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PUBLIC EXPENDITURE AND ECONOMIC GROWTH IN NIGERIA: VAR APPROACH

Ogar, Anthony,
Eyo, I. E.,
Arikpo, Oka Felix[i]
Department of Banking & Finance,
University of Calabar,
Calabar, Nigeria

Abstract:
The major objective of this study was to examine the impact of government expenditure on the growth of the Nigerian economy. This study specifically examined the impact of government capital, government recurrent expenditure and government fiscal deficit on the growth of the Nigerian economy. The ex-post facto design was adopted and secondary data were sourced from the CBN statistical bulletin and collected using desk survey for the period 1980 to 2017. The VAR technique was applied among other techniques to analyse the data. Findings showed that government capital expenditure had a positive but insignificant effect on the growth of the Nigerian economy. Also, it was revealed that government fiscal deficit had insignificant negative effect on the growth of the Nigerian economy. Lastly, the study revealed that at the short run, government recurrent expenditure had an insignificant positive effect on the growth of the Nigerian economy while in the long run it has a positive but insignificant effect on economic growth. Based on these findings, it was recommended that Government should revamp non-functioning capital projects to reduce the inefficiency in capital expenditure and monitor its contract awarding process closely, to prevent over estimation of execution cost and boost economic growth; government should enhance it recurrent expenditure to sustain the growth potentials of the economic through increasing it expenditure in running governmental activities and the planning and coordination of expenditure process of government should be made more efficient to avoid running into deficit and promote surplus funding of public expenditure.

JEL: H10; H83; O11

[i] Correspondence: email arikpookafelix@yahoo.com

Keywords: budget deficit, recurrent expenditure, capital expenditure, government expenditure, sustained growth, economic growth

1. Introduction

The goal of every economy is to maintain a high level of employment, stabilise prices, promote rapid growth of gross national product, maintain a favourable balance of payments position, promote a free market economy, satisfy collective demands, redistribute income equitably, promote infant industries, the encourage the priority sector, encourage balance population development and promote labour and capital development These explain why the expenditure of governments the world over has maintained a consistent upward trend. This continuous increase in the volume of government expenditure is targeted at expanding the functions of government through the direct investment in industrial innovations, public health, education, commercial activities, etc with a view to achieving growth. According to Arrow and Kurz (2000), public expenditure is assumed to be the most powerful economic factor of all modern societies. The form and pattern of the output growth of any economy is determined by the structure and size of its public expenditure.

The Nigerian public expenditure structure can be segmented into recurrent expenditure and capital expenditure. The components of the recurrent expenditure include expenditure on administration. (interest on loans and maintenance, salaries and wages) while capital expenditure captures government projects on the generation of the electricity, education, telecommunication, airports, roads, and so on. The provision of public infrastructural facilities has been one of the fundamental bases for public spending. Providing and maintaining these infrastructural amenities cost a huge amount financing. Hence, investment on infrastructures and productive activities spending is expected to positively contribute to the growth of the economy whereas spending on consumption by the government retard growth. It is argued that the country will benefit socially and economically from government investment (spending) on health, roads, education, agriculture, etc. Among the world of scholars, the issue of impact of public expenditure on the growth of the economy has sponsored continuous debate.

Governments have been found to be involved in two basic functions, that is, the protection functions (security) and the provision function. Government protection functions include the establishment of the rule of law and property rights enforcement. With thin function, the security of lives and properties are offered, the criminality risk is minimized, and the country is secured from external aggression. The provision functions centres on the provision of public goods and services to include power, road, health and education. For instance, the expenditure of government on education and health engenders labour productivity and increases national output growth. Similarly, infrastructural expenditure on power, roads, communication, etc reduces the costs of production, facilitates the development of the private sector and industrial profitability, hence, fostering the growth of the economy (Nurudeen & Usman, 2010). The enormous

effects of public expenditure on economic growth have continued to attract attention of the economists recently.

However, public expenditure allocation without due consideration to the rising needs of the economy is bound to bring about huge distortions in the economy which may retard growth. Government has concerned since the 1960 to allocate public expenditure continuously into the different economic sector in the economy. According to Olabisi and Funlayo (2012), the basic determinant for this allocation has been by political consideration instead of concise economic considerations.

Ordinarily, public expenditure lends to the reduction in poverty level, standard of living improvement for the citizens, equality in the distribution of income, the overall wellbeing improvement and the growth of the economy. Government engages a number of policy measures as economic interventions which include market failure bailout or social equity improvement via resources redistribution. And the only government can embark on these intervention measures successfully is through expenditure. Often, expenditure most time is more advantageous than various policy measures like loans and guarantees, regulations and tax expenditure. Particularly, expend time of government appears to be somewhat transparent, making the government accountable to the country over their decision. For instance, the sustainability, distribution and burden of regulation can be easily determined due to the difficulty in measuring the economic effects.

Expenditure as an expression of gross domestic product (GDP) is regarded as the measure of the direct involvement of government in the entire economic activity. Expressing expenditure as a proportion of GDP is beneficial in two days at least. Firstly, it made available the basis for comparing spending analysis overtime. Expenditure as a proportion of GDP unlike the nominal dollars provides the basis of comparing meaningfully, the relative use of resources between years. Finally, it further revealed relatively, the degree/extent of the intervention by government in the economy and also aid in social choice analysis (Akpan, 2005).

2. Statement of the Problem

The huge expenditure profile of the government over the years is sufficient enough to boost productivity in all sectors and facilitate growth. Government spends substantial resources in both human and material resources with the aim of improving the nation's infrastructural facilities, boosting social welfare and empowerment packages of the masses, employment generation, as well as creating enabling environment to facilitate the growth of private investment. In spite of this, growth in Nigeria seems to be more of a story than reality.

While government expenditure is increasing in geometric progression, the economic growth is increasing at arithmetic progression. This is compounded by the poor power supply, bad roads networks, huge uncompleted and abandon projects, high cost of input for the productive sector, huge corporate tax burden, misappropriation and corruption and embezzlement. Firms in Nigeria invest so much in electricity

generating plants and pay heavily to transport their raw materials to site and finished products to the market due to poor power supply and road networks.

As a result of this many firms are folding up day after day, unemployment is increasing rapidly, disincentive to embark on innovative activities and productivity is high, macroeconomic variables like exchange rate, national savings, inflation and balance of payments are indicating that the economy is performing poorly and the standard of living of the average Nigerian is falling continuously. It is in the light of this that this study is intended to examine the impact of public expenditure on the growth of the Nigerian economy.

2.1 Objectives of the Study

The major objective of this study is to examine the impact of public expenditure on the growth of the Nigeria economy. The specific objectives include:

1) To assess how government capital expenditure impact on the growth of the Nigerian economy;
2) To determine how government recurrent expenditure impact on the growth of the Nigerian economy;
3) To ascertain the impact of government fiscal deficit on the growth of the Nigerian economy;

2.2 Research Hypotheses

To navigate this research work is the following hypotheses:

H_{01}: There is no significant relationship between government capital expenditure and the growth of the Nigerian economy.

H_{02}: There is no significant relationship between government recurrent expenditure and the growth of the Nigerian economy.

H_{03}: There is no significant relationship between government fiscal deficit and the growth of the Nigerian economy.

3. Literature Review and Theoretical Framework

3.1 Theoretical framework

There abound several theories linking public expenditure and economic performance. However, for the purpose of this study three theories: the Wagner's law of increasing states activity, Keynesian theory of public expenditure and peacock and Wiseman theory of public expenditure were reviewed. The study is however anchored on the Keynesian theory of public expenditure.

3.1.1 Keynesian theory of public expenditure

John Maynard Keynes (1883-1946) formulated a theory, which supports government serious participation in economic growth and development. Specifically, he postulated that in order to correct prolonged unemployment and depression in an economy, government has to intervene in the economy through taxation and government

expenditures in order to promote output, growth and employment. He also pointed out that to solve the problems of unemployment in the economy, which is a situation where output is below full employment level, an appropriate fiscal policy measure must be taken. This type of policy could be either raising government expenditures or cutting taxes or combination of both. It needs be said that government of many countries accepts fiscal policy as an effective management instrument for government revenue mobilization and utilization. The policy consists of two components, changes in government expenditure and changes in taxation.

In Keynesian theory, spending is what stimulates output, and thus creates employment and generates income. This theory is based on the fact that aggregate demand, which is total spending, induces business firms to supply goods and services. If therefore total spending in an economy declines arising either from pessimism about future economic environment or from saving more of the current income, the business firms will respond by cutting down production (Nyong, 2001). Thus, less spending results in a fall in output. This of course leads to a decline in many other macroeconomic variables.

The theory indicates that variation in government expenditure has a direct effect on income through the multiplier. Therefore, government expenditure is an important component of aggregate demand. Moreover, increase in government taxation, tax rate or lump sum tax has a negative impact on economic activity. Thus, whereas increase in government expenditure promotes economic activity, increase in taxation has opposite effect of decreasing economic activity, given that taxation is withdrawal from income stream while expenditure is an injection (Nyong, 2001). This therefore shows that the use of fiscal policy through changes in government expenditure promotes economic activity and hence growth at all levels.

Keynes submitted that the lingering unemployment and economic depression were a result of failure on the art of the government to control the economy through appropriate economic policies (Iyoha, 2003). Consequently, Keynes proposed the concept of government intervention in the economy through the use of macroeconomic policies such as fiscal and monetary policies. Fiscal policy deals with government deliberate actions in spending money and levying taxes with a view to influencing macroeconomic variables in a desired direction. This includes sustainable economic growth, high employment creation and low inflation (Ekpo, 2010). Thus, fiscal policy aims at stabilizing the economy. Increases in government spending or a reduction in taxes tend to pull the economy out of a recession; while reduced spending or increased taxes slow down a boom (Dornbusch and Fischer, 1990).

Government interventions in economic activities are basically in the form of controls of selected areas/sectors of the economy. These controls differ, and depend on the specific needs or purpose the government desires to achieve. Keynes recommends government intervention through fiscal policy.

3.1.2 Wagner's law of increasing state activity

Wagner's Law is named after the German political economist Adolph Wagner (1835) who developed a law of increasing state activity after empirical analysis on Western Europe at the end of the 19th century. He argued that government growth is a function of increased industrialization and economic development. Wagner stated that during the industrialization process, as the real income per capita of a nation increases, the share of public expenditures in total expenditures increases. The law cited that "*The advent of modern industrial society will result in increasing political pressure for social progress and increased allowance for social consideration by industry*."

Wagner (1835) designed three focal bases for the increase in state expenditure. Firstly, during industrialization process, public sector activity will replace private sector activity. State functions like administrative and protective functions will increase. Secondly, governments needed to provide cultural and welfare services like education, public health, old age pension or retirement insurance, food subsidy, natural disaster aid, environmental protection programs and other welfare functions. Thirdly, increased industrialization will bring out technological change and large firms that tend to monopolize. Governments will have to offset these effects by providing social and merit goods through budgetary means.

Adolf Wagner pointed out that public spending is an endogenous factor, which is determined by the growth of national income. Hence, it is national income that causes public expenditure. The Wagner's Law tends to be a long-run phenomenon: the longer the time-series, the better the economic interpretations and statistical inferences. It was noted that these trends were to be realized after fifty to hundred years of modern industrial society

3.2 Review of Empirical Literature

Several studies have been conducted on the impact of public expenditure on the growth of the Nigeria economy with conflicting findings. Presented below is a review of some of these scholarly works:

Gregorious and Ghosh (2007) made use of the heterogeneous panel data to study the impact of government expenditure on economic growth. Their results suggest that countries with large government expenditure tend to experience higher economic growth.

Devarajan, Swaroop, & Zou, (1996) used panel data for 14 developed countries for a period ranging from 1970 to 1990 and applied the Ordinary least square method on 5-year moving average. They took various functional types of expenditure (health, education, transport, etc) as explanatory variables and found that health, transport and communication have significant positive effect while education and defense have a negative impact on economic growth.

Using panels of annual and period-averaged data for 22 Organizations for OECD countries during 1970 to 1995, Bleaney, Cremmell, and Kneller (2001) studied the impact of government spending on economic growth. Applying OLS and GLS methods, they found that productive public expenditures enhance economic growth, but non-

productive public spending does not, in accordance with the predictions of Barro (1990) model.

Gemmell and Kneller (2001) provide empirical evidence on the impact of fiscal policy on long-run growth for European economy. Their study required that at least two of the taxation/expenditure/deficit effects must be examined simultaneously and they employed panel and time series econometric techniques, including dealing with the endogeneity of fiscal policy. Their results indicated that while some public investment spending impacts positively on economic growth, consumption and social security spending have zero or negative growth effects.

Mitchell (2005) evaluated the impact of government spending on economic performance in developed countries. He assessed the international evidence, reviewed the latest academic research, cited examples of countries that have significantly reduced government spending as a share of national output and analyzed the economic consequences of these reforms. Regardless of the methodology or model employed, he concluded that a large and growing government is not conducive to better economic performance. He further argued that reducing the size of government would lead to higher incomes and improve American's competitiveness.

Ekpo (1995) carried out an understanding study when the regressed government capital disaggregated expenditure components on private investment by employing the ordinary least square (OLS) technique of analysis from 1960-1990. His study found out that, private investment in Nigeria is influenced by capital expenditure on education, health, communication and transportation, and agriculture, which in turn facilitated the entire growth of the economy. On the other hand, private sector investment was crowded out via government capital expenditure on manufacturing and construction.

The examination of the effect of capital, recurrent and sectional spending from 1970-1993 was undertaken by Ogigio (1995). His study revealed that the growth of the economy and government expenditure had the presence of long run relationship. Meanwhile, public contemporaneous recurrent spending significantly affected capital expenditure more whereas, a five year capital expenditure lagged values are more growth inductive. It was further indicated by the study that, the investment programmes of the government regarding the provision of social-economic basic amenities engender an environment that is suitable for the private sector-led growth.

Empirically, Fayingbesi & Odusola (1999) investigated government expenditure and the growth of the Nigerian economy. The study applied the over-parameterized and parsimonious ECM to analysed the short run speed of adjusted from disequilibrium to equilibrium. His investigations revealed that, government real capital expenditure significantly and positively impacted the real output. Again, he noted that, there is a minute effect on growth by government real recurrent expenditure.

In another study, Aregbeyen (2006) examined both national income and government spending and established that, there was a unidirectional causality between them via the application of the standard causality and Johansen cointegration tests. Ranjan and Sharma (2008) studied government expenditure effect during the periods of 1950 to 2007 on economic growth using the Johansen cointegration analysis

and the ECM. They revealed that government expenditure has a significant and positive impact on economic growth. It was also revealed by them that, cointrgration existed among the variables under study.

Olorunfemi, (2008) studied the direction and strength of the relationship between public investment and economic growth in Nigeria, using time series data from 1975 to 2004 and observed that public expenditure impacted positively on economic growth and that there was no link between gross fixed capital formation and Gross Domestic Product. He averred that from disaggregated analysis, the result reveal that only 37.1% of government expenditure is devoted to capital expenditure while 62.9% share is to current expenditure.

Olopade and Olepade (2010) assessed how fiscal and monetary policies influence economic growth and development. The essence of their study was to determine the components of government expenditure that enhance growth and development, identify those that do not and recommend those that should be cut or reduced to the barest minimum. The study employed an analytic framework based on economic models, statistical methods encompassing trends analysis and simple regression. They found no significant relationship between most of the components of expenditure and economic growth

Also, a study by Abdullah (2010) revealed that the relationship that existed between government spending and the growth of the economy showed that, the performance of the economy is relative to the size of government. He suggested increases in economic, social and infrastructure expenditure for the government. Additionally, the private sector should be supported and encouraged to help foster the expected economic growth via a comprehensive study on the relationship between public spending composition and the growth of the economy among certain developing economies. They revealed via their regression result that, there is a significant negative relationship between capital expenditure and the per capita real GDP growth. They also found a significant positive relationship between government recurrent expenditure and real GDP growth. Hence, they concluded that, real GDP per capita related positively to recurrent expenditure.

Abu and Abdullah (2010) investigated the relationship between government expenditure and economic growth in Nigeria from the period ranging from 1970 to 2008.They used disaggregated analysis in an attempt to unravel the impact of government expenditure on economic growth. Their results revealed that government total capital expenditure, total recurrent expenditure and Education had negative effect on economic growth. On the contrary, government expenditure on transport, communication and health result in an increase in economic growth. They recommended that government should increase both capital expenditure and recurrent expenditure including expenditure on education as well as ensure that funds meant for development on these sectors are properly utilized. They also recommended that government should encourage and increase the funding of anti-corruption agencies in order to tackle the high level of corruption found in public offices in Nigeria.

Alexiou (2009) empirically investigated relationship between economic growth and government spending using seven South Eastern Europe nations' annual data from 1995 to 2005. The study adopted the pooled least squares regression technique and found that among the estimated five variables, public expenditure and development assistance, trade openness, private investment and capital formation impacted the growth of the economy significantly and positively, while population growth was statistically insignificant. Finally, in all his estimation models, labour force was concluded to be statistically insignificant. This was due largely to the fact that, labour force was proxied by population growth. This was contrary to the opinion of Abu and Abdullah (2010) that, expenditure of government on health, communication and transportation would accelerate the growth of the economy if all sectors responsible for them are properly engaged.

Olorunfemi (2008) examined the strength and relationship that existed between government and the growth of Nigerian economy. He collected time series data and based his analyses on the ordinary least square technique. The study revealed that impact of the public expenditure on the growth of the economy remained positive whereas, no relationship was established between capital formation and GDP. His disaggregated analysis revealed that about 37.1 percent of public expenditure was channelled to capital expenditure while current expenditure had 62.9 percent. A disaggregated public expenditure level was employed using the Gregory-Hansen structural breaks co-integration and error correction techniques. The long run elasticity results showed that economic growth does not translate to growth in recurrent expenditure, administrative expenses and transfer expenditures. In contrast, economic growth leads to growth in capital expenditure as well as in Social and community service. The result of this study confirms the existence of Wagner's law in Nigeria. This indicates that changes in national income can cause changes in government expenditures as government size in Nigeria has increased both in absolute and relative terms. The result of the short run dynamics showed that an increase in debt obligations raises expenditure on capital and administration in the current period.

However, the capital expenditure would decline by about 0.76 per cent with a similar increase in debt obligation in the immediate past period. This result also showed that, the main objectives of government of spending are economic growth and development, especially investment in infrastructure and human resources all of which falls under social and community services. Based on the result, the study recommended that there should be efforts to maintain adequate levels of investment in social and economic infrastructure. The cointegration result in the study confirmed the presence of long run equilibrium relationship between public spending and the growth of the economy. Consequently, improvement in public spending will engender increased economic growth.

Chude and Chude (2013) examined government spending on educational impact on the growth of the Nigerian economy from 1977 to 2012 using disaggregated and sectorial analysis on expenditure. From the result, total expenditure on education and the growth of the Nigerian economy had a high positive and statistically significant

relationship in the long run. Therefore, they submitted that, reduced allocation in government budget to recurrent expenditure on education while focusing majorly on capital expenditure to facilitate economic growth in Nigeria.

Ashauer (1989) conducted a study on the impact of government spending on economic growth in the United State of America and found that, expenditure on the main infrastructure (streets and highways, mass transit, water and sewage systems and electricity and gas supplies) had a powerful explanatory role in economic growth, while infrastructure such as police and fire stations, court houses office buildings etc had a mild positive statistically significance impact on growth, while education infrastructure such as construction of classroom were statistically insignificant in impacting on economic growth.

Albala and Mamatzakis (2001) using time series data covering 1960-1995 to estimate a Cobb-Douglas production function that includes public infrastructure for Chile, found a positive and significant correlation between public infrastructure and economic growth. The study reported that public investment crowds out private investment. One major weakness of the study was that it omitted impact of important variables such as education, health care and public order and security.

Gerson (1998) conducted a research on impact of external debts on economic growth and investment in Kenya, found out that current investment in human capital development to be growth supporting. But lagged public investment in human capital was found to adversely affect growth. The weaknesses of the study were that the time series data used was for a short period of time and it took into account investment in human capital ignoring investment in physical infrastructure.

Dar and Khalkali (2002) set out to determine how government size affected the economic growth by looking at OECD countries in the period 1970 – 1999. The study using panel data alluded to the fact that the government size had a negative and statistically significant impact on economic growth. The only countries which did not fall under the above conclusion were USA, Sweden and Norway with their coefficients turning out to be statistically insignificant.

Jerono (2009) conducted a study on the impact of government spending on economic growth in Kenya and found that though expenditure on education had a positive relationship with economic growth; it does not spur any significant change to growth. Given the reason that the expansion of education is higher than that of job growth in Kenya and there are relatively few job opportunities outside government for secondary and university graduates hence education have been blamed for producing surplus graduates, and long waits for government jobs. The study also asserted that a high expenditure growth does not necessarily bring potential to spur growth; GDP growth was also dependent on other factor too, such as political will efficiency and also prioritization on the key components of the economy.

Maingi (2010) while conducting study on the impact of government expenditure on economic growth in Kenya reported that improved government expenditure on areas such as physical infrastructure development and in education enhance economic growth while areas such as foreign debts servicing, government consumption and

expenditure on public order and security, salaries and allowances were growth retarding.

4. Research Methodology

The ex-post facto design was applied to collect the data on the study's variables from the period 1980-2017. Time series data collected were analysed and test using various econometric and statistical tools and techniques. Structure of the data was appraised using descriptive statistical tools like frequencies, mode, kurtosis, skewness and standard deviation. The econometrics techniques include the Augmented Dickey Fuller (ADF) test for unit and the Vector Autoregressive technique. The ADF was used to test for stationarity of the data. The VAR technique was applied to estimate the parameter estimate of the model. To check the validate and stability of the estimates generated by the VAR model, the CUSUM test, the Breusch-Godfrey serial correlation LM test, the normality test and the heteroskedasticity test were applied. Lastly, the study applied the Wald test to assess whether or not the independent lagged variables have jointly effect on the dependent variable.

4.1 Model specification

The functional relationship between fiscal policy measures and economic growth has been predicted by Keynes (1883-1946). According to Keynes, government has to intervene in the economy through taxation and government expenditures in order to promote output, growth and employment. In view of this theory, the relationship between the variables of this study could be expressed thus:

$$GDP = f(GRE, GCE, GFD) \quad (1)$$

The above relationship can be expressed econometrically using the following equation:

$$LGDP = b_o + b_1 LGRE + b_2 LGCE + b_3 LGFD + U \quad (2)$$

The a priori expectation about the signs of the parameters of the independent variables is stated thus: $b_1, b_2, b_3 > 0$.

Where:

GDP = Gross domestic product, measuring economic growth;
GRE = Government total expenditure;
GCE = Government capital expenditure;
GFD = Government fiscal deficit;

The above functional relationship was transformed into an unrestricted standard VAR model with lag order K, thus:

$$Y_t = ß + \sum_{t-1}^{k} ß_i Y_{t-i} + e_t \quad (3)$$

Y_t = nx1 vector of endogenous variables
ß = Vector of constants
Y_{t-1} = corresponding lag term for each of the variable
e_t = vector of error term

5. Data Analyses and Discussion of Findings

5.1 Data Analyses

5.1.1 Descriptive statistics

Table 1: Descriptive statistics

	LGDP	LGCE	LGRE	GFD
Mean	7.943032	5.719153	4.747765	-289.8172
Median	8.321185	6.124064	5.024309	-67.71500
Maximum	11.45259	8.553587	8.094082	32.05000
Minimum	3.904595	2.265921	1.057790	-1557.800
Std. Dev.	2.356133	2.224556	2.456864	469.6275
Skewness	-0.131121	-0.264599	-0.180270	-1.667242
Kurtosis	1.729959	1.599578	1.563573	4.318538
Jarque-Bera	2.522661	3.361851	3.289970	19.28599
Probability	0.283277	0.186202	0.193015	0.000065
Sum	285.9492	205.8895	170.9196	-10433.42
Sum Sq. Dev.	194.2977	173.2027	211.2663	7719251.
Observations	36	36	36	36

Source: E-views Computation, 2018

We started our analyses by appraising the statistical properties of the data set. Table 1 presents the result of the descriptive statistics. From the result, it could be observed that the mean values of LGDP, LGCE, LGRE and GFD are respectively 7.943032, 5.719153, 4.747765, and -289.8172 with their standard deviations of 2.356133, 2.224556, 2.456864, and 469.6275 ranging respectively from 3.904595 to 11.45259, 2.265921 to 8.553587, 1.057790 to 8.094082, and -1557.800 to 32.05000.

A close examination of the skewness of the data set as shown in table 4.2.1 revealed that all the variables were negatively skewed (left skewed distribution), meaning that their means are also to the left of the peak. The coefficient of the kurtosis of the variables indicates that all the variables except GDF were platykurtic (below 3.000000) relative to the normal, meaning that all variables of the distribution (except GDF) produce fewer and less extreme outliers than does the normal distribution.

The JB values of 2.522661, 3.361851 and 3.997467 for LGDP, LGCE and LGRE respectively with their respective p-values of 28.32 percent, 18.62 percent and 19.30 percent means that they are normally distributed while the JB value of 13.28599 for GFD with it corresponding p-value of 0.0065 percent means that it is not normally distributed.

5.1.2 Unit root test

Table 2: Augmented Dickey Fuller (ADF) Unit Root Test

Variables	ADF Test Statistics		Order of integration
	Level	1st Difference	
LGDP	-1.021463	-6.127950	I(1)
LGCE	-1.510097	-4.258712	I(1)
LGRE	-0.433855	-7.491254	I(1)
GFD	-2.228231	-4.232329	I(1)

Test critical values at level: 1% = -3.632900, 5% = -2.948404, 10% = -2.612874
Test critical values at 1st Diff: 1% = --3.639407, 5% = -2.951125, 10% = -2.614300
Source: Eview 9.1 Computation, 2018.

Table 2 showed that LGDP, LGCE, LGRE and GFD had unit root at levels but after differencing one time they became stationary. This is so as their test statistics at levels, taking their absolute values were less than their critical values at 5 percent. However, after differencing one time, the test statistics, taking their absolute values became greater than their critical values at 5 percent level. To verify the validity of this result, we check the coefficient of the ADF test equation, since they are all negative; we conclude that the ADF test result is valid. Since the series are integrated of order I (1), the VAR methodology is applied for generating our estimates.

5.1.3 VAR lag order selection criteria

In order to estimate the VAR model, we started by determining the optimal lag order selection criteria. The result is as presented in table 3.

Table 3: VAR lag order selection criteria

Endogenous variables: LGDP, LGCE, LGRE, GFD.

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-332.3588	NA	987.9582	21.08492	21.31395	21.16084
1	-201.3483	212.8921	1.339545	14.45927	15.83339*	14.91475
2	-167.5920	44.30505*	0.876784	13.91200	16.43124	14.74706
3	-148.7304	18.86163	1.820893	14.29565	17.95999	15.51028
4	-98.15097	34.77337	0.824509*	12.69694*	17.50638	14.29113*

Source: Eview 9.1 Computation, 2018.

*indicates lag order selected by the criterion
LR: Sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan Quinn information Criterion

Table 3 above showed that the Akaike Information Criterion (AIC) and all other information criteria were significant at lag four (4) implying that the optimal lag for this study is four.

Table 4: VAR system equation result

Dependent Variable: LGDP				
	Coefficient	**Std. Error**	**t-Statistic**	**Prob.**
C(1)	0.213907	0.343649	0.622457	0.5463
C(2)	-0.332382	0.339530	-0.978946	0.3486
C(3)	-0.180505	0.346368	-0.521136	0.6126
C(4)	0.025244	0.269327	0.093732	0.9270
C(5)	0.002887	0.246708	0.011701	0.9909
C(6)	0.333496	0.298201	1.118361	0.2872
C(7)	-0.574585	0.671766	-0.855334	0.4106
C(8)	0.009499	0.399274	0.023791	0.9814
C(9)	0.378122	0.397722	0.950719	0.3622
C(10)	-0.094575	0.281729	-0.335697	0.7434
C(11)	0.331436	0.280613	1.181114	0.2625
C(12)	0.080377	0.208342	0.385793	0.7070
C(13)	-0.097705	0.727005	-1.342575	0.2065
C(14)	-0.053305	0.993205	-0.536571	0.6022
C(15)	0.094905	0.000108	0.876180	0.3997
C(16)	-0.080505	0.766105	-1.051640	0.3155
C(17)	3.132349	1.784034	1.755768	0.1069
R-squared	0.996804			
Adjusted R-squared	0.990993			
F-statistic	171.5298	Durbin-Watson stat		2.326225
Prob(F-statistic)	0.000000			

Source: E-view Computation, 2018

The above table represents the VAR system result of our equation of interest where LGDP is the dependent variable. From the result, one and four periods lags have positive effect on the growth of Nigerian economy. This implies that a one percent increase in the first and fourth period's lag resulted in a 21.39 percent and 2.52 percent increases in the growth of the Nigerian economy in the current period respectively. However, the second and third period's lags have negative effects on the growth of the Nigerian economy. This implies that one percent increases in the second and third period's lags of LGDP resulted in 33.24 percent and 18.05 percent decreases in LGDP in the current period respectively.

Furthermore, the first, second and fourth lagged periods of government capital expenditure had positive effects on the growth of the Nigerian economy in the current period. A one percent increase in the first second and fourth lagged periods of government capital expenditure resulted in 0.29 percent, 33.35 percent and 0.95 percent increase in the growth of the Nigerian economy. However, a one percent increases in the third period lagged of government capital expenditure led to a 57.46 percent decrease in the growth of the Nigerian economy.

Similarly, the first, third and fourth lagged periods of government recurrent expenditure had positive effects on the growth of the Nigerian economy in the current period. A one percent increase in the first third and fourth lagged periods of tax revenue resulted in 37.81 percent, 33.14 percent and 8.04 percent increase in the growth of the Nigerian economy. However, a one percent increases in the second period lagged

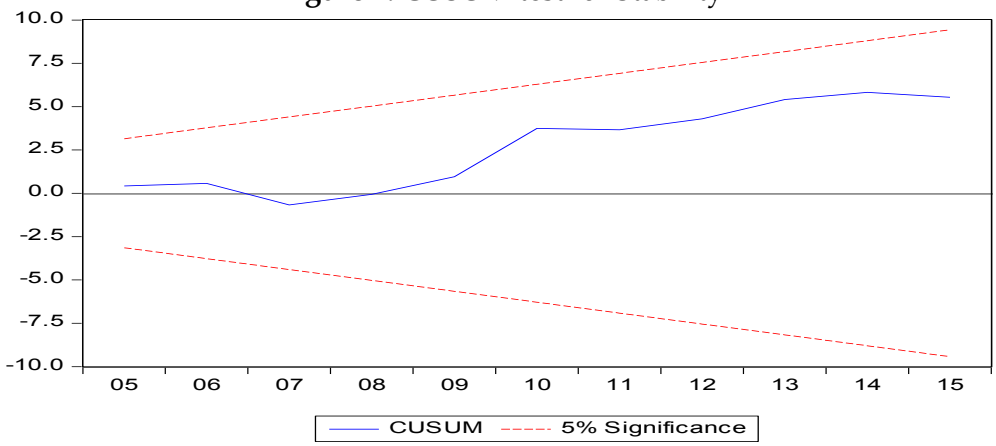
of government recurrent expenditure led to a 9.46 percent decrease in the growth of the Nigerian economy.

Lastly, the first, second and fourth lagged periods of government fiscal deficit had negative effects on the growth of the Nigerian economy in the current period. A one percent increase in the first second and fourth lagged periods of government fiscal deficit resulted in 9.77 percent, 5.33 percent and 8.05 percent decrease in the growth of the Nigerian economy. However, a one percent increases in the third period lagged of government fiscal deficit led to a 9.49 percent increase in the growth of the Nigerian economy.

A review of the R^2 value of 0.9968 show that about 99.68 percent of the changes in the economic growth in Nigeria have been explained by the joint variation in spending measures, such as government capital expenditure, government recurrent expenditure, and government fiscal deficit. Furthermore, the F-Statistics value of 171.529 with it corresponding p-value less than 5 percent showed that the model is highly significant. In effect, the model has a good fit and the variables are robust in explaining the model. With this result, we proceeded to test for the stability of the model using CUSUM test

5.1.4 Stability test

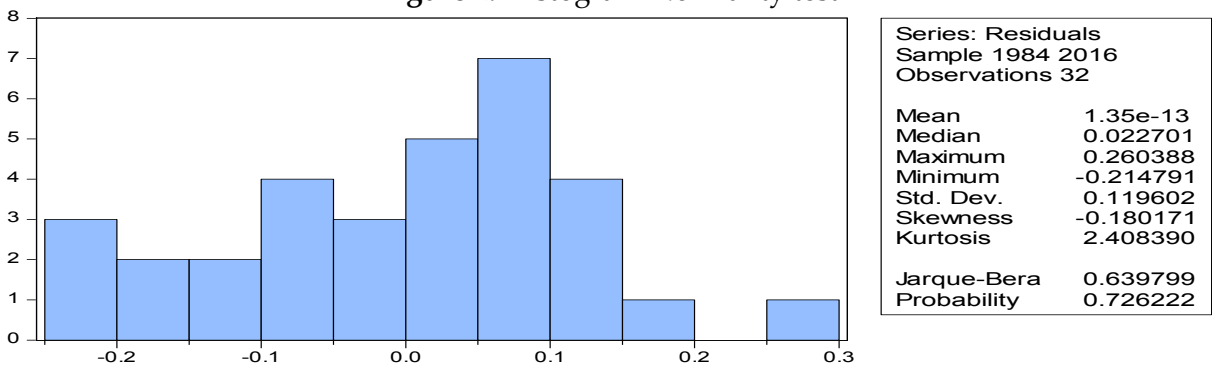
Figure 1: CUSUM test for Stability



Source: E-views 9 computation, 2018.

From the above result, it could be seen that the blue line lies in between the two red lines. This means that the estimates of our model are stable and reliable.

Figure 2: Histogram Normality test



Source: E-view Computation, 2018.

The Jarque Bera statistics of 0.639799 with it corresponding probability of 72.62 percent, more than 5 percent, means that the residual of the model is normally distributed.

Table 5: Breusch-Godfrey Serial Correlation LM Test

F-statistic	5.925456	Prob. F(4,7)	0.0210
Obs*R-squared	24.70402	Prob. Chi-Square(4)	0.0001

Source: E-view 9 Computation, 2018.

Checking the observed R^2 value of 24.70402 with it corresponding prob. Chi-square value of 0.0001 percent, we conclude that the model is not free from serial correlation.

Table 6: Heteroskedasticity Test: Brueusch-Pagan-Godfrey

F-statistic	0.659733	Prob. F(20,11)	0.7982
Obs*R-squared	17.45134	Prob. Chi-Square(20)	0.6235
Scaled explained SS	1.452135	Prob. Chi-Square(20)	1.0000

Source: E-views 9 Computation, 2017.

From the table the observed R^2 value of 17.45134 with it corresponding prob. Chi-square value of 62.35 percent, more than five percent, implies that the model is free from heteroskedasticity, in other words, the model is homoskedastic.

Table 7: Causality Using Wald Test

Dependent Variable: GDP (Output)			
Variables Tested	Null Hypotheses	F-Stats	Prob.
LGTE	C(5)=C(6)=C(7)=C(8)=0	0.51225	0.7284
LGRE	C(9)=C(10)=C(11)=C(12)=0	0.39225	0.8100
GFD	C(17)=C(18) C(19)=C(20)=0	0.85183	0.5216

*Represents rejection of null hypotheses at 5 percent level

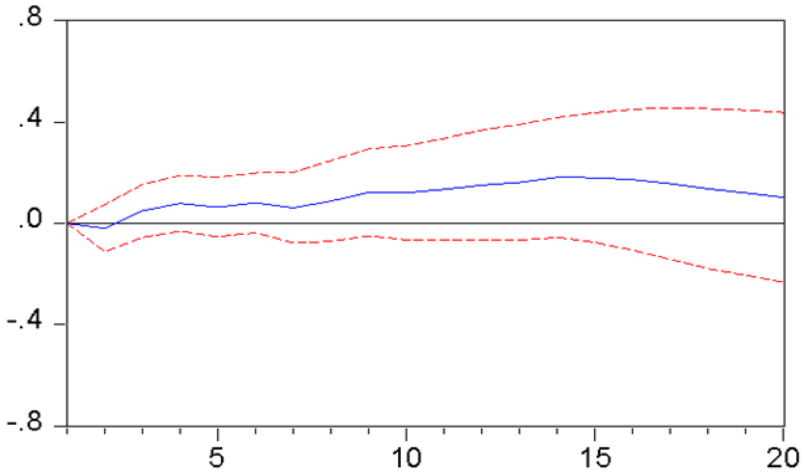
Source: Eview 9.1 Computation, 2018.

Table 7 show that the null hypotheses for all the variables were not rejected, meaning that there is a no causality running from government capital expenditure, government recurrent expenditure and government fiscal deficit to economic growth in Nigeria. In

other words, government expenditure does not have any significant effect on the growth of the Nigerian economy.

5.1.5 Impulse response function

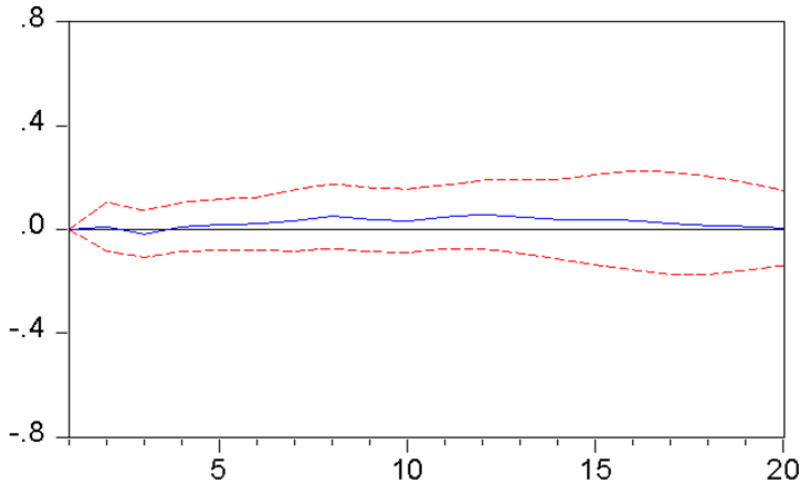
Figure 3: Response to Cholesky One S.D Innovations ± S.E.:
Response to LGDO to LGCE



(**Source:** E-view Computation, 2018)

From figure 3 above, a one standard deviation innovation in government capital expenditure led to an increase in economic in Nigeria to the quarter six, and then, a short stepped fluctuation to quarter eight. At period nine, an innovation in government total expenditure led to a sustained increase in economic growth in Nigeria to period twenty. This implies that innovations government total expenditure actually exerts positive shocks on economic growth, in other words, increases in government expenditure, trigger positive development the Nigerian economy as theoretically expected.

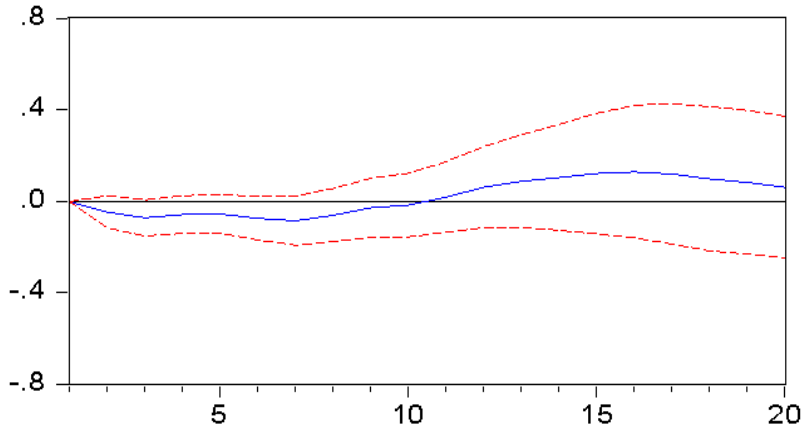
Figure 4: Response to Cholesky One S.D Innovations ± S.E.
Response to LGDO to LGRE



(**Source:** E-view Computation, 2018.)

From figure 4 above, a one standard deviation innovation in government recurrent expenditure led to a small decrease in the growth of the Nigerian economy in the second to fourth quarters. Further innovations however after this periods led to a small positive effect on the growth of the Nigerian economy to period eight. Innovations here after led to a zero effect on the growth of the Nigerian economy. This implies that the effect of tax revenue on the growth of the Nigerian economy is insignificant but positive at the long run, but negative at the immediate period.

Figure 4: Response to Cholesky One S.D Innovations ± S.E.
Response to LGDO to GFD



(**Source:** E-view Computation, 2018.)

From figure 5 above, one standard deviation total new issues led to an insignificant negative effect on the growth of the Nigerian economy to period ten. Continuous innovation in government fiscal deficit led to a positive effect on the growth of the Nigerian economy.

6. Test of Hypotheses

6.1 Hypothesis one

H_0: Government capital expenditure has no significant effect on economic growth in Nigeria;

H_1: Government capital expenditure has a significant effect on economic growth in Nigeria.

6.1.1 Decision Rule

Accept H_0: if calculated F-statistics value > table F-statistics value.'
Reject H_0: if calculated F-statistics value < table F-statistics value.
From the regression result,
Table F-statistics value = 0.5122
Calculated F-statistics value = 2.14

Since the calculated F-statistics value of 0.5122 is less than the table F-statistics value of 2.14 at 5 percent level of significance, we reject the alternative hypothesis and

accept the null hypothesis. It therefore implies that government capital expenditure has no significant effect on economic growth in Nigeria.

6.2 Hypothesis two

H_0: There is no significant relationship between government recurrent expenditure and economic growth in Nigeria;

H_1: There is a significant relationship between government recurrent expenditure and economic growth in Nigeria.

6.2.1 Decision Rule

Accept H_0: if calculated F-statistics value > table F-statistics value.'
Reject H_0: if calculated F-statistics value < table F-statistics value.
From the regression result,
Table F-statistics value = 2.14
Calculated F-statistics value = 0.3922

Since the calculated F-statistics value of 0.392 is less than the table F-statistics value of 2.14 at 5 percent level of significance, we reject the alternative hypothesis and accept the null hypothesis. It therefore implies that there is no significant relationship between government recurrent expenditure and economic growth in Nigeria.

6.3 Hypothesis three

H_0: There is no significant relationship between fiscal deficit and economic growth in Nigeria;

H_1: There is no significant relationship between fiscal deficit and economic growth in Nigeria.

6.3.1 Decision Rule

Accept H_0: if calculated F-statistics value > table F-statistics value.'
Reject H_0: if calculated F-statistics value < table F-statistics value.
From the regression result,
Table F-statistics value = 1.2103
Calculated F-statistics value = 2.14

Since the calculated F-statistics value of 1.2103 is less than the table F-statistics value of 2.14 at 5 percent level of significance, we reject the alternative hypothesis and accept the null hypothesis. It therefore implies that there is no significant relationship between fiscal deficit and economic growth in Nigeria.

7. Summary of Findings, Conclusion and Recommendation

7.1 Summary and Conclusion of Findings

This study examined the effect of government expenditure, government recurrent expenditure and government fiscal deficit on the growth of the Nigerian economy. The study applied the vector autoregression approach to estimate the variables. Findings

showed that government capital expenditure had a positive but insignificant effect on the growth of the Nigerian economy. Also, it was revealed that government fiscal deficit had insignificant negative effect on the growth of the Nigerian economy. Lastly, the study revealed that at the short run, government recurrent expenditure had an insignificant positive effect on the growth of the Nigerian economy while in the long run it has a positive but insignificant effect on economic growth. On the bases of these findings, the study concludes that expenditure in Nigeria are ineffective in promoting economic growth in Nigeria.

7.2 Recommendations

Relying on the above findings, the following policy recommendations were made:

1) Government should revamp non functioning capital projects to reduce the inefficiency in capital expenditure and monitor its contract awarding process closely, to prevent over estimation of execution cost and boost economic growth.
2) Government should enhance it recurrent expenditure to sustain the growth potentials of the economic through increasing it expenditure in running governmental activities.
3) The planning and coordination of expenditure process of government should be made more efficient to avoid running into deficit and promote surplus funding of public expenditure.

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