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Impact of Foreign Aid on the Economic Development of Nigeria: 1986 - 2016

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Abstract
The study researched into the impact of Foreign Aid (FA) on the Economic Development of Nigeria since the literature is yet to reach an agreement on the role of FA in economic development. The study made use of secondary data and reviewed past works done in the area for knowledge gathering. We employed vector error correction model (VECM), after unit root test and Johansen cointegration test of the series were carried out. The study found out that foreign aid flow (FAF) in Nigeria is positively related to gross domestic product (GDP), but however insignificant. That is, it does not create impact on the economy to be felt by the people. The study recommended that government should ensure that foreign aid received are invested in productive ventures and create institutions to monitor its usage, as well block diversion to non-authorised purposes.
Keywords: Foreign Aid, Economic Development, GDP, Nigeria

1. Introduction

From the beginning of global recognition and development, countries have realised that for the betterment of their citizenry and nation-building, financial assistance from more developed and richer nations to smaller developing countries remain critical for national goals achievement and fulfilment. Though there have been several empirical studies on the effects of foreign aid on the economies of recipient nations, it is imperative to consider each country's endowments in assessing the need for foreign aid assistance. Historically, the advent of foreign aid could be traced back to the 1940s after the Second World War's massive destruction. Foreign aid was introduced after the war to assist most affected nations in their reconstruction and rehabilitation efforts, following the collapse of the international economic system which was characterised by the absolute lack of capital required for such endeavours (Abouraia, 2014).

Foreign aid represents an important source of finance in most countries in Sub-Sahara Africa (SSA), including Nigeria, where it is expected to stimulate economic growth by supplementing domestic sources of finance such as savings; thereby increasing the amount of investment and capital stock in the country (Njeru, 2003). Aid could also increase investment in physical and human capital, capacity to import capital goods or technology and it is also associated with technology transfer that increases productivity of capital and promotes endogenous technical change. Several observers argue that a large portion of foreign aid flowing from developed to developing countries may have been wasted and have only increased unproductive public consumption. Poor institutional development, corruption, inefficiencies and bureaucratic failures in the developing countries are often cited as possible reasons for these results. Some experts argue that aid has enlarged government bureaucracies, perpetuated poor governance and enriched the elite few in poor countries. Others opine that although aid has sometimes failed, but since they have supported poverty reduction, health initiatives and growth in some countries, they should still be encouraged.

Over the last five decades, the World Economic Forum (2015) estimates that western donors 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. Despite a large number of academic studies, researchers have not reached a consensus on whether aid helps or hinders economic growth in developing countries.

1.1 Objective of Paper

The objectives of this paper is to:

i. assess the impact of foreign aid on Nigeria's economic development.
ii. identify its significance in the development process in Nigeria.

1.2 Scope of Paper

This paper intends to focus specifically on the impact of foreign aid on Nigeria's economic development in the period 1986 to 2016. This 30-year period data is considered adequate to reach credible conclusions in our study because it covers the period of major structural changes (introduction of the Structural Adjustment Programme - SAP) and spans through contemporary Nigeria with endemic her corruption, which necessitated the introduction of the treasury single account, aimed at assisting in improved public financial management. Thus, the rationale

for studying the impact of foreign aid on the country's economic development.

2. Literature Review

2.1 Conceptual Issues

Foreign aid can be taken to mean the flow of resources - both capital and technical assistance- from developed countries to the developing ones. In its broadest sense, it means financial or technical assistance given by one country's government to another to support social and economic development or to respond to a disaster in the receiving country. It can also involve providing financial grants or loans, technical advice, training, equipment and commodities such as food, health, infrastructure and transport. For these types of resources to be referred to as aid, Bhagwati (1972) believes that they must meet two criteria:

i. The objectives must be non-commercial from the point of view of the donor.
ii. They should be characterised by concessional terms (that are less stringent than commercial loans.)

Cassen and Associates (1994) further noted that the fundamental idea of aid is a transfer of resources on more generous (or softer) terms than loans obtainable in the world's capital markets. Their definition excludes concessional flows like those of private voluntary agencies, credits for military purposes, etc. Arnold (1985) presented an historical appraisal of aid and traced its origin to the 19th century, when British capital helped develop growing USA. In more recent times, the American Marshall Plan helped bring about the financial and economic recovery of war-torn Europe. Modern aid could be said to have started with the Colombo Plan of 1950/51, which was a Commonwealth initiative to help the newly independent South East Asian nations. The emergence of the Cold War and the end of Colonial Empires in the 1960s gave real impetus to the significance of aid, as it was then seen as a political weapon to assist the numerous independent, poor, backward states in Africa and Asia. The 1970s marked the age of disillusionment as questions were then asked as to whether aid was achieving the stated objectives. The mid-1970s saw a number of Mid-East Arab nations becoming powerful as a fallout of the Yom Kippur War. The 1980s saw a reappraisal of the aid phenomenon as a result of the economic crises occasioned by the world recession. The collapse of the Iron Curtain in the early 1990s saw a gradual refocusing of the considerations underlying the granting of aid by donor agencies.

Aid could be of two main forms: either bilateral (i.e. country to country) or multilateral (i.e. channelled through international agencies like the World Bank, UN agencies etc). The above two could additionally take any of the following forms: Project aid, Programmed aid, Technical assistance, Financial aid, Food aid, Emergency assistance, etc.

2.1.1 Reasons for Giving Aid

What are the various reasons for giving of aid by donor agencies/countries and the receiving by recipient countries? The literature is replete with donors' motives for giving aid, ranging from economic to social, moral, strategic, political etc. reasons. (Gaud 1968, Griffin and Enos 1970 and Myrdal 1981). A study conducted by Moore and Robinson (1995) at the Institute of Development Studies at Sussex, UK explored the use of aid by donor agencies to promote what is referred to as 'good government' in recipient countries. The study identified two approaches - punitive and positive - through which donor countries determine aid recipients (Palda, 1993).
Recipients also receive aid for a myriad of reasons, ranging from the need to expand resource base, consolidate political power and develop local manpower and resource base. These reasons are well-documented in the cases of Somalia and Kenya by Arnold (1985), Pakistan by Khan and Rahim (1993) and Cameroon by Mbakwu (1993). In sub-Sahara Africa, many reasons account for why donor countries give aid and why recipient countries in this region seek and receive such aid. For instance, the USA aid expenditure has tended to follow the nation's strategic priorities.

In the 1940s, Europe received the most U.S. assistance as war-torn European nations rebuilt their national economies and infrastructures. In the 1950s and 1960s, Asian countries-particularly South Korea, Taiwan and South Vietnam-received about half of U.S. bilateral assistance. In the 1970s, U.S. priorities shifted to the Middle East when the United States gave large security and economic assistance to Israel and Egypt. The foreign aid spending of other bilateral donors have also tendered to follow their political or economic interests. Japan, for example, devotes the majority of its aid spending to countries in Asia. France gives most of its aid to its former colonies, as does Britain. That pattern appears to be less true, however, for some of the smaller donors; the countries of Scandinavia, for example, devote their resources to the countries they perceive to be most needy (Arnold, 1985).

Multilateral institutions such as the World Bank Group and the regional multilateral development banks have generally favoured the poorest countries in the developing world. The flow of private capital to developing countries increased substantially in the early 1990s. Those flows include direct investment, lending by international banks, and equity flows (investment in the stock markets of developing countries). Alesina and Dollar (2000) studied the pattern of allocation of foreign aid from various donors to receiving countries. They found considerable evidence that the direction of foreign aid is dictated as much by political and strategic considerations, as by the economic needs and policy performance of the recipients.

2.1.2 What is Economic Development?

Academic interest in development studies started gaining real prominence in the past seven decades in the aftermath of the Cold War which followed the 2nd World War. This assertion may not however be entirely true if we consider the fact that great classical and neo-classical economic thinkers like Adam Smith, David Ricardo, Stanley Jevons, Leon Walras, etc. have all been concerned with how to increase the level of production and investment in any given economy. Classical economists view development as a purely economic phenomenon wherein gains in economic growth will be reflected in increased job opportunities, reduction of poverty, etc.

According to Todaro (1992), economic development should be seen as multi-dimensional in nature, involving changes in structures, institutions, attitudes, as well as the acceleration of economic growth, reduction of inequality and eradication of absolute poverty. In trying to make a distinction between the two terms, Jhingan (2011) maintained that economic development is used to describe not only quantitative measures of a growing economy (such as the rate of increase in real income per head), but the economic, social and other changes that lead to growth. He went further to say that growth is measurable and objective; it describes expansion in the labour force, in capital formation and in the volume of trade and consumption. It is economic development that is used to describe the underlying determinants of economic growth, such as changes in techniques of production, social attitudes and institutions, income distribution and level of poverty.

This new trend has also been recognised by the World Bank because it's Development Reports since the beginning of the 90s has been stressing other aspects of development, like better education, higher health standards, less poverty etc. While it still ranks developing countries on the basis of per capita GNP, it stresses that other indicators representing education levels, health care, and food production are also important.

The United Nations Development Programme, in its annual Human Development Report, builds a composite Human Development Index (HDI), which assigns a value to a country based on its GNP per capita, life expectancy, adult literacy and mean years of schooling. For the purpose of this study, development is therefore taken to encompass a long-term trend of growth in GNP per capita, rising education levels, improving health conditions, low to moderate population growth, sustainable use of natural resources and the environment, and secure access to adequate amounts of food.

2.2 Empirical Literature

Empirical studies about the relationship between foreign aid and economic growth have produced inconsistent and somewhat elusive results. On the important question of whether aid contributes to development or not, the debate is broadly divided into those who believe it hastens development and those who believe it does not. Cassen and Associates (1994), Chenery and Carter (1973), Papanek (1973), Rostow (1960) and Sachs (2005) represent one side of the divide that believes that foreign aid is a necessary condition for developing nations to achieve take-off.

There are, on the other hand, those who believe that foreign aid has done nothing but impoverish the economies it was supposed to develop, distort consumption, lower growth rate, worsen inequalities, engender corruption at both ends, etc. (Bauer, 1981; Bhagwati, 1970; Boone, 1994, 1996; Dacy, 1975; Griffin and Enos 1970; and Mosley and Hudson, 1984). More recently, there are writers who are more interested in the political and 'world trade' undertones of foreign aid (Easterly, 2006; Chang, 2007; Moyo, 2009 and Stiglitz, 2002). They believe that, rather than helping poor African nations to develop, foreign aid further impoverishes them.

2.2.1 Foreign Aid has positive Impact on Development

Burnside and Dollar (2000) carried out an extensive study on data from a cross-section of developing countries and found out that foreign aid has a strong positive effect on growth in low-income countries with good policies, while it has no measurable effect in countries with severely distorted policy regimes. Also, in the same vein, a 1995 study by the World Bank (1996) found an average rate of return of 17 percent on projects completed between 1990 and 1994 in developing countries.

Gomanee, *et al* (2005) tested the hypothesis that aid contributes to increasing aggregate welfare, measured by infant mortality and Human Development Index (HDI) in recipient countries. Estimation was based on data for 104 countries over the period 1980 to 2000, and for sub-samples of low income and middle-income countries. Fixed effects estimates provide robust evidence that aid is associated with improved values of the welfare indicators and this effect appears to be greater in low-income countries. Aid appears to increase welfare either directly or through the effect on growth.

Alvi and Senbeta (2011) examined the effects of foreign aid on poverty using dynamic panel estimation techniques. According to them, this technique enables the control for time-invariant, country-specific effects of aid and its endogeneity. The study found out that, even after controlling for average income, there was a significant poverty reducing impact of aid. Foreign aid is thus associated with a reduction in poverty as measured by the poverty rate, poverty gap index and squared poverty gap index. Alvi and Senbeta concluded that the composition of aid matters, as multilateral aid and grants have more poverty reducing effect than that of bilateral aid and loans.

Some of the studies of the effectiveness of aid on development conclude that aid may affect some aspects of human development such as education and health. Dreher, Nunnenkamp and Theile (2006), using panel data and a dynamic panel estimator on primary school enrolment rate as the measure of education outcome, examined the impact of aid on education in less developed countries and found out that aid has statistically significant positive effects on primary school enrolment rates.

Mishra and Newhouse (2007) focused their research on the effectiveness of aid on health outcomes. The authors used panel data to investigate effectiveness of aid on different measures of health outcomes. The study concludes that total aid per capita and per capita health aid reduce infant mortality rates significantly but aid has no significant impact on life expectancy. Aggregate aid improves Human Development Index (HDI) and reduces infant mortality rates in less developed nations. Gomanee, *et al* (2005) are also of the opinion that aggregate aid improves human welfare and reduces infant mortality rate and effectiveness of aid on health and human welfare is higher at lowest levels of income.

2.2.2 Aid Does Not Significantly Impact Development

On the other, Mosley (1996) has shown that when the donor receipt relationship is modelled as a non-cooperative game, moral hazard problems can lead to aid having little impact on the problems it is intended to alleviate. Aid may simply relax the budget constraint of the recipient government without having much impact on the amount of that budget that ultimately is used to purchase capital. Furthermore, the donor government can also be part of this game for reasons other than benevolence. Donor interest may lead to suboptimal use of aid and dampen any positive impact that it has.

Mallik (2008) examined the effectiveness of foreign aid on economic growth in the six poorest and highly aid dependent African countries by using the Johansen's co-integration tests. The empirical results showed that aid as a percentage of GDP and the long run impact of aid on growth was found negative for most of the sample countries. In a study of Pakistan, an economy that has received considerable amount of foreign aid recently, Ali and Ahmad (2013) explored the impact of aid on income inequality in Pakistan for the period 1972-2007. The result confirmed the income inequality increasing impact of official aid in Pakistan in the long run. It is evident that the financial resources received in terms of foreign aid have not been used for development; rather these funds may have been sidetracked to unproductive activities. So, the aid inflows could not add to the growth of Pakistan economy and employment generation, but rather increased the income inequality in the economy. Ugwuegbe, Okafor and Akarogbe (2016) investigated the effect of external borrowing and foreign financial aid (foreign grant) in the form of official development assistance (ODA) on the growth of the Nigerian economy over a period of 34 years from 1980 to 2013. Their study employed Ordinary Least Squares technique (OLS) and revealed foreign aid was positively related to GDP, but statistically insignificant.

2.2.3 Still Unresolved

Nevertheless, the debate is still ongoing and has remained largely unresolved. This is because the issue cannot be settled on purely economic terms, which is a major pitfall of most studies. Just like the question of development, foreign aid is a multi-dimensional phenomenon. Mankiw (1995), after examining empirical models of several nations' growth, suggested that the roughly 100 nations for which data on economic performance over recent decades are available, offer too few observations to allow scholars to discriminate among the many other factors that contribute to growth, notably including foreign aid. According to Mankiw, the empirical evidence from this body or research is simply too limited to enable analysts to reach strong conclusions.

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.

The apparent lack of any correlation between the amount of foreign aid a country receives and its per capita rate of economic growth, in particular, has fostered vigorous debate among economists about whether or not aid is effective. Despite a large number of academic articles, this literature has not reached a consensus. Researchers seem divided into ideological camps, each fighting for their model, with one group claiming to show that aid works, and the other group pointing to a lack of robustness of these results.

In summary, a broad review of the literature on development appear to suggest that foreign aid, in the best of circumstances, may play only a modest role in promoting economic development and improving human welfare. Other factors, such as the quality of a developing country's government and the policies it pursues, appear to be as equally important in promoting growth and development, than the quantity, quality, or type of foreign aid the country receives.

2.3 Theoretical Review

Old growth theories consider capital scarcity as a major contributory factor to economic backwardness in

developing nations. External finance was seen as a way out of poverty and stagnation by providing developing countries with the much needed, scarce investment goods. This represent the central thesis of the so-called 'capital bottleneck theories' (Chenery and Strout, 1966; Meier and Stiglitz, 2001). Strongly influenced by the experience of European reconstruction following the Second World War facilitated by the American-sponsored Marshall Plan, early growth models stressed the role of capital and capital formation in development (Papanek, 1972). Growth was seen to require real resources for the production of capital goods not meant for immediate consumption, but could increase the production potential in future periods. Since most underdeveloped countries were assumed to be capital deficient, unlocking development requires in turn, the overcoming of this main constraint to growth.

We can view this idea as dating back to J. M. Keynes who in the 1930s argued that governments could stimulate development by financing investments (Meier and Stiglitz, 2001). Keynes' ideas for the domestic economy were taken up by modern development economists who believed that investment in developing countries could be stimulated by injections of cash from overseas. Since poor countries have low incomes and accordingly, low savings, they are caught in a vicious cycle of poverty. This is because they experience low-level equilibrium trap whereby higher income does not lead to increased savings, but only results in higher population growth. Thus, it was argued that investment financed by foreign aid would eliminate the vicious cycle and connect developing countries to the much more virtuous cycle of productivity and growth. Following this theory, it was assumed that donors can simply calculate the financing gap, which is the difference between domestic saving and the level of investment required for a targeted rate of economic growth, and thereby fill it with aid (Meier and Stiglitz, 2001).

The Harrod-Domar (Harrod, 1948; Domar, 1947) growth model is the most well-known formulation of the gap theory. The model assumes that there is an excess supply of labour and that growth is constrained only by the availability and productivity of capital. Since savings in developing countries are likely to be too low to achieve a target growth rate, foreign aid was needed in order to relieve the savings constraint and increase investment; thus leading to economic growth.

Chenery and Strout (1966) reformulated the Two-Gap model of Harrod-Domar and maintained that to achieve a given growth rate, a developing country must have adequate savings for investment and sufficient foreign exchange to buy capital goods necessary for development from the international market. If a country is deficient in either area, then foreign aid can fill the gap either by providing foreign saving to supplement inadequate domestic saving or by providing the necessary foreign exchange to buy the goods and services in the international market that the country requires for development, but cannot produce on its own. The basic argument of the Chenery and Trout's 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).

Thus, by specifying a particular growth rate and holding productivity constant, one can determine the amount of aid needed to achieve that growth by subtracting export earnings from import requirements. The larger of the two gaps is the amount of foreign aid the country needs to achieve the given growth rate. Foreign aid will thus "fill two gaps at once" because foreign aid provided as foreign exchange can be used to buy imported capital goods and can supplement domestic saving directly.

Todaro and Smith (2011) lent credence to this theory by arguing that the financial constraint on development arising from the two-gap approach needs to be further 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 of Chenery and Strout.

Finally, as put forward by Chenery and Strout (1966), the capacity of foreign aid to accelerate economic growth is contingent upon the absorptive 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.

2.4 Theoretical Framework

The Harrod-Domar growth model discussed earlier concentrates on the assumption that in a dynamic economy, aggregate savings must be equal to the aggregate investment. The central argument of this model is to maintain a steady rate of growth which combines both multiplier and accelerator principles to determine the rate of growth of income that assumes ex ante saving must be equal with ex ante investment. Thus, this model describes the economic mechanism whereby more investment leads to more growth. According to them, when aggregate supply expands, this leads to expansion on aggregate demand side such that business expends more, and affects the aggregate supply side whereby more investment increases capital stock and produces more business activities.

However, the main obstacle to development for developing countries, according to this theory, was the relatively low level of new capital formation in most poor nations. This capital constraint approach to growth and development became the justification, during the cold war politics, for transfers of capital and technical assistance from the developed to the developing nations. Hence, the rationale for foreign aid.

This framework could be related to the structure of the Nigerian economy and the need for foreign aid. Nigeria is a developing nation that still requires inflow of capital and capital formation for growth and rapid development. The nation is currently undergoing economic recovery and for sustainability, increased savings-investment and capital formation are needed and in the absence of that, the gap may need to be bridged from foreign aid. Poverty level is high and according to the World Development Indicators (2014), over 63 percent of the populace live below the poverty baseline of US$1.25 per day. Other indicators are also not too impressive - unemployment is high, savings is low and investment is generally low in the country. However, to bridge the gap and make up for the savings shortage, foreign aid is encouraged as it does not crowd-out private investment, compared with domestic borrowing. It is an additional capital inflow and when properly channelled to investment, economic growth should occur.

3. Research Methodology

This paper relies on secondary source of data from existing literature, empirical field studies and data provided by national and international agencies. It uses time series data from 1986 to 2016 and employs vector error correction method of data analysis for hypothesis testing after diagnostic test of cointegration (Johansen Cointegration Test) and Augmented Dickey-Fuller (ADF) unit root test of stationarity. The study also verifies the fitness of the model through normality test, heteroscedasticity test and serial correlation test.

3.1 Model Specification

Based on the foregoing, our model specification is adopted from the approach of Okoli and Agu (2015), expressed as Equation 1:

$$GDP = f(FA, EXCR, IMPT, EXPT) \quad (1)$$

where:
GDP= Gross Domestic Product
FA= Foreign Aid Flows
EXCR= Exchange Rate
IMPT = Import
EXPT= Export

However, this study modifies the above model by looking at the impact of openness of the economy to replace import and export data. Openness of the economy (OPN) is introduced to measure trade as a percentage of GDP and is obtained by adding import and export and dividing by GDP. In addition, we include the savings (SAV) variable to show whether savings in Nigeria has impact on GDP or not. Therefore, the model is specified as follows:

$$GDP = b_0 + b_1FAF + b_2OPN + b_3SAV + U \quad (2)$$

where:
GDP = Gross Domestic Product
FAF= Foreign Aid flow
OPN = Openness of the economy
SAV = Savings
U = the stochastic error term.
The a priori expectation are $b_1>0$, $b_2>0$ and $b_3>0$

3.2 Evaluation Procedure

The analysis is done through the following procedure.

3.2.1 *Stationarity Test.* The first step is to conduct the stationarity test. We use unit root test on the variables included in the model. This is achieved by employing the Augmented Dicker-Fuller (ADF) statistic. The ADF test is designed to ascertain the order of integration of variables in the model (Dickey and Fuller, 1979). The stationarity test is performed first at levels and then at first and second differences to establish the presence of unit roots and the order of integration in all the variables. All series are tested on ADF with intercept and at a lag difference. Although unit root test is not compulsory for the Vector Error Correction (VEC) Model.

For gross domestic product variable (GDP), the ADF equation is,

$$\Delta GDP_t = \beta_1 + \delta GDP_{t-1} + \sum_{i=1}^{m} \alpha i \Delta GDP_{t-1} + U_t \quad (3)$$

where,
ΔGDP_t is the difference between GDP at current time and previous time (i.e., $GDP_t - GDP_{t-1}$)

t is the time or trend variable.
$\sum_{i=1}^{m} \alpha i \Delta Y_{t-1}$ is the number of lagged difference terms to include.

3.2.2 *Cointegration Test.* The next step is the conduct of cointegration test which establishes the existence of long-run relationship between the variables. This step is carried out because all series are non–stationary at level, hence the check of whether there is long-run equilibrium of the series. It is however noted by Johansen and Juselius (1990) that the data is drawn from the non-stationary data (that is, before applying unit root result).

3.2.3 *Vector Error Correction Model (VECM).* This is to determine whether the dynamism governing the behaviour of the economy in the short-run is different from the long-run. The cointegration term is known as the error correction term since the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustments (Gujarati and Sangeetha, 2007). The VECM equation states that change in dependent variable depends on change in the explanatory variables and also on the equilibrium error term. The general form of the VECM is presented in equation (4) as follows:

$$\Delta \ln GDP_t = \alpha_0 + \sum_{i=1}^{n} \beta \Delta \ln GDP_{t-1} + \sum_{i=0}^{n} \lambda \Delta \ln OPN_{t-1} + \sum_{i=0}^{n} \Phi \Delta FAF_{t-1} + \sum_{i=0}^{n} \gamma \Delta \ln SAV_{t-1} + \delta Ect_{t-1} + U_t \quad (4)$$

where:
Δ is change
∑ is sigma which stands for summation
i is the number of lags included for the first difference of the variables.
n is the maximum lag included.
Ect_{t-1} is the lagged error correction term and t represent time period. The parameter δ is expected to be less than one, negative and statistically significant. The negative sign denotes long-run convergence of the model to equilibrium as well as explaining the proportion and the time it takes to adjust itself during shock or disequilibrium.

3.2.4 *Post Analysis Test.* The result of VECM was put to test of whether the model is the best regression for the study. To do that, we check for normality, homoscedasticity through heteroscedasticity test and serial correlation of the residual.

4. Data Analysis and Discussion of Results

Table 1: Unit Root Test

Variable	ADF Statistic	Critical Value	Order Of Integration
GDP	-3.355550	1% = -3.7076	I(2)
		5% = -2.9798	
		10% = -2.6290	
OPN	-3.478848	1% = -3.6852	I(1)
		5% = -2.9705	
		10% = -2.6242	--
FAF	-3.169436	1% = -3.6752	I(0)
		5% = -2.9665	
		10% = -2.6220	
SAV	-3.393647	1% = -3.7076	I(2)
		5% = -2.9798	
		10% = -2.6290	

Source: Eviews output conducted by the researchers

From **Table 1**, ADF statistic for each variable is compared with their respective critical value at 1 percent, 5 percent and 10 percent level of significance. Against this, it is observed that the ADF results for all variables were greater than 5 percent critical values. Thus, the GDP and SAV are integrated at second order I(2), OPN is integrated at first order I(1) and FAF is significant at level I(0). This means that the variables cannot be used at their original form except Foreign Aid Flow (FAF).

Table 2: Johansen Cointegration Test

Hypothesized		Trace	0.05	Max-Eigen	0.05
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Statistic	Critical Value
None *	0.614229	70.52160	47.85613	27.62283	27.58434
At most 1 *	0.519736	42.89877	29.79707	21.26917	21.13162
At most 2 *	0.409395	21.62960	15.49471	15.27164	14.26460
At most 3 *	0.196871	6.357952	3.841466	6.357952	3.841466

Source: Eviews output conducted by the researchers

Table 2 shows that both Trace and Max-Eigen values indicate 4 cointegrating equation at the 5% level of significance. Comparing the Trace and Max-eigen statistic with their corresponding 0.05 critical value, we observed that all are greater than their critical values. This means that the variables have long run equilibrium. Having established long-run relationship, we proceed to estimate the short-run impact of the explanatory variables on the explained variable and error correction term (Ect) to know the rate of adjustment to equilibrium after shock.

Table 3: Vector Error Correction Model

Variable	Coefficient	Standard Error	T-Ratio		Fitness Test	
Ect	0.031446	0.04729	0.66502		R-squared	0.621221
D(GDP(-1))	0.738749	0.30021	2.46078		Adj. R-squared	0.431831
D(GDP(-2))	-0.084912	0.30276	-0.28046		F-statistic	3.280122
D(OPN(-1)	5690.323	8450.22	0.67339		5% Critical t-value	1.717
D(FAF(-1))	4.29E-08	1.4E-07	0.30452		5% Critical f-value	2.34
D(FAF(-2))	3.73E-08	1.6E-07	0.23256			
D(SAV(-1))	0.649720	0.79569	0.81655			
D(SAV(-2))	0.344334	0.94836	0.36308			
C	-25.02488	654.678	-0.03822			

Source: Eviews output conducted by the researchers

Table 3 presents the VECM result such that, the FAF shows positive relationship with GDP in the short run conforming with a priori expectation but statistically insignificant when compared with the critical t-value (1.717) at 5 percent level of significance under degree of freedom 22 (i.e., n=32 – k=10). While OPN and SAV have positive relationship with GDP, both are insignificant. The Ect value is positive against the a priori expectation, thus suggesting divergence from equilibrium. Coefficient of determination (R^2) indicates 62 percent of the OPN, FAF and SAV jointly account for the variation in GDP. F-statistic (3.28) is higher than the critical f-value (2.34) suggesting significance and model adequacy.

This means that our analysis reveals relationships among the independent variables on dependents variable both in short and long run without impact created. This implies that, the short-run decision is not reliable but are achievable, if and only if, there are certain proactive actions on the part of the policy makers.

4.1 Post-Analysis Test

To further determine the fitness of the VECM, the following tests were carried out.

Table 4: Serial Correlation Test

H_0: No serial correlation

Lags	LM-Stat	Prob
1	15.30697	0.5023
2	14.45734	0.5647
3	22.465*34	0.1288
4	24.57448	0.0777
5	15.69825	0.4742
6	15.70998	0.4734
7	25.11920	0.0678
8	24.11585	0.0870
9	22.31856	0.1332
10	31.98579	0.0100
11	26.08177	0.0529
12	48.25719	0.0000
Probs from chi-square with 16 df.		

Source: Eviews output conducted by the researchers

The result of serial correlation in Table 4 shows the acceptance of the null hypothesis which states that

"there is no serial correlation at lag order 1 to 9" since the probabilities from lag 1 through 9 are greater than 0.05 level of significance.

Table 5: Heteroscedasticity Test

$H_{0:}$ No heteroscedasticity in the model

Joint test:		
Chi-sq	Df	Prob.
190.2794	180	0.2854

Source: Eviews output conducted by the researchers

Table 5 indicates no heteroscedasticity in the model as the probability value is greater than 0.05 level of significance. Hence there is equal spread of the standard error (homoscedasticity).

Table 6: Normality Test

$H_{0:}$ residuals are multivariate normal

	Joint Test: Chi-Square statistic	**Df**	**Probability**
Skewness	2.861276	4	0.5813
Kurtosis	4.037360	4	0.4010
Jarque-Bera	6.898635	8	0.5476

Source: Eviews output conducted by the researchers

Table 6 suggests insignificant Jarque-Bera statistic at 8 degree of freedom. It measures the difference of the skewness and kurtosis of the series with those from the normal distribution. Thus, acceptance of the null hypothesis reveals that the normality of the residuals.

4.2 Discussion of Empirical Results

The study finds out that Foreign Aid Flow (FAF) has relationship with the Gross Domestic Product (GDP) both in the short and long-run, but not strong enough to significantly create impact on the economy. That is, for every one-dollar increase in FAF, GDP will rise by 4.29E-08 and 3.73E-08 in periods one and two respectively. This supports the work of Ugwuegbe, Okafor and Akarogbe (2016) and could be attributed to probably the misappropriation of foreign aid funds as well as mismanagement and corruption. It could also be traced to bulk of the funds being channelled to payment of public sector staff emoluments and other recurrent expenses instead of productive investment (Ugwuegbe, Okafor and Akarogbe, 2016). In line with Mosley (1996), it could also be possible sabotage by donors for continuing under developing beneficial nations.

5. Conclusion

Foreign aid represents an important source of finance in most countries in Sub-Sahara Africa (SSA), including Nigeria, where it is expected to stimulate economic growth by supplementing domestic sources of finance such as savings; thereby increasing the amount of investment and capital stock in the country (Arnold, 1985; Khan and Rahim, 1993; Mbakwu, 1993). Due to the collapse of the international economic systems that resulted in reduced capital formation for the reconstruction of the infrastructure of nations mostly affected by the Second World War, foreign aid was introduced to enhance their economic development(Abouraia, 2014). In as much as foreign aid is encouraged, it has been observed in Nigeria that instead of impacting positively on infrastructure and economic development, it only resulted in waste and unproductive public consumption because of perceived corruption, policy implementation and weak institutions (Ugwuegbe, Okafor and Akarogbe, 2016). Easterly (2006), Chang (2007) Moyo (2009) and Stiglitz (2002) further maintained that rather than assisting poor African nations to develop, foreign aid further impoverishes them.

These assertions were tested in this study through the use of secondary data and vector error correction method of analysis after diagnostic test was carried out on the data set to ascertain their stability and fitness. It was revealed that foreign aid flow in Nigeria has positive relationship; but not strong enough to impact on the economy. R^2 was 62 percent and F-test was significant.

The study showed from reviewed literature that the lack of economic impact of foreign aid flow was caused by corruption and mismanagement of aid received and not channelled to productive investment. We then recommend, based on our findings, that government should ensure aid received are properly channelled into productive investment and create institutions to check its use as well block diversion to personal purses. Since FAF has positive relationship with GDP, it means that with time and proper channelling of foreign aid to production of capital goods, the impact will be felt in the economy. Therefore government should not be deterred from seeking foreign aid assistance; so long as the national savings remains poor.

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Appendix I: Regression Data Set

Year	GDP Nbillion	IMPT Nbillion	EXPT Nbillion	OPN = (IMPT+EXPT)/GDP	SAV Nbillion	FAF Net ODA
1986	15,237.99	5.9836	8.9206	0.000978095	13.93	$58,120,000
1987	15,263.93	17.8617	30.3606	0.003159232	18.68	$67,620,000
1988	16,215.37	21.4457	31.1928	0.00324621	23.25	$118,080,000
1989	17,294.68	30.8602	57.9712	0.005136343	23.80	$344,000,000
1990	19,305.63	45.7179	109.8861	0.008060032	29.65	$255,080,000
1991	19,199.06	89.4882	121.5354	0.010991351	37.74	$258,320,000
1992	19,620.19	143.151	205.6117	0.017775705	55.12	$258,820,000
1993	19,927.99	165.629	218.7701	0.019289407	85.03	$288,420,000
1994	19,979.12	162.789	206.0592	0.018461684	110.97	$189,660,000
1995	20,353.20	755.128	950.6614	0.083809396	108.49	$210,960,000
1996	21,177.92	562.627	1309.5434	0.088401996	134.50	$188,750,000
1997	21,789.10	845.717	1241.6627	0.095799262	177.65	$199,840,000
1998	22,332.87	837.419	751.8567	0.071163075	200.07	$203,340,000
1999	22,449.41	862.516	1188.9698	0.091382615	277.67	$151,990,000
2000	23,688.28	985.022	1945.7233	0.123721321	385.19	$173,800,000
2001	25,267.54	1358.18	1867.9539	0.127678987	488.05	$167,820,000
2002	28,957.71	1512.7	1744.1777	0.11247014	592.09	$299,550,000
2003	31,709.45	2080.24	3087.8864	0.162983792	655.74	$309,850,000
2004	35,020.55	1987.05	4602.7815	0.188170417	797.52	$578,770,000
2005	37,474.95	2800.86	7246.5348	0.268109625	1,316.96	$6,401,790,000
2006	39,995.50	3108.52	7324.6806	0.260859362	1,739.64	$11,431,960,000
2007	42,922.41	3911.95	8309.7583	0.284739564	2,693.55	$1,958,600,000
2008	46,012.52	5593.18	10387.694	0.347315774	4,118.17	$1,293,720,000
2009	49,856.10	5480.66	8606.3197	0.282552781	5,763.51	$1,639,000,000
2010	54,612.26	8163.97	12011.476	0.36943071	5,954.26	$2,052,360,000
2011	57,511.04	10995.9	15236.666	0.456130962	6,531.91	$1,767,690,000
2012	59,929.89	9766.56	15139.326	0.41558371	8,062.90	$1,914,240,000
2013	63,218.72	9439.42	15262.014	0.39072974	8,656.12	$2,515,760,000
2014	67,152.79	10538.8	12960.493	0.349937702	12,008.24	$2,479,020,000
2015	69,023.93	11076.1	8845.1588	0.288613801	11,458.13	$2,431,600,000
2016	67,931.24	9480.37	8835.6119	0.269625314	12,320.23	$2,522,330,000

Sources: National Bureau of Statistics, Central Bank of Nigeria publications (Various Years), International Monetary Fund Balance of Payments database.