Sectoral Analysis of Impact of Foreign Aid in Nigeria: A Dynamic Specification ALABI, REUBEN ADEOLU

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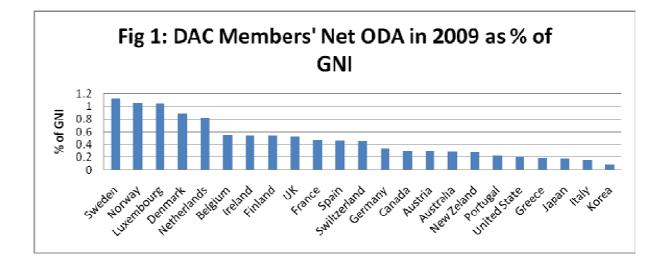
1.0 Introduction

Foreign aid represents an important source of finance in most countries in Sub-Sahara Africa (SSA), including Nigeria, where it can supplement low savings, narrow export earning s and thin tax bases. In fact, foreign aid is considered to be a major supplement to government expenditure in Nigeria¹. Foreign aid² stimulates economic growth by supplementing domestic sources of finance such as savings, thus increasing the amount of investment and capital stock in the country. Aid also increases; 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 (Njeru, 2003). All these are influenced by external, climatic, political and institutional conditions. Foreign aid can have positive effect on economic growth, through public expenditure if properly channeled to the productive sectors of the economy (Odusanya et al, 2011)³. Consequently, donor countries have begun to mobilize additional resources for the needs of developing countries. Several donors have pledged to reach the United Nation's target level (0.7 percent of donor's gross national income) for Official Development Assistance (ODA) over the next decade and which they have begun to significantly increase. In fact, as at 2009, countries such as Sweden (1.12 % of GNI), Norway (1.06% of GNI), Luxembourg (1.04% of GNI), Denmark (0.88% of GNI) and Netherlands (0.82% of GNI) have exceeded 0.7 percent of donor's gross national income pledge for ODA as indicated in Figure 1.

¹ As Nigeria's economic reform programme attracts foreign aid, its benefits have recently been under severe scrutiny. Some observers argue that a large portion of foreign aid flowing into the country is wasted and only increases unproductive public consumption, corruption and inefficiencies (OECD, 2007).

² The term "foreign aid" can imply a number of different activities, ranging from humanitarian support in the wake of natural disasters to military assistance and arms donations (Whitaker, 2006). For the purpose of this study, however, I refer to the standard definition of "official development assistance," or aid that is aimed at increasing economic development.

³ The impact of foreign aid in Nigeria cannot be over-emphasized especially in the aspect of financing capital expenditures of the nation which most times require huge initial capital. Several developmental projects in the country were mostly financed through aid (Odusanya et al, 2011).



Source: Computed from OECD (2009)

Based on new pledges and greater commitments to development assistance from donor nations, there is a possibility of significant scaling of foreign aid resources far beyond the current and past levels (Heller, 2005). However, from the donors' perspective, the commitment to increase aid flows to developing countries is only the starting point. But donors have to ascertain that aid flows are allocated among recipients and various sectors efficiently to ensure that resources will promote economic growth in recipient countries.

It is therefore pertinent to ask whether and to what extent has foreign aid might have caused or contributed to economic growth in Nigeria. And moreover, it is important to know which of the important sectors of Nigerian economy has mostly been influenced by foreign aid if there is any. According to ECA (2009), it is necessary that development partners need to increase assistance to Africa to help broaden and accelerate the recent economic growth recovery process, in order to raise the number of countries that will achieve MDGs. Kalibata (2010) is of the opinion that foreign aid will provide the necessary solutions to Africa systemic challenges: the farmers need improved inputs, including seeds as well as improved soils; they need roads that will connect them to markets; they need agribusiness credit and private sector investments to spur growth; they need facilities to reduce their estimated 40-60 percent post-harvest losses and they need training and technology to cope with climate change. She suggested that all these are important to African farmers to boost agricultural productivity, which can accelerate economic growth and raise incomes for communities, countries and the continent as a whole. However, the subject of foreign aid remains a thorny issue among the donors and recipient countries. While the recipient countries want more foreign aid to push the frontier of their production possibilities, the donors want to insist on

the effectiveness of the aid fund to justify the need for more aid. Nevertheless, for economic justification for additional aid, there is need for empirical investigation on the impact of the aid on the individual country at the economic sector level, especially using dynamic estimation method⁴, taking into account the stochastic and dynamic nature of the economic agents involved in foreign aid administration. This study will be relevant to the aid recipient countries in improving their economic growth and productivity; it will also be useful to donor countries to gauge the effectiveness of their fund in assisting Nigeria, which is the second most important economy in Africa and largest foreign aid recipient in Africa (Odusanya et al, 2011).

The sectoral analysis of impact of aid in Nigeria is important because foreign aid may have differentiated impacts at the sector levels. As indicated in Table 1, the impact of aid in Nigeria that used more than 66% of ODA for debt servicing may be different from country like Ghana that used only 7.5% for debt service and country like South Africa that has no debt to service. The impact of aid on mining sector in Nigeria which has only about 9% of aid allocation may be lower than the impact of aid on mining in South Africa which has more than 99% of the allocation as reveals in Table 2. This justifies country specific study of impact of foreign aid instead of common cross country studies. The sectoral allocation of aid in Nigeria indicates that administration took the lion share of the aid (26.9%) at the detriment of productive sectors such as agriculture (5.4% aid allocation), energy and mining (9.4% aid allocation), industry and trade (1.9% aid allocation) and transportation (6.8% aid allocation). The sectoral imbalance in aid allocation will have differentiated results on the impact of foreign aid in Nigerian economy. This type of financing arrangement will definitely influence the impact of the aid on the economy and at the sector level, with *a prior* expectation that sector with highest aid allocation will be most affected. It is noteworthy that the impact of foreign aid at the t sectoral level has not been given consideration in analysis of impact of foreign aid in Nigeria and Africa at large. Therefore, this study will not only answer the question of the impact of aid in Nigeria, it will also answer the question of which of the sectors is the impact has been most significant.

⁴ According to Durbarry et al (1998), econometric aid-growth literature has been criticized on several grounds: sample size and composition, data quality, econometric technique and specification. The dynamic specification proposed for this study will take care of weakness associated with econometric techniques employed in the past aid- growth literature.

Area of Uses	Nigeria	Ghana	South Africa
Debt Servicing	66.5	7.5	-
Health & Population	13.8	14.0	39.5
Program Assistance	0.0	20.7	0.0
Production Sector	0.0	10.3	0.0
Multi-sector	0.0	6.1	7.2
Education	0.0	6.3	9.9
Economic	6.3	19.5	11.4
Infrastructure			
Other Social Sectors	5.5	14.6	25.7
Others	7.9	1.0	6.3

Table 1: Five Year Average Use of Official Development Assistance by Sector in Selected African Countries (%)

Source: Computed from World Bank Indicator, 2010

Table 2: Five Year Average IBRD/IDA Disbursement by Sector in Selected African Countries $(\%)^5$

Sector	Nigeria	Ghana	South Africa
Public Administration	26.9	36.2	0.6
Health & Social Service	17.3	11.7	0.0
Water & Sanitation	11.6	9.5	0.0
Finance	10.07	0.0	0.0
Education	10.0	5.6	0.0
Energy& Mining	9.4	17.4	99.4
Transportation	6.8	7.2	0.0
Agriculture	5.4	6.7	0.0
Industry & Trade	1.9	0.0	0.0
Others	0.0	5.8	0.0

Source: Computed from World Bank Group, 2010

⁵ This sectoral allocation may be different if total foreign aid allocations from all sources (bilateral and multilateral) are considered as revealed in appendix 1. However, the message this table is portraying is that skewed foreign aid allocations in different country will have a different impact outcomes.

The rest of the proposal is divided into five sections. The introduction above is followed by the objectives of the study in Section two; Section three justifies the importance of foreign aid and the study in the context of Nigeria. Section four reviews the literature on effectiveness of foreign aid, section five deals with econometric techniques proposed to be used to undertake the study, while section six presents the policy implications of the study.

2.0 Objective of the Study

The study will analyse the impact of foreign aid on different sectors of Nigerian economy. Specifically,

- (i) The study will test the causality between foreign aid (bilateral and multilateral) and economic growth in Nigeria.
- (ii) It will determine the impact of foreign on critical sectors of the economy such as agriculture, manufacturing, education and health.
- (iii) Make policy recommendation on sectoral foreign aid administration in Nigeria.

3.0 Justification for Foreign Aid and the Study

Four decades after Independence in 1960, Nigeria remains a poor country with a per capita income of US\$260 in 2000. At the dawn of the Third Millennium, approximately 70% of the population still lived on less than US\$1 a day (about 84 million people), an indication of extreme poverty. Real GDP growth has remained sluggish, averaging 3.5% per annum since 2000. It requires an annual GDP growth rate of 7-8% in order to halve the number of people in poverty by 2015, and this translates to an investment rate of more than 30% per annum. In addition, the country faces daunting challenges of re-building a country badly damaged by decades of military misrule and a fragile democracy. There is tremendous pressure on the government to deliver some 'democracy dividends'. Furthermore, there are the threats of preventable diseases such as malaria, HIV/AIDS, and Tuberculosis (Iyoha, 2005). Nigeria is also a highly indebted country with total external debt exceeding US\$32 billion in 2003⁶. The debt service burden remains crushing⁷. Foreign aid in the form of

⁶ In the 1980s, largely as a result of falling oil export earnings, Nigeria's external debt rapidly escalated. Her external debt stock amounted to a mere US\$985 million in 1977, from there Nigeria became one of the most heavily indebted countries in sub- Saharan Africa, with total external debt peaking at over US\$30.0 billion in 1991. In 1993, Nigeria's per capita external debt amounted to US\$300, which was roughly equal to its income per capita. Accompanying the escalating external debt has been a crushing debt-service burden. After peaking at 42 percent in 1986, the actual debt-service ratio (the ratio of actual debt service payments to export earnings) has since fluctuated between 24% and 29%. A direct consequence of the escalating debt and high debt-service

Official Development Assistance (ODA) has been low and declining during the past decade. In 2002, ODA per capita was less than US\$2 and total ODA was only 0 .4% of GNP. Clearly, Nigeria would find it difficult to attain the Millennium Development Goals without massive assistance from Development Partners in the areas of Aid, Trade and Debt relief. The research findings indicate that the development problems confronting Nigeria are so huge and overwhelming that Nigerians alone would not overcome them. It takes both national and international cooperation to bring them to an end (AFRODAD, 2005).

However, for Nigeria to benefit more from foreign assistance in the form of aid, the donors must be convinced of her effectiveness in management of the aid. This is important because much of the ODA inflows in Nigeria by-pass national budgets (Iyoha, 2003). In Nigeria, the aid fund goes directly to the ministries, department or agency (MDA) that uses the fund. This is contrary to what happened in other Sub Sahara African Countries such as Kenya and Ghana in which foreign aid is treated as part of the budget. The Senate (in Nigeria) has warned against the disbursement of foreign aid coming into the country without National Assembly's involvement. The lawmakers are now insisting that such funds must henceforth be captured in the nation's budget process for the purpose of tracking its flow and disbursement into Nigeria's critical sectors (The Will, 2011). The idea is that by-passing budget will result in timely release of the aid to the critical sectors of the economy. This is envisaged to make aid effective (untimely release of foreign aid fund due to budget delay in developing countries can lead to the poor performance of the projects in which aid fund is designed for (Njeru, 2003). Another reason for by-passing the budget is the fact that they want to ensure that aid money is not diverted to non-aided projects in the country. Therefore, empirical evidence of impact of foreign aid in different sectors of economy in Nigeria that adopt different aid management(utilization) system will be of interest to donors and other aid recipient countries in Africa.

burden is that there is insufficient foreign exchange to finance the importation of raw materials, intermediate goods, and capital goods needed for rapid economic development. Nigeria's domestic debt has also been rising, fuelled primarily by escalating fiscal deficits. By the end of 2004, it owed Paris Club \$31 billion (out of a total debt of \$36 billion) despite having had almost no new loans. That is, Nigeria's debt to the Paris Club ballooned by around \$23 billion dollars because of arrears, fines and compound interest. Nigeria's people did not see any of this money, but have been repaying it anyway.

⁷ The potential benefit of debt relief to low-income countries has been highlighted by Bhattacharya and Clements, 2004).

Moreover, World Bank (2005) reports that Iraq was the top recipient of development aid in 2005 followed by Nigeria⁸. However, this is due to the significant debt relief deals that were granted to these nations that year - when donor countries write off a portion of a recipient country's debt, it is counted as ODA from the donor country. This explains high proportion of aid that went to Nigeria in 2005; Nigeria was granted debt cancellation of about 19 billion US Dollars. This form of aid is expected to have developmental impacts in Nigeria as the money saved through the debt forgiveness was channeled into meeting MDGs in Nigeria (Alabi and Adam, 2011)⁹. So this fund is expected to have a higher impact on MDG focused sectors such as education, health and agriculture than other non-MDG focused sectors. Whether MDG focused sectors were more impacted by foreign aid or not needs be supported by evidence that will warrant a study of this nature. In addition, Njeru (2003) noted that it may be interesting to assess whether a distinction between bilateral and multilateral aid influences sectors of the economy differently, a feat which has not been attempted in Sub Sahara Africa. This study intends to fill that vacuum.

Finally, Odusanya et al (2011) vividly revealed that foreign aid and government expenditure have contributed to economic growth in Nigeria, but that the impact has not been qualitative on the welfare of the Nigerian populace. Consequently, they recommended that foreign aid and government expenditure should be judiciously utilized in providing necessary socio-economic infrastructure (adequate power, roads etc), required to stimulate economic growth and development at a satisfactory pace in Nigeria. However, this conclusion can be misplaced because they did not examine the impact of foreign aid on those sectors (powers, road, etc). For an objective conclusion to be drawn on which of the sectors to emphasize in

⁸ As a result of the oil boom, Nigeria's per capita income increased sharply from US\$250 in 1973 to US\$1,000 in 1980. This caused Nigeria to be classified as a middle-income country and ODA assistance naturally declined. The end of the oil boom and the economic crisis of the mid - 1980s led to a drastic fall in the per capita income; Nigeria was then re-classified as a low-income country in the year 1989. ODA flows have been increasing since then (AFRODAD, 2005). For instance, there was gradual reduction in the amount Nigeria received as aid between 1970 and 1979 (from \$590.47million to \$28.92million), and it later rose to \$473.63million in 1989. By 2005, Nigeria experienced a sharp increase in the amount she received as aid. The value rose from \$360.78million in 2004 to \$6799.81 million in 2005. The following year (2006) also witnessed almost the double amount of the amount she received in 2005; it rose to \$11781.51million but later fell to \$1385.2million in 2007. Appendix 3 indicates that they were about \$1401 million and \$1638 million in 2008 and 2009 at constant 2009 US dollars.

⁹ After the US\$19 billion debt owed by Nigeria to the Paris Club was successfully written off by the creditors, the deal was to direct the savings that the country would make from not having to pay for the debts to pro-poor projects and programmes which would, in turn, assist in attaining the Millennium Development Goals (Okeke, 2009)

spending foreign aid, there is need to examine the sectoral impact of aid on the core sectors that are of much importance to the poor, such as education, health, agriculture, etc.

4.0 Effectiveness of Foreign Aid on the Economy

There are two contrasting sides to the debate on the effectiveness of foreign aid on economic growth. One argues that aid has a positive effect on economic growth, with even more impact in countries with sound economic and trade policies. The other contends that foreign aid causes corruption, encourages rent-seeking behavior, and erodes bureaucratic institutions (Whitaker, 2006). A renewed interest in explaining cross-country economic growth emerged in the early 1990s, with numerous studies attempting to answer the foreign aid question. To date, however, there is no consensus among scholars as to the actual effects of foreign aid on economic growth. There have been several prominent studies which find a causal link between foreign aid and economic growth, such as Burnside and Dollar (2004). They found that foreign aid enhances economic growth, so long as "good" fiscal policies are in place. These policies can include maintaining small budget deficits, controlling inflation, and being open to global trade. Durbarry, et al. (1998) also found a positive association between foreign aid and economic growth, and supported Burnside and Dollar's finding of conditionality on good economic policy. The study also concluded, however, that the degree to which aid impacts GDP depends largely on other factors as well, such as geography. Ali and Isse (2005) further confirmed the findings of Burnside and Dollar. The study also demonstrated that aid is subject to decreasing marginal returns, indicating a threshold beyond which development assistance can become detrimental to economic growth.

Whitaker (2006) indicates that massive expenditures on foreign aid programs by developed nations and international institutions, in combination with the perceived lack of results from these disbursements, raise important questions as to the actual effectiveness of monetary assistance to less developed countries (LDCs). In his analysis, he focused on 119 low- and medium-development countries, and measured the impact that foreign aid has on their growth rates of gross domestic product, using dummy variables for geography and conflict in a geometric lag model. The results indicate that foreign aid donations do have a positive impact on the economic growth of the recipient nation. The effect is extremely modest, however, and other factors such as armed conflict and geography can easily mitigate this impact, in some cases to the extent that foreign aid becomes detrimental to economic growth.

Not all research has shown that a positive relationship to exist between aid and growth. Even before Burnside and Dollar's monumental findings, a study by Boone (1995) found that aid-intensive African countries experienced zero per capita economic growth in the 1970s and 80s, despite foreign aid actually increasing (as measured by share of GDP)¹⁰. Additionally, Knack (2001) found that high levels of foreign aid can erode bureaucratic and institutional quality, triggering corruption, and encouraging rent-seeking behavior. The most ardent critics of aid programs, especially Bauer (1971) and Friedman (1958), attack foreign assistance on the grounds that politicians will not allocate aid efficiently when measured against the goals of aid programs. They argue that recipient countries will consume capital inflows since lack of domestic savings reflects lack of opportunities. There is also evidence that the effects of foreign aid can be mitigated by other non-economic factors. Situations of state failure, such as ethnic conflict, genocide, and revolution can all potentially influence the extent to which aid impacts growth.

According to Djankov, *et al* (2005), foreign aid provides a windfall of resources to recipient countries and may result in the same rent seeking behavior as documented in the "curse of natural resources" literature. In their paper, they discussed this effect and document its magnitude. Using data for 108 recipient countries in the period 1960 to 1999, they found that foreign aid has a negative impact on democracy. For comparison, they also measure the effect of oil rents on political institutions. They concluded that foreign aid is a bigger curse than oil.

The need for specific country case study is imperative because many of the literature on the foreign aid and its impact on development in the recipient countries focus on the relationship between aid and economic growth and uses international cross section statistical investigations rather than individual country case study (Riddell, 1987; Mosley et al, 1987). The results of the cross-section studies usually depend on the countries and periods of study chosen. Such studies face numerous problems of measurement and interpretation and often ignore the stylized structural features of individual countries. For example, foreign aid was once associated with reduced domestic savings, but comprehensive surveys on individual recipient countries have proved otherwise. Foreign aid can influence, either positively or negatively, the expenditure patterns and economic development of the recipient countries.

¹⁰ Boone (1995) concluded that aid does not significantly increase investment and growth, nor benefit the poor but it does increase the size of government. He also found that the impact of aid does not vary according to whether recipient governments are liberal democratic or highly repressive.

Fiscal analysts and the donor communities are convinced that the aid process is undermined by the ability of the recipient governments to alter their spending patterns to subvert the sectoral distribution of expenditure for designated projects. Empirical literature of the impact on foreign aid and government expenditure is also inconclusive. A few studies (Heller, 1975; Khilji and Zampelli, 1991; Pack and Pack, 1993) have supported the theoretical proposition that developing countries have been rendering foreign aid fungible by transferring resources from the donor-aid sectors to non-donor aided sectors. According to the World Bank's 1998 report, assessing aid, countries with good monetary, fiscal and trade policies (i.e. good policy environment) registered high positive effect of aid. Such good policy environment depends on the donor or recipient country. These reasons underlie the impact of aid on the recipient expenditure pattern. However, of great importance is whether recipient countries spend donor funds on intended purposes. Studies using time series data in individual countries (Levy, 1987; McGuire, 1978, 1987; Gang and Khan, 1990; Pack and Pack, 1990) found no significant diversion and all agree that countries spend foreign aid funds on the designated purposes. These reasons influence the impact of aid on the recipient expenditure pattern.

At sectoral level, Feyzioglu et al, (1998) found that aid is fungible on earmarked concessional loans for agriculture, education and energy, but not for transport and communication sectors. Pack and Pack (1990, 1993) concur with Feyzioglu, *et al* (in the case of Indonesia and Sri Lanka) that strong fly paper effect does occur on concessional loans (but the results differ with data on the Dominican Republic). The evidence that aid money increases government expenditure means that the recipient governments do use the increased resources as they choose to increase spending, cut taxes or reduce fiscal deficits.

Further on the effect of foreign aid on government expenditure, Devarajan, *et al* (1998) found that most aid (about 90%) boosted government expenditure with no significant evidence of tax relief. About half the aid was used to finance external debt service payments; one quarter to finance investments and the other quarter to offset current account deficits. On the other hand, Swaroop et al (2000), focusing on the effects of foreign aid on expenditure decisions of central government of India, found that foreign aid merely substitute for already earmarked government spending; the central government spends funds obtained through aid on non-development activities. This means that government choices are unaffected by external sources of finance. Finally, empirical literature using both panel and time series data supports the notion that aid increases government expenditure. The main question is, if an aid increase leads to increased government spending, what happens during the periods of

declines in the flow of aid? Studies by Corden (1984), Killick (1991) and Nyoni (1997) have confirmed that huge receipts of foreign aid by developing countries do have effects on growth similar to those of the discovery of natural resources. On the other hand, Bevan et al (1993) noted that the effects of increased financial resources depend on the type of expenditure the boom (aid) finances.

5.0 Methodology

This study will cover a period of thirty years ranging from 1981 to 2010. The data for the study will be sourced from the Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS) and the Organization for Economic Cooperation and Development (OECD) websites. The data on GDP for each of the sector of the economy on time series are readily available in the CBN publications and website. Data on health and education outcomes on yearly basis can be accessed from NBS publications and website. As for ODA data, they are available as OECD Stat at the OECD website. They are available on the aggregate and disaggregate forms. For example there is ODA allocation to Nigeria, to sectors (as presented in appendix 1), such as education and to different levels of education, that is basic, secondary and post secondary (as indicated in appendix 2).

Various econometric tools will be employed in this study, such as Vecto-Autoregression (VAR), Granger causality test and Variance Decomposition. In the analysis of the data, the study will rely on the framework of Durbarry, et al (1998)¹¹ as modified by Odusanya et al (2011)¹² in the case of Nigeria. Odusanya et al (2011) hypothesized that economy growth in Nigeria can be related to foreign aid as stated in equation 1. Growth = $\beta_0+\beta_1FAID + \beta_2PRIV + \beta_3SAV + \beta_4TRADE + \beta_5GOV + e$. . . (1) Where, Growth is the Average GDP growth, FAID is the Official Development Assistance (ODA) as defined by the Organisation for Economic Cooperation and Development

¹¹Durbarry, et al (1998) examined aid's growth impact within augmentations of two prominent endogenous growth models: the 'Fischer-Easterly model' and the so-called 'Barro model'. The former in particular - which stresses the role of stable macroeconomic policies for sustained growth - has found increasing empirical support in the recent literature. With its emphasis on the role of economic policy, the Fischer-Easterly model provides a natural context within which to study the aid-growth relationship, since many have argued that the developmental impact of aid is conditioned by the policy environment in recipient countries. So Durbarry, et al (1998) examined the growth impact of aid within a model that included both policy variables and all the major sources of investment finance – foreign aid, private and other inflows, and domestic savings.

¹² However, Durbarry, et al (1998) and Odusanya et al (2011) carried out their studies using static framework. Their conclusions may be incorrect because the economic agents associated with aid administration are dynamic. The dynamic model I intend to use will be able to capture the dynamic nature of these agencies. It should be noted that Durbarry, et al (1998) and Odusanya et al (2011) did not disaggregate the GDP into different sector levels.

 $(OECD)^{13}$. The full list of sources of ODA to Nigeria and the world is presented in appendices 3 and 4 respectively. PRIV is the Total net private capital flows as a percentage of GDP(international remittance can also be classified as part of net private capital flows), SAV is the Domestic savings as a percentage of GDP, TRADE¹⁴ is the Openness to trade, which is defined as $(X + M) / GDP^{15}$. GOV represents the total amount of government expenditure as a percentage of GDP.

However, in order to concentrate on the dynamic effect of foreign aid on the economic growth at the sectoral levels, the equation 1 is first modified to Vector Autoregression model (VAR) as:

$$FA_{t} = \beta_{0} + \sum_{j=1}^{p} \beta_{1j} FA_{i_{t-j}} + \sum_{j=1}^{p} \beta_{2j} AG_{i_{t-j}} + \ell_{it} \qquad (2)$$

$$AG_{t} = a_{0} + \sum_{j=1}^{p} a_{1j} AG_{i_{t-j}} + \sum_{j=1}^{p} a_{2j} FA_{i_{t-j}} + \mu_{it} \qquad (3)$$

Where *FA* and *AG* are Official Development Assistance (ODA) as defined by the Organisation for Economic Cooperation and Development (OECD) and average GDP growth respectively, while *FA*_{*t-j*} and *AG*_{*t-j*} *represent* their lagged values in *j* years, *p* is the maximum lag length¹⁶, and ℓ and μ are error terms and, β s and *a* s are parameters to be estimated. Given that ordinary least squares (OLS) and generalized least squares (GLS) will yield biased estimates in the presence of correlations between the lagged *FA* and *AG* variables, I will employ a generalized method of moments (GMM) estimator to obtain consistent parameter estimates (Holtz-Eakin et al., 1988). Differencing away the fixed effects and including TRADE, GOV and D (D is dummy variable that is included to capture the two main policy era in Nigeria. D= 1 during SAP and 0 otherwise), equation 2 and 3 will be transformed to

¹³ ODA is the flows of official financing administered with the promotion of the economic development and welfare of developing countries as the main objective, and which are concessional in character with a grant element of at least 25 percent (using a fixed 10 percent rate of discount). By convention, ODA flows comprise contributions of donor government agencies, at all levels, to developing countries ("bilateral ODA") and to multilateral institutions. ODA receipts comprise disbursements by bilateral donors and multilateral institutions. In other words, ODA needs to contain the three elements: (a) undertaken by the official sector; (b) with promotion of economic development and welfare as the main objective; and (c) at concessional financial terms (if a loan, having a grant element of at least 25 per cent).

¹⁴ PRIV, SAV TRADE and GOV are included in the model to capture potential side effects of foreign aid (such as 'Dutch-Disease'effects) and other policy variables that are hypothesised to affect growth. Although Burnside and Dollar (1997), found that though the ratio of aid to GDP often does not significantly affect growth in LDCs, but aid interacted with policy variables does.

¹⁵ That is the addition of export and import divided by Gross Domestic Product.

¹⁶ The Lag Exclusion Wald Tests will be used to select the most appropriate lag length.

equations 4 and 5 respectively. These equations will be estimated to examine the impact of foreign on the Nigerian economy at the aggregate level.

In the sectoral analysis, the impact of foreign aid on agriculture, manufacturing, health and education, will be analysed. Going by equations 4 and 5, FA will be the Official Development Assistance for agriculture, industry, health and education respectively, while AG will be the agriculture GDP average growth rate, manufacturing average growth rate, average growth rate of health facilities and average growth rate of school enrolment respectively for the period under consideration in the sectoral analysis.

In the disaggregation analysis of foreign aid, FA in equations 4 and 5 will be disaggregated into bilateral and multilateral foreign aid respectively and the analysis proceeds as proposed under sectoral analysis. For example, we can examine the effect of bilateral foreign aid on economic growth in Nigeria by representing FA in equations 4 and 5 as bilateral foreign aid, while every other variable is retained in the equation. The same thing can be done in the case of multilateral foreign aid. FA in equations 4 and 5 will represent multilateral foreign aid, while every other variable is retained in the equation.

$$\Delta FA_{t} = \beta_{0} + \sum_{j=1}^{p} \beta_{1j} \Delta FA_{i_{t-j}} + \sum_{j=1}^{p} \beta_{2j} \Delta AG_{i_{t-j}} + \sum_{j=1}^{2} \delta_{j} D_{i_{t-j}} + \sum_{j=1}^{p} \delta_{j} GOV_{i_{t-j}} + \sum_{j=1}^{p} \gamma_{j} TRADE_{i_{t-j}} + \eta_{i} \dots (4)$$

$$\Delta AG_{t} = a_{0} + \sum_{j=1}^{p} a_{1j} \Delta AG_{i_{t-j}} + \sum_{j=1}^{p} a_{2j} \Delta FA_{i_{t-j}} + \sum_{j=1}^{2} \delta_{j} D_{i_{t-j}} + \sum_{j=1}^{p} \delta_{j} GOV_{i_{t-j}} + \sum_{j=1}^{p} \gamma_{j} TRADE_{i_{t-j}} + \zeta_{i_{t-j}} + \zeta_{$$

The Granger Causality test

I will also perform the Granger causality test between the foreign and economic growth and at the sectoral level, to determine whether foreign aid causes economic growth both at the aggregate and the sectoral level. The Granger causality test is a statistical hypothes is test for determining whether one time series is useful in forecasting another (Granger, 1969). Testing causality, in the Granger sense, involves using F-test to test whether lagged information on foreign aid provides any statistically significant information about GDP growth in the presence of lagged GDP. If not, foreign aid does not Granger-cause economic growth. At the sectoral level, I will test if agriculture foreign aid, manufacturing foreign aid, health facilities and school enrolment respectively.

Variance Decomposition

In order to make the foreign aid's net dynamic effects clearer, I will compute variance decomposition functions to depict the time path of average GDP growth responses to a one-year increase in foreign aid of one percent. This technique determines how much of the forecast error variance for any variable in a system, is explained by innovations to each explanatory variable, over a series of time horizons. The variance decomposition will also be done at the sectoral level of the analysis. This will enable us to predict the impact of foreign aid on Nigerian economy and at the sectors level over a period of time (It can be in ten years time, for example, we can predict the impact of foreign aid on Nigerian economy in the year 2020 using this variance decomposition approach)¹⁷.

For better understanding of interpretation of Variance Decomposition, an hypothetical variance decomposition of agriculture foreign aid and agriculture growth is presented in Table 3. The variance decomposition of agriculture foreign aid and agriculture growth presented in Table 3 indicates that 100% shock (change) in agriculture foreign aid will result in 0% change in agriculture growth in Year 1(2013). This will increase to about 14% in Year 3 (2015) and about 19 % in Year 8 (2020) and so on.

Table 3: Hypothetical Variance Decomposition of Agriculture Foreign Aid and Agriculture

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Year	Date	Agriculture	Agriculture
		Foreign Aid	Growth
1	2013	100.00	0.00
2	2014	95.00	4.50
3	2015	90.09	9.86
4	2016	85.88	13.87
5	2017	83.17	16.31
6	2018	81.61	17.58
7	2019	80.80	18.15
8	2020	80.41	18.37
9	2021	80.24	18.44

Growth

¹⁷ Gong by Nigerian Government paper, the country is aimed to be among the most 20 developed countries by the year 2020. The information from the variance decomposition can provide information for government on the aid effectiveness in 2020.

10	2022	80.17	18.45
Sou	rce C	omputed From Alah	i et al (2011)

Source: Computed From Alabi et al (2011)

6.0 Policy Implications of the Study

Foreign donors give foreign aid to Nigeria because they want to help the country, yet if the donors are not familiar with specific problems or cultural values that cause or somehow help the poverty to progress in a country, the aid given may not only be useless but maybe harmful. Thus, the policies in the recipient countries play a large and vital role if the foreign aid will help the poor or not. Thus, this section presents the policy implications of this study.

The recent information on Official Development Assistance (ODA) in Nigeria shows a lot of institutional weaknesses at the federal and state levels including weak aid coordination capacities as well as infrastructural deficiencies (UNDP, 2010). However, within the context of the Paris Declaration on Aid Effectiveness there is need for capacity development activities in Nigeria in order to strengthen aid management processes in line with the principles of harmonization, alignment and mutual accountability for better results in aid management in Nigeria. Over the years, coordination had been pretty difficult due to improper programming and lack of the necessary skills by staff. Several donors often take advantage of these weaknesses and have been dealing directly with the ministries/agencies without recourse to the National Planning Commission at the federal level or the coordinating agency at the State levels (UNDP, 2010). Often what happens at the state and federal level is a far cry from what needs to be done. The consequence has been the duplication of efforts, indiscriminate citing and undue concentration of projects in some areas (and sectors), and misplacement of Government priority. It is therefore pertinent that capacity needs to be built and strengthened on aid programming, coordination and management. Also important is the strengthening of capacity in evaluation and design of ODA domestic policy. This study will not only improve the capacity of the researcher in evaluating foreign aid effectiveness in Nigeria, but will bring on board pertinent foreign aid policy issues that will be relevant to the national policy makers and the foreign donor agencies.

For foreign aid to have welfare impacts on the Nigerians there is need for proper aid coordination and management in Nigeria. Aid coordination refers to the planning and integration by a recipient government of international assistance from donor partners into national or state development goals and strategies. Aid management refers to the effective implementation of development programmes that are supported by international assistance. Both processes involve a range of coordination services and require extensive capacity from all institutions involved in programmes that are financed in full or in part by external resources. The synergy between the aid and economic growth in different sectors of the economic will be elucidated in the study to prepare a platform for policy mainstreaming in foreign aid administration in Nigeria.

Many have agreed that there is need for substantial reform of foreign aid, to revitalize programs and realign priorities toward ensuring growth and development in Nigeria. These realignments and reforms need some factual, scientific, economically sound and empirically tested information that will guide Nigeria in efforts to reform the foreign aid policies. We hope that this study will be able to generate such information that will guide the reformation of foreign aid policies in Nigeria.

The general body of studies on foreign aid and economic growth in Sub Sahara Africa is divided into major groups; those that hypothesized that foreign aid has a negative effect on economic growth and those that postulated a positive growth impact. Although these studies are informative they have limited policy relevance as the policy makers in the recipient country want to know what will make foreign aid to work for their country. They want to know in which sector foreign aid is performing well and which sector of the economy is not doing well even after the injection of foreign aid. This sectoral information on foreign aid is limited in SSA but it is important for the effectiveness of foreign aid in Nigeria. The factual information from this study that will be disseminated in the form of a policy brief will be handed over to policy makers for the necessary reforms in Nigeria to take place.

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Collstallt 2009 US	D mmons)	-						
Туре	2006	% of	2007	% of	2008	% of	2009	% of
		Total		Total		Total		Total
DAC	12955.9	95	1431.6	71	753.7	54	671.8	41
Non DAC	-	-	-	-	-	-	0.10	0.0
Multilateral	700	5	588.4	29	647.3	46	965.8	59
Total	13655.9	100	2020.9	100	1401.0	100	1637.7	100
Administration								
Education	76.2	0.6	69.5	3.4	98.7	7.0	140.7	8.6
Health	196.5	1.4	237.8	11.8	249.1	17.8	528.0	32.2
Agriculture	49.4	0.3	26.2	1.3	27.3	2.0	39.9	2.4
Transport	40.4	3.6	43.8	2.2	42.3	3.0	59.3	3.6
Energy	48.5	0.3	61.0	3.0	66.0	4.7	72.7	4.4
Industry, Mining	8.9	0.0	16.7	0.8	25.3	1.8	25.6	1.6
& Construction								

Appendix 1: Foreign aid types and Amount Disbursed to different sectors in Nigeria(Constant 2009 USD millions)

Source: Computed from OECD Stat (2012)

Appendix 2: Foreign aid types and Amount Disbursed to education sector in	Nigeria(
Constant 2009 USD millions)	

Туре	2002	2003	2004	2005	2006	2007	2008	2009
Basic Education	6.3	19.5	36.6	52.1	41.0	41.1	30.4	28.8
Secondary	1.5	2.2	2.7	9.8	12.4	2.3	21.3	32.0
Education								

Post Secondary	3.8	15.1	18.1	13.1	11.2	12.9	33.6	47.3
Unspecified	6.3	10.3	13.5	8.0	11.5	13.2	13.4	32.6
DAC	11.0	24.4	25.8	36.8	36.0	53.8	40.9	54.4
Non-DAC	-	-	-	-	-	-	-	0.1
Multilateral	6.9	22.8	44.7	46.2	40.1	15.8	57.8	86.2
Total Aid to	17.9	47.2	70.5	83	76.2	69.5	98.7	140.7
Education								

Source: Computed from OECD Stat (2012)

Appendix 3: Total Foreign Aid Disbursement to All Sectors in Nigeria (in Constant 2009 USD millions)

USD millions)				n					
	Year	2002	2003	2004	2005	2006	2007	2008	200
	Total Aid	388.7	392.6	604.8	7169.5	13655.9	2020.0	1401.0	1637
DAC Countries	Total from DAC	272.8	241.9	277.9	6615.4	12955.9	1431.6	753.7	671
	Australia			0.3	0.0	0.3	0.7	0.1	0
	Austria	3.6	5.8	12.1	7.7	0.7	335.3	0.6	0
	Belgium	0.7	0.9	1.4	179.5	231.0	0.9	3.6	0
	Canada	29.9	16.0	16.7	19.3	15.7	15.5	21.5	16
	Denmark					100.8	100.1	70.3	0
	Finland	0.4	0.2		:	0.2	0.3	0.5	0
	France	5.2	4.5	6.3	1789.5	2397.2	12.4	11.4	9
	Germany	69.5	21.5	23.9	1386.1	2150.7	27.6	29.2	30
	Greece	0.1	0.5	0.6	0.8	0.3	2.0	2.2	1
	Ireland	2.0	2.8	2.0	2.1	2.5	1.8	3.1	1
	Italy	0.2	0.2	0.5	650.6	909.9	1.8	3.8	2
	Japan	21.0	23.7	9.6	106.4	2878.4	33.3	31.8	28
	Korea					1.4	0.7	1.7	2
	Luxembourg			0.0		0.0			0
	Netherlands	4.6	9.4	6.0	239.7	301.3	357.6	1.6	4
	New Zealand	0.1	0.1	0.1	0.1	0.1	0.1		
	Norway	5.4	6.7	7.5	3.5	3.2	3.2	5.5	9
	Portugal	0.0		0.0	0.0	0.1	0.1	0.1	0
	Spain	0.8	0.6	0.7	2.3	161.3	0.3	24.7	0
	Sweden	1.3	0.9	0.5	0.5	1.0	1.0	0.9	0
	Switzerland	0.2	0.4	0.0	62.0	62.3	0.2	0.1	0
	United Kingdom	37.2	32.6	53.5	2056.9	2901.7	288.6	173.9	207
	United States	90.5	115.0	136.0	108.4	835.7	248.1	367.2	354
Non-DAC Countries, total	Non-DAC Countries, total								0
United Arab	Emirates								0

	Multilateral,						.		0.6.
	total	115.8	150.7	327.0	554.1	700.0	588.4	647.3	965
	AfDB								
Multilateral, Institutions	AfDF	40.1	2.2	2.2	16.3	15.7	52.6	31.9	19
Institutions	AsDB								
	AsDF								
	EBRD								
	IDB								
	EU								
	Institutions	13.4	20.7	91.0	168.4	178.8	82.7	89.2	81
	GAVI						10.3	49.7	6
	GEF	0.1	0.1	0.5	1.7	3.0	2.1	0.3	3
	Global Fund		3.2	10.7	23.9	45.6	40.5	66.2	288
	IBRD								
	IDA	27.4	80.4	181.7	300.5	400.0	342.7	343.6	496
	IDB Sp.Fund								
	IFAD								
	IMF (Concessional Trust Funds)								
	Nordic Dev.Fund								
	OFID								
	UNAIDS	0.4	1.1		1.3	0.9	1.2	1.0	0
	UNDP			3.7	9.4	15.4	15.7	14.1	14
	UNECE								
	UNFPA	7.8	13.6	6.5	5.8	6.1	6.1	9.0	5
	UNICEF	26.7	29.5	30.7	26.8	34.4	34.6	42.1	48

Appendix 4: World Total Foreign Disbursement to All Sectors (in Constant 2009 USD	
millions)	

	Year	2002	2003	2004	2005	2006	2007
	Total Aid	59239.4	69951.8	71546.8	101977.0	95585.3	87390.3
	DAC Total	1364.7	1493.2	1377.4	1726.1	2025.2	2261.5
DAC	Australia	46354.884	67751.061	71894.842	96598.666	100506.28	90778.665
Countries	Austria	656.00903	1100.9542	1206.7871	1430.716	2251.1777	1709.5201
	Belgium	397.51908	279.9886	360.81557	1252.767	1078.6959	1358.777
	Canada	1083.0712	1547.4215	1296.8167	1578.0313	1544.2014	1586.93
	Denmark	1589.2386	1573.1954	2273.2002	2663.9065	2452.0031	3337.6952
	Finland	871.67168	678.12912	1666.7855	1542.1094	1370.2844	1481.193

	France	298.23836	386.53358	428.59109	680.5512	599.66912	660.94259
	Germany	4164.0873	6531.9573	6288.5844	8414.4061	9442.7615	8223.037
	Greece	4584.0767	5642.8291	5645.446	9283.9867	9475.5572	9644.8106
	Ireland	106.96551	228.26202	166.78843	206.64037	197.40941	247.81729
	Italy	267.07751	324.90928	409.71269	482.67381	632.60673	832.22903
	Japan	1254.2925	1396.3246	882.19096	2711.0254	2515.8533	1439.668
	Korea	6592.3163	14443.161	12262.041	16435.581	12944.054	12547.489
	Luxembourg					675.49374	1053.2665
	Netherlands	94.923138	134.25819	156.5421	219.00126	198.32325	252.83233
	New Zealand	4470.8817	2439.447	2810.9675	3529.4047	10265.752	4799.9833
	Norway	75.973489	116.23058	173.10048	306.18884	289.30496	279.30001
	Portugal	1101.8505	1433.9107	1335.4752	1948.2265	2654.1958	2957.8981
	Spain	1164.531	1488.4706	1458.6179	1926.3546	2685.4285	3778.096
	Sweden	1088.1987	2024.8709	2056.1885	2693.7409	3060.5478	2320.512
	Switzerland	784.51182	917.65056	1257.9359	1406.9372	1243.4184	1524.3224
	United Kingdom	3574.9188	3940.8618	5210.8454	9868.2274	10453.149	5711.4327
	United States	11950.234	20933.833	23517.511	27746.722	24287.386	24724.209
Non-DAC Co	untries total	11/30.43-1	20755.055	43311.311	21170.122	27207.300	27/27.207
Non-DAC	United Arab						
Countries	Emirates						
 Multilateral, total						 29507.519	
Multilateral,			22190.37	20922.922	2/094.0/3	29307.319	37890.082
total	AfDF						
	AsDB				1310.0092	2324.7303	1975.0080
	AsDF	1040.3159		1532.873	1409.162		1857.225
	EBRD	1040.5157	1047.2751	1552.075	1407.102	11/4.752	1037.223
	IDB						
	EU						
	Institutions	6608.5997	8025.1471	9098.7698	11355.198	12533.585	13373.435
	GAVI						972.9077
	GEF	394.2	498.54	618.91	582.52	557.36	1062.07
	Global Fund		993.08402	822.40293	1451.9707	1766.4993	2509.8438
	IBRD						
	IDA	8157.4861	7602.5158	11568.455	7756.2172	7867.9623	12837.192
	IDB Sp.Fund	400.4	562.94	327.1	493.963	362	413.06
	IFAD	320.122	360.51217	368.66554	429.21731	435.50576	534.19649
	IMF						
	(Concessional						
	Trust Funds)	1744.98	1188.72	1204.65	598.39	893.01	502.33

Nordic						
Dev.Fur	nd					
OFID			••			
UNAID	S 63.576189	127.11048	136.16812	124.26276	180.63479	193.05676
UNDP			389.88429	432.65634	458.80158	459.89789
UNECE						
UNFPA	258.81627	361.72565	196.6043	204.12488	213.60533	217.57052
UNICE	F 565.33857	630.98207	658.43894	738.30226	738.84698	982.28828
WFP						
WHO						

Source: OECD Stat (2012)