(1).

Having ascertained the unit-root properties of the variables, we proceeded to establish whether or not there is a long-run linear relationship among the variables used by employing the Johansen cointegration test (Johansen and Juselius, 1990).
### Table 2. Results of the Johansen Co-integration Test

#### Panel A: Trace Test

<table>
<thead>
<tr>
<th>Hypothesized No. of CE(s)</th>
<th>Trace Statistic</th>
<th>0.05 Critical Value</th>
<th>Prob**</th>
</tr>
</thead>
<tbody>
<tr>
<td>None *</td>
<td>141.5803</td>
<td>69.81889</td>
<td>0.0000</td>
</tr>
<tr>
<td>At most 1 *</td>
<td>71.73873</td>
<td>47.85613</td>
<td>0.0001</td>
</tr>
<tr>
<td>At most 2</td>
<td>28.25405</td>
<td>29.79707</td>
<td>0.0745</td>
</tr>
<tr>
<td>At most 3</td>
<td>8.902596</td>
<td>15.49471</td>
<td>0.3745</td>
</tr>
<tr>
<td>At most 4</td>
<td>0.197082</td>
<td>3.841466</td>
<td>0.6571</td>
</tr>
</tbody>
</table>

#### Panel B: Maximum Eigenvalue

<table>
<thead>
<tr>
<th>Hypothesized No. of CE(s)</th>
<th>Max-Eigen Statistic</th>
<th>0.05 Critical Value</th>
<th>Prob**</th>
</tr>
</thead>
<tbody>
<tr>
<td>None *</td>
<td>69.84153</td>
<td>33.87687</td>
<td>0.0000</td>
</tr>
<tr>
<td>At most 1 *</td>
<td>43.48468</td>
<td>27.58434</td>
<td>0.0002</td>
</tr>
<tr>
<td>At most 2</td>
<td>19.35146</td>
<td>21.13162</td>
<td>0.0871</td>
</tr>
<tr>
<td>At most 3</td>
<td>8.705514</td>
<td>14.26460</td>
<td>0.3115</td>
</tr>
<tr>
<td>At most 4</td>
<td>0.197082</td>
<td>3.841466</td>
<td>0.6571</td>
</tr>
</tbody>
</table>

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
*denotes rejection of the hypothesis at the 0.05 level
**Mackinnon-Haug-Michelis (1999) p-values

Evidence from the above cointegration test depicts that both the Trace and Eigen value statistics reveals that the null hypothesis of no-cointegrating vector is rejected at the 5% level of significance. The result further showed that there are 2 cointegrating vectors among the variables of interest at the 5 % level of significance. This is turn stipulates that there exist a long-run relationship among the variables i. e. GDP, foreign aid, investment, export and import. An economic interpretation of the long-run function of the model (v) can be obtained by adding a lagged value of the dependent variable because of the possible presence of first order serial correlation as depicted by the Dubin Watson (d) statistic thereby buttressing that the past value of the dependent variable has a significant impact on the present and future value of the variable .The result of the long- run equation is presented in table 3 below.

### Table 3. Result of the long-run equation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXP01</td>
<td>1.163829</td>
<td>0.163510</td>
<td>7.117772</td>
<td>0.0000</td>
</tr>
<tr>
<td>IMP</td>
<td>-0.662263</td>
<td>0.401668</td>
<td>-1.648782</td>
<td>0.1122</td>
</tr>
<tr>
<td>INV</td>
<td>2.665063</td>
<td>0.752337</td>
<td>3.542379</td>
<td>0.0017</td>
</tr>
<tr>
<td>ODA</td>
<td>-1.629785</td>
<td>0.861549</td>
<td>-1.891690</td>
<td>0.0707</td>
</tr>
<tr>
<td>C</td>
<td>-2.67E+11</td>
<td>2.07E+12</td>
<td>-0.128836</td>
<td>0.8986</td>
</tr>
<tr>
<td>AR(1)</td>
<td>1.010085</td>
<td>0.071176</td>
<td>14.19140</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

R² = 0.9859; Adj. R² = 0.9829; D.W = 1.8014; F- Test = 335.2154; Prob (F-Stat) = 0.0000

Table 3 depicts the result of long-run impact of foreign aid on economic growth. Furthermore, the result indicates that the coefficient of determination (adjusted R²) is 0.9859 meaning that over 98% variation in GDP is accounted for by the explanatory variables in the model. The prob(F-statistic) of 0.001 shows an overall goodness of fit of the model. The Durbin Watson (D.W) statistics of 1.8 shows the absence of auto- correlation or first order serial
correlation. The study utilized Akaike Info Criterion to determine its lag structure.

In terms of the signs of the coefficients, it can be seen that all the variables concur with a priori theoretical expectation. The coefficients of export and investment (1.16 and 2.67 respectively) exhibit a positive and significant trend which suggests that Nigeria’s GDP depends on investment and export in the long-run. This result is not surprising as it supported the Harrod-Domar model which proved that the growth rate of national income will directly or positively be related to saving ratio and investment (Bakare, 2011). Import and foreign aid exhibit a negative and non-significant value of -0.66 and -1.63 respectively. The implication of this result is that foreign aid to Nigeria has not been effectively managed to promote investment and growth in the economy. This may be as a result of corruption or aid fungibility (aid not used for the purpose intended by donors) as observed by Papanek (1973), Bakare (2011) and Ayodele et al (2005). The result also indicates the normal distribution of the residuals. The Lagrange Multiplier (LM) test of no error autocorrelation suggests that the residuals are not serially correlated. The Autoregressive Conditional Heteroscedasticity tests reveal that the disturbance term in the equation is homoscedastic. This is because the null hypothesis of heteroscedasticity is rejected at 5% level of significance.

5 Conclusion and recommendations

This paper analyses the effects of foreign aid on the economic growth of Nigeria. These effects are analysed using the ordinary least square (OLS) and Johansen cointegration test to test for the correlation between the variables and to also determine the long-run linear relationship among the variables.

Evidently, from the result of the study, it was discovered that foreign aid has a negative impact on economic growth in Nigeria, thereby indicating that foreign aid appears to have an adverse effect on Nigeria’s economic growth. The implication of this result is that most aid funds are channelled to unproductive use thereby limiting the great potentials of foreign aid in promoting growth by briding the savings and foreign exchange gaps.

In the light of the above, the researcher suggests the establishment of strong constitutional reform to address the problem of pervasive corruption in the country and improve the quality of governance. More so it is advisable for donor countries to monitor the implementation and effective use of foreign aid to avoid aid fungibility.

Over and above all, sound macro-economic policies should be put in place to ensure that foreign aid flows are invested into developmental projects that will boost the nations GDP and reduce the level of poverty in the country. This is because without these political, economic and institutional reforms, the large inflow of foreign aid will be effort in futility.

References


Duc, V.M. (2006), Foreign Aid and Economic Growth in the Developing Countries: A Cross-Country Empirical Analysis. Available at: http://cnx.org/content/m13519/latest/

Abiola, A. G. And Olofin, O. P. (2008), Foreign Aid, Food Supply and Poverty Reduction in Nigeria; examination of possible nexus, Department of Economics, Obafemi Awolowo University, Ile Ife.


Authors’ description

Ditimi Amassoma is a Senior Lecturer with the Department of Economics and Development Studies in Federal University Oye-Ekiti, Ekiti State, Nigeria. He holds a doctoral degree in Economics and his research field is in Monetary Economics. Stella Mbah is an Assistant Lecturer also with the Department of Economic and Development Studies in Federal University Oye-Ekiti, Ekiti State, Nigeria. She holds a master’s degree in Economics and specialising in Development Economics.