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RESEARCH ARTICLE

Empirical Investigation of the Effect of Government Expenditures on Gross Domestic Product in Nigeria

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Abstract

This study is an empirical investigation of the effect of government expenditure on gross domestic product in Nigeria. The specific objectives of the study are to ascertain the effect of government real total capital expenditure on gross domestic product of Nigeria and to examine the effect of government recurrent expenditure on gross domestic product of Nigeria. This study which covered 11 years time scope spans from 2012 to 2022. It adopted *ex-post facto* research design and used secondary data of annual time series. The materials and information were obtained from the CBN Annual Report and Statistical Bulletin for various years. The study was theoretically underpinned on Keynesian Theory. The method used in analyzing the data was the ordinary least square regression model. The study found that real total capital expenditure (RTCAP) had positive and significant effect on gross domestic product. Only real total recurrent expenditure (RTRE) had negative effects on gross domestic product in the period under consideration. The study among others recommends that the government should ensure that both capital and recurrent expenditures are properly managed in a manner that it will raise the nation's production capacity and accelerate gross domestic product (GDP).

Keywords	*Government Expenditure; Gross Domestic Product; Revenue; Nigeria*
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Introduction

Government spending is a key tool used to enhance the growth process of the economies of both emerging and advanced world nations. Vtyurina (2020) posited that a good number of countries in the contemporary world use public expenditure to improve income distribution, direct the allocation of resources in desired areas, and influence the composition of national income. Assi, Dimson, Goodman & Andersen (2019) defined government expenditure as the total in cash terms of the Federal, State and the Local government spending including transfers to the parastatals and the three levels of the government. In as much as public expenditure is highly desirable, it however takes a form of allocation stabilization of resources. In developing countries for instance, the variation in government spending pattern is not only projected to guarantee stabilization but also to spur economic growth and expand employment opportunities (Abu & Abdullah, 2010).

There are three main classifications of government spending according to Economist, they include government consumption, government investment and transfer payments.

Government consumption refers to government purchases of goods and services for current use. The government investments are the goods and services purchased by government in order to create future benefits such as infrastructure investment or research spending. Government expenditures that are not directly purchases of goods and services, they are also referred to as transfer payments.

There are variety of methods through which government expenditures are financed in Nigeria. In most cases, government uses taxes to fund programs and expenditure, but this is far from the only means of creating assets for spending, where government may borrow based on future projected budgets in order to fund programs.

There may be need for government to also take loans from foreign countries to finance expenditures. The two main components in a government's fiscal policy are; how money is spent and from what source. The pattern and structure of Nigeria government 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 capital expenditure are expenses on capital projects like roads, airports, education, telecommunication, electricity generation. One of the main purposes of government spending is to provide infrastructural facilities. The general expression is that public expenditure either recurrent or capital expenditure, notably on social and economic infrastructure can be growth-enhancing although the financing of such expenditure to provide essential infrastructural facilities including transport, electricity, telecommunications, water and sanitation, waste disposal, education and health can be growth retarding.

On the other hand, Gross domestic product (GDP) is the standard measure of the value added created through the production of goods and services in a country during a certain period. As such, it also measures the income earned from that production, or the total amount spent on final goods and services (less imports). Economic growth refers to the increase in a country's GDP, although this differs depending on how national income has been measured. In a developing economy, in other to break the vicious circle of poverty, economic growth must be sustained. Developing economy usually make use of fiscal policy to achieve accelerated growth. Tanzi (1994) observes that fiscal policy applies to the use of fiscal instruments (taxation and spending) to influence the working of the economic system in order to maximize economic welfare with the overriding objective of promoting long-term growth of the economy. In Nigeria, Government expenditure is high compared to the revenue of the country which has led to a budget deficit over the years. The recent revival of interest in growth theory has also revived interest among researchers in verifying the linkages between the government expenditure and economic growth in developing countries like Nigeria (Danladi, Akomolafe, Olarinde & Anyadiegwu, 2015).

The growth in government expenditure in Nigeria, according to Buhari (1993) as citied by Ogwuru (2009), is due to, among other factors, rising income level, urbanization of the population, technological and innovative change in political and bureaucratic structures, and the productivity lag. Nigeria public expenditure accounts for over 20 per cent of the Gross Domestic Product (GDP).

Aluyor and Shuaib (2012) opined that Nigeria government was able to maintain high levels of government expenditure in the late 1970s and late 1980s because of the gains gotten from petroleum sector which was enjoyed during that period. The interest which encouraged the massive intervention of the federal government in the 1970s began to lighten up in the 1980s when the fall in the prices of commodities in the world market resulted to an extreme reduction in government earnings.

Furthermore, the importance of agriculture to the Nigerian economy is evident in the nation's natural endowments in production sectors extensively land, water, human resources, and capital. Exploring the nation's productive advantage in this sector is the fastest way to stimulate growth in the economy. It is against this backdrop, the study is undertaken to evaluate the effect of government expenditures on gross domestic product in Nigeria.

Statement of the Problem

In modern times, the size of government expenditure and its effects on long-run economic growth and vice versa has been an issue of sustained interest for decades in both emerging and advanced nations of the world. In Nigeria, government activities sometimes produce misallocation of resources and hinder the growth of national output. Increasing the government expenditure may result to reduction in the performance of the economy due to the fact that the government increases tax of individuals which leads to reduction in productivity. Government in power siphoned public fund and divert to unproductive projects. That is another way in which corruption can be viewed in Nigeria, and due to the fact that they invest in unproductive projects, it involves little part of the government revenue generated from the general public, and there will be nothing to show for it. This incited this study which was carried out to investigate the effect of government expenditures on gross domestic product in Nigeria.

Objectives of the Study

The main objective of the study is to investigate the effect of government expenditures on gross domestic product in Nigeria. The specific objectives are to:

i. To ascertain the effect of government real total capital expenditure on gross domestic product in Nigeria
ii. To examine the effect of government recurrent expenditure on gross domestic product in Nigeria

Research Questions

The study adopted the following research questions for the purpose of the study.

i. What is the extent of effect of government real total capital expenditure on gross domestic product in Nigeria?
ii. What is the extent of effect of recurrent expenditure on gross domestic product in Nigeria

Hypotheses

The following null hypotheses were formulated to address the research questions:

i. H_{01}: Government real total capital expenditure has no positive and significant effect on gross domestic product in Nigeria.
ii. H_{02}: Recurrent expenditure has no significant and positive effect on gross domestic product in Nigeria.

Review of Related Literature

Conceptual Review

Government Expenditures

Government expenditure is a term used to describe money that government spends in an economy. Government expenditure occurs on every level of government, from local city councils to federal organization. Government intervention in resource allocation arose due to the failure of the market mechanism to effectively and efficiently allocate these resources. The Nigeria economy operates a mixed economy, which is the combination of both the capitalist and socialist system, that is, the interaction between the private and public sector in an economy. Government expenditure includes all government consumption, investment, and transfer payments. In national income accounting the acquisition by governments of goods and services for current use, to directly satisfy the individual or collective needs of the community is classed as government final consumption expenditure.

Government acquisition of goods and services intended to create future benefits, such as infrastructure investment or research spending, is classed as government investment (Wikipedia, 2014).

Determinant of Government Expending

They are limited to specific categories including government policies and politics. Regulatory policy-red tape and bureaucracy have a very considerable effect on government spending and the economy at large. A deregulated market encourages efficient government spending and allocation of different resources. This is based on the fact that major spending decisions are made as per economic factors in the market. Excessive regulation on the other hand results in high costs of different products and services as well as inefficient government spending behavior.

Monetary policy-monetary regime is one of the factors that can hinder a country's economy based on its impact on government spending. With a stable monetary system, there is a good environment for government spending. With a poor monetary system, investment opportunities are crippled and economic confidence in people as well as the government is destroyed thus, reducing its spending.

i. **Fiscal policy** also affects government spending. When there is a desire by the government to control economic instability, the level of government spending will increase and vice versa. When aggregate expenditures decreases, government spending on different businesses may also increase.

ii. **Private property** is also one of the policies that affect government spending. It is also considered as an independent policy affecting the level of government spending. Availability of property rights plays a very crucial role in promoting government spending and economic growth.

iii. **Politics:** Politics play a very crucial role in determining government spending. Politics always bubble around government activity where political winds blow in different directions. In most cases, politics reduce federal deficit and reduces government spending especially on social programs. Such forces decreases government purchases in a downward shift of the government's purchase line.

iv. **Policy choices affecting government spending:** Tax policy system both on individual and on products and services is always targeted at promoting economic growth. This sometimes raises the level of revenue of the government. Increase in taxes increased government spending power.

v. **Trade Policy:** This is a situation where the government allow free trade in an economy in order to encourage growth and a higher spending power in return will follow. However a country who does not promote trade leads to economic inefficiency, and economic collapse. It is important to note that economic efficiency through free trade promotes government and boasts the standard of living.

Theoretical Review

The study is anchored mainly on Keynesian Economic Model

This model works on the belief that the private sector does not only produce the most efficient results from the economy as a whole. The application of the Keynesian model lies somewhere between markets-based economy and a state-controlled economy. The Keynesian model analyzed the fiscal policy where government increases spending at all time when the economy is in a slowdown. This involves a theory described as a multiplier. This theory states that if government spends to create jobs, the employed people will have more money to spend. Keynes further developed a theory which suggested that active government policy could be affective in managing the economy. Rather than seeing unbalanced government expenditure as wrong. Keynes also argued that government should solve problem in the short run rather than waiting for the market forces to do it in the long run, because in the long run, we are all dead. The macroeconomic study of Keynesian economics relies on three key assumptions: rigid pries, effective demand and savings-investment determinates. First, rigid or inflexible prices prevent some markets from achieving equilibrium in the short run. Second, effective demand means that consumption expenditures are based on actual income, not full employment or equilibrium income. Lastly, important savings and investment determinants include income, expectations, and other influence beyond the interest rate. These three assumptions imply that the economy can achieve a short-run equilibrium at less than full-employment production. According to Keynesian theory, changes in aggregate demand, whether anticipated or unanticipated have their greatest short run impact on real output and employment, not on price. Rationalizing rigid prices is hard to do because according to standard microeconomics theory, real supplies and demands do not change if all nominal prices rise or fall proportionally. If government spending increases, for example, all other components of spending remain constant, then output will increase.

Empirical Review

Anderson, Renzio and Levy (2006) studied the role of public investment in poverty reduction. The paper examined the linkage between public investment, growth and poverty reduction, with the aims of providing overall view of existing theories, evidence and methods, and of examining the ways to provide better guidance to policy makers in the use of available techniques and information to set priorities for public investment. These are several channels through which public investment might affect the economy. They reviewed the theory behind these channels, distinguishing the macro from micro effects.

Omoke (2009) investigated the direction of causality between Government expenditure (GE) and National Income (NI) in Nigeria using annual data. The researcher employed the co-integration and Granger Causality tests for the period 1970-2005. The result showed that no long-run relationship existed between government expenditure and national income in Nigeria. The Granger causality test revealed that causality ran from government expenditure to national income thus concluding that government expenditure plays a significant role in promoting economic growth in Nigeria.

Nkwatoh. L.S (2012) study analysed the relationship and direction of causality between government expenditure and economic growth in Nigeria using annual data from 1961 to 2009. Using co integration and Toda-Yamamoto Granger causality test. The analysis was both at the bivarate (aggregated) and multivariate (disaggregated) systems. The result of the Johansen bivarate/multivariate co integration revealed that there was no long run relationship among the stationary variables. Government expenditure causes economic growth at a bivarate level supporting Keynes hypothesis that increased government expenditure amplifies economic growth.

Bakare (2012) carried out a study on the role of government spending for sustainable growth using annual data from 1975-2008. In the study, ordinary least square multiple regression was used and the Harrod Domar growth model was analyzed. The study found out that increase in government expenditure does not contribute to sustainable growth in Nigeria. The findings demonstrated that, the allocation of public expenditure does not fulfill the parent-optimal criterion. The study examined that there is a long run and significant relationship between public spending and sustainable growth in Nigeria.

Nworji and Oluwalaiye (2012) employed investigative and empirical methods to analyze the relationship between government spending on road infrastructure and economic growth in Nigeria. The variables used in the study includes GDP which is a proxy for economic growth and it is the explained variable, while the explanatory variables include expenditure on defense, transport and communication used as a proxy for road and inflation rate. Multiple regression analysis was employed to analysis the parameter estimate. The a priori expectation of the study is to have positive signs for the parameters. The estimate value of the partial regression coefficient in the study is that expenditure on defense, transport and communication expenditure and inflation rate correlate positively with economic growth. The model exhibited a very high explanatory power.

Loto (2011) examined the relationship between government spending and growth in a linear form using the OLS method. The time series were tested for the order of integration of the individual series by conducting unit root test for stationarity. The study employed on each of the variable the standard Dickey- Fuller test. The essence of using the technique is to identify the relationship between government spending on the chosen sector and economic growth in Nigeria. The variables used include GDP growth rate, Education spending, Health spending, Agriculture, Transport and Communication. The outcome of the result revealed the existence of equilibrium condition that keeps the variables in proportion to each other in the long run.

In Devarajan et al (1996), the study focused on the link between the level of public expenditure and growth, a condition was derived in which a change in the composition of expenditure leads to a higher strategy- state growth rate of the economy. The condition not just depends on the physical productivity of the different components of public expenditure but also on the initial shares. Using the data from 43 developing countries over 20 years, they showed that an increase in the share capital expenditure has positive and statistical significant growth effect. The result implies that developing country governments have been misallocating public expenditure in favour of capital expenditure at the expense of recurrent expenditure.

Usman, A. et al (2011), in their study, they explained how public expenditure is used as proxy for public capital which is further decomposed by sectors. This helps to investigate the impact of each sector on economic growth. A multivariate time series framework is used. Augmented Dickey- Filler test indicated that two of the variables are stationary at levels. Philip Peron test show that three are stationary at levels and others at first difference. Result of the regression show that in the short run public spending has no impact on growth. However, co integration and VEC results shows that there is long run relationship between public expenditure and growth.

Methodology

Research Design

The study adopted *ex-post facto* research design. This is because secondary data is used for the study. The importance of *ex-post facto* research design is that it is a realistic approach in solving business and social science problems which involves gathering records of past event.

Sources of Data

The data for this study were sourced from secondary data which were collected from published annual reports of the Central Bank of Nigeria Statistical Bulletin for the 2012 to 2022.

Model Specification

The model specification for the study is shown below:

$RGDP = \alpha + \beta_1 RTCAP + \beta_2 RTRE + \varepsilon$

Where:

RGDP	=	Real growth rate of gross domestic product (GDP)
RTCAP	=	Real total capital expenditure
RTRE	=	Real total recurrent expenditure
$\beta_1 - \beta_2$	=	Coefficients of the Independent Variables
α	=	Constant term
ε	=	Error margin

Method of Data Analysis

Ordinary least square regression analysis was applied to analyze the data collected for the study. Adjusted Coefficient of Determination (R-Square) was used to examine the extent to which the variations in the dependent variable is explained by the independent variable of the study.

Data Presentation and Analysis

Table 1: Presentation of Regression Result

Dependent Variable: RGDP
Method: Least Squares
Date: 02/3/23 Time: 03:55
Sample: 2012 2022
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1945306.	811147.6	2.398214	0.0336
RTCAP	92661.79	65357.13	1.417776	0.0187
RTRE	-1612.906	3722.496	-0.433286	0.0025

R-squared	0.792608	Mean dependent var	664519.5
Adjusted R-squared	0.676523	S.D. dependent var	708822.1
S.E. of regression	735442.9	Akaike info criterion	30.09426
Sum squared resid	6.49E+12	Schwarz criterion	30.33932
Log likelihood	-250.8012	Hannan-Quinn criter.	30.11862
F-statistic	0.715665	Durbin-Watson stat	1.620636
Prob(F-statistic)	0.007153		

Source: E-view 10.0 Statistical Output, 2023

Table 1 depicts that real total capital expenditure exerts a significant (p-value 0.0187) and positive effect on real gross domestic product. On the other hand, the result shows that Real total recurrent expenditure has significant but negative effect on real gross domestic product with probability value of 0.0025 and a t-Statistic of -0.433286. In the output above, it was observed that the duo in respect to Real total capital expenditure and Real total recurrent expenditure depicts a significant effect but diverse directions as Real total capital expenditure is positive while Real total recurrent expenditure is negative. The adjusted R-squared (R^2) indicated that about 68% approximately of the changes in real gross domestic product are accounted for by the explanatory variables (Real total capital expenditure and real gross domestic product). The remaining 32% could be explained by other factors capable of influencing real gross domestic product. The probability of the F-statistic is significant (0.007153) which shows the statistical fitness of the regression model and the results, by extension. There is an absence of serial autocorrelation in the panel data extracted from the Central Bank of Nigeria statistical bulletin as suggested by Durbin-Watson statistics of 1.620636 which is relatively normal.

Test of Hypothesis One

Restatement of the Hypothesis in Null and Alternate forms:

H_{01}: Government real total capital expenditure has no positive and significant effect on gross domestic product in Nigeria

Ha_1: Government real total capital expenditure has positive and significant effect on gross domestic product in Nigeria

Decision

In Table 1, the regression result indicates that real gross domestic product is influenced by real total capital expenditure (RTCAP). The extent of the influence exerted on real gross domestic product by real total capital expenditure is significant and positive. This implies that an increased government expenditure in terms of real total capital expenditure is highly probable to enhancing real gross domestic product in Nigeria. The p-value of 0.0187 for real total capital expenditure < 0.05; H_0 is therefore rejected and the alternate hypothesis accepted. However, the study suggested that government real total capital expenditure has positive and significant effect on gross domestic product in Nigeria

Test of Hypothesis Two

Restatement of the Hypothesis in Null and Alternate forms:
H_{01}: Recurrent expenditure has no significant and positive effect on gross domestic product in Nigeria
Ha_1: Recurrent expenditure has significant and positive effect on gross domestic product in Nigeria

Decision
The regression result in Table 1 depicts that real total recurrent expenditure exerts a significant and negative effect on real gross domestic product in Nigeria. This implies that a significant increase in government expenditure in terms of real total recurrent expenditure will significantly decrease real gross domestic product. This is evidenced from the t-statistics of -0.433286 and p-value of 0.0025 for real total recurrent expenditure < 0.05; H0 is therefore rejected and the alternate hypothesis accepted. However, the study finds that recurrent expenditure has significant but negative effect on gross domestic product in Nigeria.

Summary of the Findings
Based on the regression analysis conducted to empirical investigate the effect of government expenditures on gross domestic product in Nigeria, the findings as well as the deduced discussions that ensued, this study summarized the findings of the study as follows:

i. real total capital expenditure positively and significantly affect real gross domestic product in Nigeria.
ii. Recurrent expenditure negatively and significantly affect real gross domestic product in Nigeria.

Conclusion and Recommendation
The study investigated the effect of government expenditures on gross domestic product in Nigeria from 2012 to 2022. The study also examines the impact of the components of government expenditure on economic growth in Nigeria. This contemporary study has revealed that an increase in government expenditure over the years primarily drives gross domestic product. Government expenditure is positively related to gross domestic product and it is statistically significant. This study has contributed to the research effort at empirical measure of the effect of government expenditures on gross domestic product in Nigeria. The analysis revealed that there is relationship between government expenditure and gross domestic product. The aggregated effect of government expenditure on gross domestic product is statistically significant. This study adopts the Keynesian model (1936) of government intervention in the economy. The dissemination of the government expenditure in Nigeria is into the total capital expenditure and total recurrent expenditure. The study shows the impact of each component on the Nigeria economy. The result of the total capital expenditure is significant and positive while the total recurrent expenditure is negatively related and is significant. In the Nigeria economy, there is concentration on the recurrent expenditure. Capital expenditure is necessary for capital formation and infrastructural development. In Nigeria, the recurrent expenditure grows at a higher rate while the capital expenditure grows at a slower rate. The consequence of this is that the country takes the risk of not meeting her aspiration. Therefore, there is need for the nation to adequately plan for the duo expenditure structure in respect to recurrent and capital expenditure.

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