The Nexus between Foreign Aid, Poverty Level and Economic Growth: Evidence from Nigeria

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Abstract
The bones of contention among some scholars were that Official Development Assistance ODA was counterproductive in recipient countries and that it used to be donated to reduce poverty level but now being donated to improve economic growth as well. To determine impacts of ODA on both economic growth and poverty reduction we analyzed relevant data on Nigerian economy using GDP as dependent variable and ODA, Gross Domestic Product per Capita (GDPPC) as explanatory variables in addition to some control variables for the period 1980-2020. The best model that could analyze these three objectives together at a time was the vector autoregressive (VAR) model from which we discovered that: (i) 1% increase in ODA brought about 8% increase in GDP over time, meaning that ODA was not counterproductive in Nigeria, (ii) ODA also improved economic growth of Nigeria by 8% (iii) ODA also reduced poverty by about 0.91% for every 1% increase in ODA received during the period. Since the contribution of ODA to GDP was so marginal but positive we recommended that government should continue to receive more ODA from more donors but utilize it for more productive economic activities like building more industries to generate employment for graduates roaming about the streets to reduce the level of unemployment and reduce more poverty level. Investing ODA in mechanized agriculture would also go a long way to improve the economy and reduce more poverty from the society.

Keywords: ODA, Economic Growth, VAR, Gross Domestic Product per Capita

1.0 Introduction
Foreign aid alternatively known as official development assistance (ODA) was an important variable that affect economic growth of any country. But there existed a controversy among scholars on the impact of ODA on the economies of the recipient countries. Apart from poverty alleviation which was the traditional main aim of donating ODA, today the purpose of ODA has been extended to cover economic growth since it could be donated to cover areas like social infrastructure such as education, water supply and sanitation. It could also be donated to cover area like economic infrastructure such as energy, transportation and communication; including area of production such as agriculture, forestry, fishing, manufacturing industry, trade, tourism, mining and construction and so on. All these areas directly contribute to economic growth of the recipient country.
ODA referred to Development Assistance were donated by the public intuitions while aid donated by the private sector was usually called Private Development Assistance (PDA). Both ODA and PDA have contributed significantly to economic development of the recipient countries especially in Asia with more than 50% of the world population. For instance the rapid economic growth recorded in Asian countries like China, Korea and India was a function of foreign aid received to develop their health, education, technology, agriculture and infrastructure sectors.

But how effective was ODA in promoting economic growth in the recipient countries. A number of studies have been conducted on the effectiveness of ODA in promoting economic growth but with diverse outcomes. While some studies concluded that ODA was counterproductive (Moyo, 2009; Deaton, 2013; Lawson, 2016; Glennie and Sumner, 2014) some came out with a counter claim that ODA was positively related to economic growth (Burnside and Dollar, 2000) Easterly (2008) Gates and Gates (2014) and still other argued that a U-Shape relationship existed between ODA and economic growth implying that at the initial period ODA would be negatively related to economic growth and later positive relationship would exist (Wamboye, 2012; Gyimal-Brempong and Ravine (2014). In actual fact, ODA has both positive and negative side effects (United Nation (2015).

This study followed the Burnside and Dollar (2000) in which their investigation on the relationship between foreign aid and economic growth revealed that official aid had a positive impact on economic growth of developing countries but with good fiscal, monetary and trade policies whereas aid did not have significant effects on the economic growth of countries with poor policy. According to Yiew and Lau (2018) FDI was a measure of external capital useful for economic growth, it was on that basis that FDI was included as a control variable as it was expected to contribute positively to economic growth in the country.

Concerning the purposes for which foreign aid was donated Riddell (2007 argued that donors gave aid to help the recipient countries overcome emergency needs, and to enable the recipient countries realize their development target. But in the views of Burnside and Dollar (2000), Alesine and Weder (2002); donor countries gave aid to promote their countries political and strategic consideration as opposed to the real requirement and needs of the receiving countries, Yet, Knack and Rahman (2004) argued that aid was given to support trade and commercial flows between countries; Randel (2000) upheld that aid was given to promote relationship with former colonies and to encourage common voting patterns in the United Nations. Svensson (2002) argued that aid was not always given for poverty alleviation purposes.

Despite the fact that foreign aid had been given for poverty alleviation purposes over the years, poverty still persisted in Nigeria to a large extent. Demographic information revealed that Nigeria was the most populated country in Africa and the 7th most populated country in the world with a population of over 200 million people (Population Reference Buareau 2017 &Worldometer 2020). Nigeria was also the 8th largest exporter of crude oil. UNDP (2018) revealed that in terms of human development index, Nigeria ranked 158th out of 189 countries of the world as about 39.1% of Nigerians live below the poverty line of $2. 00 per day.as at year 2018. The Worldwide Poverty Clock (2018) also revealed that the proportion of Nigerians living in extreme poverty was 86.9 million people compared to Zambia (9.5 million), South Africa (13.8 million), Kenya (14.7 million) and Tanzania (19.9 million). Nigeria poverty figure
exceeded those of the four countries put together by 29 million. Nigeria was considered one of the poorest countries of the world despite the volume of ODA received so far (World Bank (1996), UNDP (2006), Okonjo-Iweala and Osafo-Kwaako (2007))

2.0 Review of Literature

Conceptually, the term poverty has different connotations depending on the perspective from which it was being examined because poverty was a multi-dimensional and multi-faceted economic phenomenon which affects human beings, economic growth and development negatively. According to Westover (2008) the word poverty had its origin from the Latin word *pauper* which simply means poor. The World Bank (2005) described poverty to refer to hunger, lack of shelter, being sick and not being able to see a doctor, powerlessness, lack of representation and freedom, losing a child to illness brought about by unclean water. In the view of the World Bank (2012) poverty reflected a deprivation in wellbeing, a state where people lack access to food, healthcare and other basic necessities of life like shelter, sanitation, education and political freedom.

To SIDA (2005) poverty was lack of access to finance and income-generating opportunities. According to FRN (2001) poverty could be described according to the level of income such that for low income countries, middle income countries and transition economies, any individual whose income per day falls below $1.00, $2.00 and $4.00 respectively was poor (CBN 2010, Louis 2012) were of the opinion that most Nigerians live below $2.00 per day and therefore remained poor due to high level of corruption, weak institutions and poor governance, high rate of unemployment, lack of infrastructural facilities, civil war, political upheavals, regional conflicts, lack of education, inflation, negative effects of crude oil discovery like Dutch Disease and resource curse.

According to Baghebo (2001) poverty could be classified into four categories as followed: Absolute poverty, for those who lacked minimum physical requirements for survival; Relative poverty for those persons or households whose provisions of goods fell below that of his or her neighbor; Rural poverty occurred where poor material condition, low level of education, lack of infrastructure, poor health condition, under-employment, low investment and high emigration existed. Finally, urban poverty was associated with environmental degradation, overcrowded accommodation, and low per capita income, living in slums, shanties and ghettos. Nigerian economy exhibited most of these characteristics of poverty.

Foreign aid alternatively called Official Development Assistance (ODA) as defined by The Encyclopedia Britannica (2015) was the transfer of capital, goods, or services from a country or international organization for the benefit of the recipient country or its population. Foreign aid or ODA could take the form of economic, military or emergency humanitarian assistance following natural disaster. Official Development Assistance was given mainly to promote economic development and to curb poverty in the recipient countries.

Foreign aid and poverty alleviation were two important concepts in economics such that government of poor countries normally seeks aid from rich countries of the world to alleviate the effect of poverty in their countries. But in most cases especially in poor countries with weak institution, high level of corruption, imprudent and overzealous spending including rent-seeking
behavior and foreign aid could may make the rich to become richer and the poor to become poorer. Different writers have aired their diverse opinions on the impact of foreign aid on the economies of the recipient countries. While some argued that foreign aid could be used to further sustain corrupt administration in power, others argued that aid could be useful in the areas of poverty alleviation, increase in economic growth and improvement in income inequality (Nakamura & McPherson, 2005). According to Ijaiye & Ijaiye (2004) aid could come in different forms but those that came in form of technical co-operation could enhance and improve the quality of the labour force of the recipient countries since it would encompass the combination of imported skill and manpower training. All these would tend to alleviate poverty and increase economic growth. Foreign aid is not meant to alleviate poverty alone it could also be useful to reduce unemployment and increase investment. Foreign aid could take different forms as we have social infrastructure aid which includes education, water supply and sanitation. According to Addison and Tarp (2015) social infrastructure aid could be donated to improve human development which would finally lead to long-term sustainable economic growth. Economic infrastructure aid on the other hand was meant for the improvement of energy, transport and communication systems in the recipient countries. The third category of aid was the production sector’s aid which was meant to improve agriculture, forestry, mining and construction, trade and tourism (Niyonkuru, 2016).

According to Guillaumont (2011), Guillaumont and Wagner (2014), foreign aid, poverty and economic growth were related through the following three macroeconomic channels namely: (1) aid affect poverty through growth because foreign aid impacts positively on growth as a result of rising investment, on the other hand, economic growth reduces poverty level in the country. Scholars like Kraay (2005), Kosack (2003), Gomanee (2003), Moseley (2004), Collier and Goderis (2009), Chauvet and Guillaumont (2009) were all favourably disposed to the fact that foreign aid reduces poverty and improves economic growth. Yiew and Lau (2018) conducted a study titled “Does Foreign Aid Contribute to or Impede Economic Growth” on 95 developing countries of the world using Gross Domestic Product (GDP) as dependent variable and Official Development Assistance (ODA) as explanatory variable including Foreign Direct Investment (FDI) and Population (POP) as control variables. The results of their panel data revealed that a U-shape relationship existed between ODA and GDP in tandem with Wamboye (2012) and Gyimah-Brempong and Racine (2014). The implication of such U-shape relationship was that at the initial stage ODA impacted economic growth negatively and later affected economic growth positively. No wonder while some people argued against the effectiveness of ODA (Lawson, 2016) and while some other people supported it (Calderon, Chong & Gradstein, 2006; Guillaumont & Wagner, 2014; Ridwell, 2014). Cungu and Swinnen (2003); Dalgaard, Hansen and Tarp (2004); Gomanee (2005) all found positive relationship between foreign aid and economic growth. Also Pattillo, Polak and Roy (2007) found that foreign aid reduced poverty among the people, just as Masud and Yontcheva (2005) found that Non-Governmental Organization (NGO) aid reduced infant mortality better than the official bilateral aid. Using autoregressive distributed lagged (ARDL) model on data for the period of 1984-2018, Dada and Fanowopo (2020) found that economic growth and institution affected poverty level positively both in the short and long run.
On the converse Moyo (2009) argued that foreign aid tended to prolong the vicious circle of poverty and destabilized sustainable economic development. In the same vein Deaton (2013) stated that giving more and more foreign aid to recipient countries beyond the current level would not improve their economic condition. Ogudipe, Oduntan, Oguniyi and Olagunju (2016) studied the relationship between agricultural productivity and poverty reduction in Nigeria for the period 1991-2015 using OLS and GMM and found that agricultural productivity index negatively affected poverty indicators in the study. A study on the impact of Agricultural development on job creation and poverty alleviation was conducted by Osabohien, Matthew, Gershon and Nwosu (2019) employed the Generalized Method of Moment (GMM) on 15 countries in West Africa for the period 2000-2016 and found that agricultural value added negatively impacted poverty in the region.

3.0 Methodology
According to Collier (2007) Dutch Disease constituted one of the mechanisms in which foreign aid can be detrimental to the aid recipient country and therefore aggravate poverty rather than alleviate it. Foreign aid issued in say dollar or any other currency must be converted to the local currency equivalent at the prevailing exchange rate. The importers or the recipient country must demand for foreign exchange to import. In the absence of foreign exchange the normal means to pay for import is export which usually generates large influx of foreign exchange. But if foreign aid is available, the importer could source needed foreign exchange either from the exporter as usual or from the available foreign aid. The more the foreign aid is available the less the needs for exports to pay for imports and the less the exporters could earn in foreign exchange. The higher the volume of foreign aid received, the greater the foreign exchange made available to the recipient country leading to exchange rate appreciation. This appreciation made the local currency worth more than the dollar so that exports of the local economy became dearer and less competitive at the international market thereby crowding out local economy’s exports. Collier (2007) suggested that foreign aid should accompany by trade liberalization which increased the demand for imports by making them cheaper without the need to appreciate the exchange rate. Stiglitz (2007) also suggested that a country must spend part of the foreign resource currency from aid on imports and keep some of the rest abroad.

The variables that were examined in this study included Gross Domestic Product (GDP) as dependent variable, Official Development Assistance (ODA), Poverty level (POV) where GDP per capita (GDPPC) will be used as proxy for poverty, foreign direct investment (FDI), inflation rate (INFR), and real effective exchange rate (REER) were explanatory variables.

3.1 Model Specification
The vector autoregressive (VAR) equations for this study was specified as followed:

\[ GDP_t = a + \sum \beta_j GDP_{t-j} + \sum \gamma_j GDPPC_{t-j} + \sum \lambda_j ODA_{t-j} + \sum \Omega_j INV_{t-j} + \sum \theta_j FDI_{t-j} + \sum \rho_j INF_{t-j} + \sum \delta_j REER_{t-j} + \mu_1 \]

(1)

\[ GDPPC_t = b + \sum h_j GDP_{t-j} + \sum \gamma_j GDPPC_{t-j} + \sum \lambda_j ODA_{t-j} + \sum \Omega_j INV_{t-j} + \sum \theta_j FDI_{t-j} + \sum \rho_j INF_{t-j} + \sum \delta_j REER_{t-j} + \mu_2 \]

(2)
The data for the variables used in this study were secondary in nature and were sourced from the Central Bank Statistical Bulletin 2019 and the World Development Indicators 2020.

4.0 Data Analysis and Result Discussion

4.1 Diagnostic Tests

Table 4.1 Unit Root Test Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>ADF</th>
<th>0.05 cv</th>
<th>Level of integration</th>
<th>Remark</th>
</tr>
</thead>
</table>

Source: Compiled by Author, 2022

Where: the variables were as defined in table 3.1 below and \( u_t \) to \( u_7 \) were respective error terms.

Table 3.1: VARIABLE DEFINITION AND MEASUREMENT

<table>
<thead>
<tr>
<th>S/NO</th>
<th>VARIABLES</th>
<th>DEFINITION</th>
<th>MEASUREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>GDP</td>
<td>Gross Domestic Product</td>
<td>Billions of Naira</td>
</tr>
<tr>
<td>02</td>
<td>GDPPC</td>
<td>Gross Domestic Product per Capita</td>
<td>Billions of Naira</td>
</tr>
<tr>
<td>02</td>
<td>ODA</td>
<td>Official Development Assistance</td>
<td>Billions of Naira</td>
</tr>
<tr>
<td>03</td>
<td>INV</td>
<td>Investment</td>
<td>Billions of Naira</td>
</tr>
<tr>
<td>04</td>
<td>FDI</td>
<td>Foreign Direct Investment</td>
<td>Billions of Naira</td>
</tr>
<tr>
<td>04</td>
<td>INF</td>
<td>Consumer Price Index</td>
<td>Percentage</td>
</tr>
<tr>
<td>05</td>
<td>REER</td>
<td>Real Effective Exchange Rate</td>
<td>Percentage</td>
</tr>
</tbody>
</table>

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Both the dependent and independent variables of this study were subjected to unit root diagnostic test for stationarity. Three of the variables were integrated of order zero while the remaining four variable were integrated of order one. Variables that were integrated of order zero includes foreign direct investment (FDI), inflation rate (INFR) and official development assistance (ODA) and they were marked I (0) indicating that they were integrated at their level form and as such passed the unit root test. The remaining four variables like Gross Domestic Product (GDP), Gross Domestic Product per Capita (GDPPC), investment (INV) and real effective exchange rate (REER) failed the unit root test at their level forms and were forced to be stationary at their first difference levels and marked I (1). In the end all the variables were stationary and marked with letter S.

Table 4.2 Johansen Co-integration Test Results

<table>
<thead>
<tr>
<th>Hypothesized no on CE(s)</th>
<th>Trace Statistic</th>
<th>0.05 Cv</th>
<th>Prob.</th>
<th>Eigenv</th>
<th>Maximum Eigenv</th>
<th>0.05 Cv</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>None*</td>
<td>160.6253</td>
<td>125.6154</td>
<td>0.0001</td>
<td>0.729269</td>
<td>49.65190</td>
<td>46.23142</td>
<td>0.0208</td>
</tr>
<tr>
<td>At most 1*</td>
<td>110.9734</td>
<td>95.75366</td>
<td>0.0030</td>
<td>0.639430</td>
<td>38.76263</td>
<td>40.07757</td>
<td>0.0698</td>
</tr>
<tr>
<td>At most 2*</td>
<td>72.21077</td>
<td>69.81889</td>
<td>0.0318</td>
<td>0.483059</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At most 3</td>
<td>47.13736</td>
<td>47.85613</td>
<td>0.0583</td>
<td>0.446562</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s Computation, 2022

The fact that the variables of this study were integrated of different orders (I (0) and I (1)) calls for co-integration test to determine possibility of long run relationship among the variables. It was on this basis that Johansen co-integration test was conducted and the results reported in Table 4.2. While the Trace test indicated 3 co-integrating equations the Maximum Eigenvalue test indicated 1 co-integrating equation at the 5% level. The implication of this is that long run relationship exists among the variables irrespective of their order of integration.

4.3 Model Results
The main model specified for this study was the Vector Autoregressive (VAR) model and the estimates are reported in Table 4.3.

Table 4.3 VAR ESTIMATES (I); Dependent Variable: lnGDPt

<table>
<thead>
<tr>
<th>Variable</th>
<th>LGDPt-1</th>
<th>LFDIt-1</th>
<th>LGDPPCt-1</th>
<th>LINft-1</th>
<th>LINvt-1</th>
<th>LODAt-1</th>
<th>LREERT-1</th>
<th>C</th>
</tr>
</thead>
</table>
The *apriori* expectations of the variables of this study were that FDI, GDPPC, INV, and ODA expected to be positive with GDP while INFR and REER were expected to have negative relationship with GDP. The estimates showed that two of these variables namely investment INV and INF missed their expectations. Investment which was supposed to be positively related to GDP was negatively signed such that 1% rise in investment led to 3% decrease in GDP over that time. Inflation on the other hand was positively related to GDP such that 1% increase in inflation brought about 29% increase in GDP during the period under review, which meant that the rise in Nigerian GDP over time was fueled by inflation. That was an aberration. All the other variables fulfilled their expectations such that 1% increase in exchange rate reduced GDP by 3%, 1% increase in foreign direct investment (FDI), GDP per capita (GDPPC) and official development assistance (ODA) increased GDP by 38%, 147% and 8% respectively. The general characteristic of these variables was that their results were not statistically significant as their t-statistic values all fell below the benchmark of 2.0. But overall the variables jointly contributed 87% to the changes in GDP over time.

### Table 4.4 VAR ESTIMATES (II): Dependent variable: lnGDPPC_t

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>t-Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>lnODAt-1</td>
<td>-0.009119</td>
<td>0.02809</td>
<td>-0.32464</td>
</tr>
</tbody>
</table>

Source: Author’s Computation, 2022.

### Table 4.5 ERROR CORRECTION RESULTS

<table>
<thead>
<tr>
<th>Variable</th>
<th>ECM</th>
<th>Standard Error</th>
<th>t-Statistic</th>
</tr>
</thead>
</table>

4.3 ERROR CORRECTION

Since the variables were integrated of different orders of the co-integration test which indicated existence of long run relationship among the variables. This called for further inquiry to determine speed of adjustment between the long run and short run relationship.
D(lnGDPt)  -0.453758  0.17949  -2.52836
D(lnFDIt)  -0.526001  0.12675  -4.14987
D(lnGDPPCt)  0.036684  0.05469  0.67075
D(lnINFt)  -0.286945  0.11949  -2.40139
D(lnINVt)  0.109966  0.05384  1.08356
D(lnODA)  0.570152  0.52619  1.08356
D(lnREERT)  0.056616  0.10309  0.54916
Source: Author’s Computation, 2022

The error correction results in Table 4.5 showed that the dependent variable lnGDP was too high to be in equilibrium relationship given the ECM coefficient of -0.453758 and t-statistic of 2.52836. This meant that to be in equilibrium relationship lnGDP must adjust downward by 45% next period. The results further showed that if we made other variables dependent in turn then their speed of adjustment of FDI and INFR would be -0.526001 and -0.286945 respectively while those of GDPPC, INV, ODA and REER would be to adjust upward by 04%, 11%, 57% and 57% respectively next period.

5.0 Conclusion and Recommendations
The bones of contention among some scholars were that ODA was counterproductive in recipient countries and that it was normally donated to reduce poverty level and now being donated to improve economic growth. The best model that could analyze these three objectives together at a time was the VAR model hence the justification for the use of VAR in this study. From the VAR estimates in Table 4.3 we drew the following conclusions: (i) that since 1% increase in ODA brought about 8% increase in GDP over time then official development assistance was not counterproductive in Nigeria, (ii) ODA also improved economic growth of Nigeria by 8% (iii) ODA also reduced poverty by about 0.91% for every 1% increase in ODA received during the period (see Table 4.4). Since the contribution of ODA was so marginal but positive to GDP we recommended that government should continue to receive more ODA from more donors but utilize it for more productive economic activities like building more industries to generate employment for graduates roaming about the street to reduce the level of unemployment and reduce more poverty level. Investing ODA in mechanized agriculture would also go a long way to improve the economy and reduce more poverty from the society.

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