Impact of Government Expenditure on Economic Growth in Nigeria

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Abstract

The study examined the relationship between government expenditure and Nigeria's economic growth from 1996 to 2016. The study used Real Gross Domestic Product (RGDP) as a proxy to Economic Growth, which is the dependent variable while the independent variables are Capital Expenditure (CEXP) and Recurrent Expenditure. The Ordinary Least Square (OLS) method of analysis was employed and the result showed that the coefficient of (CEXP) –0.016667 was insignificant at 5% level. This implies that capital expenditure impacted negatively on economic growth. However, (REXP) coefficient 0.024886 was significant at 5% level. This implies that recurrent expenditure impacted positively on economic growth within the study period. The coefficient of multiple determination (R2) of the model was 0.866947. This indicates that 87% variation in the dependent variable is explained by the explanatory variables. The study concluded that the public sector occupies a priority status in Nigeria as the sector serves as the key driver of the economic growth, wealth creation and poverty reduction for a large portion of the population. Adequate Federal government expenditure with adequate monitoring and evaluation in the Nigerian economy should be encouraged. Thus, based on the findings, the study recommends that capital expenditure should be given priority as well in other to lay the foundation for growth and sustainable development.

Keywords: Federal Government Capital Expenditure, Recurrent Expenditure, Economic Growth
JEL Code: C12, E69, H50

Contribution/Originality
The originality of the study is drawn from the fact that it has provided new evidence that capital expenditure could have a negative relationship with economic growth which is contrary to majority of empirical studies.

1.0 Introduction

Public expenditure theories evolved out of the perceived failure of market economy to efficiently and equitably allocate economic resources for social and economic infrastructure development. This failure necessitated the emergence of welfare economics (state intervention in economic activities) leading consequently to the rapid expansion of the government sector, and by implication, growth in public expenditure. As the public sector size continued to grow relatively, the need for an appropriate mechanism that would ensure efficiency in resource allocation arose. In order to fill this perceived gap, the budget, which contained a package of public expenditure plan and tax legislation of the government for the year readily come to be a veritable tool for controlling, monitoring and relating government expenditure plans to policies of finance and taxation.(Agbonkhase & Asekome, 2014).

Government expenditure plays a key role in the operation of all economics. Public expenditure is the expenses or cost that government usually incurs for maintenance of itself as institutions, the economy and the society. Government expenditure tends to increase with time as the economy becomes more developed or as there is an increase in the scope of activities of the government (Ogba, 2011).

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Government expenditure reflects the policy choices of government. Once government has decided upon which goods and services to provide and the quantity and quality in which they will be produced, public expenditure represents the cost of carrying out these policies. As the economy becomes more sophisticated, its expenditure begins to grow (Bulus, 2006).

According to Agbonkhase (2014), government expenditures were usually broadly categorized into recurrent and capital expenditures. The former, corresponded to government's purchase of current goods and services (labour, consumables, wages and salaries, etc.), while the latter would ideally include not merely investments in infrastructure (roads, schools, hospitals, etc.) but also all other expenditures that might contribute to development. In other words, while the recurrent expenditure refers to financial outlays necessary for the day-to-day running of government businesses, the capital expenditure refers to investment outlets that increase the assets of the state. These categorization, however, were not mutually exclusive but were indeed inter-linked. For instance, while capital expenditure gave rise to recurrent expenditure in most cases through the operational and maintenance costs of completed capital projects, the amount available for investment was a function of not only the size of revenue but also the amount that goes annually into the running of government.

Some scholars have argued that increase in government spending can be an effective tool to stimulate aggregate demand for a stagnant economy and to bring about crowed-in effects on private sector. According to Keynesian view, government could reverse economic downturns by borrowing money from the private sector and then returning the money to the private sector through various spending programs. High levels of government consumption are likely to increase employment, profitability and investment via multiplier effects on aggregate demand (Abdullahi, 2010).

Some scholars such as Laudau (1986); Barro (1990) did not support the claim that increasing government expenditure promotes economic growth, instead they assert that higher government expenditure may slowdown overall performance of the economy. For instance, in an attempt to finance rising expenditure, government may increase taxes and/or borrowing. Higher income tax discourages individual from working for long hours or even searching for jobs. This in turn reduces income and aggregate demand. In the same vein, higher profit tax tends to increase production costs and reduce investment expenditure as well as profitability of firms. Moreover, if government increases borrowing (especially from the banks) in order to finance its expenditure; it will completely crowd-out the private sector, thus reducing private investment.

Furthermore, in a bid to score cheap popularity and ensure that they continue to remain in power, politicians and government officials sometimes increase expenditure and investment in unproductive projects or in goods that the private sector can produce more efficiently. Thus, government activity sometimes encourages the misallocation of resources and impedes the growth of national output. They suggested that large government expenditure has negative impact on economic growth, hence part of the reason for undertaking this research work to establish if some of these assertions are true or not and what is the way forward. The underdevelopment of the Nigeria's economy is a reflection of irregularity of government spending, inappropriate channelling of government funds to development projects, which has made Nigeria's government to rely on oil for over 80% of her revenue. Nigeria government spending over the years have sky-rocketed but the problem here is inefficient channelling of the fund to key priority areas of the economy, or the case of embezzlement. Available CBN statistical data shows that government expenditure (capital and recurrent) continued to rise over the years. Unfortunately, rising government expenditure has not translated to meaningful growth and development, as Nigeria ranks among the poorest countries in the world (CBN Statistical Bulletin, 2016).

Therefore, given the issues raised above, this paper seeks to assess the impact of government expenditure on economic growth in Nigeria between 1996 and 2016. In the light of the above scenario, the question that comes to the fore is what has been the impacts of federal government expenditure on the economic growth. The main objective of this paper is to examine the relationship between government expenditure and Nigeria's economic growth. This paper has been divided into five sections. Sections I is the introduction, while section II presents the literature review. Section III discusses the econometrics methodology and sources of data while section IV analyses the data and interpret the results. Finally section V concludes the paper and recommended policy actions.

2.0 Literature Review

2.1 Conceptual Issues

Government expenditures play key roles in the operation of all economies. It refers to expenses incurred by the government for the maintenance of itself and provision of public goods, services, and works needed to foster or promote economic growth and improve the welfare of people in the society. Government (public) expenditures are generally categorized into expenditures on administration, defence, internal securities, health, education, foreign affairs, etc. and have both capital and recurrent components.

Capital expenditure refers to the amount spent in the acquisition of fixed (productive) assets (whose useful life extends beyond the accounting or fiscal year), as well as expenditure incurred in the upgrade/improvement of existing fixed assets such as lands, buildings, roads, machines and equipment, etc., including intangible assets. Expenditure in research also falls within this component of government expenditure. Recurrent expenditure, on the other hand, refers to expenditure on purchase of goods and services, wages and salaries, operations as well as current grants and subsidies (usually classified as transfer payments). Recurrent expenditure, excluding transfer payments, is also referred to as government final consumption expenditure. Imoughele (2015).

Economic growth implies the expansion of a country's productive capacity. It refers to an increase in the number of goods and services produced in a country over a period of time. Economic growth indicators include Gross Domestic Product (GDP), inflation rate and rate of employment. Gross Domestic Product (GDP) is considered the broadest economic growth indicator. It represents the market value of all goods and services produced in an economy during a given period usually a year. Oziengbe, (2013).

Economic growth is measured by the increase in the number of goods and services produced in a country. A growing economy produces more goods and services in each successive time period. This growth occurs when an economy's productive capacity increases. (Jhingan, 2006). According to Aigbokhan (1995), Economic growth means an increase in the average rate of output produced per person usually measured on a per annum basis. It is also the rate of change in national output or income in a given period. Economic growth is the increase in per capita gross domestic product (GDP) or another measure of aggregate income. It is often measured as the rate of change in real GDP. Economic growth refers only to the number of goods and services produced.

2.2 Theoretical Framework

Wagner's Theory of Public Expenditure Growth

Adolph Wagner a German economist of the latter half of the 19th century, based his Law of Increasing State Activities on historical facts, primarily of Germany, which reflected, the growing importance of government activities and expenditure as an inevitable feature of a "progressive" state. He tried to establish a direct link between economic development and growth and the relative size of the public sector and consequently public expenditure. According to Wagner, there is an inherent tendency for the activities of different layers of a government (e.g. Central and State governments) to increase both intensively and extensively. Prevailing public expenditure reflects the requirement of a given historical situation. Any change in the public expenditure reflects the underlying changes in the economic structure and development. He justified public expenditure in terms of objective criteria, such as population or transportation needs. Wagner's Law was based on historical facts. It did not reveal the inner compulsions under which a government has to increase its activities and public expenditure as time passes. It was applicable only to modern progressive governments which were interested in expanding public sector of the economy for its overall benefits, and public expenditure would grow faster than output. This general tendency of expanding state activities had a definite long-term trend, though, in the short run, financial difficulties could come in its way. "But in the long-run, the desire for development of a progressive people will always overcome these financial difficulties. (Musgrave, & Peacock, 1958).

According to Wagner, there is an inherent tendency for the activities of the government of different layers e.g. central and State government to increase extensively and intensively. As the time passes, various levels of government undertake new functions. This means that the range of the activities carried on within the public sector is extended. This process of adding new activities may be termed as extensive growth in government services. On the other hand, the tendency of the governments to perform both old and new functions more efficiently and completely is called intensive growth in public activity. Wagner hypothesised that as per capita income increases due to industrialisation, there is a secular growth in public sector economic activity. The growth of the public sector is attributed to three factors:

i. Most countries have registered increasing urbanization. Urbanization implies a much larger per capita expenditure on civil amenities that are needed to deal with the increased population and urbanization.
ii. Societies are experiencing a growing population which leads to the increase in 'cultural and welfare' expenditures, particularly for education and the redistribution of income because of elastic nature of income elasticity of demand for cultural and welfare expenditures and
iii. Rise in public investment activity because of market failure and because of the monopolistic trends which require state intervention in the form of nationalization or monopoly control. Therefore, Wagner's Law refers only to those states in which income is rising as a result of industrialization and excludes explicitly the 'non-progressive' societies.

Wagner argued that government growth is a function of increased industrialization and economic development. Wagner stated that during the industrialisation 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 the allowance for social consideration by industry."

Wagner (1893) designed three focal bases for the increased in state expenditure. Firstly, during industrialisation 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 industrialisation will bring out technological change and large firms that tend to monopolise. Governments will have to offset these effects by providing social and merit goods through budgetary means.

Wagner's model, while containing many insights, suffered from the drawback that it did not contain a well-articulated theory of public choice. Indeed, Wagner assumed away the problems of public choice by employing an organic theory of the state'. According to him, the state was assumed to behave as it were an individual existing and making decision independently of the members of society.

In spite of criticism of Wagner's Law, it continues to play an important role in the study of public expenditure behaviours. According to Wagner's Law, there is a functional relationship between the growth of an economy and the government activities with the result that the government sector grows faster than the economy. From the original version of this theory it is not clear whether Wagner was referring to an increase in (a) absolute level of public expenditure, (b) the ratio of government expenditure to GNP, or (c) proportion of public sector in the total economy. Musgrave believes that Wagner was thinking of (c) above. Wagner's Law has been interpreted in terms of the concept of elasticity. It suggests greater than unity income elasticity for a number of public goods. According to this Law, the percentage change in the public expenditure is greater than the percentage change in GNP or national income. Bird, (1971).

2.3 Empirical Review

This section reviews existing literature on the relationship between government expenditure and economic growth. A number of studies have focused on the relationship between government expenditure and economic growth in both developed and developing countries including Nigeria. The results varied from one country to another.

Bowen (1943) provided empirical evidence on the impact of fiscal policy on long-run growth for the European economy. Their study required that at least two of the taxation/expenditure/deficit effects must be examined simultaneously and they employ panel and time series econometric techniques. Their results indicate that while some public investment spending impacts positively on economic growth, consumption and social security spending have zero or negative growth effects.

Abu-Bader and Abu-Qarn (2003) employed multivariate co-integration and variance decomposition approach to examine the causal relationship between government expenditures and economic growth for Egypt, Israel, and Syria. In the bivariate framework, the authors observed a bi-directional (feedback) and long-run negative relationships between government spending and economic growth. Moreover, the causality test within the bivariate framework (that include a share of government civilian expenditures in GDP, military burden, and economic growth) illustrated that military burden has a negative impact on economic growth in all the countries. Furthermore, civilian government expenditures have a positive effect on economic growth for both Israel and Egypt.

In Nigeria, many authors have also attempted to examine government expenditure economic growth relationship. For example, Oyinlola (1993) examined the relationship between Nigeria’s defence sector and economic development and reported a positive impact of defence expenditure on economic

growth. Muritala and Taiwo (2011) in their study using Ordinary Least Square (OLS) technique, they tested for the presence of stationary between the variables using Durbin Watson unit root test. The result revealed the absence of serial correlation and that all variables incorporated in the model were non-stationary at their levels. In an attempt to establish a long-run relationship between public expenditure and economic growth, the result revealed that the variables were co-integrated at 5% and 10% critical level. The findings showed that there was is a positive relationship between real GDP as against the recurrent and capital expenditure.

Akpan (2005), used a disaggregated approach to determine the components (that include capital, recurrent, administrative, economic service, social and community service, and transfers) of government expenditure that enhances growth and those that do not. The author concluded that there was no significant association between most components of government expenditure and economic growth in Nigeria. Olorunfemi (2008) studied the direction and strength of the relationship between public investment and economic growth in Nigeria. He employed time series data for the period 1975 to 2004, and applied the appropriate econometric tools. He found that public expenditure impacted positively on economic growth and that there was no link between gross fixed capital formation and GDP. He posited that from disaggregated analysis, the result revealed that only 37.1% of government expenditure or spending is devoted to capital expenditure while 62.9% share was for recurrent expenditure.

In a study carried out by Abu, and Abdulahi, (2010) on Government Expenditure and Economic Growth in Nigeria, they employed time series data to analyze this relationship, using Ordinary Least Square (OLS) method of econometrics to estimate the parameters. They found out that there was a positive relationship between the government expenditure and economic growth in Nigeria. They argued that if government properly channelled her expenditure on infrastructure buildings, increased investment on her capital development that the economy will, in turn, grow significantly, although, they were unable to explain the pattern of the said growth.

Emori and Nneji (2015) investigated the impact of government expenditure on the Nigerian economy using ADF unitroot test and OLS regression test. They found that public expenditure had a significant effect on the Nigerian economy. Ebong, Ogwumike, Udongwo and Ayodele (2016) assessed the impact of government capital expenditures on economic growth in Nigeria. A multiple regression model based on a modified endogenous growth framework was utilized to capture the interrelationships. Drawing on error correction and cointegration specifications, an OLS technique was used to analyse the annual time series. They found that the disaggregated expenditures do not crowd-out private investment.

Udoffia and Godson (2016) investigated the impact of federal government expenditure on the Nigerian economy using the OLS estimation technique and found that federal government capital and recurrent expenditure have a positive effect on real GDP. In summary, the empirical studies reviewed on the actual relationship between government expenditure and economic growth is mixed and inconclusive. Their results and evidence differ by analytical method employed, and categorization of public expenditures. The sampled period for this study (1981-2015) differed significantly from all other studies. This was in order to provide a robust empirical explanation for the impact of government expenditure on economic growth in Nigeria. Therefore, this study is an improvement on the previous studies on economic growth and government expenditure relationship in Nigeria. It considers government spending only in two categories – capital and recurrent expenditure as important variables that affects economic growth. Secondly, it extends the study period to 2015 and finally employed the Error Correction Mechanism (ECM) in the study. Specifically, it is concerned with determining the relative contributions to economic growth in Nigeria of government capital and

recurrent expenditures on administration, social and community services and economic services. The importance of disaggregating government expenditure for proper appreciation of the role of the state in the Nigerian economy is being underscored in this study.

A careful examination of the studies reviewed showed that an overwhelming majority of studies on the impact of government expenditure on economic growth in Nigeria omits recurrent expenditure from the equation which is a key determinant of total productivity in the country. There is also the absence of consensus in the existing literature in Nigeria which could be attributed to the insufficient addition of some key control variables in the model such as government expenditure. Against this backdrop, this study is set to fill the gap.

3.0 Methodology

This paper adopted a quantitative method of analysis to assess the impact of government expenditure on economic growth in Nigeria. It employed a multiple regression model to assess the impact of component of government expenditure on economic growth in Nigeria. The method of regression used in this study is the Ordinary Least Square (OLS) applied within the context of multiple regression.

3.1 Model Specification

The Ordinary Least Square (OLS) method of analysis was used in estimating relationships that exist between the variables considered in the model of economic growth. Gross Domestic Product (GDP) was used as proxy representing the dependent variable (which is economic growth) while government expenditure in the form recurrent and capital expenditure represents the independent variables. The relationship here was to see the effect of the government expenditure on economic growth of Nigeria. The aim of this was to see how much these forms of expenditures affect the economic growth rate of Nigeria, to this effect, multiple regression model was used in analysing the relationship.

In the attempt to capture the aim of this study, the Real Gross Domestic Product (RGDP), Capital Expenditure (CEXP) and Recurrent Expenditure (REXP) were used. Economic Growth was used as a proxy for Gross Domestic Product (GDP) and both Capital and Recurrent Expenditure were used as a proxy for Government expenditure. To this effect, multiple regression model was used in analysing these relationships:

$$RGDP = F\,(CEXP \text{ and } REXP) \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \; (1)$$

Equation (1) above was transformed into an econometric model as follows:

$$RGDP = \beta_0 + \beta_1\, CEXP + \beta_2\, REXP + U \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \; (2)$$

Where;

RGDP = Real Gross Domestic Product,
CEXP = Capital Expenditure,
REXP = Recurrent Expenditure,
β_0= Constant parameter
$\beta_{1 \text{ and } 2}$ = Coefficient of the variables
μ = error term.

Apriori Expectation

Based on the *apriori* expectation as regards the signs of variables, both variables on the right-hand side of the equation are expected to be positively related to the depended variable on the left side. This is because meaningful and effective government expenditure (both Capital and Recurrent Expenditure) should be able to contribute to human development through increase in the economic growth and per capita income.

There is a sound theoretical reason for believing that there is a positive link that exists between government expenditure and economic growth.

From equation (2) above, $\beta_1, \beta_2 > 0$

1. The coefficient of CEXP is expected to be positive, that is, the slope of the coefficient $\beta_1 > 0$ which means the higher the level of capital expenditure in the economy, the higher the level of GDP will be.

2. The coefficient of REXP is expected to be positive, that is, the slope of the coefficient $\beta_2 > 0$ which shows that GDP of Nigeria depends on REXP.

4.0 Results and Discussion

The study employed econometric techniques. The data were collected from the Central Bank of Nigeria (CBN) from 1996 to 2016. The unit root and the cointegration test were conducted to ensure validity and reliability of the model and data for this study. Thereafter the multiple regression was done.

Table 4.1: Unit Root Test Result

VARIABLE	ADF test statistics	Test critical values (5%)	Probability	Remark	Order of integration
GDP	-3.330852	-3.029970	0.0278	stationary	1(0)
CEXP	-5.027574	-3.020686	0.0007	stationary	1(1)
REXP	-4.596158	-3.658446	0.0082	stationary	1(0)

Source: Author's computation using E-views 9

The results of the Unit Root Test using Augmented Dickey-Fuller (ADF) are presented in Table 4.1. The ADF rule states that ADF value must be higher than the 5% critical values for it to be stationary (Gujurati and Porter 2009). From the result of the test, of all the variables, GDP and REXP were stationary at a level, while CEXP attained stationarity at first difference. That is, GDP -3.3309 > -3.0210 critical value, REXP -4.5962 > -3.6584 critical value and CEXP -5.0276 > -3.0207 critical value, this implies that they are stationary (that is, they do not change over a period of time and therefore they are reliable for forecasting).

Table 4.2: Co-integration Test Results Using Johansen Co-integration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.987854	92.13497	29.79707	0.0000
At most 1 *	0.634543	17.15241	15.49471	0.0279
At most 2	0.002356	0.040092	3.841466	0.8413

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.987854	74.98256	21.13162	0.0000
At most 1 *	0.634543	17.11232	14.26460	0.0173
At most 2	0.002356	0.040092	3.841466	0.8413

Source: *Author's Computation using E-Views 9*
Max-eigenvalue test indicates 2 cointegratingeqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

The result in Table 4.2 indicates that two co-integrating equations exist in the model at 5% critical value. This is explained by the value of the co-integrating likelihood ratio compared with 5% critical values. In this case, the variables are co-integrated and there is a long run relationship among the variables in the model. Two or more variables are co-integrated if they have long run relationship (Gujurati & Porter, 2009). The trace statistic is used as a yardstick to test if there is a co-integrating equation in a model when compared with the value of the critical value at 5% significant level. Hence, there is a presence of two co-integrating equation in this model since, trace statistic value of 92.1349 > 29.7971 critical value, and trace statistic value of 74.9826 > 21.1316 critical value respectively. Therefore, the alternative hypothesis (H_1) was accepted and concluded that there exists a long relationship between federal government public expenditure and economic growth in Nigeria.

Table 4.3: Ordinary Least Square Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.804657	7.540620	-0.769785	0.4514
LOGCEXP	-0.016667	0.013029	-1.279169	0.2171
LOGREXP	0.024886	0.002315	10.75097	0.0000
R-squared	0.866947	Mean dependent var		34.38426
Adjusted R-squared	0.852164	S.D. dependent var		34.90990
S.E. of regression	13.42268	Akaike info criterion		8.163333
Sum squared resid	3243.031	Schwarz criterion		8.312550
Log likelihood	-82.71499	Hannan-Quinn criter.		8.195717
F-statistic	58.64232	Durbin-Watson stat		1.580872
Prob(F-statistic)	0.000000			

Source**:** Author's Computation using *E-views 9*

The test criterion is that, if the probability value is less or equal to 0.05 ($P \leq 0.05$), the variable is statistically significant, if the probability $P > 0.05$, the variable is statistically insignificant. The above result in terms of coefficients and probabilities of the regression were interpreted as follows;

GDP is the dependent variable variously called the regressand or the explained variable, while REXP and CEXP are the independent variables variously called the regressors or the explanatory variables.

The value of the intercept of the model at its mathematical origin is -5.8046 implying that, if REXP and CEXP are zero, GDP has this value. This can result from other variables not specified in the model. 0.0249 and -0.0167 are the coefficients of the explanatory variables REXP and CEXP respectively. The implication is that a 100% change in the explanatory variables will bring about a 2.48% and 1.67% change in the dependent variable. This also explains the strength or magnitude of change in the dependent variable as a result of a change in each explanatory variable respectively.

Based on the OLS result obtained, recurrent expenditure has a positive relationship of 0.0249 from the model and it was significant with 0.0000 less than 0.05. That is, a unit increase in REXP will increase GDP by 0.0249, and its impact on economic growth is statistically significant. This conforms to our apriori expectation that REXP should have a positive and significant relationship with GDP.

It was also expected that there should be a positive relationship between capital expenditure and economic growth in Nigeria, but in the analysis, there exists a negative relationship of -0.0167 and the insignificant relationship because 0.2171 is greater than 0.05. This could be due to inadequate capital allocation and mismanagement of fund that ought to be channelled to capital projects in the country.

The OLS result showed that at 5% level of significance, only one variable was significant that is recurrent expenditure at 0.0000. The results showed that recurrent expenditure had a positive relationship with economic growth and it is statistically significant. The remaining which is capital expenditure was insignificant at 0.2171 with a negative relationship. As stated earlier, this could be due to inadequate monitoring of capital projects and corruption of top government officials. This is a sign of weakness of the policy variable implemented to boost the economic system, especially when the federal government focuses on commitment to increasing expenditure on capital projects in her nation budgets. In situations where funds were allocated for capital projects but not being judiciously utilised by corrupt officials, the federal government can set up a forensic audit committee to audit the system and sanction the culprit accordingly.

The coefficient of multiple determination (R2) of the model was 0.8669. This indicate that there is a positive linear relationship between the dependent variable and the independent variables. This means that the independent variables account for approximately 87% variation of the dependent variable between 1996 – 2016, while the remaining 13% is explained by other variables that are not included in the model but taken care of by the error term. Thus, the model is a good fit, implying that it is correctly specified and reliable for forecasting and theorizing.

Similarly, the adjusted R2 is 0.8522s. It has been adjusted for loss of a degree of freedom as more explanatory variables were added, thus it gives a better measure of the goodness of fit. The value is close to one (1) implying that the model is a good fit (Koutsoyiannis, 2003). Hence, the model could be said to be correctly specified.

F-statistics: The F-value calculated 58.6423 with a probability of 0.0000. This shows that the model is statistically significant at 5% level. This means the explanatory variables simultaneously explained the variation in the dependent variable and the model has a good fit. This implies that recurrent and capital expenditure are the major determinant of economic growth in Nigeria.

The t-value of 10.7501 and the probability value of 0.0000 is less than 0.05, this indicates that the variable used in respect of the REXP have a statistically significant relationship with the GDP. That is

GDP will increase by 10.75% when there is a unit increase in recurrent expenditure, however, the t-value of -1.2792 and the probability value of 0.2171 is greater than 0.05, this indicates that the variable used in respect of CEXP have an insignificant relationship with the GDP. That is GDP will reduce by only 1.28% where there is a unit increase in capital expenditure. This is insignificant to the economy. The value of F statistic 0.0000 implies that the model is highly significant. From the OLS result, the coefficient of REXP is approximately 0.0245 and the probability value is 0.0000, this indicates that the recurrent expenditure is positively related to economic growth and its impact on the economic growth is significant. Therefore, the alternative hypothesis (H1) was accepted and concluded that federal government recurrent expenditure has a significant impact on economic growth in Nigeria.

The coefficient of CEXP, on the other hand, is approximately -0.0167 and the probability value is 0.2171, this indicates that capital public expenditure is negatively related to GDP and its impact on the economic growth is insignificant. Therefore, (H0) was accepted and concluded that federal government capital expenditure has no significant impact on the economic growth in Nigeria.

The federal government public expenditure was broken down into recurrent and capital expenditure in order for the study to know whether they have a significant impact on economic growth in Nigeria or not. This justifies the main and primary objective of the study.

Therefore, using the following regression equation earlier stated in equation 2, the multiple regression equations becomes:

GDP = -5.8047 -0.0167CEXP + 0.0249REXP

Discussion of Findings

The result of the analysis has shown that Federal Government Public Expenditure impacts positively on the Nigerian economic growth. However, the capital expenditure (CEXP) impacts insignificantly while recurrent expenditure (REXP) impacts significantly on economic growth in Nigeria within the period of study (1996-2016). REXP with coefficient β2 did not fulfill the apriori expectation of positive relationship that, when recurrent expenditure is increased there will be an increase in GDP. This is in line with the findings of Olorunfemi, (2008) that public expenditure impacted positively on economic growth. This may attest to the commitment of the federal government inconstantly reviewing the remuneration and allowances of the government workers in the country. The test of hypothesis showed that this increase was significant at 5% level of significance and it serves as a good determinant of this model. However, most government workers in Nigeria are not too comfortable with the condition of service and their welfare. In fact, there were series of strike actions that were embarked upon recently due to poor welfare packages. The significant impact of REXP on economic growth in Nigeria holds that it is statistically significant as far as this regression, holds.

On the contrary, the CEXP with coefficient β1 had a negative relationship which also negates the apriori expectation, that when capital expenditure is increased there will be an increase in GDP. However, the test of hypothesis showed that this increase was insignificant at a 5% level of significance.

5.0 Conclusion and Policy Recommendations

The study concludes that the public sector occupies a priority status in Nigeria as the sector serves as the key driver of economic growth, wealth creation and poverty reduction for a large portion of the population. Adequate Federal government expenditure with adequate monitoring and evaluation in the

Nigerian economy should be encouraged. Hence, Capital Expenditure should be greater than Recurrent Expenditure in other to lay the foundation for sustainable development and growth. An effective and efficient mechanism should be put in place to ensure that the welfare of the masses is met from the expenditure of the Federal government to encourage productivity. There is also the need for adequate and judicious use of public funds to finance capital projects and this must be adequately monitored by the federal government by setting up a committee that will act as a watchdog in evaluating capital project in the country.

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APPENDIX I

Federal Government Expenditure (Capital and Recurrent) and Gross Domestic Product (GDP) Data in Nigeria (1996-2016).

YEAR	GDP	CEXP	REXP
1996	4032.3	212.93	124.29
1997	4189.25	269.66	158.5635
1998	3989.45	309.02	178.09
1999	4679.21	498.03	449.66
2000	6713.57	239.45	461.6
2001	6895.2	438.7	579.3
2002	7795.76	321.38	696.8
2003	9913.52	241.69	984.3
2004	11411.07	351.3	1032.7
2005	14610.88	519.5	1223.7
2006	18564.59	552.39	1290.2
2007	20657.32	759.32	1589.27
2008	24296.33	960.9	2117.36
2009	24794.24	1152.8	2127.97
2010	54204.8	883.87	3109.38
2011	63713.36	918.55	3314.51
2012	72599.63	874.83	3325.17
2013	81009.96	1108.39	3689.06
2014	90136.98	783.12	3426.9
2015	95177.74	818.37	3831.95
2016	102684.41	634.8	4178.6

Sources**:** CBN 2016 Annual Report/Statement of Accounts and CBN 2016 Statistical Bulletin.

APPENDIX II

GDP UNIT ROOT TEST

Null Hypothesis: D(GDP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.330852	0.0278
Test critical values:	1% level	-3.831511	
	5% level	-3.029970	
	10% level	-2.655194	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 19

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP,2)
Method: Least Squares
Date: 05/16/18 Time: 07:30
Sample (adjusted): 1998 2016
Included observations: 19 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-1))	-0.779437	0.234005	-3.330852	0.0040
C	4125.886	1913.003	2.156759	0.0456

R-squared	0.394901	Mean dependent var	386.8274
Adjusted R-squared	0.359307	S.D. dependent var	8435.449
S.E. of regression	6752.012	Akaike info criterion	20.57237
Sum squared resid	7.75E+08	Schwarz criterion	20.67178
Log likelihood	-193.4375	Hannan-Quinn criter.	20.58919
F-statistic	11.09458	Durbin-Watson stat	2.122584
Prob(F-statistic)	0.003957		

CAPITAL EXPENDITURE UNIT ROOT TEST

Null Hypothesis: CEXP has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.027574	0.0007
Test critical values:	1% level	-3.808546	
	5% level	-3.020686	
	10% level	-2.650413	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(CEXP)
Method: Least Squares
Date: 05/16/18 Time: 07:26
Sample (adjusted): 1997 2016
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CEXP(-1)	-1.129697	0.224700	-5.027574	0.0001
C	574.3399	123.2885	4.658504	0.0002

R-squared	0.584070	Mean dependent var	15.32850
Adjusted R-squared	0.560963	S.D. dependent var	359.4981
S.E. of regression	238.2031	Akaike info criterion	13.87876
Sum squared resid	1021333.	Schwarz criterion	13.97834
Log likelihood	-136.7876	Hannan-Quinn criter.	13.89820
F-statistic	25.27650	Durbin-Watson stat	2.102137
Prob(F-statistic)	0.000087		

RECURRENT EXPENDITURE UNIT ROOT TEST

Null Hypothesis: REXP has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.596158	0.0082
Test critical values:	1% level	-4.498307	
	5% level	-3.658446	
	10% level	-3.268973	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(REXP)
Method: Least Squares
Date: 05/16/18 Time: 07:37
Sample (adjusted): 1997 2016
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
REXP(-1)	-1.106250	0.240690	-4.596158	0.0003
C	-170.0500	219.7143	-0.773959	0.4496
@TREND("1996")	228.8886	51.45772	4.448091	0.0004

R-squared	0.555682	Mean dependent var	202.7155
Adjusted R-squared	0.503409	S.D. dependent var	639.8396
S.E. of regression	450.8900	Akaike info criterion	15.19780
Sum squared resid	3456130.	Schwarz criterion	15.34716
Log likelihood	-148.9780	Hannan-Quinn criter.	15.22696
F-statistic	10.63043	Durbin-Watson stat	1.999683
Prob(F-statistic)	0.001013		

APPENDIX III

CO-INTEGRATION TEST RESULT

Date: 05/12/18 Time: 13:32
Sample (adjusted): 2000 2016
Included observations: 17 after adjustments
Trend assumption: Linear deterministic trend
Series: LOGGDP LOGCEXP LOGREXP
Lags interval (in first differences): 1 to 3

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.987854	92.13497	29.79707	0.0000
At most 1 *	0.634543	17.15241	15.49471	0.0279
At most 2	0.002356	0.040092	3.841466	0.8413

Trace test indicates 2 cointegratingeqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.987854	74.98256	21.13162	0.0000
At most 1 *	0.634543	17.11232	14.26460	0.0173
At most 2	0.002356	0.040092	3.841466	0.8413

Max-eigenvalue test indicates 2 cointegratingeqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

GDP	CEXP	REXP
0.173631	0.013071	-0.005614
-0.021839	0.004105	0.002170
0.103481	-0.003160	-0.001816

Unrestricted Adjustment Coefficients (alpha):

D(GDP)	-2.110929	2.863461	0.213905
D(CEXP)	-114.9796	-71.79555	1.462395
D(REXP)	35.02022	-116.9712	20.47846

1 Cointegrating Equation(s): Log likelihood -251.3742

Normalized cointegrating coefficients (standard error in parentheses)

GDP	CEXP	REXP
1.000000	0.075278	-0.032332
	(0.00279)	(0.00053)

Adjustment coefficients (standard error in parentheses)

D(GDP)	-0.366522
	(0.40349)

D(CEXP)	-19.96398	
	(6.79669)	
D(REXP)	6.080586	
	(31.6695)	

2 Cointegrating Equation(s): Log likelihood -242.8180

Normalized cointegrating coefficients (standard error in parentheses)

GDP	CEXP	REXP
1.000000	0.000000	-0.051502
		(0.00804)
0.000000	1.000000	0.254655
		(0.10674)

Adjustment coefficients (standard error in parentheses)

D(GDP)	-0.429058	-0.015837
	(0.35146)	(0.02751)
D(CEXP)	-18.39603	-1.797551
	(4.54051)	(0.35546)
D(REXP)	8.635140	-0.022404
	(30.8056)	(2.41165)

APPENDIX IV
REGESSION RESULT

Dependent Variable: GDP
Method: Least Squares
Date: 05/12/18 Time: 12:52
Sample: 1996 2016
Included observations: 21

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CEXP	-16.66664	13.02928	-1.279169	0.2171
REXP	24.88592	2.314760	10.75097	0.0000
C	-5804.657	7540.619	-0.769785	0.4514

R-squared	0.866947	Mean dependent var	34384.27
Adjusted R-squared	0.852164	S.D. dependent var	34909.90
S.E. of regression	13422.68	Akaike info criterion	21.97884
Sum squared resid	3.24E+09	Schwarz criterion	22.12806
Log likelihood	-227.7779	Hannan-Quinn criter.	22.01123
F-statistic	58.64234	Durbin-Watson stat	1.580873
Prob(F-statistic)	0.000000		