Effect of Foreign Aids on Economic Growth in Nigeria

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Abstract

This study investigated the impact of foreign aids on economic growth in Nigeria using time series data spanned from 1990 to 2017. The research considered the secondary data that were gathered from CBN statistical bulletin 2017 and World Bank Data Indictors. Ordinary Least Square techniques was adopted in the study and used Augmented Dickey-Fuller Unit Root Test, co integration test, granger causality test, ECM to estimates data employed. The findings revealed that all the variables employed were stationary at first difference and integrated at the same order1(I), the co-integration test shows that variables are co-integrated at one co-integrating equation which means that there is a long run relationship. The Error Correction Model established that the error that caused disequilibrium in the short run is being corrected in the long-run at a speed of adjustment at 6%. The findings revealed real gross domestic product responds inversely to changes in official development assistance and foreign direct investment. Based on these findings the study concluded that foreign aids have a significant impact on economic growth in Nigeria. Different diagnostic tests are applied in order to confirm the major assumption of multiple regression analysis like multicollinearity, heteroskedasticity and autocorrelation. Therefore, the study recommends among others that government needs to formulate strong and effective education and healthcare policies to facilitate and attract investment in the sectors and improve their efficiency in the long-run that will influence productivity.

Keywords: RealGDP; Human development index; Economic growth; Foreign aids and official development assistance.

1. Introduction

In the modern economies, foreign aids serve as a support-system to the growth process of most developing nations including Nigeria. This has continue to be a subject of debate among economists, financial analysts, public administrators, accountants, researchers and other related professionals, even ordinary citizen are not left behind in the context. All over the world, foreign aids otherwise known as Official Development Assistance (ODA), provides assistance to countries identified as developing economies in need of support in welfare and social infrastructure such as water supply, education, health, sanitation, security, transportation, among others, with the aim to improve the recipient countries human development as well as to enhance sustainable economic growth (Arshad *et al.*, 2014; Fasanya and Onakoya, 2012; Fashina *et al.*, 2018; Kolawole, 2013; Maria and Ezenekwe, 2015; Yiew and Lau, 2018). Rebuilding the world economy destroyed by the Second World War and promoting economic development worldwide were the main concerns of the world leaders. In this respect, the first aid was provided by the United States to its European allies through the Marshall plan to promote social progress and better standard of life in larger freedom, and to employ international machinery for the promotion of the economic and social advancements of all people (Maria and Ezenekwe, 2015; Stevenson, 2006; Yiew and Lau, 2018).

In 2015, United Nations listed positive impact of ODA from the perspectives of developing countries. It was opined that ODA contributed to reduce the extreme poverty as the global extreme poverty reduced from 1,926 million in 1990 to 836 million in 2015. Also, ODA was used to successfully enroll 91% of children in primary education for developing countries. Admittedly, it also increased literacy rates from 83% in 1990 to 91% in 2015, (United Nations, 2015; Yiew and Lau, 2018).

In the same vein, Rahman (2008), earlier reported that aid was effective in the countries such as Uganda and Vietnam in the 1990s, Bolivia and Ghana in the 1980s, Indonesia in the 1970s, and Botswana in the 1960s, in improving their standard of living and supporting economic growth. Regrettably, developing countries like Nigeria are indeed characterized by low level of income, high level of unemployment, very low industrial capacity utilization, and high poverty level just to mention a few of the various economic problems these countries are often faced with. In addressing these problems, foreign aid or Official Development Assistance (ODA) has been suggested as a veritable option for augmenting the meager domestic resources. While some countries that have benefited from foreign assistance at one time or the other have grown such that they have become aid donors (South Korea, North Korea, China, Japan, among others), majority of countries in Africa like Nigeria have remained controversial in their use of such aids and its effect on their growth with subsisting economic and social problems. Nigeria has continued

to benefit from all sorts of foreign assistance and in fact still collect at least as much as the amount collected in the early 1980s, yet socio-economic development has remained dismal.

While there could be so many factors both qualitative and quantitative explaining these unfavourable trends, the incessant socio-political crisis, policy inconsistencies, macroeconomic instability, corruption among administrators resulting from bad governance evident in many developing countries which are indeed indicators of poor policy framework, should give one a pause (Fasanya and Onakoya, 2012). Despite this, reported World Economic Forum 2015 estimates that western donors had gave about $4.14 trillion-the equivalent of more than seven times the 2014 GDP of Nigeria, in aid to developing countries. These flows are topped up by support from non-governmental organisations and other private charities, and the so-called new donor countries. Yet, in many of the developing countries receiving the aid, poverty still looms large, and underdevelopment persists.

However, researchers have not reached a consensus on whether foreign aid helps or hinders economic growth in developing countries. At one side of the arguments are those who believe that aid has been effective in helping poor countries to transform their economies and support the growth of Gross Domestic Product (GDP), helps to achieve Sustainable Development Goals, improve education standard, healthcare and other social services, which are key to improved and sustainable economic growth (Brautigam and Knack, 2004; Easterly, 2006; Fasanya and Onakoya, 2012; Lensink and White, 2001; Moyo, 2009; Mukaddas, 2020; Onakoya and Ogunade, 2016; Saibu and Obioesio, 2017; Siddique *et al.*, 2017; Ugwuegbe *et al.*, 2016; Yiew and Lau, 2018). At the center point of the argument, some researchers such as, Duc (2006) Burnside and Dollar (2000), Hansen and Tarp (2000), Fashina *et al.* (2018), and Agunbiade and Mohammed (2018) pointed out that the impact of foreign aid on economic growth would be felt at the early stage up to an optimal point in which any additional aid will only affect the growth negatively due to overdependence on foreign assistance, poor management of inherited resources and neglect of inherent abilities. They argued further that foreign aid is not strong enough to impact on the economic growth without being supported by sound policy and efficient economic management.

Some others stream of studies such as Jensen and Paldam (2003), Olabode (2013), Kolawole (2013), Arshad *et al.* (2014), and Ighodaro and Nwaogwugwu (2013) showed that foreign aid has no significant impact on economic growth as such and shown that there is a negative relationship between foreign aid and economic growth. Most of these studies argued that sound policy; good economic management, effective and efficient public administrative system for policy implementation and less corruption threatened governance structure are keys to sustainable economic growth, not foreign aids which mostly result to overdependence on foreign economy. The above argument that necessitate continuous re-assessment of the impact of foreign aid on economic growth in developing countries and the need to add to existing literature on impact of foreign aids on economic growth in Nigeria necessitate this study , also relationship will be determined with the use of co-integration.

2. Literature Review

Debate on the relationship between foreign aid and economic growth among developing countries remains subject of argument and continuous re-assessment, due to incongruence in some previous studies conclusion. Some previous researchers found positive impacts of foreign aid on economic growth (Brautigam and Knack, 2004; Fasanya and Onakoya, 2012; Moyo, 2009; Mukaddas, 2020; Onakoya and Ogunade, 2016; Saibu and Obioesio, 2017; Siddique *et al.*, 2017; Ugwuegbe *et al.*, 2016; Yiew and Lau, 2018). Yiew and Lau (2018), concluded by presenting a U-shape relationship between foreign aid and economic growth using data for 95 developing countries from the years of 2005 through 2013. Interestingly, results strongly support that GDP is likely depends on Official Development Assistance (ODA). This indeed negates the claim on the dependency notion from the recipient's countries on to the donors. Also, Ugwuegbe *et al.* (2016), earlier revealed that foreign aid is in conformity with the a priori expectation is positively related to Gross Domestic Product. Supporting the argument, Saibu and Obioesio (2017), lends credence to the theoretical assumptions and previous empirical conclusion that foreign aid impact economic growth positively in Nigeria. It went further to state that the impact of foreign aid on economic growth in Nigeria is systematically conditioned on some factors among which include the quality of policies, the policy climate and quality of institutions. Onakoya and Ogunade (2016), also discovered that foreign aid is positively related to real gross domestic product per capital with a percentage increase kin foreign aid leading to, on the average, 0.13 percent increase in real gross domestic product per capita. The study also affirms that the relationship is statistically significant in shaping the gross domestic product in the long run in Nigeria. In the same vein, Siddique *et al.* (2017), used Dynamic Panel Estimation technique to re-estimate the relationship between foreign aid and economic growth of South and East Asian countries, with a conclusion that it is a significant channel through which wealth is transferred from rich countries to the poor nations to enhance growth and development in under developed countries. Recently, Mukaddas (2020) concluded that the foreign aid intervention programme have positive impact on the infrastructural development in Nigeria education sector, improve performance of teachers, helped Nigeria to achieve Sustainable Development Goals and Universal Basic Education goals, encourage Nigerian school enrolment at primary and secondary school levels as well as improved ICT application in higher institutions.

Olabode (2013), Appiah-Konadu *et al.* (2016), Ozekhome (2017), Kolawole (2013), Arshad *et al.* (2014), and Ighodaro and Nwaogwugwu (2013) found that a negative relationship existed between foreign aid and economic growth. Kolawole (2013), in his study asserts that official development assistance also known as foreign aid has no effect on real growth in Nigeria. The study argued that bulk of foreign aid provided for infrastructural development in the country are either embezzled or diverted to unnecessary projects that has no link with real growth in Nigeria. Supporting this, Arshad *et al.* (2014) used Johnson co-integrated equation to reveal that foreign aid does not cause the improvement in Gross Domestic Product (GDP) of Pakistan. Also, Fasanya and Onakoya (2012) concluded that

the policy variable reverse the positive effect of foreign aid on economic growth, even making it detrimental to growth. The study further argued that donor government should be aware of the political situation in the recipient nations to endure effective implementation. In their complementary study, concluded that recipient countries should prioritize sound economic management as well as effective utilization of aid resources as it will not automatically enhance economic growth.

In the study by Appiah-Konadu *et al.* (2016) it was discovered that aid which is intended to promote economic development end up harming the economy of Ghana due to corruption and high interest payments on aids that in the forms loans. Also, Ighodaro and Nwaogwugwu (2013) concluded that foreign aid is not beneficial to the agricultural sector in both short run and long run in Nigeria as only domestic savings will impact positively on the agricultural sector of Nigeria. The argument was also supported by Ozekhome (2017) that foreign aid and its squared term are found to dampen growth in the ECOWAS countries. The study concluded that sound and stable macroeconomic policies, institutional structures as well as policy coordination and harmonization with respect to trade and investment among member countries will improve economic growth of the sub-region.

Other researchers such as Dreher and Langlotz (2015); Liew *et al.* (2012); Hansen and Tarp (2000); Fashina *et al.* (2018); Maria and Ezenekwe (2015) and Agunbiade and Mohammed (2018) found that a relationship between aid and economic growth was insignificant and not the real cause in economic growth of developing countries. Liew *et al.* (2012), applied the pooled ordinary least squares, random effect, and fixed effect models to examine the impact of foreign aid on economic growth in East African countries between 1985 and 2010. They found that a negative relationship existed between foreign aid and economic growth. Dreher and Langlotz (2015), examined the impact of aid and growth using an excludable instrument for 96 countries from 1974 through 2009. They concluded that there was no impact of aid on growth. The study shows foreign aid variable having a negative sign in three out of four cases, indicating that foreign aid appears to have an adverse effect on economic growth in developing countries. However, Agunbiade and Mohammed (2018) revealed that foreign aid flow in Nigeria has positive relationship with economy but not strong enough to impact on the economy. The study went further that aid received should be properly channeled into productive investment in Nigeria to have its impact on the economy. From the empirical evidences above, this study will substantiate any of the three arguments above or any of the group of empirical evidences to re-assess the effect of foreign aid on economic growth in Nigeria.

3. Methodology

The researcher is working with existing data and cannot manipulate for personal interest, therefore the study relied on expo facto research design. The study employed annual time series data from 1990 to 2017 which were obtained from the Central Bank of Nigeria (CBN) Statistical bulletin and World Development Indicators (WDI). The choice of this period is to focus on the period of high attention from developed countries in providing huge assistance for the developing economies like Nigeria and also to capture the recent economic recession in 2015 and unstable economic growth.

3.1. Method of Data Analysis

Ordinary Least Square (OLS) regression was employed for the analysis of the data. It further considered descriptive statistics and econometric analytical tools in analyzing data. The descriptive tools consists of tables, graphs while the econometric tools on the other hand is made up of Unit Root test under which the Augmented Dikkey Fuller Test (ADF) tests was conducted to test the null hypothesis that a series has unit root. The econometric test of co-integration was used to test for the long-run relationship between the variables. The Vector Error Correction test was also conducted in order to test for the short run dynamics. The use of VECM is best suited in capturing the dynamic response of estimated variables to past disequilibrium that occur within an economy as well as have proper theoretical base.

3.2. Model Specification

The model for this study can be specified in an implicit or functional form below:
Thus, simple equation is specified as follows:
$Y = f(Xn)$
$Y = f(X1, X2, X3, \ldots \ldots Xn)$-- (1)
Where Y denotes dependent variable (real gross domestic product), which depend upon explanatory variables such as; foreign direct investment , human development index and official development assistance were denoted as X1, X2, and X3, in the equation 1 above. A model is developed to explain the contemporaneous or existing relationship between foreign aids and economic growth in Nigeria

The equation can be transformed into functional form:
RGDP $=f$ (FDI, HDI, ODA,) -- (2)
In econometric term:
RGDP$=\beta_0 + \beta_1$ FDI $+\beta_2$ HDI $+\beta_3$ODA $+\mu$-------------------------------- (3)
Where:
RGDP= Real Gross Domestic Product
FDI= Foreign Direct Investment
HDI=Human Development Index
ODA=Official Development Assistance.
β_0=Constant term

β_1- β_3=Coefficients of explanatory variables.

μ= Error term

4. Data Analysis and Interpretation

Table-1. Unit Root at First Difference

Group unit root test: Summary				
Series: RGDP, ODA, FDI, HDI				
Date: 01/27/20 Time: 06:25				
Sample: 1990 2017				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
			Cross-	
Method	Statistic	Prob.**	Sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.71363	0.0000	4	103
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.62420	0.0000	4	103
ADF - Fisher Chi-square	53.8608	0.0000	4	103
PP - Fisher Chi-square	74.6994	0.0000	4	104

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.
Eview, 9

All of the results indicate the presence of a unit root at level, as the LLC, IPS, and both Fisher tests fail to reject the null of a unit root. However, RGDP, ODA, FDI and HDI are all stationary at first difference. This means that all the variables have no unit root and are good for the analysis.

4.1. Graphical Representation of RGDP, ODA, FDI AND HDI (Nigeria)

Figure-1. Graphical Representation of RGDP, ODA, FDI, HDI
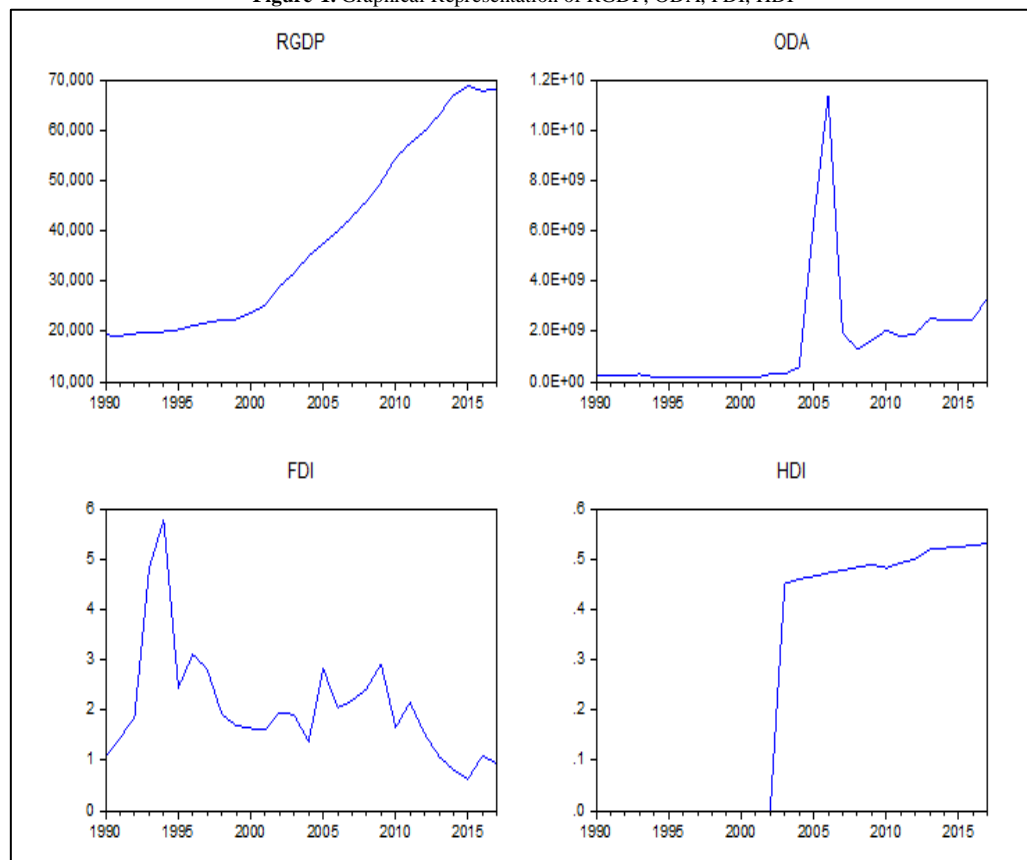
In the figure 1 above, real gross domestic trend was shown. The real gross domestic product is an inflation-adjusted measure that reflects the value of all goods and services produced in a given year, expressed in base-year prices. Often referred to as "constant-price," Unlike nominal GDP, real GDP can account for changes in the price

level, and provide a more accurate figure. Taking a cognizant of the trend in RGDP over the period of years, it was shown a steady rise up to year 1990 and then assumed a sharp increase up to 2017, though there was a slight decline in 2015 due to short period of recession. In the same vein, official development assistance that represents the foreign aids to Nigeria has not fared well over the period of years. There has been steady low influx of official development assistance except in 2005, that the country experienced an increased in official development assistance but there was a sharp decline in 2006. Hence, the country has continued to receive paltry amount of official development assistance. The value of foreign direct investment has been fluctuating in Nigeria from the year 1990, however, there was all time high in 1994, that stood at $5.9billion ,before a drop in the value and continuation in the unstable inflows of foreign direct investment in Nigeria. The human development index in Nigeria has not received adequate attention due to lack of data. There has been an increase in Human development index in the country between 2003 and 2017.

Table-2. Regression Test

Dependent Variable: RGDP				
Method: Least Squares				
Date: 01/27/20 Time: 06:29				
Sample: 1990 2017				
Included observations: 28				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	28179.98	4488.545	6.278198	0.0000
ODA	-7.01E-07	8.12E-07	-0.862586	0.3969
FDI	-2710.438	1537.790	-1.762554	0.0907
HDI	63973.69	8216.911	7.785613	0.0000
R-squared	0.816881	Mean dependent var		38389.66
Adjusted R-squared	0.793991	S.D. dependent var		18433.31
S.E. of regression	8366.542	Akaike info criterion		21.03343
Sum squared resid	1.68E+09	Schwarz criterion		21.22375
Log likelihood	-290.4681	Hannan-Quinn criter.		21.09161
F-statistic	35.68748	Durbin-Watson stat		0.640884
Prob(F-statistic)	0.000000			

EVIEW, 9

The R-squared R^2 statistic measures the success of the regression in predicting the values of the dependent variable within the sample. Higher the R^2 better the fitted data. In this model we observed that R^2 is 0.816881 (82%), which is quite good and means that the model is nicely fitted. These could be further explained by adjusted R^2(0.793991) that official development assistance, foreign direct investment, and human development index are good variables to explain variations in economic growth in Nigeria while the remaining 11percent are factors that influenced the economic growth which are not included in the model but been captured by error term. The column labeled "Coefficient" depicts the estimated coefficients. The least squares regression coefficients are computed by the standard OLS. For the multiple linear models considered here, the coefficient measures the marginal contribution of the independent variable to the dependent variable, holding all other variables fixed.

The value of constant is 28179.98, this connotes that there would be 28179.98 units increase in real gross domestic product while other variables remain constant. The coefficient of official development assistance to Nigeria is --7.0100; this means that for every unit increase in official development assistance to Nigeria, there would be --7.0100 decreases in real gross domestic product while other variables remain constant. The coefficient of foreign direct investment is -2710.438; this means that for every unit increase in foreign direct investment, there would be 2710.438 units decrease in real gross domestic product in Nigeria. The coefficient of human development index is 63973.69, this means that for every unit increase in human development index, there will 63973.69 units increase in real gross domestic product in Nigeria.

4.2. T-Statistics

The *t-statistic*, which is computed as the ratio of an estimated coefficient to its standard error, is used to test the hypothesis that a coefficient is equal to zero. If the p-value of t statistics is less than 5 percent (0.05) we can reject the null and accept alternative hypothesis. If otherwise, we do the inverse.

The result of official development assistance indicates that official development assistance is statistically insignificance; since the p-value (0.3969) is greater than 5percent level of significance. We concluded that official development assistance has no significant effect on economic growth in Nigeria. The result of foreign direct investment indicates that foreign direct investment is statistically insignificance; since the p value (0.0907) is greater than 5percent, we concluded that foreign direct investment has no significant effect on economic growth in Nigeria. The result of human development index indicates that human development index is statistically significance, since the p-value (0.0000) is less than 5percent; we concluded that human development index has a significant impact on economic growth in Nigeria.

F-statistics jointly explain the significant of independent variable. If the p-value of F statistic is less than 5 percent (0.05) we can reject the null and accept alternative hypothesis. If otherwise, we can do the inverse. Since p-value 0.00000 is less than 5percent level of significance. Hence, we reject the null hypothesis (Ho) that the overall

estimate has a good fit which implies that our independent variables are simultaneously significant, which means that foreign aids have a significant impact on economic growth in Nigeria.

Table-3. Granger Causality

Pairwise Granger Causality Tests			
Date: 01/27/20 Time: 06:30			
Sample: 1990 2017			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
ODA does not Granger Cause RGDP	26	0.18860	0.8295
RGDP does not Granger Cause ODA		1.45291	0.2565
FDI does not Granger Cause RGDP	26	0.00597	0.9940
RGDP does not Granger Cause FDI		2.39401	0.1157
HDI does not Granger Cause RGDP	26	0.95059	0.4025
RGDP does not Granger Cause HDI		4.86260	0.0184
FDI does not Granger Cause ODA	26	1.05030	0.3675
ODA does not Granger Cause FDI		0.20506	0.8162
HDI does not Granger Cause ODA	26	5.27289	0.0139
ODA does not Granger Cause HDI		0.00089	0.9991
HDI does not Granger Cause FDI	26	1.19643	0.3221
FDI does not Granger Cause HDI		0.38106	0.6878

EVIEW, 9

Granger causality measures precedence and information content but does not by itself indicate causality in the more common use of the term. We cannot reject the hypothesis that ODA does not Granger cause RGDP and RGDP does not Granger cause ODA, this means that granger causality does not run in the variables. We cannot reject the hypothesis that FDI does not Granger Cause RGDP and RGDP does not Granger Cause FDI. Also we cannot reject the hypothesis that HDI does not Granger cause RGDP but we do reject the hypothesis that RGDP does not Granger cause HDI. Therefore it appears that Granger causality runs one-way from RGDP to HDI and not the other way. This means that economic growth has a capacity to influence human development index in Nigeria.

Table-4. Co-integration Test

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.800517	65.68602	47.85613	0.0005
At most 1	0.425588	23.77330	29.79707	0.2102
At most 2	0.282397	9.358661	15.49471	0.3332
At most 3	0.027718	0.730839	3.841466	0.3926
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.800517	41.91272	27.58434	0.0004
At most 1	0.425588	14.41463	21.13162	0.3320
At most 2	0.282397	8.627822	14.26460	0.3184
At most 3	0.027718	0.730839	3.841466	0.3926

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

In econometrics, co-integration analysis is used to estimate and test stationary linear relations, or co-integration relations, between time series variables such as real gross domestic product, foreign direct investment, human development index and official development assistance. Johansen co-integration was conducted to test the existence of a long run relationship among the variables. Prior to that conducting the co-integration test, we first ascertain the optimal lag length criteria for the variables using Akaike Information Criterion (AIC), Schwarz Information Criterion (SC) and Hannan-Quinn Informamation Criterion (HQ) criteria and it was found that 1 lag is more suitable for our analysis. The result of the Johansen co-integration test presented in the table above indicates at least 1 co-integration equation by trace test. Max-eigenvalue test also confirmed the existence of 1 co-integration equation in the model. Hence, we concluded that there exists a long run relationship among variables. This result necessitates the estimation of Error Correction model.

Table-5. Normalized Co-integrating coefficients (standard error in parentheses)

RGDP	FDI	HDI	ODA
1.000000	4263.929	-100541	5.69E-06
	(1183.75)	(7202.82)	(6.6E-07)
t-stat	3.60201	-13.9585	0.8621

Eview, 9

A normalized coefficient table presents the estimate of the model (co-integrating equation) with all variables taken to the left hand side. Below each coefficient estimate, the standard error is given within parentheses. The ratio of the coefficient to its standard error is the t statistic.

Table 5 presents the normalized co-integrating result. Due to the normalization process, the signs are reverted in the interpretation. Using real gross domestic product as dependent variable, it has a negative relationship with FDI, ODA while it has a positive relationship with HDI. All the series are statistically significant at the level of 5%. The above result implies that FDI contributes inversely to economic growth in Nigeria, as a unit increase in FDI results in about 4263.929 units decline in economic growth in Nigeria. This is attributed to mismanagement and corrupt practices of successive government in using proceeds from foreign investment in Nigeria injudiciously. This is not connected to the structure of foreign inflows that is capable of influencing the productivity of the economy but strictly to the harsh investment policy and capital flight in the aspect of political leaders. This is particularly a detrimental to the economy because Nigeria macroeconomic indicators have not been fairing well over years. In the same manner, real gross domestic product responds inversely to changes in official development assistance. A unit increase in official development assistance results in 5.68 units decrease in economic growth. However, HDI posits a positive relationship, which means that a unit increase in HDI will result to 10051.0 units increase in real gross domestic product.

Table-6. Error Correction Model

Vector Error Correction Estimates				
Date: 08/19/20 Time: 18:01				
Sample (adjusted): 1993 2017				
Included observations: 25 after adjustments				
Standard errors in ( ) & t-statistics in [ ]				
Cointegrating Eq:	CointEq1			
RGDP(-1)	1.000000			
FDI(-1)	3747.810			
	(893.695)			
	[4.19361]			
HDI(-1)	-105591.9			
	(8403.54)			
	[-12.5652]			
ODA(-1)	5.45E-06			
	(6.2E-07)			
	[8.75999]			
C	-26862.82			
Error Correction:	D(RGDP)	D(FDI)	D(HDI)	D(ODA)
CointEq1	-0.064278	-3.31E-05	7.48E-06	-250440.4
	(0.05871)	(5.9E-05)	(4.5E-06)	(86450.0)
	[-1.09493]	[-0.56309]	[1.67692]	[-2.89694]
D(RGDP(-1))	0.813955	6.14E-05	4.21E-05	-356729.1
	(0.25274)	(0.00025)	(1.9E-05)	(372180.)
	[3.22058]	[0.24285]	[2.19601]	[-0.95849]
D(RGDP(-2))	-0.295262	-0.000247	-1.58E-05	-336349.1
	(0.29773)	(0.00030)	(2.3E-05)	(438441.)
	[-0.99171]	[-0.82737]	[-0.69888]	[-0.76715]
D(FDI(-1))	94.33265	-0.103593	0.001441	6.76E+08
	(248.409)	(0.24862)	(0.01886)	(3.7E+08)
	[0.37975]	[-0.41668]	[0.07638]	[1.84844]
D(FDI(-2))	152.7957	-0.203432	-0.011192	-58534143
	(255.869)	(0.25608)	(0.01943)	(3.8E+08)
	[0.59716]	[-0.79440]	[-0.57605]	[-0.15535]
D(HDI(-1))	-2425.199	-2.752213	0.570430	-1.76E+10
	(5247.98)	(5.25236)	(0.39851)	(7.7E+09)
	[-0.46212]	[-0.52400]	[1.43142]	[-2.27250]

D(HDI(-2))	-5693.658	0.968683	0.428166	-3.59E+09
	(5082.70)	(5.08695)	(0.38596)	(7.5E+09)
	[-1.12020]	[0.19042]	[1.10937]	[-0.48026]
D(ODA(-1))	1.58E-07	6.66E-11	-1.68E-11	0.522879
	(1.8E-07)	(1.8E-10)	(1.3E-11)	(0.26070)
	[0.89071]	[0.37598]	[-1.24971]	[2.00569]
D(ODA(-2))	7.87E-08	4.58E-11	-1.44E-11	0.099419
	(1.5E-07)	(1.5E-10)	(1.2E-11)	(0.22540)
	[0.51426]	[0.29865]	[-1.23883]	[0.44107]
C	1109.759	0.355356	-0.047907	1.89E+09
	(624.673)	(0.62519)	(0.04743)	(9.2E+08)
	[1.77655]	[0.56839]	[-1.00995]	[2.05231]
R-squared	0.594513	0.206741	0.328126	0.674802
Adj. R-squared	0.351221	-0.269215	-0.074999	0.479683
Sum sq. resids	22581668	22.61944	0.130209	4.90E+19
S.E. equation	1226.966	1.227991	0.093170	1.81E+09
F-statistic	2.443620	0.434370	0.813956	3.458412
Log likelihood	-206.8956	-34.22264	30.24518	-561.9593
Akaike AIC	17.35165	3.537811	-1.619614	45.75674
Schwarz SC	17.83920	4.025361	-1.132064	46.24429
Mean dependent	1954.832	-0.037811	0.021320	1.24E+08
S.D. dependent	1523.295	1.090003	0.089861	2.50E+09
Determinant resid covariance (dof adj.)	3.10E+22			
Determinant resid covariance	4.02E+21			
Log likelihood	-763.7258			
Akaike information criterion	64.61806			
Schwarz criterion	66.76328			

Source: Eview 9

4.3. Var Model

D(RGDP) = - 0.0642783815775*(RGDP(-1) + 3747.81003083*FDI(-1) - 105591.946811*HDI(-1) + 5.44801356821e-06*ODA(-1) - 26862.8164313) + 0.813954582145*D(RGDP(-1)) - 0.29526178454*D(RGDP(-2)) + 94.3326539771*D(FDI(-1)) + 152.795651587*D(FDI(-2)) - 2425.19909985*D(HDI(-1)) - 5693.65790113*D(HDI(-2)) + 1.57682824381e-07*D(ODA(-1)) + 7.87151368762e-08*D(ODA(-2)) + 1109.75906137

D(FDI) = - 3.30841661419e-05*(RGDP(-1) + 3747.81003083*FDI(-1) - 105591.946811*HDI(-1) + 5.44801356821e-06*ODA(-1) - 26862.8164313) + 6.14269694619e-05*D(RGDP(-1)) - 0.00024653858133*D(RGDP(-2)) - 0.103592509636*D(FDI(-1)) - 0.203431707668*D(FDI(-2)) - 2.75221287634*D(HDI(-1)) + 0.968682849649*D(HDI(-2)) + 6.66156052789e-11*D(ODA(-1)) + 4.57516092124e-11*D(ODA(-2)) + 0.355355883303

D(HDI) = 7.47536526121e-06*(RGDP(-1) + 3747.81003083*FDI(-1) - 105591.946811*HDI(-1) + 5.44801356821e-06*ODA(-1) - 26862.8164313) + 4.21446603871e-05*D(RGDP(-1)) - 1.58003971285e-05*D(RGDP(-2)) + 0.00144075789805*D(FDI(-1)) - 0.0111922731345*D(FDI(-2)) + 0.570429845101*D(HDI(-1)) + 0.428165777882*D(HDI(-2)) - 1.67996201621e-11*D(ODA(-1)) - 1.43988886408e-11*D(ODA(-2)) - 0.0479066007791

D(ODA) = - 250440.405659*(RGDP(-1) + 3747.81003083*FDI(-1) - 105591.946811*HDI(-1) + 5.44801356821e-06*ODA(-1) - 26862.8164313) - 356729.092509*D(RGDP(-1)) - 336349.065244*D(RGDP(-2)) + 676174725.194*D(FDI(-1)) - 58534143.1999*D(FDI(-2)) - 17562360254.2*D(HDI(-1)) - 3594660234.49*D(HDI(-2)) + 0.522879391811*D(ODA(-1)) + 0.0994194351455*D(ODA(-2)) + 1887917559.26

In the co-integration table, it was revealed that there is a long-run relationship in the model. This necessitates the importance of analyzing ECM to measures the speed of adjustment in the model through a short-run dynamics. The ECM is significant, if it has a negative sign which implies that the present value of the dependent variable adjust rapidly to changes in the independent variable. A higher percentage of ECM indicates a feedback of that value or an adjustment of that value from the previous period disequilibrium of the present level of the dependent variable and the present and past level of the independent variables. The ECM links the long-run equilibrium relationship implied by co-integration with the short-run dynamics adjustment mechanism that describes how the variables react and move out of the long-run equilibrium.

In the table 6 above, it shows the result of the ECM which is in line with our a priori expectations. The negative sign of ECM value in the model shows that the ECM meets rule of thumb. This implies that the present value of the FDI, HDI and ODA adjust rapidly to changes in RGDP. The ECM value of -0.064278 shows a feedback of about 6% of the short-run disequilibrium and inconsistencies were being corrected and incorporated into the long-run equilibrium.

Table-7. Diagnostics Test (Serial Autocorrelation Test)

VEC Residual Serial Correlation LM Tests		
Null Hypothesis: no serial correlation at lag order h		
Date: 08/19/20 Time: 21:51		
Sample: 1990 2017		
Included observations: 25		
Lags	LM-Stat	Prob
1	16.10451	0.4457
2	16.84450	0.3957
3	27.28040	0.0385
4	18.30613	0.3063
Probs from chi-square with 16 df.		

Autocorrelation LM test reports the multivariate LM test statistics for residual serial correlation up to the specified order, the residuals of the regression equation were tested for serial correlation using the serial correlation LM test. The null hypothesis was tested which stated that there is no serial correlation. This was necessary because, serial correlation in the residuals will lead to incorrect estimates of the standard errors, and invalid statistical inference for the coefficient of the equation. From our analysis we accept the Null Hypothesis of lag order in the residuals of the VECM and conclude that residuals are not serially correlated.

Table-8. Heteroskedasticity Test

| VEC Residual Heteroskedasticity Tests: No Cross Terms (only levels and squares)					
Date: 08/19/20 Time: 18:06					
Sample: 1990 2017					
Included observations: 25					
Joint test:					
Chi-sq	df	Prob.			
193.1165	180	0.2388			
Individual components:					
Dependent	R-squared	F(18,6)	Prob.	Chi-sq(18)	Prob.
res1*res1	0.580550	0.461358	0.9049	14.51375	0.6950
res2*res2	0.759010	1.049851	0.5166	18.97525	0.3933
res3*res3	0.806755	1.391596	0.3602	20.16889	0.3234
res4*res4	0.938708	5.105152	0.0262	23.46771	0.1733
res2*res1	0.494452	0.326018	0.9699	12.36131	0.8280
res3*res1	0.869609	2.223084	0.1643	21.74023	0.2437
res3*res2	0.886393	2.600763	0.1207	22.15983	0.2250
res4*res1	0.944303	5.651383	0.0203	23.60756	0.1683
res4*res2	0.897449	2.917086	0.0951	22.43623	0.2132
res4*res3	0.848757	1.870626	0.2250	21.21893	0.2685

One of the statistical assumptions of OLS is that the error terms for all observations have a common variance (homoscedastic). On the contrary, varying variance errors are said to be heteroskedastic. The null hypothesis was stated as there is no heteroskedasticity. From our analysis, the models had no heteroskedasticity since the p-value is more than 5% level of significance. Hence, we could not find reasons to reject the null hypotheses because they were insignificant at 1%, 5% and 10%. This result is an indication that the result is appropriate for policy formation.

4.4. Stability Diagnostics

This option shows a plot of the recursive residuals about the zero line. Plus and minus two standard errors are also shown at each point. Residuals outside the standard error bands suggest instability in the parameters of the equation.

The CUSUM test is based on the cumulative sum of the recursive residuals. This option plots the cumulative sum squares together with the 5% critical lines. The test finds parameter instability if the cumulative sum goes outside the area between the two critical lines.

Figure-2. Stability Diagnostics (CUSUM of SQUARES)
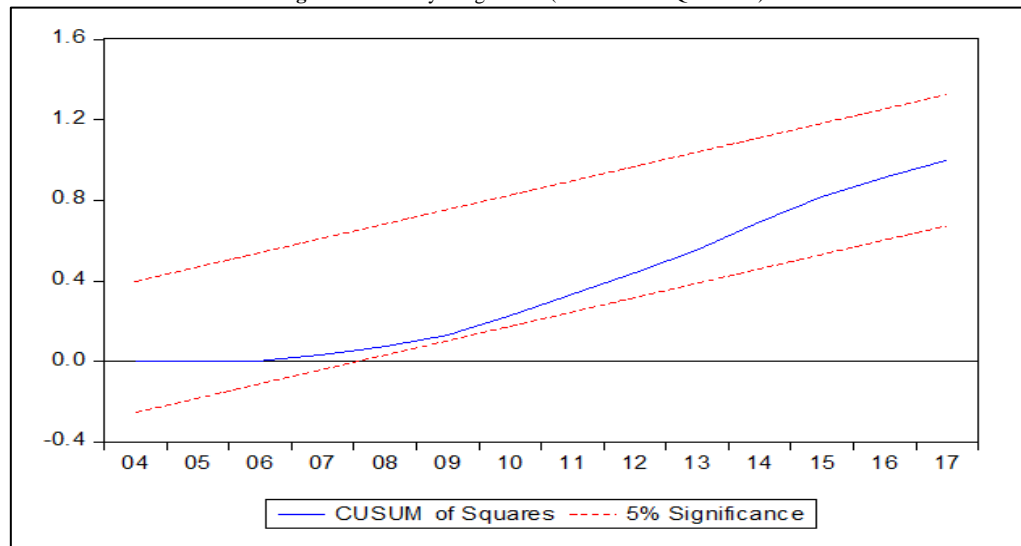
The cumulative sum of squares is generally within the 5% significance lines, suggesting that the residual variance is somewhat stable. This means that the graph above indicates that parameters are stable and there is no structural break.

5. Discussion of Findings

This study investigated the effect of foreign aids on Nigeria economic growth spanning over the period 28 years between 1990 and 2017. Multiple regression analysis and ECM model was specified and estimated to analyse the data. The variables were subjected to preliminary test that is carried out using Augmented Dickey Fuller and PP approaches to determine the unit root in the time series property of the series. The result revealed that the series are not stationary at the level form, however, became stationary after first difference. The Johansen co-integration approach was further used to test the number of co-integrating vectors. The result of the trace and maximum indicate 1 co-integrating relationship and maximum Eigen value indicates 1 co-integrating relationship as well. The long run relationship was tested using Johansen cointegration test which established the existence of a long run relationship between the variables. Real gross domestic product has a negative relationship with FDI, ODA while it has a positive relationship with HDI. All the series are statistically significant at the level of 5%. The above result implies that FDI contributes inversely to economic growth in Nigeria, as a unit increase in FDI results in about 4263.929 units decline in economic growth in Nigeria. In the same manner, real gross domestic product responds inversely to changes in official development assistance. A unit increase in official development assistance results in 5.68 units decrease in economic growth. This result contradicts the study by Onakoya and Ogunade (2016) that reported a positive relationship between official development assistance and real gross domestic product. Theoretically, the implication of foreign aids known as official development assistance is assumed to be positive. However, the result is in line which reported negative relationship between official development assistance. However, HDI posits a positive relationship, which means that a unit increase in HDI will result to 10051 units increase in real gross domestic product. This variable was introduced to capture the indirect effect of foreign aids on educational development, healthcare and social services that is capable of improving productivity in the economy. ECM analysis was performed and the findings revealed that the speed of adjustment to its long run equilibrium was corrected at 6%. The residuals were further subjected to various diagnostic tests such as Jarque-Bera test of normality. Bruesch-Godfrey test of serial correlation which shows that the variables have no problem of serial correlation, Breusch-Pagan-Godfrey test of Heteroskedasticity shows that there was no heteroskedasticity in the variables.

6. Conclusion

This study investigated the impact of foreign aids on Nigeria economic growth for the period of 28 between 1990 and 2017. The study was motivated due to slow economic growth and possible economic recession has forecasted by the economists and financial experts despite the assistance getting from developed countries in forms of grants, concession and investments. Theoretically, the study has revealed that foreign aids ought to contribute significantly towards the growth of an economy. However, empirical findings have given different and contradictory results in the previous years. In this study, it was revealed that foreign aids and foreign direct investment have negative long-run relationship with economic growth while human development index has a positive long-run relationship with economic growth. Regression analysis revealed that foreign aids and foreign direct investment were not statistically significant, however; human development index was statistically significant. While controlling for other variables, ANOVA revealed that foreign aids have a significant impact on economic growth in Nigeria.

Recommendation

Based on the findings, the study provide the following policy recommendations

i. The effectiveness of foreign aids could be influenced by human development index as revealed by granger causality, therefore it becomes paramount for policy maker to ensure that foreign assistant should be channeled to education, healthcare and other social services

ii. Foreign aid in form of foreign direct investment should be encouraged rather than financial aid to avoid embezzlement of those funds.

iii. Finally, government needs to formulate strong and effective education and health policies to facilitate and attract investment in the sectors and improve their efficiency in the long-run.

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