Journal of Scientific Research & Reports
11(5): 1-19, 2016; Article no.JSRR.27586
ISSN: 2320-0227

SCIENCEDOMAIN *international*
www.sciencedomain.org

Dynamic Effect of Government Expenditure on Nigeria Economic Growth: Long Run Propensity and Short Run Adjustments

Adigwe Patrick Kanayo[1*], Anyanwu Felicia Akujinma[1] and Udeh Francis[2]

[1]Department of Banking and Finance, Nnamdi Azikiwe University, Anambra State, PMB 5025, Awka, Nigeria.
[2]Department of Accountancy, Nnamdi Azikiwe University, Anambra State, PMB 5025, Awka, Nigeria.

Authors' contributions

This research work was carried out in collaboration between all authors. Author APK conceptualized the study, wrote the first draft of the manuscript, critically reviewed it thereafter and interpreted the result of the analysis. Author AFA sourced the data and performed the analysis. Author UF sourced and managed relevant literature. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JSRR/2016/27586
Editor(s):
(1) Nidal Rashid Sabri, Ex. Dean of College of Economics (2005-2011), Birzeit University, Palestine.
Reviewers:
(1) Xiaomei Hu, Hunan University of Finance and Economics, China.
(2) Waqar-ul-Hassan, Institute of Banking and Finance, Bahauddin Zakriya University, Pakistan.
(3) Thair Adnan Tawfiq Kaddumi, Applied Science Private University, Amman, Jordan.
(4) Anonymous, Gazi University, Turkey.
Complete Peer review History: http://www.sciencedomain.org/review-history/15768

Original Research Article

Received 8th June 2016
Accepted 1st August 2016
Published 12th August 2016

ABSTRACT

The nexus between government expenditure and economic growth remains a controversial issue in public finance literature as scholars have divergent opinion backed by empirical findings. In this study, we examine the long run relationship between government expenditure and economic growth, short run and long run adjustment and the effect of government expenditure on Nigeria's economic growth for a period of forty five (45) years from 1970 to 2015. Prior to model estimation, we subjected the model to diagnostic of Heteroskedasticity, Serial Correlation LM, Ramsey RESET and Multicollinearity tests. The stationarity test was performed to ensure that the variables were not encumbered by stationarity flaws linked with most time series data. Johansen co-integration was applied in testing the long run relationship, short run and long run adjustments by vector error correction model and effect of government expenditure on economic growth by granger causality

**Corresponding author: E-mail: amalision4ltd@yahoo.com;*

effect test. The result of the long run test reveals the existence of a long run relationship between government expenditure and economic growth in Nigeria, VECM analysis suggests that Nigeria would achieve a steady level of growth if preference is giving to capital expenditure over recurrent expenditure, and the granger causality effect result envisages that recurrent and capital expenditure which are the two components of government expenditure have significant effect on Nigeria's economic growth thus, supporting the Adolph Wagner's hypothesis on public expenditure. Findings also indicates that government application of fiscal policy via increasing expenditure as the sole tool for economic growth as currently the case will not spur economic growth in the long run. The practical implication of this study research result is that the federal government of Nigeria should embark more on capital/development projects as it will in the long run spur economic growth and development. The current situation where recurrent expenditure takes over 85% of the yearly budget should be discontinued with so as to achieve our vision to be rank in the league of world top economies.

Keywords: Economic growth; recurrent; capital expenditure.

1. INTRODUCTION

Government expenditure and economic growth are two critical issues that characterised relevant part of studies in public finance. Its significance is hinged to the important role government expenditure plays in the growth of the economy. Government expenditure is part of fiscal policy which influences economic activities thus, shaping and improving the welfare of citizens. Recurrent and capital expenditure of the government can elicit instability in business cycle, address unemployment and inflation problems when properly executed. Reduction in government expenditure would have adverse effect on aggregate demand. Subsequently, in recession, the growth of the economy would be lowered through gross domestic product on one hand. On the other hand, if the economy is booming, inflation rate would be reduced consequent to cut in government spending. However, if private sector expenditure is rising, a decrease in government expenditure would result in reduction in aggregate demand. Diminution in government expenditure is capable of attenuating the yearly borrowing of the government and aid reduce total domestic and external debt burden.

In Nigeria, expenditure has been one of the fiscal policy tool adopted by the government for maintaining macroeconomic stability in the country. Government expenditure has vehemently increased over the years. Apart from financing its expenditure majorly from oil revenue and taxation, the government has heavily borrowed domestically and externally resulting in huge external debt servicing obligation to multilateral organization, London club and Paris club. According to the Central Bank of Nigeria (CBN) statistical bulletin of 2014, the government total expenditure skyrocketed from ₦9.03 billion in 1970 to ₦4, 578.06 billion in 2014 reflecting about 50,698.34% upsurge. On analysis of the two components of public expenditure, recurrent expenditure increased from 7.16 billion in 1970 to 1.032.7 billion in 2014 while capital expenditure from ₦1.87 billion to ₦351.3 billion within the same period [1]. Invariably, recurrent expenditure has been considerably favoured over capital expenditure over these years. Over 90% of public expenditure in Nigeria is on recurrent expenditure leaving less money available for capital expenditure which is supposed to provide more infrastructure for our industries to attract investments for development of the economy. The relevant of infrastructure in economic development is indomitable as it has the potential for creating more employment opportunities for our growing population. The worrisome issue is that the expenditure of government has been mostly on deficit. For instance, from 1981 to 2014, the budget of the government has been on the deficit side except for 1995 and 1996 when there was a surplus of ₦1 billion and ₦32 billion respectively [1]. This has led to public outcry and condemnation overtime on the dangers of deficit financing for a developing economy like our dear country Nigeria.

Expenditure in road construction, transport and basic infrastructure positively affect the productive capacity of the economy in the long run. Government expenditure on such infrastructure as roads and communications would also boost the rate of private domestic investment, which in turn fosters economic growth [2]. Spending on education will impact significantly on labour capital of the economy.

Education is one of the important factors that determine the quality of labour [3]. [4] as cited by [2], argued that expenditures on education and defense are more like public investment than public consumption; in particular, these expenditures are likely to affect private sector productivity or property rights, which matters for private investment. Reduction in welfare packages by government has the potential of increasing the productivity in labour as incentive for beneficiaries of welfare expenditure to join the work force would be high. That notwithstanding, a tremendous reduction on such expenditure is capable of increasing the gap between the rich and the poor in the society.

[5-11] have applied various econometric techniques on the nexus between government expenditure and economic growth in Nigeria but [11] was more analytical in his study. This study takes a new look at this issue. With deep regard to previous studies particularly, [11], this study used broad time series data and utilized the growth rate of gross domestic product as against the real gross domestic product. In essence, the growth rate of gross domestic product captures the actual change in economic growth from previous year to current year. If the economy has grown, it is positive. However, if the economy has not grown, it is negative.

Secondly, unlike [11], in testing the relationship between government expenditure and economic growth, we controlled the probable effect of macroeconomic index: prime lending rate. If the prime lending rate is high, the cost of fund becomes high, making it difficult to access loan which might impact on economic industrial activities thus, retarding the growth of the economy. The third main contribution of this study lies in the use of broad and up-to-date time series data spanning from 1970 to 2015 for a total of 45 years. Such an up-to-date time series is far more comprehensive than those found in previous studies. Having a higher number of observations allows us to have a robust and reliable result devoid of observation defect.

1.1 Motivation for our Study

The linkage between government expenditure and economic growth have received substantial concentration among academic scholars and as such would not be regarded as a bigot issue in public finance or a venerated subject in economic growth. When it comes to public expenditure and economic growth, economists are divided in two folds. Antagonists are of the opinion that increase in government expenditure spurs economic growth, for an economy to ensure sustainable development, alleviation in mass poverty, employment generation and betterment of citizens' welfare, public expenditure is most reliable. To the antagonist, increasing government expenditure may not necessarily contribute to economic growth as government may resort to increasing taxation or borrowing to finance such heavy spending thus, leading to large public debt by the government and when servicing such debt, resources which would have been used for development of the economy will be lost. Specifically, Wagner's law (also referred as the law of increasing State activity or the law of expanding State role) hypothesized that an increase in government expenditure would have positive effect on growth of the economy. However, from empirical finding from different countries of the world, there seems to be indistinctness. [12] upheld the sustenance of Wagner's law in Japan and Korea but would not be affirmed in Malaysia, Philippines, Singapore and Thailand. A study by [13] found that government expenditure exert positive effect on economic growth of Ireland and UK. [2,14] and [15] affirmed Wagner's law in Sudan. [16] confirmed the positive effect of government spending in Assam economic growth. [17] posited of a negative relationship between government productive spending and economic growth in Malaysia. [7,18] empirically observed that government spending in Nigeria over the years has not contributed positively to economic growth, However, this assertion was countered by the works of [9,5].

The government expenditure from independence to present has drastically increased without a corresponding appreciation in economic growth and development. Larger fraction of the population lives below the poverty line despite the programmes of various administration to improve welfare. [19] reported that the proportion of the population living below the poverty line increased significantly from 17.10 million in 1980 to 112.47 million in 2010. On the 10th of April, 2014, the World Bank president, Jim Yong Kim, restated that Nigeria is the third country in the world with the largest number of poor as 7% of the world poor live in Nigeria. The Vice president, Prof. Yemi Osibanjo on 20th August, 2015 stated that about 110 million Nigerians are living in poverty. The existing infrastructural facilities have continue to deteriorate with no new ones built despite the huge revenue from crude oil export with death of industries and

high unemployment rate as resultant effect. Specifically, we are worried that on the basis of [20] report of 2015, government expenditure increased from ₦9.03 billion in 1970 to ₦4, 493 billion 2015 yet, such magnitude of public spending has not translated to meaningful growth and development. Consequently, examining the relationship between government expenditure and economic growth, effect of government expenditure on Nigeria economic growth as well as the short run dynamics for the period 1970 to 2015 are the objectives of this study of ours.

The remainder of this study is ghettoized as follows: review of related literature (concept of government expenditure and economic growth, theoretical background and empirical studies), empirical strategy, results and discussion of findings and conclusion and recommendation.

2. REVIEW OF RELATED LITERATURE

2.1 The Concept of Government Expenditure

Government expenditure is the money spend by the government out of its revenue to meet various needs of the economy. It is usually one of the most effective fiscal policy tool employed by government across the globe. Government expenditure are normally undertaken for certain reasons which include, provision of public goods which would be difficult to provide by the private sector such as providing of internal and external securities, good roads, communication and transportation, education, healthcare, hospitals, schools, welfare and social security packages. Government spend to achieve a certain level of macroeconomic stability via maintenance of inflation rate, unemployment quagmire, and reduction in income inequalities, among others. If the government, in an attempt to promote more growth or increase employment decides to increase expenditure, such shoot up in spending could give rise to inflationary tendency, especially if the government finances such expenditure from borrowed fund. Borrowing by government to finance a budget increases the total public sector debt and an unnecessary burden for the country. Nigeria was so indebted to the Paris Club that the government had to plead for cancellation of part of its debt. This led to debt relief of $18 billion granted to Nigeria by Paris Club in 2005 under the administration of Olusegun Obasanjo. The president then stated that the debt relief by Paris Club vindicated the steadfastness, sacrifice and tenacity of the government in its struggle to win relief from the global community in order to give the required breathing space for the development and growth of the Nigeria economy.

2.2 Economic Growth

[21] defined economic growth in the simplest form, which is an increase in real GDP. [22] stated that economic growth can be illustrated as a positive change in the output of a nation's manufacturing of goods and services, stretching over a certain period of time. In a study carried out by [23], it was envisaged that if a nation has a well and stable economic growth then the poverty rate in that nation will be reduced. The reduction or removal of poverty is necessary, as it will create a greater equality in society and providing a royal life as well as more wealth for all citizens [24]. The pattern of government expenditure can impact positively or negatively on economic growth. Studies of [12-17] have found that government spending boosts economic growth while [7] and [17] refutes this claim. It is argued that not all government expenditure stimulates economic growth. Some kind of government expenditure can improve growth while some will not. Rising government expenditure on health and education result to an increase in economic growth as it lead to development of labour force thus, contributing to growth. Government expenditure on warfare cannot lead to economic growth as war takes away scarce resources and human capital.

2.3 Empirical Studies

In a study conducted by [12] for six Eastern Asian Countries: Japan, Korea, Malaysia, Philippines, Singapore and Thailand for a period of nearly a half-century during which their economic growth has often been termed as a "miracle". The study applied a variety of tests of co-integration using time-series as well as panel data. The results revealed that despite the high rates of growth in most cases, there is little indication to support the hypothesis except for Japan and possibly Korea. The finding is broadly supported by a variety of tests of cointegration using time-series as well as panel data. However, some shortcomings were noted, for example, despite its extensive usage, the measure of government-share is an incomplete proxy for the size of the public sector.

[14] empirically examined the effects of different types of government expenditures on economic growth in Saudi Arabia. They used different

econometric techniques to estimate the short- and long-run effects of these expenditures on growth and employed annual data over the period 1969-2010. The findings indicated that while private domestic and public investments, as well as healthcare expenditure, stimulate growth in the long-run, openness to trade and spending in the housing sector can also boost short-run production. One of the policy lessons from the finding is the need to facilitate private domestic investment, put more emphasis on the productive part of government spending in the form of public investment, increase public health care spending, alleviate barriers to trade to facilitate higher growth rate, and increase the efficiency in the housing market by improving access to housing finance.

[3] investigated how government expenditure contributes to economic growth in East Africa. The study focused on disaggregated expenditure over the period from 1980 to 2010 and adopted LLC test, balanced panel fixed effect model. The findings show that expenditures on health and defense to be positive and statistically exert significant effect on growth. In contrast, education and agriculture expenditure were insignificant. Although the focus of the research was solely on measuring the effect of government expenditure on growth, an important issue to address in future studies is what determines governments' budget allocation for various sectors and in particular, the role of demographic factors and the nature of the political process.

[5] studied the nature and impact of federal government expenditure on Nigeria's economic growth for the period 1992 – 2011. Ordinary least square multiple regression technique was used to estimate the model. Real gross domestic product was a proxy for economic growth while total recurrent expenditure and total capital expenditure constituted government expenditure. The results showed that federal government expenditure has a positive and insignificant impact on the economic growth of Nigeria. The authors suggested that government should put in place adequate control measures or techniques to ensure that funds allocated to the different sectors of the economy are judiciously used for the projects for which they are allocated.

[6] using time series data for period 1980 to 2011, evaluated the impact of government spending on the Nigerian economic growth. Employing the ordinary least square multiple regression analysis to estimate the model specified. Real gross domestic product was adopted as the dependent variable while government capital expenditure and government recurrent expenditure represented the independent variables. With the application of Granger Causality test, Johansen Co-integration Test and Error Correction Mechanism, the result showed that there exists a long-run equilibrium relationship between government spending and economic growth in Nigeria. The short-run dynamics adjusts to the long-run equilibrium at the rate of 60% per annum. Although the study was limited to 2011, it improved on previous studies through the application of the Error Correction Mechanism (ECM) in determination of the short and long run adjustments.

[9] estimated the relationship between public expenditure and economic growth in Nigeria during the period 1970-2009. A disaggregated public expenditure level was employed using the Gregory-Hansen structural breaks co-integration technique. The result confirms Wagner's law in two models in the long run and showed that economic growth and development are the main objectives of government expenditure, especially investment in infrastructure and human resources all of which falls under social and community services. The result show that since economic growth and development are the main objectives of government expenditure, especially investment in infrastructure and human resources all of which falls under social and community services, there should be efforts to maintain adequate levels of investment in social and economic infrastructure.

[10] ascertained the influence of government expenditure on administration, economic services, social and community services and total recurrent expenditure on economic development of Nigeria measured by real gross domestic product. Quarterly data ranging from 1980Q1 to 2010Q4 were analysed using unit root and Johansen test for co-integration. The empirical finding showed a long-run relationship between government expenditure and real gross domestic product. Expenditure on administration and total recurrent expenditure impacted significantly on real gross domestic product while expenditure on economic services and social and community services have insignificant effect on real gross domestic product. It however, shows that a major way of development is sufficient spending in very sensitive sectors which are highly interdependent with other sectors.

[7] examined the effect of public government spending on economic in Nigeria based on time series data on variables considered relevant indicators of economic growth and government expenditure for the period 1970 – 2009. The tool of analysis was the OLS multiple regression model specified on perceived causal relationship between government expenditure and economic growth. Results of the analysis showed that capital and recurrent expenditure on economic services had insignificant negative effect on economic growth. Capital expenditure on transfers had insignificant positive effect on growth. Capital and recurrent expenditures on social and community services and recurrent expenditure on transfers had significant positive effect on economic growth. The existence of a relationship between government expenditure and economic growth necessitates the continued use of fiscal policy instruments to pursue macroeconomic objectives in Nigeria.

[25] explored the causal relationships between government recurrent expenditure and gross domestic product for Iran using annual data over the period 1970-2010. The Gregory-Hansen (1996) co-integration technique and the results suggest that there is a long-run relationship between these variables. The granger causality test indicates strong unidirectional effects from gross domestic product to government recurrent expenditure. But there is no evidence that total recurrent expenditure promotes long-term economic growth. The value of the income elasticity before the regime shift is 2.52, much more than unity, while it comes to 1.69, yet significantly more than unity, after the Islamic revolution recognized as the second regime. It means that government recurrent expenditure progressively increase with income in the both regimes.

[16] tested the Wagner hypothesis in the context of the Sudan for the period 1970-2010. The statistical tools for analysis used were co-integration, causality, and error correction model. The results for the Sudan indicate that the data for the period considered supports the Wagner's hypothesis. Put differently, government expenditure stimulates economic growth in Sudan. The study contributes to the empirical literature on the debate about the validity of the Wagner's hypothesis by using time series data from Sudan.

[15] assessed the impact of public expenditures on economic growth using a time series data on Jordan for the period 1990-2006 the different regression models. The study found that the government expenditure at the aggregate level has positive impact on the growth of gross domestic which is compatible with the Keynesian's theory, it was also found that the interest payment is proven to have no influence on gross domestic product growth. The discovery of statistical analysis may provide insight in to several aspects of policy implication: the more government expenditure does lead to the growth of the Jordanian economy, which seems consistent with the Keynesian's theory of fiscal policy.

[18] looked into the association between government expenditure and economic growth in Malaysia from 1970 to 2007. The study employed OLS regression for the empirical analysis. Surprisingly, he found that the rising of the total government development expenditure has a significant and negative relationship with economic growth. Similar results apply to the total government development expenditure in economic services. However, no relationship existed between total governmental development expenditure in social services and economic growth. The study concludes that since Malaysia has a very different composition and environment compared to most other countries, all the policies that have been introduced by the government starting with the NEP can be considered as reasonable, reliable and pleasant in obtaining a balanced economic growth for their peoples. However, weakness in its implementation may result in corruption, rent-seeking activities, cronyism and political patronage that could have a negative influence on economic growth.

[19] determined the effect of government expenditure on Nigeria economic growth, and employed a disaggregated analysis. The results reveal that government total capital expenditure, total recurrent expenditures, and government expenditure on education have negative effect on economic growth. On the contrary, rising government expenditure on transport and communication, and health results to an increase in economic growth. They recommended that government should ensure that capital expenditure and recurrent expenditure are properly managed in a manner that it will raise the nation's production capacity and accelerate economic growth.

[17] appraised the impact of total government expenditure and its broad components, revenue expenditure, capital expenditure on economic

growth measured by the growth rate of real per capita gross domestic product in Assam over the period 1981-82 to 2006-2007, using the Autoregressive Distributed Lag (ARDL) bounds testing approach. It is found that the share of total government expenditure and the share of revenue expenditure in gross domestic product have positive and statistically significant impact on the growth rate of real per capita gross domestic product in the long run. However, in the short run, the effect is negative but statistically insignificant. Again the study found no significant impact of capital expenditure on the growth rate of real per capita gross domestic product. In order to convert the nominal expenditure into real, the expenditure variables are deflated with respect to GSDP at factor cost deflator and expressed as percentage of GSDP.

3. THEORETICAL FRAMEWORK

Since public expenditure and economic growth came to light as a topic of great issue in academic literature, stupendously on public finance, economists have been at loggerhead with each other as it divided the interest of economists into Classical and Keynesian agenda. On the outlook of the classical economists, government interference in the economy by way of expenditure as a form of fiscal policy tool does not lead to growth of the economy rather, increase in money supply via government expenditure leads to corresponding increase in prices thus, inflation. In classical argument, money is not all that matter as the economy is assumed to be perfect. On the other hand, to the Keynesians, money is all that matters as the economy is imperfect: not always at full employment, interest rate and wage rate are not self-adjusting and savings is not always equal investment. The Keynesians believed that increase in government expenditure leads to economic growth as it would increase spending by individuals and purchasing power, enhances manufacturer's ego to produce more thereby, providing more employment for citizens which would improve and better the standard of living of the populace. We aphoristically discussed Adolf Wagner's Law and Peacock and Wiseman Hypothesis of public expenditure as a scaffold to this study.

3.1 Adolf Wagner's Theory of Government Expenditure

The Adolf Wagner's theory of public expenditure is also known as "law of increasing state activity". Adolph Wagner is a political economist from Germany. He demonstrated via a study he conducted on Western Europe at the end of 19th century that government growth is a function of increased industrialization and economic development. The essence of a good government is to ensure development and growth of the economy. According to Adolf Wagner, to achieve this goal, the government has to incur some expenditure. Maintenance of law and order, expansion of industrial activities, provision of social goods and services, public service utilities availability due to growing population, technological changes and effect of externalities calls for greater expenditure from the government. From Adolf Wagner's law, firstly, there is a decipherable linear relationship between economic growth and government expenditure and secondly, government expenditure grows in proportion to the level of total economic activity of the country.

3.2 Peacock and Wiseman Hypothesis on Government Expenditure

Peacock and Wiseman hypothesis is fathomably on the assertion of the Keynesian argument. On their study on public expenditure in UK from 1981 to 1955, they upheld the validity of Adolph Wagner's law. Peacock and Wiseman accentuated that government expenditure has the predisposition to increase economic growth, and furthermore, government expenditure would clairvoyantly upsurge strenuously. The focal point of Peacock and Wiseman Hypothesis is that increase in government expenditure would be as a result of changes in both endogenous and exogenous factors. The Peacock and Wiseman Hypothesis was analysed with three distinct effect: displacement, inspection and concentration effect. The displacement effect tries to explain a situation where previous year expenditure of government are displaced by higher current year and new expenditure. An occurrence where government expenditure is inadequate to commensurate with social services of the populace describes the inspection effect while the desire of the government at the epicentre to grow faster than government at provincial or regional level communicates the concentration effect.

3.3 Model Specification

We adopted the model of [6] where economic growth is expressed as a function of government recurrent and capital expenditure. However, we

went further to modify the model by incorporating a macroeconomic variable: prime lending rate as it is capable of influencing economic activities. [26] noted that the inclusion of control variable in a model helps to avoid simultaneous bias in regression outcome. Fittingly, we build our model as follows:

$$Y_t = \beta_0 + \beta_1 X_t + \beta_2 Z_t + \mu_t \qquad (3.1)$$

Where Y_t is the economic growth of Nigeria, in year t; β_0 is the coefficient constant for Nigeria; β_1 is the coefficient of government expenditure; X_t is government expenditure in year t; Z_t represent control variables and μ_t is the error term in year t.

3.3.1 Hypothesis

Government expenditure has no significant effect on Nigeria economic growth is our hypothesis and stated in the null format.

On the premise of the Adolph Wagner's law, our a priori expectation is that government expenditure will enhance economic growth while inflation will have negative relationship with economic growth. Thus:

$$\frac{\delta Y_t}{\delta X_t} > 0 \text{ and } \quad \frac{\delta Y_t}{\delta Z_t} < 0$$

For the purpose of clarification, Y_t in equation 3.1 is economic growth indicator and represented as Gross Domestic Product Growth Rate (GDPGR)/percentage changes in gross domestic product; $\beta_1 X_t$ is government expenditure and decomposed to include in Recurrent Expenditure of Government (REG) and Capital Expenditure of Government (CEG) and $\beta_2 Z_t$ reflected the control variable introduced in the work: Prime Lending Rate (PLR). The choice of data as used in this study have been applied by various scholars whom have undertaken a study on this subject matter.

3.3.2 Note

The values of prime lending rates, government recurrent and capital expenditures as applied in this study are the percentage changes in the mentioned variables. Our choice is hinged to the fact that using percentage change of each of the variable gives a better idea of the fundamental changes in those variables within the period of study as against using the raw values. [14] noted that the growth rate in each of the variables reflect the fundamental changes in the variables.

3.4 Gross Domestic Product Growth Rate (GDPGR)

This is the growth in Nigeria economy from one period to another. We chose this variable as against the raw value of gross domestic product because it captures the actual change in economic growth from previous year to current year. If the economy has grown, it is positive. However, if the economy has not grown, it is negative. The gross domestic product is an important indicator of the health of any nation. The higher the gross domestic product, the higher the level of economic growth attained [17] and [14] have applied this measure in the study conducted in Assam.

3.5 Recurrent Expenditure of Government (REG)

This is the expenditure made by Nigerian government on overheads, payment of workers' salaries and wages, miscellaneous expenses, travelling, entertainment, and food of government officials among others. On the premises of Wiseman and Peacock argument, when the government increase spending on recurrent activities, for instance, salaries/wages; the higher the income of citizens, resulting in mobilization of resources for economic development. [5,6,9,7] have applied this variable of government spending.

3.6 Capital Expenditure of Government (CEG)

Capital expenditure refers to expenditure of government in construction of assets capable of improving the life of citizens, e.g. expenditure in the construction of road, electricity generation, industries, and other basic infrastructural facilities. This is government expenditure on productive activities in an economy. Following the Adolph Wagner's hypothesis, an increase in capital expenditure would result in a corresponding increase in economic growth. [15,19,17].

3.7 Prime Lending Rate (PLR)

This is the cost of fund in the economy i.e. the rate at which commercial banks extend credit to

customers. When the prime lending rate is high, the cost of fund becomes high, making it difficult to access loan which might impact on economic industrial activities thus, retarding the growth of the economy. It was included as a control variable. [6] noted that prime lending rate has the capability of influencing economic growth in Nigeria.

4. RESEARCH METHODOLOGY

We employed a test of causality to assess the effect of government expenditure on economic growth in Nigeria using time series data from 1970 to 2015 to considerable cover a long period of time. This also bridges the lacuna in literature in this subject matter. The data for analysis were sourced from Central Bank of Nigeria (CBN) statistical bulletin, 2015. Prior to analysis, the data were subjected to various diagnostic tests such as Heteroskedasticity, Multi-collinearity, Serial Correlation and Ramsey RESET test. The Johansen Co-integration approach was applied for estimating the long-run relationship while the error correction model for long-run tendency and short run dynamics.

4.1 Variables Depiction

The dependent variable is Growth Rate of Gross Domestic Product (GRGDP) at current basic price, a proxy to reflect economic growth of Nigeria. Recurrent Expenditure of Government (REG) and Capital Expenditure of Government (CEG) are the independent variables representing government expenditure in its two major categories. Prime Lending Rate (PLR) is the control variable. The variables in this study have been applied in the works of [6,19,17,7,3].

5. RESULTS AND DISCUSSION

5.1 Characteristic of Descriptive Statistics

We started the analysis by estimating the descriptive statistics of the variables concerned and the result is represented in Table 5.1. The mean values of the GDPGR, REG, CEG and PLR are 13555091, 748832.6, 265689.5 and 59.6 respectively. The median of the study variable are 982500.0, 71504.5, 47132.55 and 16.75 for GDPGR, REG, CEG and PLR respectively. The maximum values of the series are 94144960 for GDPGR, 3970850 for REG, 1152600 for CEG and 2071 for 2071 for PLR while the minimum values are 5203.7, 716.1, 173.6 and 6 for GDPGR, REG, CEG and PLR respectively.

The measure of dispersion spread of each of the variables are 25577520 for GDPGR, 1202469 for REG, 351539.9 for CEG and 303.22 for PLR. The measure of asymmetry of the distribution of the series around its mean i.e. skewness of all the variables a positive suggesting that all the variables in the model are positively skewed towards normality. The Kurtosis that measures the peakedness of the distribution of each of the variables are 6.111360 for GDPGR, 3.989142 for REG, 3.084339 for CEG and 43.98532 for PLR. These values are greater than 3, exhibiting that all the variables are leptokurtic in nature. The Jarque-Bera for the series are 52.62213 with a p-value of 0.00 for GDPGR, 20.43421 62213 with a p-value of 0.00 for REG, 10.65678 with a p-value of 0.00 for CEG and 3549.012 with a p-value of 0.00 for PLR. The p-values for all the variables are significant at 5% level meaning that all the variables are normally distributed.

Table 5.1. Variables descriptive characteristics

	GDPGR	REG	CEG	PLR
Mean	13555091	748832.6	265689.5	59.60370
Median	982500.0	71504.50	47132.55	16.74500
Maximum	94144960	3970850.	1152600.	2071.000
Minimum	5203.700	716.1000	173.6000	6.000000
Std. Dev.	25577520	1202469.	351539.9	303.2182
Skewness	2.107989	1.555870	1.178234	6.554815
Kurtosis	6.111360	3.989142	3.084339	43.98532
Jarque-Bera	52.62213	20.43421	10.65678	3549.012
Probability	0.000000	0.000037	0.004852	0.000000
Sum	6.24E+08	34446299	12221718	2741.770
Sum Sq. Dev.	2.94E+16	6.51E+13	5.56E+12	4137357.
Observations	46	46	46	46

Source: Computer output data using E-views 8.0

5.2 Diagnostic Test

5.2.1 Breusch-Pagan-Godfrey Heteroscedasticity

The probability of the Chq statistic is significant at 5% level of significance, suggesting that the model is free from heterscedasticity problem. Table 5.2 presents the Breusch-Pagan-Godfrey heteroscedascticity test.

5.3 Serial Correlation LM Test

The serial Correlation test is an alternative to the Q-statistic test for serial correlation. Unlike the Durbin Watson statistic for AR(1) errors, the LM test may be used to test for higher order ARMA errors and is applicable whether there are lagged dependent variables or not. The p-value of the Breusch-Godfrey serial correlation test in Table 5.3 suggests that the null hypothesis could not be rejected. Consequently, the model is free from autocorrelation. This overrides any possible result of Durbin Watson in testing autocorrelation in any stated model.

5.4 Ramsey Reset Test

The Ramsey RESET test determines whether the model is correctly specified/fitted or not. The rationale behind the test is that if non-linear combinations of the independent variables have any power in explaining the dependent variable, the model is not well specified. The p-values as depicted in Table 5.4 is significant at 5% level of significance, thus our model is well specified.

5.5 Test for Multicollinearity

The result of the correlation matrix in Table 5.5 for the variables indicates that all the variables are correlated with GDP growth rate. The correlation between REG and CEG is 0.87. Though high, however, multicollinearity would not be said to exist between them as they are two major components of government expenditure.

5.6 Test for Stationarity

5.6.1 Augmented Dickey-Fuller (ADF) Test

The ADF test was performed in level and first difference at constant with trend and without trend. The result of the ADF test in Tables 5.6a and 5.6b indicated all the variables have unit root at constant without trend and at constant with linear trend except CEG. Consequently, the first difference test was performed.

From Tables 5.7a and 5.7b, the result of the unit root test established that the ADF test statistic for all the variables were greater than the critical values at 5% first difference at constant without trend and at constant with linear trend. The null hypothesis for the variables at their first difference could not be rejected. Hence, all the variables are stationary at their first difference at the 1% level of significance and are integrated of order one i.e. 1(1).

Table 5.2. Breusch-pagan-godfrey heteroscedasticity

F-statistic	6.069940	Prob. F(3,42)	0.0016
Obs*R-squared	13.91221	Prob. Chi-Square(3)	0.0030
Scaled explained SS	32.48480	Prob. Chi-Square(3)	0.0000

Source: Computer output data using E-views 8.0

Table 5.3. Serial correlation LM test

F-statistic	16.73697	Prob. F(1,41)	0.0002
Obs*R-squared	13.33462	Prob. Chi-Square(1)	0.0003

Source: Computer output data using E-views 8.0

Table 5.4. Ramsey reset test

	Value	df	Probability
t-statistic	3.649013	41	0.0007
F-statistic	13.31529	(1, 41)	0.0007
Likelihood ratio	12.93675	1	0.0003

Source: Computer output data using E-views 8.0

Table 5.5. Multicollinearity test

	GDPGR	REG	CEG	PLR
GDPGR	1.000000	0.968014	0.748499	-0.017646
REG	0.968014	1.000000	0.865666	0.034313
CEG	0.748499	0.865666	1.000000	-0.003561
PLR	-0.017646	0.034313	-0.003561	1.000000

Source: Computer output data using E-views 8.0

Table 5.6a. ADF test result at level: Constant and without linear trend

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
GDPGR	4.306970 (0.00)*	-3.584743	-2.928142	Stationary
REG	-1.651479 (0.45)	-3.626784	-2.945842	Not Stationary
CEG	-1.307327 (0.62)	-3.584743	-2.928142	Not Stationary
PLR	-6.659908 (0.00)*	-3.584743	-2.928142	Stationary

Source: Computer Output using E-view 8.0.

Note: The optimal lag for ADF test is selected based on the Akaike Info Criteria (AIC), p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively

Table 5.6b. ADF test result at level: Constant and with linear trend

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
GDPGR	1.854183 (0.00)*	-4.175640	-3.513075	Stationary
REG	1.603690 (0.00)*	-4.198503	-3.523623	Stationary
CEG	-2.062752 (0.55)	-4.175640	-3.513075	Not Stationary
PLR	-6.695661 (0.00)*	-4.175640	-3.513075	Stationary

Source: Computer Output using E-view 8.0.

Note: The optimal lag for ADF test is selected based on the Akaike Info Criteria (AIC), p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively

Table 5.7a. ADF test at first difference: Constant and without linear trend

Variables	ADF test statistic	Test critical value at 1%	Test critical value at 5%	Remark
GDPGR	3.856951 (0.00)*	-3.632900	-2.948404	Stationary
REG	2.673770 (0.00)*	-3.626784	-2.945842	Stationary
CEG	2.997099 (0.00)*	-3.632900	2.948404	Stationary
PLR	-7.730852 (0.00)*	-3.592462	-2.931404	Stationary

Source: Computer Output using E-view 8.0.

Note: The optimal lag for ADF test is selected based on the Akaike Info Criteria (AIC), p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively

Table 5.7b. ADF Test at First Difference: Constant and with linear trend

Variables	ADF test statistic	Test critical value at 1%	Test critical value at 5%	Remark
GDPGR	2.817528 (0.00)*	-4.243644	-3.544284	Stationary
REG	-3.599028 (0.04)**	-4.198503	-3.523623	Stationary
CEG	-4.606905 (0.04)**	-4.243644	-3.544284	Stationary
PLR	-7.636909 (0.00)*	-4.186481	-3.518090	Stationary

Source: Computer Output using E-view 8.0.

Note: The optimal lag for ADF test is selected based on the Akaike Info Criteria (AIC), p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively

5.6.2 Phillips perron (PP) test

The result of the PP test in Tables 5.8a and 5.8b at constant and without linear trend and constant and with linear trend reveals that all the variables have no unit except CEG. To this effect, the alternate hypothesis could not be rejected and hence variables are not stationary. On the other hand, PP test performed at first difference as evidence in Tables 5.9a and 5.9b, constant with and without trend unveiled that all the variables are stationary at first difference.

Table 5.8a. PP test result at level: Constant and without linear trend

Variables	PP Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
GDPGR	4.306970 (0.00)*	-3.584743	-2.928142	Stationary
REG	3.440035 (0.00)*	-3.584743	-2.928142	Stationary
CEG	-1.307327 (0.62)	-3.584743	-2.928142	Not Stationary
PLR	-6.659885 (0.00)*	-3.584743	-2.928142	Stationary

Source: Computer Output using E-view 8.0.

Note: In determining the truncation lag for PP test, the spectral estimation method selected is Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively

Table 5.8b. PP test result at level: Constant and with linear trend

Variables	PP test statistic	Test critical value at 1%	Test critical value at 5%	Remark
GDPGR	1.910748 (0.00)*	-4.175640	-3.513075	Stationary
REG	0.694388 (0.00)*	-4.175640	-3.513075	Stationary
CEG	-2.062752 (0.55)	-4.175640	-3.513075	Not Stationary
PLR	-6.696154 (0.00)*	-4.175640	-3.513075	Stationary

Source: Computer Output using E-view 8.0.

Note: In determining the truncation lag for PP test, the spectral estimation method selected is Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively

Table 5.9a. PP test result at first difference: Constant and without linear trend

Variables	PP Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
GDPGR	-4.395524 (0.00)*	-3.588509	-2.929734	Stationary
REG	-7.021360 (0.00)*	-3.588509	-2.929734	Stationary
CEG	-5.869329'(0.00)*	-3.588509	-2.929734	Stationary
PLR	-43.09649 (0.00)*	-3.588509	-2.929734	Stationary

Source: Computer Output using E-view 8.0.

Note: In determining the truncation lag for PP test, the spectral estimation method selected is Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively

Table 5.9b. PP test result at first difference: Constant and with linear trend

Variables	PP test statistic	Test critical value at 1%	Test critical value at 5%	Remark
GDPGR	-5.728486 (0.00)*	-4.180911	-3.515523	Stationary
REG	-8.527594 (0.00)*	-4.180911	-3.515523	Stationary
CEG	-5.755009 (0.00)*	-4.180911	-3.515523	Stationary
PLR	-43.58194 (0.00)*	-4.180911	-3.515523	Stationary

Source: Computer Output using E-view 8.0.

Note: In determining the truncation lag for PP test, the spectral estimation method selected is Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively

5.7 Short Run Relationship

The short run relationship between government expenditure and economic growth was determined using the OLS regression methodology and Table 5.10 depicts the result. Our analysis of the short run relationship was categorised into global utility and relative statistics of the model we estimated.

5.7.1 Global utility statistics test result

The Adjusted R-squared shows that prime lending rate, government recurrent and capital expenditure explained 97.10 variations in economic growth of Nigeria. The F-statistic with a p-value of 0.0000 is significant at 1% level of significance suggests that in statistical term, the model has a goodness of fit.

5.7.2 Relative statistics test result

On the bases of the relative statistics of the model estimated, prime lending rate and capital expenditure have negative and statistically significant (significant at 5%) relationship with economic growth expressed by gross domestic product growth rate while recurrent expenditure has positive and significant relationship with economic growth. The coefficient of the constant 444231.2 envisages that if prime lending rate, government recurrent and capital expenditure are held constant, gross domestic product would increase by ₦444, 231.2 million. It would be inferred from the coefficient of 27.36469 for government recurrent expenditure that a percentage increase in government recurrent expenditure would result in 27.36% change in gross domestic product. On the other hand, a percentage increase in government capital expenditure leads to 26.59% reduction in changes in economic growth, and a unit increase in prime lending rate would result in ₦ 5, 321.84 million reduction in gross domestic product. Government recurrent expenditure and prime lending rate confirm with a priori expectation.

5.8 VAR Lag Order Selection Criteria

In order to ensure the reliability of long-run relationship, we confirmed the level of time lag using the Vector Auto Regression model. The optimal level of time lag was obtained with the aid of standard tests Akaike information criterion (AIC) and Schwarz information criterion (SC). The lower the values of AIC and Schwarz information criterion (SC) tests, the better the terseness and veracity of the model. The computer software E-views 8.0 automatically selected the number of lag to be four and the outcome presented in Tables 5.11.

5.9 Long-Run Relationship

The unit test result we performed via ADF and PP illustrated that all the variables are stationary at first difference at constant with trend and without trend. The result of the ADF and PP gave us the go ahead to test for long run relationship between the variables as the presence of unit root is the criteria for performing a long run test. To this effect, we performed the long run relationship by applying the Johansen Co-integration approach and the result is summarised in Tables 5.12a, 5.12b and 5.12c.

The result of the co-integration test in Tables 5.12a and 5.12b show there exists two co-integration vectors. The trace statistic and the maximum eigenvalue each indicate two (2) co-integrating vector equations at the 5% level of

Table 5.10. OLS regression (Dependent variable: Economic growth)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	444231.2	819791.1	0.541883	0.5908
REG	27.36469	1.081226	25.30894	0.0000
CEG	-26.58557	3.696260	-7.192560	0.0000
PLR	-5321.840	2146.585	-2.479212	0.0173
R-squared	0.972954	Mean dependent var		13555091
Adjusted R-squared	0.971022	S.D. dependent var		25577520
S.E. of regression	4354034.	Akaike info criterion		33.49405
Sum squared resid	7.96E+14	Schwarz criterion		33.65306
Log likelihood	-766.3630	Hannan-Quinn criter.		33.55361
F-statistic	503.6359	Durbin-Watson stat		1.033984
Prob (F-statistic)	0.000000			

Source: Computer output data using E-views 8.0

Table 5.11. VAR Lag order selection criteria for Eq. 3

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-2218.635	NA	1.09e+41	105.8397	106.0052	105.9004
1	-2085.401	234.7455	4.10e+38	100.2572	101.0846	100.5605
2	-2048.222	58.42375	1.53e+38	99.24866	100.7381	99.79460
3	-2015.381	45.35232	7.27e+37	98.44669	100.5981	99.23527
4	-1888.257	151.3378*	4.09e+35*	93.15508*	95.96845*	94.18630*

Source: Computer analysis using E-views 8.0

** 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 and HQ: Hannan-Quinn information criterion*

significance in accordance to MacKinnon-Haug-Michelis (1999) p-values. The results of the trace statistic and the maximum eigenvalue implies that there are long-run relationship between government expenditure and economic growth reflected by GDPGR at 5% level of significance.

5.10 Granger Causality Effect Test

To assess the effect of government expenditure on economic growth, we applied the granger causality test and the result is shown in Table 5.13. By carefully applying the granger causality test, we are self-assured that the outcome would offer unswerving inferences on the effect of government expenditure on Nigeria economic growth since the variables are stationary based on the unit root test in Tables 5.6a to 5.9b thus, not enervated by non-stationarity flaws that are customarily concomitant with most data that are generated yearly/annually. Table 5.13 denotes that REG and CEG granger cause GDPGR, that is, there is a unidirectional relationship between government expenditure and economic growth at 5% level of significance. In other words, causality flows from government expenditure as expressed by recurrent and capital expenditure to economic growth. This outcome denotes that government expenditure has significant effect on economic growth of Nigeria. Looking at the F-statistics of 17.4428 and 24.3879 with p-values 0.0001 and 1.E-05 for REG and CEG respectively, we rejected the null hypothesis that government expenditure has no significant effect on economic growth in Nigeria.

5.11 Short Run Adjustments

Having established the presence of a long run relationship between government expenditure and economic growth in Nigeria, we proceeded to test the short run adjustment with the aid of the Vector Error Correction Model (VECM) and result summarised in Table 5.14. We performed this test to evaluate whether or not all the variations in economic growth is as a result of the co-integrating vectors trying to return to equilibrium and the error correction term that captures this variation. The error correction coefficient showed the expected negative sign expressing that there is a tendency by the model to correct and move towards the equilibrium path following disequilibrium in each period and by implication a significant error correction is taking place, i.e. there are adjustments to instability in the short term. 39.78% of the error generated in the previous year is corrected in the current year. The VECM result also revealed that in the long term, government capital expenditure will impact positively on economic growth while recurrent expenditure will have negative effect on the economic growth. We went further to conduct a residual test for the VECM result and found that the VECM equation passes the residual test. The LM and White test were significant at 5% level of significance suggesting absence of autocorrelation and heteroskedasticity in the result.

5.12 Variance Decomposition

In order to ascertain whether it is recurrent expenditure or capital expenditure government that exerts greater influence on economic growth, the variance decomposition function was estimated and presented in Table 5.15. From the result, it is observed that recurrent expenditure of government is greater in explaining the variations in economic growth than government capital expenditure. Fluctuations in economic growth are more explained by variations in economic growth itself.

5.13 Impulse Response Function Result

To evaluate the pattern of short term adjustment of economic growth in Nigeria to one standard deviation of prime lending rate, government recurrent and capital expenditure, the variance decomposition analysis was estimated and Table

5.16 illustrates the result. The impulse response function in VECM uses the Cholesky Ordering: GDPGR, REG, CEG, and PLR. The impact a positive shock in government expenditure has increasing economic growth is shown in Fig. 4.1. Shock by 1 standard deviation has an immediate effect on the GDPGR by lowering it 2.65% in period 1 and later increased it to 1.45% in period 3. However, this kept fluctuating within the periods as it ended at 2.79% in period 45. Capital expenditure increase of one standard deviation increased economic growth by 1.10% in period 1, later to 5.81% in period 4. It decreased to 8.90% in period 9. The variations continued within the period and ended with reduction of 3.66% in the last period: 45.

Table 5.12a. Unrestricted co-integration rank test (Trace)

Hypothesized Number of CE(s)	Eigen value	Trace statistic	0.05 critical value	Prob.**
None*	0.821903	120.2909	47.85613	0.0000
At most 1*	0.498524	44.37213	29.79707	0.0006
At most 2	0.262762	14.00337	15.49471	0.0829
At most 3	0.013325	0.590239	3.841466	0.4423

*Source: Computer analysis using E-views 8.0. Trace test indicates 2 co-integrating eqn(s) at the 0.05 level; * denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values.*

Table 5.12b. Unrestricted co-integration rank test (Maximum eigenvalue)

Hypothesized number of CE(s)	Eigen value	Trace statistic	0.05 critical value	Prob.**
None *	0.821903	120.2909	47.85613	0.0000
At most 1*	0.498524	44.37213	29.79707	0.0006
At most 2	0.262762	14.00337	15.49471	0.0829
At most 3	0.013325	0.590239	3.841466	0.4423

*Source: Computer analysis using E-views 8.0. Maximum Eigenvalue test indicates 2 co-integrating eqn(s) at the 0.05 level; * denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values*

Table 5.12c. 1 Co-integrating equation(s)

GDPGR	REG	CEG	PLR
1.000000	[-14.374550]	[-27.04749]	[-1476.170]
	(1.87061)	(5.05074)	(2411.66)

Source: Computer analysis using E-views 8.0. The Normalised Co-integrating coefficients are in [ ] while the standard error in ( )

Table 5.13. Granger causality result

Null Hypothesis:	Obs	F-statistic	Prob.	Remarks
REG does not Granger Cause GDPGR	45	17.4428	0.0001	Causality
GDPGR does not Granger Cause REG		3.30168	0.0763	No Causality
CEG does not Granger Cause GDPGR	45	24.3879	1.E-05	Causality
GDPGR does not Granger Cause CEG		3.41759	0.0716	No Causality
PLR does not Granger Cause GDPGR	45	0.00514	0.9432	No Causality
GDPGR does not Granger Cause PLR		0.02300	0.8802	No Causality

Source: Computer analysis using E-views 8.0

Table 5.14. Vector error correction model

Variables	Coefficient	Standard error	T-statistic
C	1247595	903596	1.38070
D(GDPGR(-1))	1.573145	0.24156	6.51251
D(REG(-1))	-36.29004	6.70910	-5.40908
D(CEG(-1))	27.99348	9.03160	3.09950
D(PLR(-1))	4548.586	1274.38	3.56927
ECM (-1)	-0.397773	0.18092	-2.19864

Source: Computer analysis using E-views 8.0

Table 5.15. Variance decomposition of GDPGR

Period	S.E.	GDPGR	REG	CEG	PLR
1	2643252.	100.0000	0.000000	0.000000	0.000000
2	6084437.	42.64440	37.65480	17.95759	1.743206
3	6722321.	35.57576	30.89453	31.98566	1.544053
4	6984612.	38.56677	28.66405	30.31971	2.449474
5	8194354.	43.22206	22.48676	32.26309	2.028089
6	11325082	52.35448	26.41378	16.93270	4.299035
7	12577380	59.60589	22.52692	14.11465	3.752548
8	16441936	59.16636	28.31724	8.470662	4.045737
9	18051272	62.44557	26.11805	7.254460	4.181918
10	19987131	63.65843	26.08881	6.509758	3.743006

Source: Computer analysis using E-views 8.0

5.14 Discussion of Findings

The short run relationship result in Table 5.10 reveals that government recurrent expenditure has significant positive relationship with economic growth. This implies that in the short run, recurrent expenditure stimulates economic growth in Nigeria. The kind gesture made by the federal government of Nigeria in December, 2015 by giving out fund known as "bailout fund" to some state governments to pay workers' salaries is an instance of government intervention in the economy via expenditure thus, beneficial to the economy in the short run. This finding supports the work of [2] and [14] for Saudi Arabia and Jordan respectively. It is also in with the studies of [5] and [6] conducted in Nigeria. However, it disagrees with the result of [7] that recurrent expenditure of government does not contribute to economic growth in Nigeria. The capital expenditure of the government has a negative relationship with economic growth. Invariably, the government expenditure in development project is inadequate to enhance economic growth in Nigeria. This is evidence in the closure of many industries as a result of epileptic power supply, bad road, and lack of basic infrastructures among others. This result confirms the research conducted by [6] and [7] for Nigeria. Furthermore, the coefficient of the Adjusted R-squared indicates that 97.10 variations in Nigeria economic growth is as a result of government expenditure.

The VECM result in Table 5.14 gives an idea that Nigeria will achieve a steady level of growth in the long run if preference is given to capital expenditure over recurrent expenditure. The coefficient of recurrent expenditure is negatively signed while that of capital expenditure is positively signed. The short term growth would be achieved by recurrent expenditure as the case of Nigeria. This is in line with the findings of

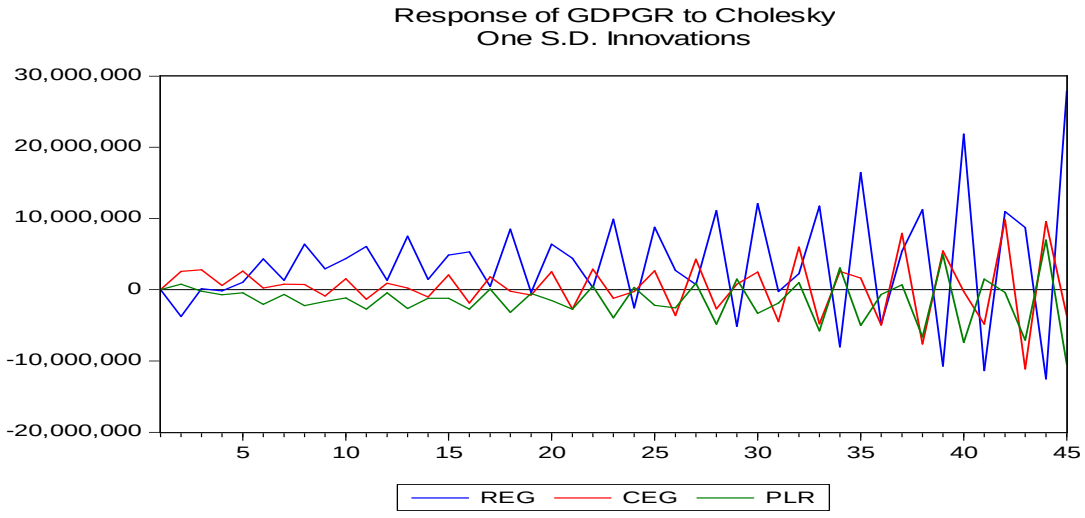

Fig. 4.1. Response of GDPGR to REG, CEG and PLR

[2] and [16] for Saudi Arabia and Assam respectively. It is tallies with [6] and [18] for Nigeria. The long term effect of capital expenditure agrees also with the studies of [2], [16] and [9] for Saudi Arabia, Assam and Nigeria respectively.

Tables 5.12a to 5.12c depicts the existence of a long run relationship between government expenditure and economic growth in Nigeria. This buttresses the findings of [12] for Japan and Korea but not for Thailand, Malaysia, Philippines and Singapore, [24] for Iran, [15] for Sudan and [16] for Assam. It is also in unison with studies conducted in Nigeria by [6] and [10]. However, it is surprising to note that the result in Table 4.12c unveils that in the long run government expenditure will not be a tool for economic growth in Nigeria as it is currently the case. This is evidenced by the negative coefficient of both government recurrent and capital expenditure. This is consistence with the argument of the classical economists that upsurge in government expenditure is not a criteria for the growth of any economy rather, government spending should be based on growing needs of the citizens. On the other hand, it differs from the Keynesians who believed that increasing government spending will spur growth in the economy.

The granger causality test of effect Table 5.13 demonstrates that government expenditure has significant effect on Nigeria's economic growth. The p-values of recurrent and capital expenditure are significant at 5% level of significance. This is to say that the current level of development attained by Nigeria as a country was as a result of rising government expenditure since independence in 1960. This supports the Adolp Wagner's law that increasing government spending would stimulate economic growth process. It also in agreement with [15] and [24]. Thus, the data from Nigeria agrees with the Adolph Wagner's law of increasing government expenditure as well as the Keynesian approach that fiscal policy can drive the economy because increased government expenditure or reduction in tax have a multiplier effect by motivating demand for household consumer goods.

6. SUMMARY, CONCLUSION, PRACTICAL IMPLICATION AND LIMITATION

6.1 Summary

In study, we examined the long run relationship between government expenditure and economic growth, the short run and long run adjustments as well as the effect of government expenditure on economic growth of Nigeria for the period 1970 to 2015, i.e. forty five (45) years. The choice of this period is to relatively cover a long span of data for econometric analysis result to be reliable. We looked at the classical and Keynesian arguments, Adolph Wagner's law of increasing government expenditure and the Peacock and Wiseman Hypothesis. After which we anchored our work on the Adolph Wagner's law on the bases that Nigeria is a developing country and needed more of government intervention via expenditure in sharping growth rate of the economy. Our data for analysis were gotten from the Central Bank of Nigeria statistical bulletin, 2015. Prior to estimation, we subjected the model to diagnostic test of Heteroskedasticity, Serial Correlation LM, Ramsey RESET and Multicollinearity test. Johansen co-integration was applied in testing the long run relationship, short run and long run adjustments by vector error correction model and effect of government expenditure on economic growth by granger causality effect test.

The result of the long run test in Tables 5.12a –c, reveals the existence of a long run relationship between government expenditure and economic growth in Nigeria, VECM result in Table 5.14 suggests that Nigeria would achieve a steady level of growth if preference is giving to capital expenditure over recurrent expenditure, and the granger causality effect result envisages that recurrent and capital expenditure which are the two components of government expenditure have significant effect on Nigeria's economic growth thus, supporting the Adolph Wagner's hypothesis on public expenditure. Furthermore, the variance decomposition shows the greater influence of recurrent expenditure in economic growth compared to capital expenditure and the normalised co-integrating coefficient in Table 5.12c indicates that in the long run, increasing government expenditure would not boost economic growth. The null hypothesis formulated that government expenditure has no significant effect on economic growth was rejected on the ground that recurrent and capital expenditure granger cause economic growth and the p-values as depicted in Table 5.13 were significant at 5% level of significance.

6.2 Conclusion

Following the Keynesians argument, there is a clear relationship between public expenditure

and economic growth. This hinged to the idea that the economy is not always at full employment, interest rate and wage rate are not self-adjusting and savings is not always equal investment. This is in contrast to the classical point of view that government interference in the economy by way of expenditure as a form of fiscal policy tool does not lead to growth of the economy rather, increase in money supply thus, inflation. We conclude that at this current of level of development attained by Nigeria, government expenditure particularly, current expenditure on productive assets spurs economic growth thus, confirming the validity of Adolph Wagner's law of public expenditure in Nigeria. In addition, government recurrent expenditure is greater in explaining economic growth in Nigeria compared to current expenditure.

6.3 Practical Implication

Relying on the outcome of VECM in Table 5.14 and normalised co-integrating coefficient in Table 5.12c, the practical implication is that the federal government of Nigeria should embark more on capital/development projects as it will in the long run spur economic growth and development. The current situation where recurrent expenditure takes over 80% of the budget should be discontinued with so as to achieve our vision to be rank in the league of world top economies. The findings of this study validates the Adolph Wagner's law of increasing government expenditure in the context of Nigeria as a developing country. The finding of the study contributes to existing literature on the nexus between government expenditure and economic growth in the context of Nigeria by utilizing the growth rate of gross domestic product as against real gross domestic product. Furthermore, another contribution of this study lies in the use of broad and up-to-date dataset spanning from 1970 to 2015 for a total observation of 45 years. Such a dataset is far more comprehensive than those found in previous studies. Having a higher number of observations allows us to have a robust and reliable result devoid of observation defect.

6.4 Limitations of the Study

This study has a defect that could be corrected in future studies. We only analysed the effect of aggregate recurrent and capital expenditure on economic growth of Nigeria. The sectorial decomposition of both recurrent and capital expenditure and its effect on economic growth is suggested for further studies. This will give an insight as to which sector contributes more to gross domestic product.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. A central bank of Nigeria. Statistical Bulletin; 2014.
   Available:https://cenbank.gov.ng
   (Accessed 17th June, 2016)
2. Alshahrani SA, Alsadiq AJ. Economic growth and government spending in Saudi Arabia: An empirical investigation. International Monetary Fund Working Paper. 2014;WP/14/3.
3. Gisore N, Kiprop S, Kalio A, Ochieng J, Kibet L. Effect of government expenditure on economic growth in East Africa: A disaggregated model. European Journal of Business and Social Sciences. 2014;3(8): 289–304.
4. Barro R. Government spending in a simple model of endogenous growth. Journal of Political Economy. 1991;98:103-25.
5. Nwaeze C, Njoku R, Nwaeze OP. Impact of government expenditure on Nigeria's economic growth (1992 – 2011). Macrotheme Review. 2014;3(7):79-87.
6. Okoro AS. Government spending and economic growth in Nigeria (1980-2011). Global Journal of Management and Business Research Economics and Commerce. 2013;13(5):19-30.
7. Nworji ID, Okwu AT, Obiwuru TC, Nworji LO. Effects of public expenditure on economic growth in Nigeria: A disaggregated time series analysis. International Journal of Management Sciences and Business Research. 2012;1(7):1-15.
8. Abu N, Abdullah U. Government expenditure and economic growth in Nigeria, 1970- 2008: A disaggregated analysis. Business and Economics Journal. 2010;4:1-11.
9. Oyinlola MB, Akinnibosun O. Public expenditure and economic growth nexus: further evidence from Nigeria. Journal of Economics and International Finance. 2013;5(4):146-154.
10. Uma KE, Eboh FE, Nwaka ID. Government expenditure in Nigeria: Effect on economic

development. American Journal of Social Issues and Humanities. 2013;3(3):119-131.
11. Aladejare SA. Government spending and economic growth: Evidence from Nigeria; 2013.
Available:https://mpra.ub.uni-muenchen.de/43916/
(Accessed 15th June, 2016)
12. Mohammadi H, Ram R. Economic development and government spending: An exploration of Wagner's hypothesis during fifty years of growth in East Asia. Economies. 2015;3:150-160.
13. Loizides J, Vamvoukas G. Government expenditure and economic growth: Evidence from trivariate causality testing. Journal of Applied Economics. 2005;8(1): 125-152.
14. Dandan MM. Government expenditures and economic growth in Jordan. International Conference on Economics and Finance Research IPEDR, IACSIT Press, Singapore; 2011.
15. Abdel M, Salih R. The relationship between economic growth and government expenditure: Evidence from Sudan. International Business Research. 2012; 5(8):46-46.
16. Altaf N, Khan S. Impact of government expenditure on economic growth in Assam: An econometric study; 2010.
Available:www//http.ssrn.com
(Accessed 26th, April, 2016)
17. Hamzah KSB. The association between government expenditure and economic growth in Malaysia. A Thesis Presented to the Department of International Co-operation Policy, Ritsumeikan Asia Pacific University, Malaysia; 2011.
18. Abu N, Abdullah U. Government expenditure and economic growth in Nigeria, 1970- 2008: A disaggregated analysis. Business and Economics Journal. 2010;4:1-11.
19. National Bureau of Statistic. Harmonised Nigerian Living Standard Survey; 2010.
Available:www.nigeriastat.gov.ng
(Accessed 20th June, 2016)
20. Federal Ministry of Finance. Federal Government of Nigeria Budget; 2015.
Available:https://fmf.gov.ng
(Accessed 17th June, 2016)
21. Antwi S, Mills EFA, Zhao X. Impact of macroeconomic factors on economic growth in Ghana: A co-integration analysis. International Journal of Academic Research in Accounting, Finance and Management Sciences. 2013;3(1):35-45.
22. Kanu SI, Ozurumba BA. Migrant's remittances and economic growth in Sub Saharan Africa: Evidence from Nigeria, Ghana and South Africa. Interdisciplinary Journal of Contemporary Research in Business. 2013;4(10):534-550.
23. Verger C. Part III: DAC peer review of Australia. OECD Journal on Development. 2009;10(2):147-175.
24. Agrawal P. Economic growth and poverty reduction: Evidence from Kazakhstan. Journal of Asian Development Review. 2007;24(2):90-115.
25. Mehrara M, Abrishami H, Boroujli M, Amin M. Government expenditure and economic growth in Iran. International Letters of Social and Humanistic Sciences. 2012;1(11):76-86.
26. Gujarati D. Basic Econometrics, 4th Edition, New Delhi: Tata McGraw Hill Publishing Company Limited; 2004.

Peer-review history:
The peer review history for this paper can be accessed here:
http://sciencedomain.org/review-history/15768