

## An Assessment of the Relationship between Fiscal Policy Shocks, Foreign Aids and Nigeria Economy

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### ARTICLE INFO

Published Online:  
24 October 2018

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### ABSTRACT

The relationship between fiscal policy shocks and Official Development Assistance ODA which is a proxy for Foreign Aids and their effects on the growth of the Nigerian economy has been a subject of debate for some times in among economic researchers. However, lack of consensus on this issue is one of the major reasons that prompted this study. The study used the vector autoregressive analysis (VAR) for its estimations. The VAR model identified oil price and exchange rate as the major external shock to fiscal policy in Nigeria, therefore they are both treated as exogenous variables. Also, government revenue and expenditure are identified as major fiscal policy shocks, while foreign aids act as transmission mechanism of the effect of the shocks to output (GDP) which is a proxy for economic growth. The results show that foreign aids in Nigeria are more responsive to external shocks (oil price and exchange rate) than the fiscal policy shocks. Both oil price shock and government revenue shocks are significant in determining the behaviour of the GDP. However, government revenue and expenditure shocks fail to have a commensurate positive effect that the oil price has on them and the GDP.

**KEYWORDS:** Official Development Assistance, Fiscal Policy Shocks, Foreign Aids, Nigerian Economy

### 1.0 INTRODUCTION

Nigerian government indebtedness have witnessed a considerable increase within the past two decades owing to excessive government expenditure. Beyond the issue of poor quality of public expenditure, the ability to save windfalls from excess crude oil proceeds by the government remains critical in ensuring that government expenditure is maintained at a sustainable level and consistent with the absorptive capacity of the economy. Since the adoption of Structural Adjustment Programme SAP emphasis has been on deregulation of the economy with the ultimate aim of reducing government expenditure but it appears that all the austerity measures brought in by SAP only had a very short run effect. This is because since the past two decades there has been a substantial increase in government spending, primary deficit and debt in Nigeria especially between 1996 and 2005 (Agu and Evoh, 2011)

The oil windfall between 1990 and 1992 was followed by rapid growth in government spending with an average of about 21 percent of GDP during that period. However, as the oil market weakened in the subsequent years, oil receipts were not adequate to meet increasing levels of demands, and expenditures being reinforced by political pressures, were not rationalized. Government resorted to borrowing mainly from the Central Bank to

finance the huge deficits ( Obiyeluaku and Viegi 2009). All these have been the major characteristics of fiscal policy administration in Nigeria. The implication is that fiscal policy management is likely to be highly prone to a lot of irregularities occasioned by some shocks which might be internal or external (Olasunkanmi and Babatunde, 2013).

Foreign Aid from whatever source is aimed at enhancing economic progress in the recipient country. It is the belief of many economists that there is a positive relationship between aid and growth. This is the main reason why most aids are tied to specific projects or targets. The United States currently provides \$0.15 in foreign assistance for every \$100 in gross national income, as against an average of more than \$0.80 in the Scandinavian countries. About 20 percent of U.S. foreign aid goes to about four countries: Egypt, Pakistan, Jordan, and Colombia. American assistance to Africa in 2003 exclusive of that related to emergencies, military assistance, debt service, and research amounted to about \$1 billion (Werlin, 2005).

However, According to recent statistics, Nigeria as one of the beneficiaries of foreign aid in Africa has endured a lot of economic ups and downs in recent times. For instance, Nigerian economy slowed down in 2012. Despite the robust economic growth, unemployment rate in the country yet increased from 21 per cent in 2010 to 24 per

cent in 2011. Also, poverty remains widespread, with a headcount that declined marginally from 48 per cent in 2004 to 46 per cent in 2010. In addition, during the first, second and third quarters of 2012, Nigeria's exports increased while its imports decreased, resulting in a 59 per cent improvement in its trade balance and Foreign Direct Investment (FDI) of 24 per cent relative to 2011. Official Development Assistance (ODA) decreased from USD 2.0 billion in 2010 to USD 1.8 billion in 2011. Total FDI in 2011 was USD 8.9 billion, representing 20 per cent of the total FDI to Africa in 2011 (World Bank, 2013).

The nature of budget in a beneficiary country has been identified as a factor that can significantly influence access to official development assistance (ODA). According to Christopher (2004), policies governing ODA disbursement appears to favour developing countries with savings gap to make up for the balance of payment (deficit balance). In other words fiscal balance in particular beneficiary country is very germane to the level and the rate at which these countries have access to foreign aid. The idea behind this is that donor agencies are often interested in those countries that usually have fiscal deficit and in need of additional source of finance to cater for the excessive government expenditure. It is believed that such countries already have viable projects with which the ODAs is going to be utilised for and this will be easier for the donor agencies to access the viability of such project and the implication on the economy of the beneficiary country.

Over the years, the nature of fiscal policy practiced in Nigeria for the past two decades has been in form of deficit. That is, a major feature of fiscal policy in Nigeria over the years has been fiscal deficits. According to Obinyeluaku (2010), for the past two decades Nigeria have witnessed a considerable increase in government indebtedness. Beyond the issue of poor quality of public expenditure, the ability to save windfalls from excess crude oil proceeds by the government remains critical in ensuring that government expenditure is maintained at a sustainable level that is consistent with the absorptive capacity of the economy. According to him there has been a substantial increase in government spending, primary deficit and debt in Nigeria between 1996 and 2009.

Despite the fact that fiscal deficits characterize fiscal behaviour in Nigeria yet the level of foreign aid that is official development assistance accruing to the country appears to be dwindling over the years. This calls for a deeper consideration since it is believed that donor agencies are more favourably disposed to countries that usually have deficit balance. This considerations might expose some other reasons why Nigeria's fiscal deficit appears not to have led to increase in her ODAs.

Literatures have shown that apart from fiscal deficit, fiscal policy is prone to some shocks that can affect its relationship with any macroeconomic variable or development indicator. The core variables of fiscal policy

such as government revenue and government expenditure are obviously factors that can affect access to official development assistance since the nature of a beneficiary budget is part of the parameters considered by donor agencies before the disbursement of foreign aids.

Again, these fiscal variables, which include government revenue and expenditure, are also highly susceptible to some external shocks which can also have implications on their behaviours and by extension have serious implications on foreign aid as well. The external shocks might be country specific since institutional and structural frameworks of country differ from one country to the other. For instance Nigeria which is an oil-rich country has her fiscal revenues to be largely coincided with oil revenue. Oil revenue accounts for nearly 80 percent of government revenues, which implies that the economy is highly exposed to price fluctuations in the world oil markets. Naturally, oil revenue is very volatile due to world oscillation in oil prices and to unpredictable changes in OPEC assigned oil quota – of which Nigeria has been a member since 1958 ( Obinyeluaku 2010). However, apart from oil related variables, some other factors which might vary from country to country have been identified by quite a number of researchers as external factors that might likely cause perturbation of fiscal policy variables and which can affects its relationship with foreign aids (Kinnunen, Sulla and Merotto, 2013; Gosse and Guillamin, 2012).

Consequently, identification of these shocks to fiscal policy and the assessment of the degree of response or behaviour of fiscal policy to these shocks as well as the response of the foreign aids to them might go a long way to unravel the reasons for the dwindling official development assistance ODA (foreign aids) in the recent years. This will also contribute to literatures on the relationship between fiscal policy and foreign aids and the implication of their relationship on the growth of Nigerian economy.

## 2.0 LITERATURE REVIEW

### 2.1 Conceptual literature

#### 2.1.1 Foreign Aid

Foreign aid is used to cover all financial transactions made or guaranteed by one government to another. Indeed, foreign aid has become a focus and locus in the Third World. It has assumed the status of foreign policy instrument by developed democracies to strengthen their relationship with, and consequently spread their influence on, the Third World. Aid according to Ajayi (2000) is “a form of assistance by a government or financial institutions to other needy countries, which could be in cash or kind.

The establishment of an aid system was one of the principles of the Breton Woods system in 1944. The system believes that there should be a free capital market, which allows an unrestricted inflow of foreign aid. Based on this principle, a Marshall Aid Assistance of about \$17.5 billion was granted to Western Europe to resuscitate her ruined

economy due to the World War II. Since then, the aid system has remained a durable phenomenon of the international economic system (Todaro, 1977), as cited in Aluko and Arowolo (2010).

Foreign aid can also be in form of economic assistance such as; Investment in the economy of the needy country, loan, infrastructural development, etc. Aid can also come in form of military assistance such as, Supply of military hardware at subsidized rates, Military agreements, bilateral or multilateral, loose or solid or in a defense pact, Supply of military technical assistance such as military presence to a country in crisis or conflict with another country, Supply of military technical assistance and advice, direct participation as in the case of military allies to other countries, military subversions, coups, assassinations, etc.

### 2.1.2 Fiscal policy and external shocks

Economic literature has identified quite a number of macroeconomic variables that constitute external disturbance to fiscal policy framework. The transmission mechanism of fiscal policy has been identified as been prone to some external influences that perturb the whole fiscal policy administration (Obinyeluaku and Viegi 2009). Notwithstanding, the structure and the level of development of an economy has been identified as the major determinants of what constitute external shock to fiscal policy administration in a particular economy (Aremo, Orisadare and Ekperiware, 2012). This study reviewed the relationship between fiscal policy and some of the identified shocks as follows:

### 2.1.3 Fiscal policy and oil

According to Devlin and Lewin (2005) oil exporting countries government finance is heavily dependent on the oil sector. Hence government revenues tend to be highly volatile, and will eventually dwindle and dry up in the future. In addition, oil price shocks tend to be persistent and the oil price cycles are highly unpredictable. These characteristics make fiscal management more challenging in such countries and have very important implications for their growth performance. Some of these implications are as follows.

(i) The oil price volatility can be transmitted to the economy through the large fluctuations in government revenues. The uncertainty about future oil revenues and the variability of such revenues would result in changes in spending as the government reassesses its expected revenue stream, generating significant adjustment costs (Hausmann and Rigobon 1993). Therefore, the resulting pro-cyclicality of government spending can ultimately lower growth rates. Carefully looking into some of the potential expenditure mechanisms, one can identify the following:

(a) A positive revenue shock that is perceived as permanent typically leads to higher government spending, especially on non-tradables, creating incentives to shifting resources away from the (non-oil) tradable sector e.g manufacturing sector

to the non-tradable sector e.g service sector. Such resource movements would lead to higher unemployment, output losses, and ultimately the de-industrialization of the economy; a phenomenon known as the “Dutch disease”. To the extent that the manufacturing sector provides positive spillovers to other sectors, the resource (government revenue) windfall would have a negative depressive effect on long-run growth (Sachs and Warner, 1995).

(b) If a positive shock is perceived as temporary, accumulating the budgetary surpluses in developing economies is politically unpopular and the government will be subject to pressures to increase spending, especially on public projects. For example, during the period 1974-1978, 85%, 50%, and 46% of the windfall gains that accrued to the governments of Nigeria, Indonesia, and Venezuela, respectively, were channeled to increasing public investment (Gelb et. al, 1988). Many studies found that most of the large surges in public capital spending during boom times are non-productive and typically have a very low return (See: Talvi and Vegh, 2000).

(c) A negative shock, on the other hand, typically induces downward adjustments in government expenditures. This adjustment could be very costly. On the one hand, cutting current

expenditures is usually unpopular because of its negative social consequences. On the other hand, cutting capital expenditures would disrupt public projects, reducing the productivity of the initial investment and causing high social costs.

(ii) In a downturn, it is not quite unusual that some governments delay a needed adjustment to avoid immediate spending cuts. If the shock turns out to be permanent, the persistent budget deficit and the growing public debt would put into question fiscal policy and current account sustainability, as well as government solvency. Ultimately, a larger adjustment at a higher cost would be inevitable at some point in the future. For example, in 1986, Venezuela did not allow for spending adjustment in response to the negative large oil shock. In 1989, the looming balance of payments crisis led to substantial costly adjustments (Hausmann et al., 1993).

(iii) A fiscal consolidation in response to a permanent negative oil shock that aims to put fiscal policy on a sustainable path would adversely affect growth, leading to a more unsustainable path. A given level of primary deficit that may seem sustainable given a certain growth rate could be unsustainable at a lower rate of growth. This endogeneity of fiscal policy appears to be crucial in designing fiscal adjustments in shock-prone economies.

(iv) Oil exporting countries tend to have higher borrowing capacity during boom times. Therefore, an oil boom could induce an expansion of easy borrowing, especially with the large growth in domestic absorption. That lately resulted in the phenomenon of highly-indebted oil-rich economies. The accumulation of debt during times of plenty makes the



adjustment more costly and more difficult at times of scarcity because it implies larger adjustments. Therefore, at times of oil price downturns some oil economies may face foreign borrowing constraints, which would adversely hinder their development programs. In addition, this leaves the fiscal authorities with fewer options to finance the deficit. Sharp expenditure cuts may become inevitable, potentially harming long-run growth.

According to Obinyeluaku and Viegi (2009) Nigeria's fiscal revenues are largely coincided with oil revenue accounting for nearly 80 percent of government revenues, which implies that the economy is highly exposed to price fluctuations in the world oil markets. Naturally, oil revenue is very volatile due to world oscillation in oil prices and to unpredictable changes in OPEC assigned oil quota – of which Nigeria has been a member since 1958 following the commercial discovery of oil in Oloibiri in River State, Nigeria in 1956.

Absence of suitable fiscal rules and a proper finance-management framework for oil related risks over the past two decade in Nigeria have led to boom-and-bust-type fiscal policies that have generated large and unpredictable movements in government finances. Consequently, this has been a recurrent source of destabilizing effect of fiscal surprises on the domestic prices and exchange rate as well as financial system.

## 2.2 Theoretical literature

Economic growth is one key objective of macroeconomic policy globally. Growth economists over time have postulated different models of growth including the “Big Push” models which have differing implications for foreign aid. According to the “big push” models, Africa is poor because it is stuck in a poverty trap.” To get out of the poverty trap, African countries need a large aid finance increase. In fact, Easterly (2006) described 2005 as the Year of the Big Push.

The core argument behind the Big Push is that coordination problems in the context that increasing returns create the possibility of multiple equilibria. That is, a poor country could be caught in a low equilibrium (poverty trap), government intervention in terms of fiscal policy can potentially solve the coordination problem and push the economy into the better equilibrium which allows for a takeoff into sustained growth.

Foreign aid can finance the big push. Government's fiscal policies and financing of big infrastructure are typical examples of government attempting to coordinate the economy. However, these efforts in most developing economies are marred by rentseeking and corruption. Early development economists in the 1950s and 1960s postulated a desirable per capita growth rate and calculated the “investment requirement” to meet this target the distance between the low domestic saving rate and the “investment requirement” was called the “Financing Gap.

The role of aid was to fill the Financing Gap (Rostow 1960, Chenery and Strout 1966). Thus, this model predicted a strong growth effect for foreign aid through its role inboosting domestic investment above what domestic saving would finance. Contemporary policy advocates for an increase in foreign aid to Africa have cited this model explicitly (Devarajan et al. 2002) at the World Bank, Blair Commission on Africa, 2005, Sachs, 2005). Jeffrey Sachs also argued that success in ending the poverty trap will be much easier than it appears.” The poverty trap implies low income, savings and investment and translates into low economic growth. If saving is too low to keep up with population growth and the depreciation of capital, then per capita growth will be zero or negative (Easterly, 2006).

Foreign aid and fiscal policy are viable sources to finance the “Big Push” to deliver the economy from the poverty trap and promote economic growth. In as much as foreign aid is seen as an instrument to drive the economy, it is not without cautions. Over dependence on foreign aid has been described as a disaster for a developing economy and fiscal policy can be used to rectify this. The effect of overdependence of foreign aid is that itweakens internal revenue drive and fiscal policy should be administered in a way that external debt is maintained at its 60 per cent GDP international norm. Consequently, the big push model supports fiscal policy that includes aggressive strategy that will stimulate internal revenue generation. This will aid the effectiveness of foreign aid in promoting the growth of the beneficiary country.

## 2.3 Empirical literature

Ghulam Mohey-ud-din (2005) analyzed the effectiveness of foreign aid in the economic development of Pakistan, and he concluded that foreign aid may be useful to boosting economic growth only under the presence of valid economic policies fiscal and trade policies. Fasanya and Onakoya (2012) examined the impact of foreign aid on economic growth in Nigeria and their results positively supported that foreign aid positively impact on Nigeria. Ullah et al. (2011) analyzed the impact of foreign aid on economic growth of Pakistan, and they argued that foreign aid positively effect on economic growth while foreign aid volatility is negatively effects on economic growth of Pakistan.

Feeny (2003) elaborated the impact of foreign aid on poverty and human well being in the Papua New Guinea. He said that the allocation of foreign aid to Papua New Guinea has been broadly consistent with the strategy to effectively reduce poverty and develop human well being. Rotarou and Ueta (2009) examined the impact of foreign aid on economic growth of Tanzania, and their results indicated that foreign aid have not been very much successful in poverty reduction. Ekanayake&Chatrna (2010) examined the effects of foreign aid on economic growth in developing countries, from all their analysis they reported that foreign

aid have mixed impact on economic growth of developing countries

Kolawole (2013) examined the impact exacted by foreign assistance in the form of official development assistance (ODA) and foreign direct investment (FDI) on real growth in Nigeria over the period 1980 to 2011. Using the Two-Gap model and various econometric techniques which include Augmented Dickey Fuller (ADF) test, Granger causality test, Johansen co-integration test and Error Correction Method (ECM), empirical results revealed that there is Granger no-causality between any pair of the variables. Findings of the study also established a negative relationship between FDI and real growth as ODA exacts no impact on real growth in the country.

Okon (2012) provided a long-term perspective on development aid and human development in Nigeria. This study employed two-stage least squares estimation to analyzing data from 1960 to 2010, the result showed that there was a negative relationship between development aid and human development, implying that aid tends to worsen human development in Nigeria. As such Nigerian government should put in place an appropriate policy measures that would monitor the maximum and effective utilization of foreign aid. According to him, Government should sustain the current reforms in the various sectors of the economy to encourage the inflow of foreign aid. Donors should provide information on future aid disbursements in order to reduce the uncertainty associated with aid flows and improve fiscal planning.

**2.4 Theoretical framework( Two gap model)**

The theoretical relationship between foreign aid and economic growth can be described by the prominent two gap model. The idea behind the two-gap approach to economic development is that savings-gap and foreign exchange-gap are two separate and independent constraints to the attainment of a target rate of growth in less developed countries (LDCs).The identity between the two gaps, the investment-savings ( $I - S$ ) gap and the import-export ( $M - X$ ) gap, follow from the nature of the accounting procedures. It is a common knowledge that if a country invests more than it saves, a balance-of-payments deficit will result. Or an excess of imports over exports implies an excess of resources used by an economy over resources supplied by it. Such that, Chenery and Strout (1956) assert that foreign aid is a way to filling these two gaps in order to achieve the target growth rate of the economy.

Also, following Chenery and Bruno (1962) and Chenery and Adelman (1966), a savings gap arises when the domestic savings rate is less than the investment required to achieve the growth target. The economy can achieve the target growth rate by filling this savings gap with foreign aid. Similarly, a fixed relationship is postulated between targeted foreign exchange requirements and net export earnings. If net export earnings fall short of foreign

exchange requirements, a foreign exchange gap appears which can be filled by foreign aid.

Structurally, the two gaps are represented in terms of the national income accounting identities as follow using the aggregate expenditure equals aggregate output approach

$$E - Y \equiv M - X \equiv I - S \equiv F \dots\dots\dots(1)$$

Where, E is national expenditure, Y is national output and income, I is investment, S is saving, M represents imports, X is exports and F represents net capital inflow.

Such that, when aggregate expenditure, E is more than the aggregate output, Y then the economy requires foreign capital inflow or aid, F in order to meet the short fall in income. The short fall, however, would be from domestic savings being less than the required investment, that is, a savings gap ( $I - S$ ) and from foreign exchange required for import being more than net earnings from export, that is, a foreign exchange gap ( $M - X$ ). Yet the foreign aid required to fill the gap (short fall) is determined by the dominant gap at a given point in time. If the savings gap is larger than the foreign exchange gap, the economy is said to be in a savings constraint.

On the other hand, if the foreign exchange gap is larger than the savings gap, the economy is in a foreign exchange constraint. Since these gaps are different and independent then the foreign aid required in each gap would be necessarily different. Essentially, if domestic investors (via domestic commercial banks) gain access to world financial markets, the savings gap and foreign exchange gap could be overcome by the financing domestic (excess) investment out of the savings from high income countries (HICs) that is, by the inflow of capital.

The capital inflow can take the form of concessional lending abroad, foreign direct investment (FDI) inflows, portfolio investment by foreigners and official development assistance (ODA). (See Bender & Löwenstein, 2005). Thus, it follows that:

$$I - S = F \dots\dots\dots(2)$$

And

$$M - X = F \dots\dots\dots(3)$$

Equations (2) and (3), like (1), express that the gap in each of savings gap and foreign exchange gap is equal to foreign aid. As such, if FDI is the aid required for savings gap and ODA is necessary for filling the foreign exchange gap, then it holds that:

$$F = FDI + ODA \dots\dots\dots(4)$$

**3.0 METHODOLOGY**

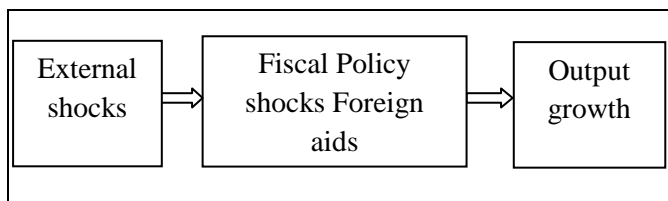
**3.1 Vector Auto-Regression (VAR) Model**

Econometrics literature has identified VAR as a veritable means of studying the effect of shocks on economic variable in both short and medium terms (Elborne, 2007; Adebisi, 2010). Formulation of VAR model is strongly dependent on shocks identification in the VAR model and this often

depends on the objectives of the researcher as well as literatures.

In this study we are interested in studying shocks effects on fiscal policy and the resultant implication on the both foreign aids and output of Nigeria. In other words we are looking at how fiscal policy shocks and foreign aids are acting as the transmission mechanism of the external shocks affecting it to the output growth of Nigeria.

A flow chart for the economy is as follows;



Source: Authors

From literature oil price and exchange rate have been identified by Capistran and Cuadra, (2011), Ball(2000),Clememnts, Flores and Leigh, (2009) among others external factors that can influence fiscal policy in Nigeria which is an oil rich country.

Fiscal variables to be used as transmission mechanism are government revenue, government expenditure, Fiscal deficit /surplus. And the output variable is the GDP.

VAR models are seen as independent large scale macro econometric model that do not rely on unrealistic assumptions ( Elbourne, 2007). The foremost theoretical framework of VAR analysis as proposed by Sims (1980) used Choleski decomposition to get impulse responses.

The construction of our VAR model follows the conventional method where the initial model is specified thus:

$$y_t = A_1y_{t-1} + A_2y_{t-2} + \dots + A_p y_{t-p} + \mu_t \dots\dots(5)$$

Where:

$y_t$  represents an (nx1) vector containing n endogenous variables,

$A_i(i=1, 2, \dots, p)$  are (n x n) matrices coefficients,

And  $\mu_t$  is an (n x 1) vector containing error terms.

Though the error is  $\mu_t \sim iid N(0, \Omega)$  but errors do possess tendency of correlating contemporaneously in all the equations.

There exist  $pn^2$  Parameters in the A matrices. Equation 5 can be written in other form with the usage of the lag operator L which is selected through  $L^k x_t = x_{t-k}$ . the equation becomes:

$$A(L)y_t = \mu_t \dots\dots\dots(6)$$

Where:

$$A(L) = A_0L^0 - A_1L^1 - A_2L^2 - \dots - A_pL^p.$$

$A_0 = I$  (identity matrix) it is required that  $A(L)$  lies outside the unit circle for stationarity to be ensured.

The VAR model to be estimated for the purpose of this study is as follows;

$$GDP_t = [oilpr_t, exr_t, govrev_t, govexp_t,] \dots\dots\dots(7)$$

From the model, the shocks or the exogenous variables are;

$oilpr_t$ ,.....oil price at period t

$exr_t$ .....Exchange rate at period t

The fiscal policy variables act as transmission mechanism and at the same time shocks to the system. The variables are;

$govrev_t$ .....Government revenue at period t

$govexp_t$ .....Government revenue at period t

The output variable is  $GDP_t$ .

The GDP gross domestic product of Nigeria at period t

Both the impulse response function and the variance decomposition analysis will be done to thoroughly examine the response of the fiscal variables and foreign aids to the identified shocks and also to assess the resultant effect on output growth of Nigeria.

### 3.2 Sources of data

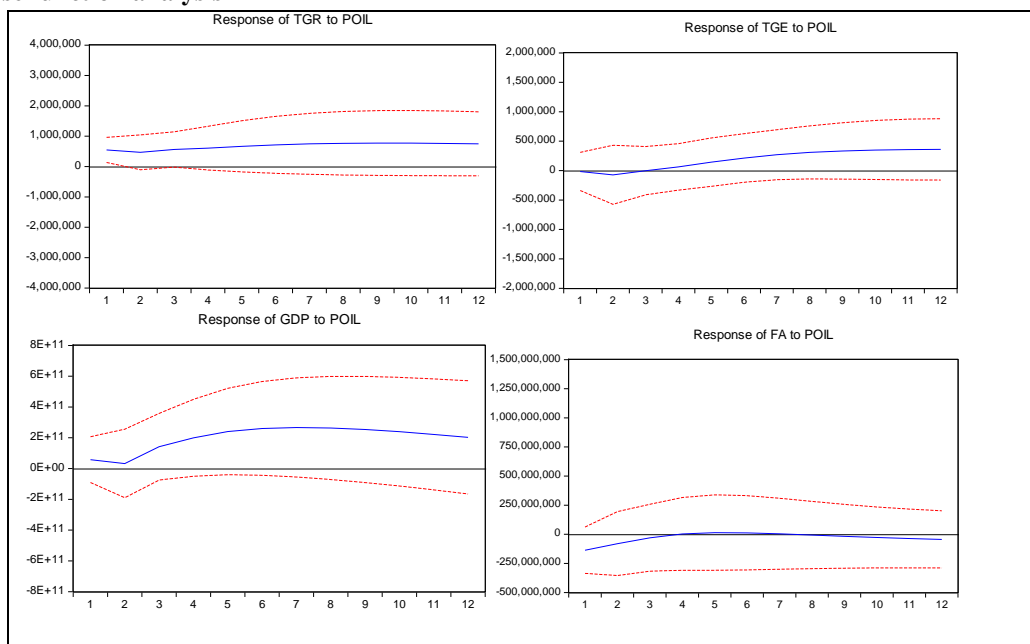
Data on the fiscal variables and the output variable will be sourced from the Central Bank statistical bulletin. While data on the variables relating to oil price will be sourced from the OPEC data base.

## 4.0 RESULTS AND DISCUSSIONS

### 4.1 Non Stationarity

This study follows the work of Uhlig(2005),Peersman and Smet(2002),Vonnak(2005), Clements and Hendry (1995), Fève and Guay(2006), and Ibrahim and Amin(2005) among others, where levels VAR are used. The studies have argued that this approach will prevent loss of vital information about the data sets which might occur in the course of differencing. It has also been argued that the inclusion of lagged lengths of the variables in the VAR will enable the residual to be stationary even with a non-stationary series that is  $I(1)$ ( Berkelmans, 2005). Many studies in recent times have also followed the same procedure (see, among others, Ngalawa&Viegi, 2011; Elboure, 2007; Mordi & Adebisi, 2010; Mahmud, 2009).

**Impulse response function analysis**

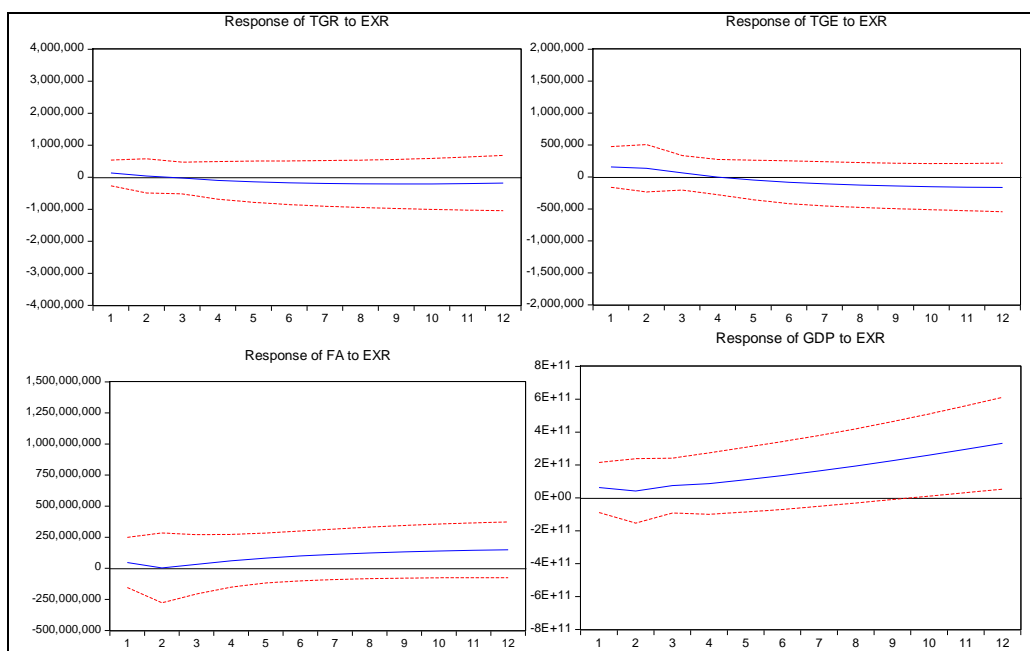


*Figure 1: Impulse response to oil price shock*

*Source: Authors*

Figure 1 shows response to one standard deviation rise in oil price. Oil price has been identified as one of the important external shock that can influence the behaviour of fiscal policy and that can also have implication on foreign aid in Nigeria. The result shows that government revenue responds positively to shock from oil price. The response was significant for the larger period of the response. This is an indication that the revenue of the government of Nigeria is

highly responsive to oil price shock. It appears that the same effect is replicated on government expenditure. The oil price also causes government expenditure to rise but not significantly. The implication is that the significant impact of oil price shock on government revenue is not translated to significant government expenditure. The response of foreign aids to oil price shock is not significant and it does not show any conspicuous pattern of movement. This is an indication that oil price shock may not affect foreign aid in Nigeria.



*Figure 2: Impulse response to exchange rate shock*

*Source: Authors*

The response of all the variables to one standard deviation in exchange rate is shown in figure 2. All the variables do not respond significantly to exchange rate shock. Only the GDP

respond positively and significantly to the exchange rate shock. This is an indication that overvaluation of currency might not improve growth of Nigeria. In other words, it

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contribute to the existing literature that discourages currency appreciation if growth is to be achieved. Olomola 2007 concluded that currency appreciation has the tendency of

squeezing out the tradable sector of the economy. This will definitely have adverse effect on the GDP.

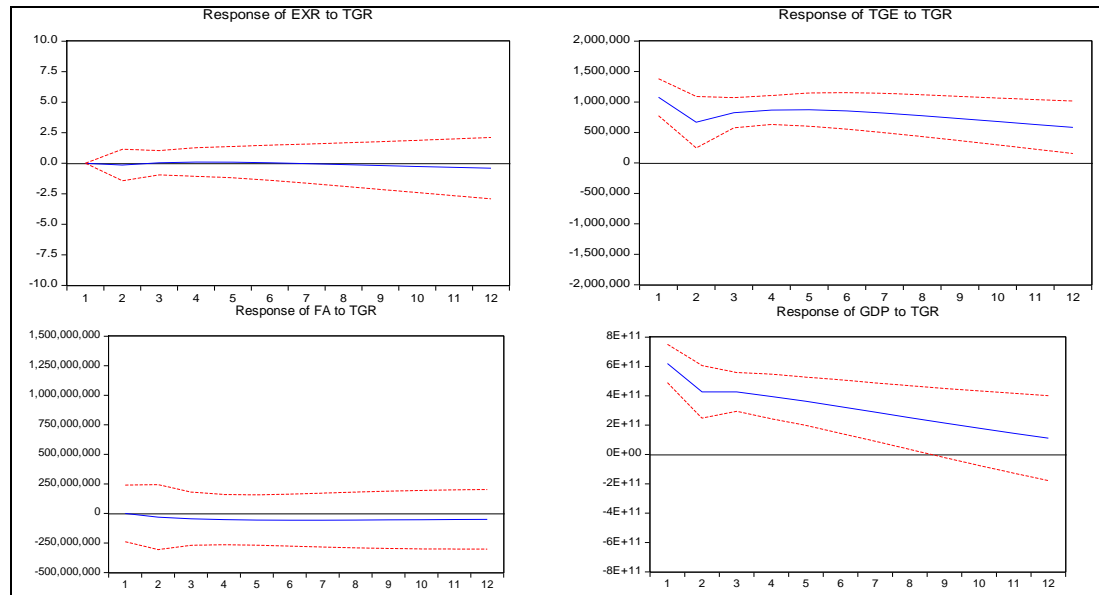


Figure 3: Impulse response to government revenue shock

Source: Authors

Government revenue shock affects both GDP and government expenditure significantly. The shock does not have significant impact on exchange rate and foreign aids. It is however noted that the shock fails to lead to significant

increase in government expenditure and the GDP. Both appear to fall in figure 3. Again this is corroborating our earlier conclusion that a sudden upsurge in government revenue might not translate to improved growth.

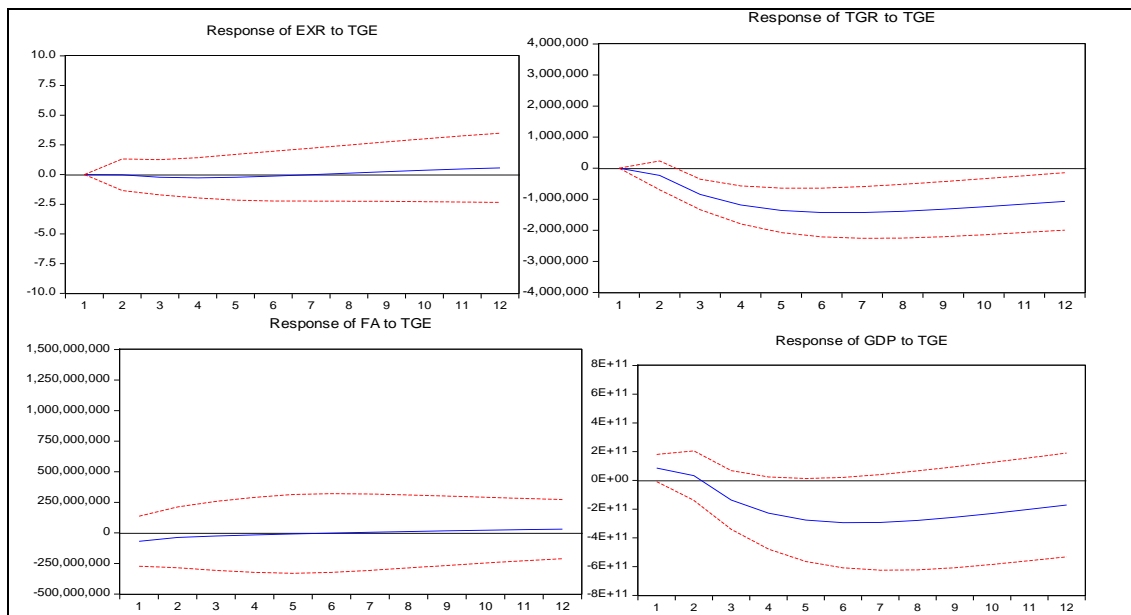


Figure 4: Impulse response to government expenditure shock

Source: Authors

The impulse response of variables to one standard deviation in government expenditure is shown in figure 4. The result indicates that government expenditure shock does not have significant impact on both exchange rate and foreign aids. However, the shock has significant impact on both the GDP and government revenue. Both the GDP and

government revenue react negatively and significantly to shock from government expenditure. This is in line with our conclusion from the previous figures that both government revenue and expenditure shocks might not influence the growth of Nigeria positively. The implication is that the expenditure of government might not be on the productive activities that can promote growth. This follows the findings



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of CBN 2010 that the bulk of government expenditure in Nigeria goes to overheads and general administration which

might not have any impact on the real sector of the economy.

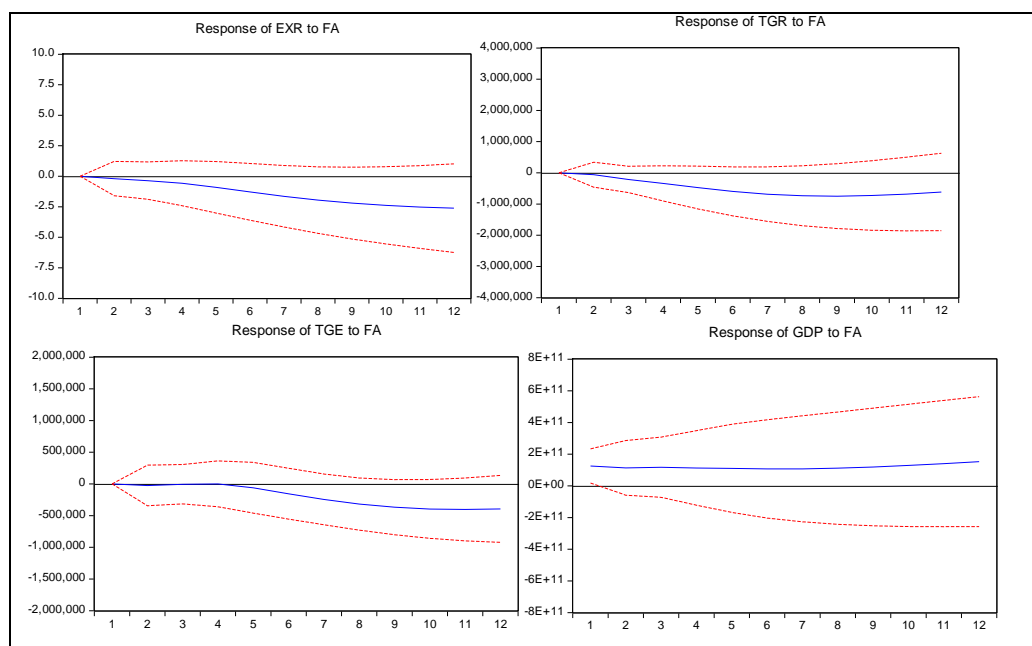


Figure 5: Impulse response to foreign aids shock

Source: Authors

Figure 5 shows the response of both the fiscal variables and the GDP to one standard deviation in foreign aid. The results shows that none of the variable demonstrate any significant response to the shock. This implies that foreign aid might not have any significant impact on growth in Nigeria

Variance decomposition analysis

Variance decomposition analysis explains the contribution of each shock to the behaviour of each variable in the VAR system. This analysis will enable us measure the magnitude of contributions of each identified shock in the VAR system to the behaviour of each variable.

Table 1: Variance decomposition of government revenue

Period	Standard error	Oil price shock	Exchange rate shock	Government revenue shock	Government expenditure shock	Foreign aid shock	GDP shock
3	3646660.	6.292858	0.149896	87.33373	5.773356	0.366127	0.084035
6	5407917.	7.386767	0.271359	68.99280	20.69345	2.533444	0.122185
9	6672688.	8.772767	0.457285	58.53913	26.40574	5.182552	0.642527
12	7488380.	10.06362	0.569624	52.86988	28.14250	6.555207	1.799158

Source: Authors' Computation

The results on table 1 indicates that apart from own shock and government expenditure which are direct fiscal variables, oil price shock contribute the highest shock to the

behaviour of government revenue in Nigeria. The trend shows that oil price shock affects government revenue very well. In other words, it dictates the pace of government revenue in Nigeria.

Table 2: Variance decomposition of government expenditure

Period	Standard error	Oil price shock	Exchange rate shock	Government revenue shock	Government expenditure shock	Foreign aid shock	GDP shock
3	2394320.	0.096407	0.826787	39.90874	59.15367	0.011039	0.003360
6	2930626.	0.881324	0.657215	52.79082	45.24066	0.330601	0.099382
9	3515215.	2.873310	0.837554	51.24746	42.33157	2.624892	0.085215
12	3966176.	4.666672	1.134779	47.89958	40.93341	5.070769	0.294799

Source: Authors' Computation

In the same vein the own shock and government revenue shock contribute the highest shock to the behaviour of

government expenditure. Oil price shock appears not to have much effect like it does on government revenue.

**Table 3:** Variance decomposition of foreign aids

Period	Standard error	Oil price shock	Exchange rate shock	Government revenue shock	Government expenditure shock	Foreign aid shock	GDP shock
3	1.80E+09	0.799546	0.099561	0.091273	0.204863	98.75492	0.049836
6	2.06E+09	0.618581	0.552752	0.282894	0.164542	98.34144	0.039789
9	2.14E+09	0.581279	1.505066	0.462684	0.162262	97.25179	0.036919
12	2.18E+09	0.647746	2.778183	0.615161	0.202149	95.72097	0.035796

Source: Authors' Computation

Table 3 shows that apart from the own shock oil price and exchange rate affects foreign aid behaviour in Nigeria. However, the own shock has a very pronounced effect on the behaviour of foreign aids in Nigeria. The implication

here is that external factors (oil price and exchange rate) outside fiscal policy shocks appears to have much more effects on the behaviour of foreign aids than government revenue and government expenditure shocks which are direct fiscal policy variables.

**Table 4:** Variance decomposition of GDP

Period	Standard error	Oil price shock	Exchange rate shock	Government revenue shock	Government expenditure shock	Foreign aid shock	GDP shock
3	1.25E+12	1.563304	0.721701	47.79413	1.727755	2.714113	45.47900
6	1.72E+12	6.433307	1.676227	38.67396	8.177279	2.672617	42.36661
9	2.08E+12	9.116192	3.816657	30.78952	10.85011	2.702061	42.72546
12	2.38E+12	9.549028	7.575174	24.63101	10.43562	3.115365	44.69380

Source: Authors' Computation

The results on table 4 shows that government revenue shock contributes the highest shock to the behaviour of the GDP apart from own shock. The implication here is that government revenue is an important factor that determines the behaviour of the GDP. This is followed by oil price shock. It should be noted that the finding is in line with what we obtained previously. Foreign aid appears to contribute the lowest shock to the GDP.

shown to be a disincentive to achieving accelerated economic growth.

**5.0 CONCLUSION AND RECOMMENDATIONS**

From the findings in this study it can be concluded that oil price shock is a significant factor affecting government revenue in Nigeria. The shock also affects the GDP using government revenue as a transmission mechanism. This is an indication that fiscal policy in Nigeria appears to be highly susceptible to oil price shock.

**Policy recommendations**

Foreign aids in Nigeria should be appraised based on exchange rate and oil price shocks and not fiscal policy shocks. These have been shown to contribute high shock to the behaviour of foreign aids in Nigeria.

Effort should be made by policy makers to ensure that oil revenue translates to economic growth. This can be done by improving on the funding of the real sector of the economy. Aggressive investment promotion strategy should be embarked upon so as to promote the growth of the country. The monetary authorities should also guide against overvaluation of naira. This has been shown to have adverse effect on the growth of the economy.

Again, considering the fiscal policy shocks, the GDP does not respond significantly and positively to both government revenue and expenditure shocks. The implication of this is that government revenue might not have been utilized for productive activities that can promote that growth of the GDP. This is contributing to the findings of CBN, 2010 that government revenue has been grossly inadequate to fund the real sector of the economy due to high cost of administration and other overheads.

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It has been found that external shocks ( oil price shock and exchange rate shocks) affects foreign aids in Nigeria more than the fiscal policy shocks. And foreign aid shock does not have much effect on the GDP.

Finally, findings from the study also support the literature in favour of moderate exchange rate as an impetus to achieving economic growth. Overvaluation of currency has been

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