IMPACT OF GOVERNMENT EXPENDITURE ON ECONOMIC GROWTH IN NIGERIA

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Abstract

This study examined the relationship between government expenditure and economic growth in Nigeria using a co-integration and granger causality test for the period 1981-2014. A time-series data was obtained from the Central Bank of Nigeria for the analysis. The outcome of the ADF unit root test indicated that all variables included in the model were non-stationary at their levels but integrated of order one, I (1). From the long-run analysis, the results revealed a positive and significant linear relationship between the two categories of government expenditure and Economic growth (measured by real GDP), The result of the Pairwise Granger Causality test in a Vector Error Correction Model indicated a unidirectional (one-way) causality, running from economic growth to capital expenditure and recurrent expenditure to economic growth, while bi-directional causality runs from capital expenditure to recurrent expenditure and vice versa. Therefore, the study recommended the need to stimulate economic growth by allocating appropriate proportion to capital expenditure of government in the national budget.

Keywords*:* Government, Expenditure, Economic Growth, Nigeria

JEL Classifications:

Introduction

Economic growth refers to increase in a countries potential GDP, although this differs depending on how national product has been measured. Economic growth must be sustained for a developing economy to break the circle of poverty; countries usually pursue fiscal policy to achieve accelerated economic growth. Over the past decades, the public sector spending been increasing in geometric term through government various activities and interactions with its ministries, department and agencies (Niloyetal 2003). Although, the general view is that public expenditure either recurrent or capital expenditure, notably on social and economic infrastructure can be growth enhancing. Hence, financing expenditure provides essential infrastructural facilities. The size and structure of public expenditure will determine the pattern and form of growth in output of the economy.

The structure of Nigerian public expenditure can broadly be categorized into capital and recurrent expenditure. The recurrent expenditure are government expenses on administration such as wages, salaries, interest on loans maintenance etc, whereas expenses on capital projects like roads, airports, education, telecommunication, electricity generation etc., are referred to as capital expenditure. One of the main purposes of government spending is to provide infrastructural facilities (Taiwo, and Abayomi 2011).

Nurudeen and usman (2010) added that in Nigeria, government expenditure has continued to rise due to the huge receipts from production and sales of crude oil, and the increased demand for public (utilities) goods like roads, communication, power, education and health. Besides, there is increasing needs to provide both internal and external security for the people and the nation. Available statistics, according to show that total government expenditure (capital and recurrent) and its components have continued expenditure (capital and recurrent) and its components have continued to rise in the last three decades. For instance, government total recurrent expenditure increased from N3, 819.20 Million in 1977 to N4, 805.20 million in 1980 and further to N36, 219.60 million in 1990. Recurrent expenditure was N461, 600 million and N1, 589270.00 million in 2000 and 2007 respectively. In the same manner, composition of government recurrent expenditure shows that expenditure on defense, internal security, education, health, agriculture, construction and transport and communication increased during the period under review. Moreover, government capital expenditure rose from N5, 004.60 million in 1977 to N10, 163.40 million in 1980 and further to N24, 048.60 million in 1990. The value of capital expenditure stood at N239, 450.90 million and N759, 323.00 million in 2000 and 2007 respectively. Furthermore, the various component of capital expenditure (that is, defense, agriculture, transported and communication, education and health) also show a rising trend between 1980 and 2007).

The effect of government spending on economic growth is still an unresolved issue theoretically as well as empirically. Although the theoretical positions on the subject are quite diverse, the conventional wisdom is that a large government spending is a source of economic instability or stagnation Empirical research, however, does not conductively support the conventional wisdom. A few studies report positive and significant relation between government spending and economic growth while several others find significantly negative or no relation between an increase in government spending and growth in real output.

Many researchers have attempted to examine the effect of government expenditure on economic growth. Such as Ranjan and Sharma (2008), Ahsan et al. (1989), Ram (1986), Holmes and Hutton (1990), Singh and Sahni (1984) concluded that public expenditure expansion has a positive significant effect on national growth. On the contrary, Barth et al (1990) and Laudau (1983, 1986) found that public expenditure expansion has negative effect on national income growth for both developed and less developed countries. Fajingbesin and Odusola (1999) empirical investigated the relationship between government expenditure and economic growth in Nigeria. Their econometric results indicated that real government capital expenditure have significant positive influence on real output.

This section highlights some basic theories that have been used to support the effect of public expenditure on economic growth. Generally economic growth deals with long-run growth trend of the economy or potential growth path (Bronson 2002). The Keynesian sees demand as a pre-requisite for growth. Therefore, their analysis concludes that aggregate demand management policies can and should be used to improve economic performance. On the other hand, Harrod-dommar model points out some dynamics of growth. For instance, to determine equilibrium growth rate in the economy, the balance between supply and demand for a countries output should be maintained.

Whilst acknowledgement the fact that the study is not the first of its kind using Nigerian data, however, it shall go a little further than earlier works to correctly capture all known composition of public expenditure during the years under review to assess the impact of public expenditure on economic growth.

This paper is structured into four sections. Section one is the introduction, followed by Literature review and theoretical framework in section two; section three is the methodology of the paper; section four is the estimation techniques and result analysis while conclusion and recommendations forms the fifth section.

Literature Review

Government expenditures are the expenses which a government incurs for Its own maintenance

Society and the economy helping other countries (Bhatia 2002). Public expenditure represents the total government spending to attain the macroeconomic objectives. Governments have recorded a continuous increase over time in almost every country. Despite the fact the fact that there is continuous increase in government expenditure and in spite of its growing role and importance in national economies the area of public expenditure remains relatively unexplored unlike the attention on the theory of taxation. However, the classical have unfavorable thinking towards increasing public expenditure, positing that government lack capacity to decide and judge economic interests on behalf of others; hence it should limit its spending. The following are the kind of public expenditure:

Productive and unproductive expenditures: productive expenditures are in the nature of investment which helps the economy in improving its productive capacity while the unproductive versions are expenditures in form of consumption. The productive once are those that are committed to incur and maintain social overheads. The expenditures on administration, defense, justice, law and order and maintain ace of state are unproductive (Bhatia, 2002).

Government expenditure is usually classified into two ***capital and recurrent expenditure:*** Recurrent expenditure is the expenditure that is incurred yearly for the implementation of the various functions of government. It includes general administrative expenses on defense, social and economic services. A capital expense refers to the expenses earmarked for specific projects that can last for many years. It includes investment in buildings, roads, airport, petrochemical project etc.

Transfer and non-transfer expenditures: pigou champions this classification, A transfer expenditure is a payment without corresponding receipt of goods and services by the state e.g. interest payment on the acquired debt, old-age pensions, unemployment benefit and benefit/allowance paid to the disaster displace people etc. the non-transfer expenditure is that by which the state pays for its purchase or use of goods and services. Expenditure on **defense**, **agriculture**, **transportation and communication** and such like are all of non-transfer expenditure.

Theoretical Framework

Generally, economic growth theory deals with long-run growth trend of the economy, or potential growth path (Branson, 2002). The focus is on factors that lead to economic growth over time and analysis of the forces that allow some economies to grow rapidly, some slowly and others not at all. Early growth theories emphasized on different aspects of the economy. For instance, Mercantilists emphasized surplus balance of trade, Physiocrats emphasized agriculture as the source of all wealth while the Cameralists favoured taxation and state regulation for strong economy (Lombardini, 1996).

Within the framework of the classical models of Smith and Malthus, economic growth is described in terms of fixed land and growing population. But without technological change, increasing population eventually exhausts the supply of free land and triggers law of diminishing returns which results to declining real wage down to subsistence level at which point Malthusian equilibrium obtains. The Keynesians see demand as a prerequisite for growth. Therefore, their analysis concludes that aggregate demand management policies can and should be used to improve economic performance. In the Keynesian model, increase in government expenditure (on infrastructures) leads to higher economic growth. Contrary to this view, the neo-classical growth models argue that government fiscal policy does not have any effect on the growth of national output. However, it has been argued that government fiscal policy (intervention) helps to improve failure that might arise from the inefficiencies of the market.

Exploring the Keynesian framework, Harrod-Dommar model points out some dynamics of growth. For instance, to determine equilibrium growth rate in the economy, the balance between supply and demand for a country's output should be maintained. On supply side, saving is a function of the level of GDP. Investment is an important component of the demand for the output of an economy as well as the increase in capital stock. Therefore, the equilibrium rate of growth is given by matching proportionate change in output with the ratio of savings-output to that of capital-output. This sustains the economy along some warranted steady growth path.

Methodology

Data and Sources this study employed annual time series data that covers the period from (1981-2014) for Nigeria. To investigate how government spending could affect economic growth in Nigeria, a number of variable have been taken into consideration in this study. These variables consist of Real Gross Domestic Product (RGDP), Total Recurrent Expenditure (TRE), Total Capital Expenditure (TCE), and are defined in our model specification. All the variables are secondary data sourced from central bank of Nigeria (CBN), Statistical Bulletin, World Bank Development Indicators.

Model Specification

This study aim at establishing the dynamics property of the relationship between government spending and Real Gross Domestic Product (RGDP) in Nigeria over the years (1981-2014). The functional form on which our model was based employed a multiple regression equation in the analysis of the work. In an attempt to capture our essence of this study, and has on previous studies. The Real Gross Domestic Product (RGDP), Total Recurrent Expenditure (TRE), Total Capital Expenditure (TCE), was used to formulate our model. Thus, the model is represented in a functional form shown below:

$$RGDP=F(TRE, TCE,) \quad - \quad - \quad - \quad - \quad (1)$$

Where;

RGDP= Real Gross Domestic Product (Dependent Variable)

TRE= Total Recurrent Expenditure (Independent Variable)

TCE= Total Capital Expenditure (Independent Variable)

In the mathematical model;

$$RGDP=\beta_0+\beta_1 TRE+\beta_2 TCE \quad - \quad - \quad - \quad - \quad - \quad - \quad - \quad (2)$$

Where;

β_0= the intercept

β_1= Regression co-efficient of TRE

β_2= Regression co-efficient of TCE

Equation (1) and (2) above can be transformed into an econometric model as follows;

$$RGDP=\beta_0+\beta_1 TRE+\beta_2 TCE+\mu_t \quad - \quad - \quad - \quad - \quad - \quad - \quad (3)$$

Where;

μ_t= Error Term

The error term examines the interpretation of equation errors in time series econometrics. We contrast the view of errors as what is omitted from the statistical model with the view that the errors represent the shocks that are the important driving forces of model dynamics and it is said to be independently and identically distributed(N,I,I,D) around zero mean (0,1).

From equation (3) above;

$\beta_1 + \beta_2 > 0$.

Therefore, β_1 is expected to be positive implying that TRE impact positively on RGDP ($\beta_1>0$), β_2 will also indicate a positive relationship between TCE and RGDP ($\beta_2>$.

Estimation Technique

Unit Root Test

A unit root test is a feature of process that evolves through time that can cause problems in statistical inference involving time series models. A unit root test, test whether a time series variable is non stationary using an autoregressive model. David dickey and Wayne fuller (1979, 1981) said and dickey (1984) have developed a method to determine whether a variable contain a unit root. For empirical process, a test for unit root is required because all other models can apply only to variables that are non-stationary in levels that is they contain a unit root. The tests are conducted including a drift term and both with and without a trend. The addition of a trend allows testing that whether the series is trend or different stationary.

The Cointegration Test

Co-integration implies identifying the co-integrating or long run equilibrium relationship. The methodology developed by Johnson (1991, 1995) is used in explaining the co-integration test. The central concept of integration is the specific of models that include the long run movements of one variable relative to others. Co-integration implies the idea that linear combination of non-stationary series can be stationary, implying a long run relationship that is it shows that the relationship between the stationary linear combination of non-stationary variable exist.

Granger Causality Test

Granger causality is a statistical concept of causality that is based on prediction. Its mathematical formulation is based on linear regression modeling of stochastic processes (Granger 1969). It determines the direction of causality between variables. This test would be carried out to show the causal relationship between exchange rate volatility and international trade.

Results and Discussion

Unit Root Test Results

This involves testing for stationary of the individual variables using both the Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) tests to find the existence of unit root in each of the time series. The result of both the ADF and PP tests are reported in table 4.1 (levels) and 4.2 (first difference) respectively.

Table 1: ADF Unit Root Test Results

Variables	ADF Level		ADF First Difference		Order of integration
	Intercept	C & T	Intercept	C & T	
InRGDP	0.924412	-2.632456	-3.292395**	-3.867236**	I (1)
InTCE	-1.027230	-1.003523	-5.746844*	-5.794098*	I (1)
InTRE	-1.217602	-1.861722	-7.827426*	-7.932025*	I(1)

Source: Computation from E-views 8.0

Note: * denotes 1% level of significant, ** 5% level of significant. I (1) mean that the series is integrated at first difference.

From the ADF test which is presented in table 4.1 above, it is clear that all the variables (RGDP, TCE, and TRE) are non-stationary at levels but were found to be stationary at first difference. This is because, at levels, the observed values of ADF statistics are less than their critical values in both intercept and linear trend. While at the first difference, the null hypotheses of all the variables are rejected, since the observed values of ADF statistics are greater than their critical values all at 1%, except for RGDP which is 5% significance level.

Table 2: PP Unit Root Test Results

Variables	ADF Level		ADF First Difference		Order of integration
	Intercept	C & T	Intercept	C & T	
InRGDP	1.724733	-2.567341	-3.254843**	-3.838714**	I (1)
InTCE	-1.025999	-1.196613	-5.766144*	-5.795754*	I (1)

InTRE	-1.151439	-1.737461	-7.827426*	-8.091917*	I (1)

Source: Computation from E-views 8.0

Note: * denotes 1% level of significant, ** 5% level of significant. I (1) mean that the series is integrated at first difference.

The PP test presented in table 4.2, further confirmed the non-stationary of the series at both levels and their stationary after differencing them once at first difference. At the level, the null hypothesis for unit root was failed to be rejected for all the series because the observed PP values are less than the critical value. However, at first difference, none of the null hypotheses is failed to be rejected, because the observed values of PP statistics are greater than their critical values at 1% level of significant for TCE and TRE, which RGDP is rejected at 5% level of significance.

Evidently, both the two tests reveal that all the variables are characterized by the presence of unit root at levels but found to be stationary at first difference. Since all the series are integrated of order one i.e.

1. After differencing the variables once, then a combination of these variables may reveal the long run relationship. Therefore, the next step is to test if a long run relationship (co integration) exists among the variables.

Cointegration Test Results

After identifying the order of integration at levels and first difference using both ADF and PP test, the results from the two unit root tests suggested that the long run relationship among the variables may exist. Therefore, it is necessary to investigate if the individual variables of interest can actually converge in the long run. To investigate this, the study employed Johasen Multivariate Conintegration technique. The result of the cointegration test is presented in table 4.3 and table 4.4 for the Trace criterion and the Maximum Eigenvalue criterion, respectively:

Table 3: Johansen Cointegration Rank Test (Trace)

Hypothesized			Trace	0.05	
Ho	Hi	Eigenvalue	Statistic	Critical Value	Prob.**

r=0	r>0	0.426134	30.26717*	29.79707	0.0441
r≤1	r>1	0.234352	12.49568	15.49471	0.1347
r≤2	r>2	0.116141	3.950644	3.841466	0.0468

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table 4: Johansen Cointegration Rank Test (Maximum Eigenvalue)

Hypothesis			Max-Eigen	0.05	
Ho	Hi	Eigenvalue	Statistic	Critical Value	Prob.**
r≤1	r>1	0.426134	17.77150*	21.13162	0.1386
r≤2	r>2	0.234352	8.545033	14.26460	0.3260
r=0	r>0	0.116141	3.950644	3.841466	0.0468

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

From the two tables above, it can be observed that both Trace test and Maximum Eigenvalue test reject the null hypothesis (H0) of conintegration at 5% level of significance, implying presence of one cointegrating equation among the variables. Specifically, the trace test statistics indicates the existence of one co integrating equation, and equally the maximum Eigenvalue statistics reveals the same at 5% level of significance in both cases. Therefore, we can conclude that there is long run relationship among Real Gross Domestic Product, Total Capital Expenditure and Total Recurrent Expenditure variables.

The Long run Relationship

Base on the Johansson multivariate cointegration technique, the normalized co integration equation is obtained which shows the long run relationship among real gross domestic product, total capital expenditure and total recurrent expenditure. These can be presented on the normalized co integration coefficient table below:

Table 5: Normalized Co-integrating coefficients

InRGDP	**InTCE**	**InTRE**
1	0.313675	-0.574804
Standard Errors	(0.10304)	(0.09303)
Test Statistics	[3.04408]	[-6.17863]

Source: Computation from E-views 8.0

From the above table, the coefficients of the normalized co integration equation and the standard error in bracket alongside with the test statistics in parenthesis. The test statistics are computed by dividing the coefficient of each variable by its respective standard error. Using the normalized co integration coefficients and their test statistics, we can observe that all the variables are highly statistically significant using the normalized co integration. The long run equation can now be constructed below:

$$InRGDP = -8.404790 + 0.313675InTCE - 0.574804InTRE$$

$$(0.10304) \qquad (0.09303)$$

The above shows the estimated long run relationship that exists among the two variables. As expected, there is a high statistical significant positive relationship between total capital expenditure (TCE) and economic growth (InRGDP). This implies that the total capital expenditure plays a vital role in the growth process of the Nigerian economy. However, total recurrent expenditure turn out with an unexpected negative sign which is contrary to the apiriori expectation, but however the variable is also highly statistically significant.

Given the fact that our model is log-linear model, we can interpret the coefficients of the long run equation as long run elasticity. Meaning each coefficient of the variables measures the contribution of variable to real GDP. For instance, a 1% increase in total capital expenditure will

result in almost 4% increase in real GDP all things being equal. By this model, we can regard capital expenditure contribution as the most significant in the impact public expenditure and economic growth.

Granger Causality Results

The dynamic natures of the causal relationship between variables were analyzed through the use of Granger causality approach. Granger causality allows for several causal relationships to be identified in different alternative models. Table 4.4 shows the summary results of the Granger causality test.

Table 6: Pairwise Granger Causality Test

Null Hypothesis	F-Statistic	Prob.	Decision Rule	Remark
INTCE does not Granger Cause INRGDP	2.66800	0.0876	Reject H0	Unidirectional Causality
INRGDP does not Granger Cause INTCE	1.05238	0.3630	Do not reject H0	

INTRE does not Granger Cause INRGDP INRGDP does not Granger Cause INTRE	5.94245 1.38136	0.0073 0.2684	Reject Ho Do not reject Ho	Unidirectional Causality
INTRE does not Granger Cause INTCE INTCE does not Granger Cause INTRE	0.97328 1.09588	0.3907 0.3487	Do not Reject H0 Do not reject H0	No Causality

Source: Computation from E-views 8.0

Table 6 above presents the results of pairwise granger causality among real GDP, Total capital expenditure, Total recurrent expenditure. The results shows that the null hypothesis that the capital expenditure does granger cause real GDP and could be safely accepted. This implies that unidirectional granger causality does not emanate from real GDP to capital expenditure. The result of the null hypothesis shows that, the recurrent expenditure does not granger cause real GDP is rejected. This means that a unidirectional causality runs from recurrent expenditure to economic growth, similarly, the null hypothesis TRE does not granger cause TCE and TCE does not granger cause TRE was also failed to be rejected indicating absence of causality among the variables. This is consistent with the expectation and with the realities in the Nigerian economy since the amount of recurrent expenditure is higher in the national budget.

The empirical findings of this study is similar to some of the previous empirical studies conducted in Nigeria for instance, fajingbesin and odusola (1999) empirical investigated the relationship between government expenditure and economic growth in Nigeria, their econometric result indicated that real government capital expenditure have significant positive influence on real output. Odedokun (1997) and shioji (2001) obtain a similar result as they find that public investment promotes economic growth.

Olugbenga and Owoye (2007) investigated the relationship between government expenditure and economic growth. The regression result showed the existence of a longrun relationship between government expenditure and economic growth. In addition, the authors observed a unidirectional causality from government expenditure to growth.

In contrast, Abu and Abdullahi (2010) revealed that, total capital expenditure; total recurrent expenditure has negative effect on economic growth. Ram (1986) model and regression on real GDP tested for the presence of stationarity in the variables using the Augmented Dickey-fuller, unit root test, and used the co-integration test to establish the long-run relationship among variables. These made it unique and different from other researches that mostly used the ordinary least square in conducting their research.

Conclusion and Recommendations

From the findings of this work, we could conclude that Nigerian huge public spending has little or no effect on the economic growth or on the people as a whole. It is pertinent to mention that the government while managing or relocating resources to various sectors has as a responsibility, the duty of maintaining law and order, protection of lives and properties, and also the provision of amenities to improve the living standard of the people. It is noticeable that Nigerian economic growth changes in response to the ever changing economic, social, and political environment. This calls for the need to device measures that will ensure the efficient monitoring of the economic activities and the supervisory authorities of all the sectors created with the aim of increasing economic growth.

Base on the findings, the study recommends the followings:

Effort should be made by the government to stimulate economic growth. This will have impact on the government goal of economic development through increased in public expenditure especially capital expenditure.

Government and its managers should ensure that a reasonable proportion should be allocated for capital expenditure in the budget. This will increase the volume of economic activities through multiplier effects.

Government should ensure that capital expenditure and recurrent expenditure are properly managed and administered in a manner that will raise the nation's production capacity and accelerate economic growth.

Transparency and accountability must be thoroughly pursued by the government to eliminate or minimize huge public expenditure in Nigeria.

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