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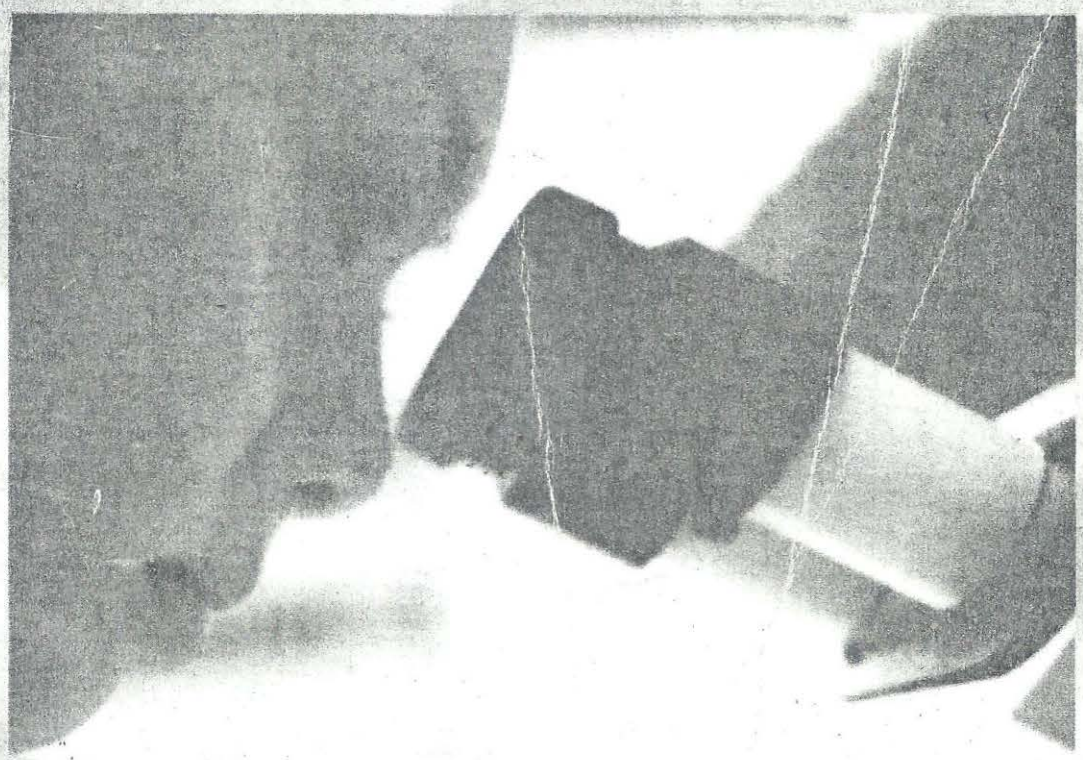

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# Government Spending and Economic Growth in Nigeria: A VectorAutoregressive Modeling Approach

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## Abstract

This paper examined the impacts of capital and recurrent public expenditures on gross domestic product and also determined the causal relationships between government spending and gross domestic product in Nigeria between 1970 and 2002. The data was subjected to an econometric analysis using the vector autoregressive (VAR) modeling approach. The result shows that aggregate government expenditure generally rises with increases in oil revenue but hardly declines when the increases ceased, resulting in destabilization in the economy. Both recurrent and capital expenditure exerted positive impact on economic growth (GDP) but the impact of the capital expenditure was greater. Also the causality test showed that promoting economic growth had been largely responsible for the increasing government spending in Nigeria. The study recommended that the over dependency of Nigeria on the oil sector as its main source of revenue should be reviewed. Furthermore, it is recommended that a larger proportion of total government spending should be allocated to capital expenditure.

**Keywords:** Government spending, Economic growth, vector autoregression

## 1.0 INTRODUCTION

For more than three decades now, government spending in Nigeria has increased significantly without a corresponding significant increase in economic growth as observed by many Nigerian economic analysts and the Central Bank of Nigeria, (Alli 1986, Kwanashie 2000 and CBN 2003). During the period under review (1970-2002), the oil price fluctuations inflicted fiscal imbalance, as it was not easy to curtail the already increasing government spending, to correspond to the unimpressive economic growth. A lot of the destabilization in economic growth emanated from fluctuations in government spending caused by the oil price instability. The immediate impact of oil price increase on the Nigerian economy was an expansion in government revenue, which encouraged government to raise expenditure to unsustainable levels, as the pattern of expenditure during the period was stimulated by the expected performance of the oil sector.

A major problem of government spending to generate economic growth in recent times is the difficulty of lowering the largest components of recurrent expenditure such as wages and salaries, while attempting to raise the level of capital formation. Under the current democratic dispensation, the wages and salaries of political office holders have further aggravated the burden created by the recurrent expenditure on the federal budget. It is therefore a fact that recurrent expenditure has been dominant in total Federal Government expenditure (Sanusi, 2003). The need therefore to address the basic element of economic instability such as expanded government spending which resulted in a lot of problems accentuated by inflation and unsatisfactory growth rate is imperative.

From the above, some questions readily come to mind, what has been the relationship between the oil price instability, government spending and economic growth? Which component of government spending should be increased to bring about economic growth? Arising therefore is the need to determine the effect of capital and recurrent expenditure on Gross Domestic Product (GDP) and also to determine the causal relationship between the government spending and the Gross Domestic Product (GDP).

## SECTION II
## LITERATURE REVIEW

Although a precise statement about the form and the content of government spending and economic growth hypothesis by different scholars would be subject to disagreement, there is less disagreement on the proposition that causality runs from government expenditure to real output and the causal impact is positive. The underlying idea in most of the theories agreed that increasing government spending basically have a positive effect on real output growth, but from empirical evidences from countries, this growth effect tends to decline and/or be reversed when government overspends (Heitger (2001), Ferris (2000), Kweka (2000), Gwartney (1998), etc). Thus, when government function changes to provide more of private goods, economic growth pattern declines or becomes negative.

Kandil (2005) Using time series analysis of annual data to test for the effects of government spending shocks for a sample of developing countries shows that there were allocation of government spending shocks (both positive and negative) between

price inflation and output growth. Cross-country regressions evaluate the determinants of the difference in the real effects of government shocks. If the real effects decrease, capacity constraints are more binding and if they increase, the elasticity of aggregate demand is larger with respect to change in government spending. Cross-country regressions also evaluate the implications of government spending shocks on the difference in trend price inflation and output growth. Based on these propositions, the study concluded that the variability of government spending shocks decreases trend real output growth and increases trend price inflation across the developing countries studied. Bose et al (2003) investigated a panel of thirty developing countries over the decades of 1970s and 1980s, and found that, the share of government capital expenditure in GDP is positively and significantly correlated with economic growth though current expenditure is insignificant.

Al-Faris (2002) investigated the nature of the relationship between Public expenditure and economic growth in the Gulf Cooperation Council Countries using a dynamic model calibrated to the GCC countries' data, the study found that income is a predictive factor of the expanding role of government as postulated by Wagner (1958) and as such, empirical investigations do not support the hypothesis of public expenditure causing national income as proposed by the Keynesian theory. Heitger (2001) investigated the relationship between the size of government spending and economic growth in OECD countries between 1960 and 2000. The underlying argument was that government expenditure on public goods could have a positive effect on growth, but this growth effect would decline when government increases expenditures for the provision of private goods. Empirical regression analysis based on panel estimates for 21 OECD countries supported this hypothesis. Total government expenditure as well as expenditure by type indicates a significant negative impact on economic growth (excluding transfers and public investment). Furthermore, Odedokun (2001) tested the effects of different categories of government expenditure, revenue and deficits on economic growth in developing countries, the study was based on panel data of annual series over the last three decades for 103 countries, which were further classified into low-income, high-income, mineral exports dependent, and foreign aid dependent groups. His findings suggested that the effects of the fiscal variables on growth vary across these groups of countries. But broadly, capital expenditure has been detrimental to growth, just as current expenditure on goods and services, while expenditure on wages and salaries is growth promoting.

Ferris (2000) tested the hypothesis that the appearance of slower growth in the economy has been due to the increases in government spending in twenty OECD countries over the period 1970 to 1999 and used a simple growth model that highlighted the size of government consumption in relation to income and output growth. He found that increases in size of government spending on consumption could have negative impact on economic growth, while increases on investment could have positive impact on growth. Also using time series data on Tanzania for 32 years, Kweka (2000) investigated the impact of public expenditures on economic growth, formulating a simple growth accounting model and adapting Ram (1986) in which total government expenditure is disaggregated into expenditure on (physical) investment, consumption spending and human capital investment. Their findings show that increase in productive expenditure (physical investment) appears to have a negative impact on growth, while consumption expenditure

relates positively to growth and in particular appears to be associated with increased private consumption. The results counter the widely held view that government consumption spending is growth-reducing.

Gwartney (1998) tested the same hypothesis that the appearance of slower growth in the economy has been due to the increase in government spending. An empirical analysis of data from 1980-1995 in 23 OECD countries shows a strong relationship between the size of government and GDP growth rate on one hand and increase in government expenditures and GDP growth rate on the other. After adjustment for cross-country differences in the security of property rights, inflation, education and investment, higher level of government as a percentage of GDP exert a strong negative impact on GDP growth rate.

Ghali (1997) building on Barro's (1990) endogenous growth model to untangle the nature of the relationship between government expenditure and economic growth in Saudi Arabia examined the intertemporal interactions among the growth rate in per capita real GDP and the share of government spending in GDP. Using vector autoregression with particular attention given to testing for the existence and direction of Granger-causality among the variables, the empirical analysis found no consistent evidence that government spending can increase Saudi Arabia's per capita output growth and concluded that a fiscal policy aiming to control the budget deficit in Saudi Arabia has to consider shrinking the size of the government spending and limiting its role in the economy.

Lindaner and Velenchik (1992) reported that throughout the twentieth century, governments have been spending large proportion of their national income. They attempted to examine the questions of how the increasing expenditure could be compared with expenditure in industrial nations and what explains the growth in spending by the developing countries' governments as well as the effects on economic growth. It was found that government expenditure as a share of GDP in low and middle-income countries on the average was lower than shares in industrial market economies and, with few exceptions, had been growing. Many factors, including ideology for public goods, the rising cost of public goods relative to private goods, and perhaps growth/development theory and practice, explains this growth. AsowH eitger (2001) invHHH ggggg for the relationship between government expenditure and economic growth, the empirical evidence did not reveal any strong correlation

This study is anchored on some theories, namely Wagner's law of increasing state activities, Wiseman-Peacock hypothesis, Clark critical limit's hypothesis, the Keynesian demand management theory and the Hicksian theory. A summary of these theories is presented. Wagner (1890) based his law of increasing state activities on historical facts like war, social and economic change and argued that there were inherent tendencies for the activities of different layers of a government (such as central and state government) to increase intensively and extensively. He further argued that there is a functional relationship between the growth of an economy and the growth of the government activities so that the governmental sector grows faster than the economy.

Wiseman and Peacock (1961) postulated that public spending does not increase in a smooth and continuous manner but in jerks and step-like fashion. They further argued that when some social or other disturbances take place, there could be need for increased public spending that the existing public revenue could

not meet. However, earlier, Clark in his critical limit's hypothesis postulated that when the share of the government sector exceeded 25 per cent of the total economic activity of the country, inflation occurs even under balanced budget. He argued further that when the critical limit is reached, the income earners would be affected by reduced incentives (due to high tax incidence) thereby impairing their productivity and demand-effects of the government financing would become quite strong even if the budget remains balanced. As a consequence, inflation could result from this maladjustment between demand and supply. The Clark postulate justifies the inclusion of inflation in our model.

The Keynesian mode of thought was based on the premise that a stimulus to aggregate demand leads to an increase in demand and thus contributes to the growth of national income. The stimulus referred to in this study is the increasing government expenditure, which could create income and stimulate demand thereby bringing about economic growth. According to the Keynesian mode of thought, changes in government spending could cause changes in aggregate real output.

Hicks' theory related the impact of the government spending to economic growth, relying on the relationship between real output sector and monetary sector. The main postulate is that gross domestic product (GDP) is positively influenced by government spending which causes the IS curve to shift rightward. Similarly, the theory established a relationship between GDP and rate of interest, i.e. a higher rate of interest will positively influence savings, which will subsequently influence investment positively and consequently output. In this study the Wagner's, Wiseman-Peacock's and Clark critical limit's hypotheses explain the increasing government spending and the structural changes in the economy affecting it, while the Keynesian and Hicksian theories explain the impact of the government spending on the economic growth. There is a dearth of studies on the causal relationship between the government spending and Gross Domestic Product in Nigeria. This study intends to fill this gap.

## PROFILE OF GOVERNMENT SPENDING IN NIGERIA (1970-2008)

The size of total government spending increased (both in absolute and in real terms) throughout between 1970 and 2002, except for the periods that coincided with shortfalls in oil revenue. The period of shortfalls in oil revenue included – the late 1970s, early 1980s and 1994. In absolute terms, the total expenditure increased from N903.9 million in 1970 to N1, 018,200.0 million in 2002 as shown in Table 1. This increase in government spending, over the last thirty-two (32) years represents over a thousand fold increase. But this would not be a meaningful way of looking at the size of government spending. Prices over the same period rose over four hundred folds (Table 1), thus, necessitating how the preceding indices of the growth of government spending have been affected by inflation. In this sense, the real government spending is considered using the composite consumer price index to deflate total expenditure to obtain the real total expenditure.

As shown in Table 1, it could be seen clearly that real total expenditure has increased in size over two-folds between 1970 and 2002. The implication from this ever-increasing size of total expenditure of government is that government becomes the chief spending unit in the economy.

Table 1: The Size of Government Expenditure in Nigeria: 1970-2002 (₦m)

| Year | Total Expenditure | Growth Rate of Total Expenditure | Composite Consumer Price Index | Real Total Expenditure* |
|---|---|---|---|---|
| 1970 | 903.9 | | 10.8 | 83.7 |
| 1971 | 997.2 | 10.3 | 12.6 | 79.1 |
| 1972 | 1463.6 | 46.8 | 13 | 112.6 |
| 1973 | 1529.2 | 4.5 | 13.6 | 112.4 |
| 1974 | 2740.6 | 79.2 | 15.5 | 176.8 |
| 1975 | 5942.6 | 116.8 | 20.7 | 287.1 |
| 1976 | 7856.7 | 32.2 | 25.1 | 313.0 |
| 1977 | 8823.8 | 12.3 | 30.4 | 290.3 |
| 1978 | 8000.0 | -9.3 | 34.5 | 231.9 |
| 1979 | 7406.7 | -7.4 | 38.5 | 192.4 |
| 1980 | 14968.5 | 102.1 | 42.4 | 353.0 |
| 1981 | 11413.7 | -3.7 | 51.4 | 222.1 |
| 1982 | 11923.2 | 4.5 | 55.1 | 216.4 |
| 1983 | 9636.5 | -19.2 | 67.9 | 141.9 |
| 1984 | 9927.6 | 3.0 | 95.6 | 103.8 |
| 1985 | 13041.1 | 31.4 | 100 | 130.4 |
| 1986 | 16223.7 | 24.4 | 105.4 | 153.9 |
| 1987 | 22018.7 | 35.7 | 116.2 | 189.5 |
| 1988 | 27749.5 | 26.0 | 181.2 | 153.1 |
| 1989 | 41028.0 | 47.9 | 272.7 | 150.5 |
| 1990 | 60268.0 | 46.9 | 293.2 | 205.6 |
| 1991 | 66584.4 | 10.5 | 330.4 | 201.5 |
| 1992 | 92797.4 | 39.4 | 478.4 | 194.0 |
| 1993 | 191229.0 | 114.7 | 751.9 | 254.3 |
| 1994 | 160893.0 | -15.9 | 1180.7 | 136.3 |
| 1995 | 248768.0 | 54.6 | 2040.9 | 121.9 |
| 1996 | 337218.0 | 35.6 | 2638.1 | 127.9 |
| 1997 | 428215.0 | 27.0 | 2863.2 | 149.6 |
| 1998 | 487113.0 | 13.80 | 3149.2 | 154.7 |
| 1999 | 947690.0 | 94.6 | 3357.6 | 282.3 |
| 2000 | 701059.0 | -26.0 | 3493.8 | 200.7 |
| 2001 | 1018026.0 | 45.2 | 4267.9 | 238.5 |
| 2002 | 1018200.0 | 0.02 | 4818.7 | 211.3 |

*Sources: Central Bank of Nigeria Statistical Bulletin*

*Partly computed by the authors*

**The real total expenditure is calculated as Total expenditure/Composite Consumer Price Indices (Col. 2/col.4=col.5)*

## SECTION III
## METHODOLOGY

The Vector auto-regression (VAR) model was employed to determine the effects of the recurrent and capital expenditure of government on economic growth. The total government spending was divided into recurrent and capital, so as to be able to determine the differential effects of these components on the economic growth. The growth in the economy was measured by the annual growth rate of GDP. Economic growth as a function of government's spending in turn affected oil revenue (oil shock), since any change in oil revenue affects government spending and government spending in turn affects economic growth. Inflation is included in the model as an additional variable indicating the effect of government spending on macroeconomic instability in Nigeria. In Nigeria, significant proportion of government spending is financed through fiscal deficit, which is obtained from the Central Bank. This mode of finance no doubt increases the base money and stimulates inflation. From the foregoing, we are interested in the joint behaviour through time of a vector of the economic variables described above. With the a priori expectations that shock to the oil revenue affects the government spending either positively or negatively, and this in turn affects economic growth. The joint process is written as:

$$X_t = \sum_{i=0}^{n} A_i X_{t-1} + \beta U_t \text{ ----------} 1$$

Where X is a (n x 1) vector of observations at time't' on the variables under consideration, i.e. $X_t$ = (OIL $REV_t$, $REXP_t$, $CEXP_t$, $INF_t$, $GDP_t$). OIL REV is oil revenue, REXP is recurrent expenditure, INF is inflation rate, GDP is economic growth and't' is time subscript. $A_i$ is a sequence of n-by-n matrices of coefficients, they characterise the propagation mechanism, ß is an (n x n) matrix of coefficients relating the disturbances to the X vector, and U is an (n x 1) vector of disturbances to the system. Taking A to be n x 1 implies that the numbers of observed macroeconomic variables X and the number of unobserved fundamental shocks U is the same. Rearranging equation (1) gives the reduced form of the system, which can be written as:

$$X_t = \sum_{i=0}^{n} C_i X_{t-1} + e_t \text{ ----------} 2$$

Where $C_i = (1 - A_0)^{-1}$ and $e_t$ is a serially uncorrelated vector of residuals. This is the form in which the VAR was estimated. As in any standard VAR model analysis the way the variable entered the model is extremely important for the interpretation of the results, (Akinlo and Odusola, 2003). Therefore, in this study, the policy variables are placed first then followed by the target variables, because the target variables are less endogenous than the policy variables. The ordering are Oil revenue, recurrent expenditure, capital expenditure, inflation and economic growth.

From the VAR model, two important analytical tools that would be used to analyse the impact of government spending on economic growth were derived, namely; impulse response function and variance decomposition. The impulse response function of any VAR model traces the effect of one standard deviation shock to one of the innovations on current and future values of the endogenous variables. While the variance decomposition on the other hand shows the fraction

of the forecast error variable for each variable that is attributable to its own innovations and the innovations in the other variables in the system.

A granger-causality test is further carried out to realise objective two. Granger (1969) causality test examines whether past changes in one variable X, help to explain current changes in another variable, over and above the explanation provided by past changes in Y. If otherwise, then one concludes that X does not Granger cause Y. To determine whether causality runs in the other direction, from Y to X, one repeats the experiment, but with X and Y interchanged.

$$Y_t = \sum_{i=1} \alpha_{1i} Y_{t-1} + \sum_{i=1} \beta_{1i} X_{t-1} U_t \text{ ----------} 3$$

$$X_t = \sum_{i=1} \alpha_{2i} Y_{t-1} + \sum_{i=1} \beta_{2i} X_{t-1} + V_t \text{ ----------} 4$$

Thereafter, $\alpha$i and ßi (where i = 1, 2——) are tested to show whether or not $X_t$ fails to Granger cause $Y_t$ and vice-versa, respectively. The error terms are assumed to be serially independent with zero mean and finite covariance matrix. From equation 3, X is said to Granger cause Y if the coefficient of the lagged values of X as a group is significantly different from zero, based on a standard F-test. The reverse is the case if i is significantly different from zero from equation 4. Feedback relationship or bi-directional causality occurs if $X_t$ Granger causes $Y_t$ and $Y_t$ Granger causes $X_t$.

To examine the long run relationship between government spending and economic growth in Nigeria, annual data series of the variables were used for the period 1970-2002 and except for the GDP, which is given at 1984 factor cost, all other variables were in current prices. Before the Johansen Cointegration test can be applied it must be determined whether the series are non-stationary or have unit roots as it has been shown that the statistical properties of regression analysis using non-stationary time series data are dubious (Philips, 1986). If the variables were found not to be integrated or stationary at levels then the next task will be to check whether the variables are cointegrated.

Testing the null hypothesis that the variables are non-stationary at level against the alternative of stationary, show that all the five series are stationary at all levels. The ADF test gave the following: OILREV: -4.32; TEXP: -3.64; REXP: -4.37; CEXP: -3.03; INF: -3.27; and GDP: -3.41. At 5% level of significance, the critical value computed by McKinnon is -2.96. This is not unexpected because the variables have been expressed in their growth rate form. Since all variables are stationary at levels, there is no need for cointegration test. A variable is used at the level in which it is first found to be stationary, as further differentiation could reduce the economic sense.

The result on the impact of government spending on economic growth investigated using the simulated impulse responses and the variance decomposition of the VAR model, specified earlier are presented below.

## SECTION IV
RESULTS OF ANALTSIS

### 4.1 Analysis of Impulse Response

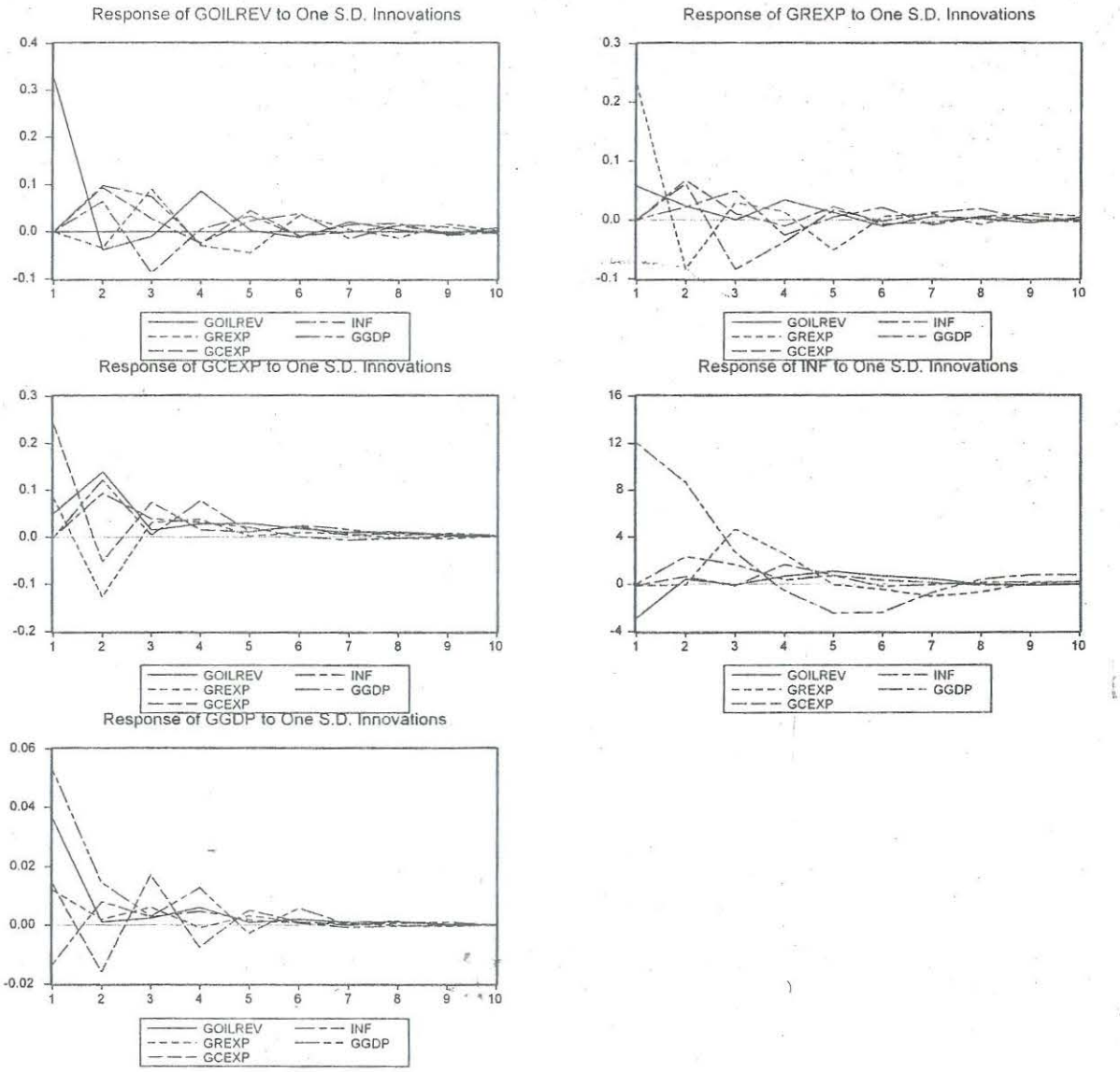
The following conclusions emerge from the examination of the impulse response function in Table 2.

Table 2: Impulse Responses from the Reduced Form

| RESPONSE OF OIL REVENUE | Period | GOILREV | GREXP | GCEXP | INF | GGDP |
|---|---|---|---|---|---|---|
| | 1 | 0.324735 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| | 5 | 0.003453 | -0.045282 | 0.044996 | 0.033189 | 0.022234 |
| | 8 | 0.004384 | -0.013440 | 0.012601 | 0.016956 | 0.014209 |
| | 10 | 0.008362 | 0.002672 | 0.001415 | -0.001496 | 0.004823 |
| GOVERNMENT RECURRENT EXPENDITURE | 1 | 0.057562 | 0.228968 | 0.000000 | 0.000000 | 0.000000 |
| | 5 | 0.012616 | -0.051412 | 0.022506 | 0.016828 | 0.004962 |
| | 8 | 0.002713 | -0.007978 | 0.005586 | 0.018924 | 0.006335 |
| | 10 | 0.003968 | 0.005822 | 0.000518 | -0.003171 | 0.002517 |
| GOVERNMENT CAPITAL EXPENDITURE | 1 | 0.050981 | 0.084354 | 0.241337 | 0.000000 | 0.000000 |
| | 5 | 0.028811 | 0.001507 | 0.010816 | 0.019829 | 0.010339 |
| | 8 | 0.011179 | -0.002081 | 0.008082 | -0.002713 | 0.003078 |
| | 10 | 0.002029 | 0.001300 | 0.001580 | 0.001992 | 0.003569 |
| INFLATION RATE | 1 | -2.859445 | -0.163210 | -0.101794 | 12.04176 | 0.000000 |
| | 5 | 1.048284 | -0.086567 | 0.694032 | -2.444791 | 0.696780 |
| | 8 | -0.008125 | -0.700879 | -0.137529 | 0.366173 | 0.128110 |
| | 10 | -0.062818 | 0.211627 | -0.033542 | 0.719581 | 0.141983 |
| ECONOMIC GROWTH | 1 | 0.036110 | 0.011943 | 0.014097 | 0.013268 | 0.052667 |
| | 5 | 0.000905 | 0.003201 | 0.00509 | 0.001680 | 0.002729 |
| | 8 | 0.001312 | -6.72E-05 | 0.001397 | 0.000390 | 0.000676 |
| | 10 | 0.000287 | 0.000200 | 0.000327 | 1.53E-05 | 7.49E-05 |

*Source: Data analysis*

Figure 2: IMPULSE RESPONSES FROM THE REDUCED FORM MODEL




ForTable 2, the expansionary impact of oil revenue on recurrent expenditure, capital expenditure, inflation rate and economic growth is established in the ten-quarter horizons although with some fluctuations. For example, the response of recurrent expenditure was positive in six quarters e.g. first 0.000% and tenth 0.003% quarters while four quarters were negative e.g. eighth quarter – 0.013%. In the response of capital expenditure to oil revenue most of the quarters were positive e.g. first quarter 0.000% and tenth quarter 0.001%. The response of inflation was also positive notably the fifth (0.033%) and eighth (0.017%) quarters. Also in the response of economic growth, most of the quarters were positive e.g. second (0.022%) and eighth (0.014%) quarters.

The expansionary impact of recurrent expenditure was established over the ten quarter horizon, on the oil revenue, capital expenditure, inflation rate and economic growth. The responses of these variables to recurrent expenditure were positive in almost all the ten quarters. The impact of capital expenditure on oil revenue and economic growth was positive throughout the ten-quarters, while it impact on recurrent expenditure and inflation rate were positive in almost all the ten quarters few were negative. The impact of inflation rate on oil revenue, capital expenditure and recurrent expenditure were negative in most of the ten quarters, while the response of economic growth was positive. The impact of economic growth on oil revenue, recurrent expenditure, capital expenditure and inflation was positive.

In summary the results as shown in table 2 and figure 2 revealed that the impacts of both recurrent and capital expenditure were expansionary on economic growth. While recurrent expenditure exhibits some degree of contractionary effect on economic growth, capital expenditure was expansionary throughout. The deduction from the above, point to the fact that expenditure by type-recurrent and capital expenditure had thrown more light on the differential effect those government expenditure components could have on economic growth.

## 4.2 Variance Decomposition Results

Table 3 presents the variance decomposition of the variables used in the model. The salient results from the variance decomposition technique are as follows: in general 'own shock' constitutes the predominant source of variations for all the variables in the model. Variations in the oil revenue were explained by past oil revenue, it accounted for 100% of its own forecast error variances in the first quarter. This however decreased to 73.8% in the fifth quarter and remains constant thereafter at an average of 66%. Apart from its past value, economic growth, capital expenditure, recurrent expenditure and inflation also accounted for variations in oil revenue. Unlike past oil revenue, the other variables performed weakly in the short run, and their contribution to variation in oil revenue however became prominent as analysis enters into the threshold of the long run and remain constant thereafter. For example economic growth remained constant at 10% while capital and recurrent expenditures stood at 7%.

Also, variations in the recurrent expenditure were mainly explained by its past values as well as inflation rate, oil revenue, capital expenditure and economic growth. Capital expenditure variations were similarly explained mainly by its past values, recurrent expenditure, oil revenue, economic growth and inflation rate, past values of capital expenditure accounted for 85.7% of its current value in the first quarter and declined drastically to 45% in the fifth quarter and remained at 44% in the tenth quarter. Economic growth is explained by past behaviour, which follows the same pattern as the other past values. Also accounting for the variation in economic growth is revenue, capital expenditure, recurrent expenditure and inflation rate.

Inflation rate was explained mainly by its past values, recurrent expenditure, economic growth, oil revenue and capital expenditure. The past value of inflation explained 94.6% in the first quarter declined to 82.3% in the fifth quarter and remained constant thereafter. Results from other variables suggest their importance in explaining the inflation rate especially in the long run, an interesting discovery is

that while recurrent expenditure explained about 10% of inflation rate in the long run; capital expenditure on the other hand explained only 1%. This thus supported the argument that recurrent expenditure has a more inflationary impact than capital expenditure.

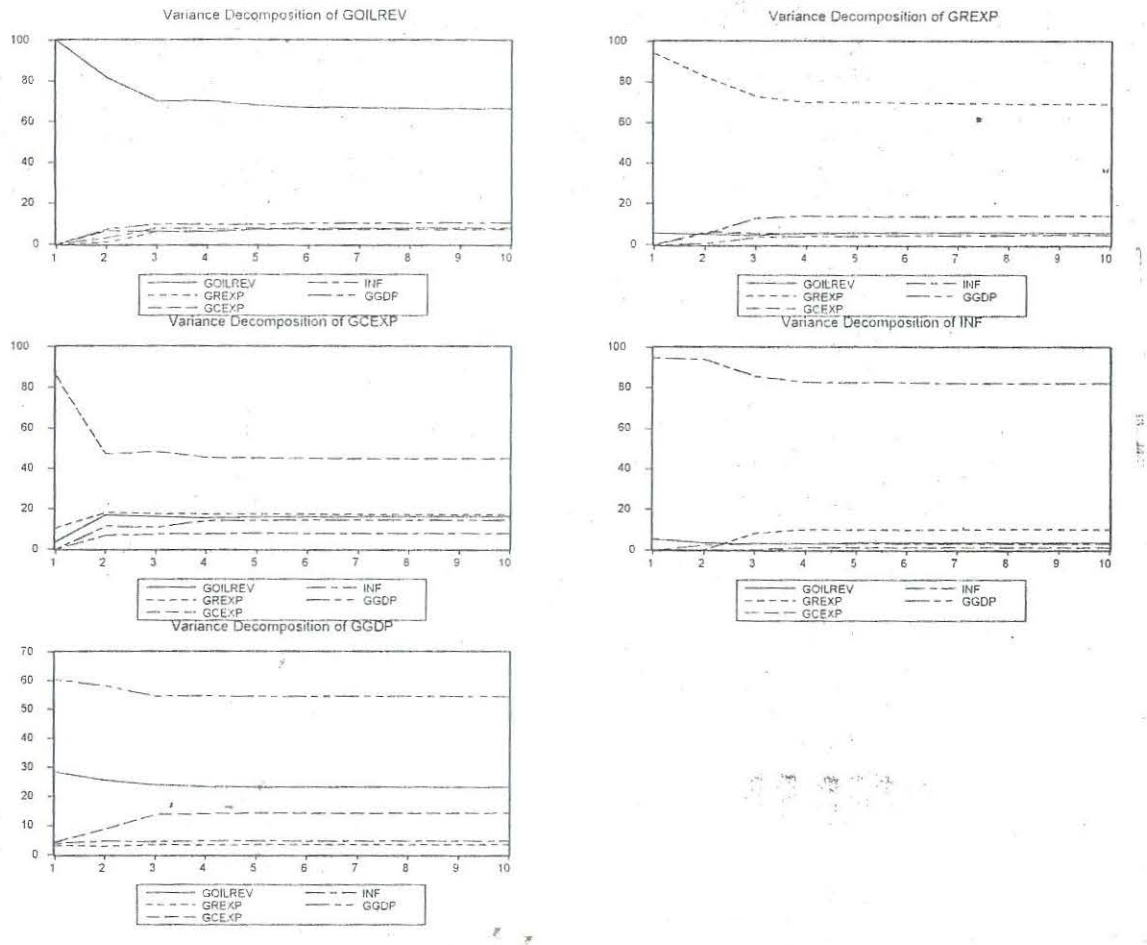
From the result of the variance decomposition technique above, there is evidence of feedback from oil revenue and capital expenditure to economic growth, but little evidence that recurrent expenditure directly causes economic growth.

Table 3: VARIANCE DECOMPOSITION RESULTS

| VARIANCE DECOMPOSITION OF | Period | GOILREV | GREXP | GCEXP | INF | GGDP |
|---|---|---|---|---|---|---|
| OIL REVENUE | | | | | | |
| | 1 | 100.0000 | 0.000000 | 0.00000 | 0.000000 | 0.000000 |
| | 5 | 68.27711 | 7.206683 | 7.190068 | 7.749849 | 9.576289 |
| | 8 | 66.77081 | 7.801416 | 7.142665 | 7.881769 | 10.40334 |
| | 10 | 66.61279 | 7.927001 | 7.122445 | 7.893108 | 10.44465 |
| GOVERNMENT RECURRENT | | | | | | |
| RECURRENT | | | | | | |
| | 1 | 5.944312 | 94.05569 | 0.000000 | 0.000000 | 0.000000 |
| | 5 | 5.801676 | 70.31950 | 5.820080 | 13.96098 | 4.097765 |
| | 8 | 5.871943 | 69.34959 | 5.835398 | 14.29576 | 4.647309 |
| | 10 | 5.894120 | 69.31780 | 5.819843 | 14.26949 | 4.698755 |
| GOVERNMENT CAPITAL EXPENDITURE | | | | | | |
| | 1 | 3.824530 | 10.47049 | 85.70498 | 0.000000 | 0.000000 |
| | 5 | 15.95558 | 17.23022 | 45.03321 | 7.782259 | 13.99874 |
| | 8 | 16.09001 | 17.06483 | 44.78769 | 7.705090 | 14.35238 |
| | 10 | 16.09764 | 17.05987 | 44.74689 | 7.701624 | 14.39398 |
| INFLATION RATE | | | | | | |
| | 1 | 5.336483 | 0.017385 | 0.006763 | 94.63937 | 0.00000 |
| | 5 | 3.479576 | 9.865173 | 1.262440 | 82.38424 | 3.008566 |
| | 8 | 3.598372 | 10.18623 | 1.269926 | 82.00192 | 2.943548 |
| | 10 | 3.589497 | 10.15969 | 1.270797 | 82.03749 | 2.942532 |
| ECONOMIC GROWTH | | | | | | |
| | 1 | 28.37633 | 3.10413 | 4.324587 | 3.830720 | 0.36424 |
| | 5 | 23.23579 | 3.363567 | 14.24990 | 4.693704 | 54.45704 |
| | 8 | 23.16946 | 3.356744 | 14.90036 | 4.678173 | 54.60527 |
| | 10 | 23.16682 | 3.361196 | 14.18798 | 4.676760 | 54.60724 |

*Source: Data analysis*

Figure 3 VARIANCE DECOMPOSITION




## 4.3 Granger-Causality Results

The result of the Granger causality test conducted on the total government spending and economic is shown in the table 4 below.

Table 4: Granger Causality Test

| Null Hypothesis: | F-Stat. | Probability | Remarks |
|---|---|---|---|
| GTEXP'! GOILREV | 0.96528 | 0.39462 | No Causality from Expenditure to Oil Revenue |
| GOILREV '!GTEXP | 2.94014* | 0.07132 | There is causality from Oil Rev to Expenditure |
| GGDP'! GTEXP | 3.31715* | 0.03865 | There is causality from GDP to Expenditure |
| GTEXP'! GGDP | 0.59849 | 0.62275 | No Causality from Expenditure to GDP |

*Sources: Data analysis*

**Significant at 5% critical levels. a value of 3.0 is the reference criterion (see Odusola and Akinlo, 1995)*

4.4 Causality Test

At 5% level of significance, the critical value computed by Mckinnon is 2.96, the null hypothesis that GTEXP does not Granger cause GGDP is therefore accepted. Thus while economic growth causes total expenditure, the total expenditure does not cause economic growth, hence the direction of causality is unidirectional and flow from economic growth to total expenditure. This is in agreement with the Wagner's theory that as the economy expands there is need for the government expenditure to increase.

## SECTION V
## CONCLUSION AND RECOMMENDATION

The general conclusion that emerged from the above analysis of the impact of government spending on economic growth presented above is that, the aggregate government expenditure generally rises with increases in oil revenue, but hardly declines when the revenue ceases to accrue. Similarly, increase in government expenditure was also recorded following the sharp increase in oil price revenue was inherently destabilizing because of the distortion in the pattern of government expenditure, its lagged effect on inflation, and the false sense of affluence which it creates. Impact of both the recurrent and capital expenditure on economic growth (GDP) show that they have an expansionary effect on economic growth but the effect of the capital expenditure was more expansionary than recurrent expenditure. Also the causality test found that economic growth has been largely responsible for the increasing government spending in Nigeria.

The empirical findings from this study have several implications for fiscal policy management in Nigeria. First the over dependence of the country on the oil sector as its main source of revenue need to be reversed, if not oil shock will continue to have a destabilizing effect on aggregate government expenditure and hence economic. There is the need to sterilize the increases in oil revenue whenever it occurs by building up external assets. To this end the government should establish a stabilization fund, which will help to maintain public expenditure at a stable and sustainable level. The fund should also have an inbuilt mechanism to ensure fiscal equilibrium, which is needed for the achievement of non-inflationary growth. Secondly, efforts should be intensified to broaden government's revenue base so as to ensure contributions from non-oil sources by revitalizing the agricultural sector, which was the main source of revenue before oil. Thirdly to generate growth a sizeable proportion of government spending should be allocated to capital expenditure to minimize the contractionary effect of recurrent expenditure on the economy.

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