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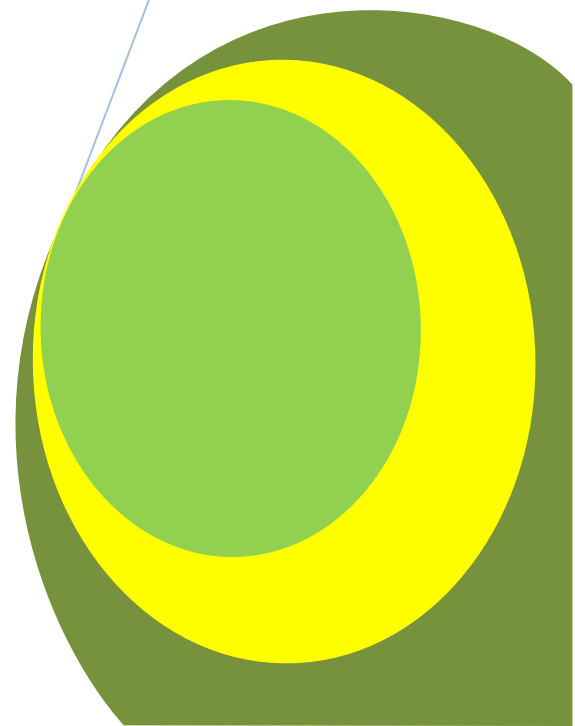
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The Impact of Federal Government Expenditure on Economic Growth in Nigeria (1981-2014)

By

**Udoffia David Thompson
Godson Juliet Rita**



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The Impact of Federal Government Expenditure on Economic Growth in Nigeria (1981-2014)

***Udoffia David Thompson, Godson Juliet Rita**

Department of Economics, University of Uyo, Nigeria.

*Corresponding Author Email: udoffiadave@yahoo.com; Phone No: +2348034547413

ABSTRACT

The study investigated the impact of federal government expenditure on the Nigerian economic growth. The main objective of the study was to ascertain whether there is a relationship between federal government expenditure and economic growth in Nigeria. The study adopted the Ordinary Least Square estimation technique to estimate the model specified using time series data for the period 1981-2014. Real Gross Domestic Product was used as the dependent variable while federal government capital and recurrent expenditures were used as the independent variables. The result from the regression analysis shows that federal government capital and recurrent expenditures have a positive effect on real GDP. The data used in the analysis were gotten from Central Bank of Nigeria (CBN) statistical bulletin. The study recommended that federal government should direct more of its recurrent expenditure towards economic and community services as they accelerate economic growth. The study also recommended proper management of public funds allocated to the agricultural sector and manufacturing industries as they have the potential of raising the nation's production capacity and providing employment for citizens in the country.

Keywords: Recurrent Expenditure, Capital Expenditure, Gross Domestic product, Economic growth, impact.

1.0 INTRODUCTION

This section presents the study in the following parts: background to the study, statement of the problem, objective of the study, research hypotheses; scope and delimitation of the study, significance of the study and organization of the study.

1.1 Background to the Study

In almost all economies today, the role of government occupies a position of paramount importance. One reason for this is that it directs the process of achieving a country's macroeconomic objectives such as full employment, economic growth and development, price stability and poverty reduction. Another is the perceived failure of the market system to efficiently and equitably allocate economic resources for social and infrastructural development (Agbonkhese and Asekhome, 2014). Government basically performs two functions: protection and provision of public goods. Protection involves the enforcement of the rule of law and property rights. These functions helps to minimise risk, protect life and property and the nation from both internal and external aggression as well as provide roads, schools, electricity and communication to name a few.

Public expenditure is an important instrument for government in controlling the economy. Okoro (2015) defines it as the value of goods and services provided through the public sector. Government expenditure can also be described as the expenses incurred by the government in the provision of public goods and services. Government expenditure can be broadly categorised into capital and recurrent expenditures. Capital expenditure refers to expenses on capital projects like roads, airports, health, education, electricity generation, etc., Capital expenses are usually aimed at increasing the assets of a state and they give rise to recurrent expenditure. Recurrent expenditure refers to government expenses on administration, security, maintenance of public goods, interest payment on loans, etc.

Economic growth is an important macro-economic objective because it enables improved standard of living and job creation. A fast-rising growth rate not only commands international recognition, it also paves a way for development. Economic growth implies the expansion of a country's productive capacity. It refers to an increase in the amount 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.

The relationship between government expenditure and economic growth is particularly important for developing countries. This is due to the need to extract themselves from the jaws of abject poverty and set themselves in the path of rapid development. Government of developing countries have embarked on various spending programs in order to achieve this goal. Unfortunately, economic theories do not automatically generate strong conclusions about the effect of government expenditure on economic growth. Indeed, it has generated a series of controversy among scholars.

Some scholars believe that a rise in government expenditure is necessary for increase in output and can reverse economic downturns. For instance, Agbonkhese and Asekhome (2014), Akpan and Abang (2013) and Okoro (2013) in their different studies of the relationship between government expenditure and economic growth concluded that government expenditure has a positive and significant effect on economic growth. Other scholars are of the opinion that a rise in government expenditure (especially when it is funded by borrowing) may impede economic growth. These include Egbetunde and Fasanya (2013), Folster and Henrekson (2001) who suggested in their work that there is no significant relationship between government expenditure and economic growth.

The relationship between government expenditure and economic growth has continued to gather dust over the years.

Expenses on social and economic infrastructures such as health, education, roads, telecommunication, schools and electricity usually have a positive impact on national output. But in developing countries, increase in government expenditure usually implies increase in tax or borrowing. This reduces per capita income and the desire to work thus reducing aggregate demand.

All these spikes up interest in knowing what influence government expenditure has on economic growth.

1.2 Statement of Problem

Government expenditure on social and economic services (such as health, education, agriculture and infrastructural facilities) raises the productivity of labour, increases profitability of firms and increases national output/income. A rise in government expenditure sometimes culminates in increased tax rate and/or borrowing by the government. The increased tax rate reduces per capita income and may generate a disincentive to work. In the same vein, higher corporate tax increases production costs and reduces the profitability of firms. Most firms lay off workers due to this. Increased borrowing by the government (especially from banks) crowd out private investments and this reduces initiatives and productivity.

In Nigeria, available statistics show that federal government expenditure has continued to rise over the years. This is due to receipts from oil and non-oil revenue as well as an increasing demand for public goods such as roads, electricity, education, health and security. Federal government recurrent expenditure which stood at N4.85b in 1981 increased to N579.3 billion in 2001 and N3,109.38 billion in 2010. Government capital expenditure on the other hand witnessed a rise from N6.57 billion in 1981 to N438.7 billion in 2001 and N883.87 by 2010 (CBN Statistical bulletin, 2014). However, the increase in government expenditure over the years may not have translated into meaningful economic growth as many Nigerians are still living in poverty. Data from World Development Indicator (2014) place about 63.1 percent of Nigeria's total population living below \$1.25 a day. Although the Nigerian economy is projected to be growing, the gap between the rich and the poor continues to widen. Hence there is a need to evaluate the relative impact of government expenditure on economic growth in Nigeria.

1.3 Objective to the Study

Given the issues raised, the major objective of the study is to ascertain whether there is a relationship between federal government expenditure and economic growth in Nigeria. The study also aims:

- i. To determine if federal government capital expenditure has any significant effect on economic growth in Nigeria;
- ii. To determine if federal government recurrent expenditure has any significant effect on economic growth in Nigeria.

To achieve the stated objectives time series data for the period 1981 to 2014 was used. Real Gross Domestic Product which is a major growth indicator is used as the dependent variable while government capital and recurrent expenditures are used as the independent variables.

1.4 Research Questions

Having stated the research objective, the research questions formulated to guide the study are:

- i. Is there any relationship between federal government expenditure on economic growth in Nigeria?
- ii. Does federal government capital expenditure have any significant effect on economic growth in Nigeria?
- iii. Does federal government recurrent expenditure have any significant effect on economic growth in Nigeria?

1.5 Research Hypotheses

The following hypotheses will be tested:

H₀: Federal government capital expenditure have no significant effect on economic growth in Nigeria.

H₀: Federal government recurrent expenditure have no significant effect on economic growth in Nigeria.

1.6 Significance of the Study

The study will prove a valuable contribution to available literature on the discourse. This is because it focuses on evaluating the impact of federal government expenditure on economic growth in Nigeria. The scope of study as well as the method of analysis makes the research work a dependable reference material for students and researchers who may want to embark on a similar study.

1.7 Scope and Delimitation

The study focuses on the impact of federal government expenditure on economic growth in Nigeria from 1981 to 2014. Data used for this study was gotten from Central Bank of Nigeria (CBN) statistical bulletin. The variables used in the study are: federal government capital and recurrent expenditures, and real gross domestic product. Federal government capital and recurrent expenditures represent the independent variable and real gross domestic product the dependent variable.

In research studies of this nature, there is normally the enthusiasm to touch as many areas as possible which are connected to this subject matter. However due to the exclusive nature of this work, those topics of interest can only be briefly examined.

1.8 Organization of the Study

The study is grouped into five sections. This section, being the first, gives an introduction to the study. Section two gives a review of related literature to the study. Section three presents the research methodology. Section four presents the data analysis as well as the interpretation and discussion of result. Section five gives the summary of findings, conclusion and recommendations.

2.0 LITERATURE REVIEW

This section reviews existing literature on the impact of government expenditure on economic growth in Nigeria. The parts are presented in the following sequence: conceptual framework, theoretical framework and empirical review.

2.1 Conceptual Framework

This section identifies the role of government expenditure as a fiscal tool in correcting the economy during inflation and deflation. It also identifies the role of government expenditure in stabilising balance of payment account as well as the foreign exchange.

2.1.1 Role of Government Expenditure as Fiscal Tool in Correcting the Economy during Inflation and Deflation

There is only so much which the market system can do during periods of inflation or deflation and this is why J. M Keynes the main proponent of the Keynesian school of thought argued for government intervention in the economy

through the application of fiscal and monetary policies. Over the years, government expenditure has come to be regarded as an important policy tool for restoring equilibrium in the economy after disturbances occur.

If an economy is experiencing deflationary pressure, government expenditure can serve as a fiscal tool to reduce such pressure. Deflation is a situation whereby an economy is operating below full employment of resources. That is aggregate demand is less than output produced at full employment level. It is characterised by a decline in the general price level. When there is a deflation, consumers' expenses fall which leads to a fall in price level and thus a fall in the demand for investible funds by firms. Deflation usually leads to loss of employment since in an effort to reduce wastage of resources firms cut down on production and lay off workers. To correct deflationary pressure in an economy, the government of a country applies expansionary fiscal policy such as increasing public investment expenditure or decreases tax. The government through the central bank may also implement expansionary monetary policies such as reducing the rate of interest which provides an incentive for firms to incur loanable funds and discourages savings. The reduction in tax coupled with an increase in government expenditure closes the deflationary gap in the economy bringing it up to operate within full employment level.

Government expenditure can also be used to correct a situation of inflation. An economy is said to be witnessing inflationary pressure when aggregate demand is more than output produced at full employment level. During inflation there is a rise in the general price level. To correct this situation, the government of a country usually applies contractionary fiscal policy. This may be done directly by decreasing its expenditure or indirectly by increasing taxes. The increase in tax reduces consumers' purchasing power. The reduction in government purchases and/or increase in tax reduce aggregate demand so that there is a balance between the demand for commodities and their supply.

2.1.2 Role of Government Expenditure in the Balance of Payment

Balance of payment is one of the objectives of macroeconomic policy and it has a significant role to play in the economic growth and development of any nation. The balance of payment is the difference in total value of payment coming into and going out of a country over a given period. Globalization and trade liberalization have made possible the production of goods and services which are subsequently sold in the world market (Shuaib, Augustine and Frank, 2015). As long as countries trade among themselves, there is bound to be a balance of payment account. The balance of payment account is subdivided into current account; capital account and official financing (Shuaib et al, 2015). The balance of payment may be surplus, deficit and balanced. A surplus is when the value of exports of goods plus net current transfers is greater than the value of imported goods and services. A deficit is when the value of exports plus net current transfers is less than the value of imported goods and services. A balance is when the debit side which records exports is equal to the credit side which records imports. The capital account records both the borrowing and lending of funds by domestic residents and companies in a country.

Government expenditure through fiscal policies can bring about equilibrium in the balance of payment account. For instance, when there is a current account deficit, the government of a country can increase its expenditure on locally produced goods as well as reduce taxes so as to increase total income. The government can also improve competitiveness of firms by providing tax reliefs and capital investment for R&D. They can provide training to improve the skills of workforce and invest money into education so that the quality of school leavers improves. These are done because of the difficulty in imposing import control policies in today's free world of free trade.

When the capital account records higher borrowing from foreigners than lending, government can buy back securities and/or reduce the rate of interest. This will reduce the amount owed to foreigners by the government. Also when the rate of interest in the country is low, residents of a country prefer to buy securities from foreign countries with a higher interest rate. These cause the level of borrowing to be at par with the level of lending.

2.1.3 Role of Government Expenditure in Foreign Exchange

Foreign exchange rate implies the rate at which one country's currency exchange for another's. Foreign exchange rate may be strong or weak. A strong exchange rate for a currency means that foreign currencies have become cheaper in terms of the domestic currency. A weak exchange rate means foreign currencies have become more expensive. A strong exchange rate brings about a reduction in the price of imports. This means more money can be spent on imports for every naira spent. A weak foreign exchange rate for a country on the other hand makes import more expensive which encourages exports and results in a balance of payment surplus.

Through fiscal and monetary policies, government size can control the following variables which influence exchange rate: Income, Price, Interest rate.

2.1.3.1 The Effects of Fiscal Policy on Exchange Rate

Income Effect of Fiscal Policy on Exchange Rate

Expansionary fiscal policy of the government which increases government expenditure and reduces tax increases income. The increase in income raises aggregate demand for both locally produced goods as well as foreign produced goods. The rise in import results in the citizens of a country (say Nigeria) selling more naira to buy another country's currency (say the United States) to pay for imported goods. The rise in import weakens the naira exchange rate.

Contractionary fiscal policy of the government reduces government expenditure and increases tax. This reduces aggregate demand for commodities including imports. The decrease in imports strengthens the naira exchange rate

Price Effect of Fiscal Policy on Exchange Rate

The application of expansionary fiscal policy also leads to a rise in the general price level. The increase in price of commodities in Nigeria increases the price of her exports causing foreign goods to become more attractive. This leads to a higher demand for the dollar thus weakening the naira exchange rate

Contractionary fiscal policies of the government which brings about a fall in the general price level increases exports. The increase in export reduces the demand for foreign currencies to purchase foreign commodities thus strengthening the naira exchange rate.

Interest Rate Effect of Fiscal Policy on Exchange Rate

The application of expansionary policy by the government sometimes results in a deficit. Government budget deficit is financed through borrowing or through the sale of government securities. The sale of bonds is accompanied by a rise in the rate of interest. The high rate of interest attracts foreign investors causing more foreign currency to flow into the economy. This strengthens the naira exchange rate. On the other hand, a budget surplus where income is greater than expenditure causes capital to flow out of the country therefore weakening the naira exchange rate.

2.1.3.2 The Effects of Monetary Policy on Foreign Exchange Rate

Monetary policy is a tool which the government through the Central Bank uses to control the availability of money in the economy. Through monetary policy, the influence of government expenditure can be felt on foreign exchange rate.

Income Effect of Monetary Policy on Foreign Exchange Rate

A rise in the supply of money or increase in credit availability brought about by the application of expansionary monetary policy by the government increases the income of citizens. The rise in income increases the demand for both local and foreign goods. This increases the demand for foreign currencies thus weakening the naira exchange rate.

The application of contractionary monetary policy on the other hand decreases income thus decreasing the demand for foreign currencies. This causes the naira exchange rate to become stronger.

Price Effect of Monetary Policy on Exchange Rate

Expansion of money supply leads to an increase in the demand for commodities which leads to a rise in price. Exports become more expensive and imports, cheaper. This increases the demand for foreign currencies thus weakening the naira exchange rate. Contractionary monetary policy leads to a fall in price making exports cheaper than imports. This leads to a fall in the demand for foreign currencies and increases the demand for a nation's currency. The naira exchange rate strengthens in terms of foreign currencies.

Interest Rate Effect of Monetary Policy on Exchange Rate

Contractionary monetary policy which leads to a fall in the money supply and decrease in credit availability increases the rate of interest. This cause more foreign currencies to flow into the economy to purchase interest bearing

securities resulting in the strengthening of the naira exchange rate. Expansionary monetary policy on the other hand leads to a fall in the rate of interest causing the naira to weaken in terms of foreign currencies.

2.2 Theoretical Literature Review

Some basic theories have been developed by economists in order to support the effects of government expenditure on economic growth. According to Chude and Chude (2015), such theories amongst others are:

Musgrave Theory of Public Expenditure Growth: This theory was propounded by Musgrave. He posits that at low levels of per capita income, demand for public services tends to be very low, this is so because according to him such income is devoted to satisfying primary needs and that when per capita income starts to rise above these levels of low income, the demand for services supplied by the public sector such as health, education and transport starts to rise, thereby forcing government to increase expenditure on them. He observes that at the high levels of per capita income, typical of developed economics, the rate of public sector growth tends to fall as the more basic wants are being satisfied.

The Wagner's Law/ Theory of Increasing State Activities: Wagner's law is a principle named after the German economist Adolph Wagner (1835-1917). Wagner advanced his 'law of rising public expenditures' by analyzing trends in the growth of public expenditure and in the size of public sector. Wagner's law postulates that:

- i. The extension of the functions of the states lead to an increase in public expenditure on administration and regulation of the economy;
- ii. The development of modern industrial society would give rise to increasing political pressure for social progress and call for increased allowance for social consideration in the conduct of industry;
- iii. The rise in public expenditure will be more than proportional to increase in the national income and will thus result in a relative expansion of the public sector.

The Keynesian Theory: Of all economists who discussed the relation between public expenditures and economic growth, Keynes was among the most noted with his apparently contrasting viewpoint on this relation. Keynes regards public expenditures as an exogenous factor which can be utilized as a policy instrument to promote economic growth. From the Keynesian thought, public expenditure contributes positively to economic growth. Hence, an increase in government consumption is likely to lead to an increase in employment, profitability and investment through multiplier effects on aggregate demand. As a result, government expenditure augments the aggregate demand, which provokes an increased output depending on expenditure multipliers.

The Solow's Theory: Robert Solow and T.W. Swan introduced the Solow's model in 1956. Their model is also known as Solow-Swan model or simply Solow model. In Solow's model, other things being equal, saving/investment and population growth rates are important determinants of economic growth. Higher saving/investment rates lead to accumulation of more capital per worker and hence more output per worker. On the other hand, high population growth has a negative effect on economic growth simply because a higher fraction of saving in economies with high population growth has to go to keep the capital-labour ratio constant. In the absence of technological change & innovation, an increase in capital per worker would not be matched by a proportional increase in output per worker because of diminishing returns. Hence capital deepening would lower the rate of return on capital.

2.3 Empirical Review

This section reviews already 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 countries and developing countries like Nigeria. The results varied from one country to another.

Using time series data spanning from 1977 to 2012 for Nigeria, Chude and Chude, (2013) established that total government expenditure has a high and statistically significant effect on economic growth in Nigeria in the long run. According to them, economic growth is influenced by factors both exogenous and endogenous to the public expenditure in Nigeria. They recommended a decrease in Nigeria's budgetary allocation to recurrent expenditure on education and place more emphasis on capital expenditure so as to accelerate the growth of Nigeria.

Njoku, et al., (2014) studied the effect of government expenditure on economic growth in Nigeria between the periods of 1961 to 2013 and concluded that there is significant relationship between federal government expenditure and economic growth in Nigeria. Their study recommended that government should continuously increase expenditures that accelerate growth.

On the basis of their empirical results, Egbetunde and Fasanya (2013) suggested that public spending does not stimulate economic growth for Nigeria. They attributed the reason for this to be as a result of expenditure fungibility (that is spending more on recurrent expenses than capital expenses)

Okoro, (2013) investigated the impact of government expenditure in Nigeria from 1980 to 2011 and came to a conclusion that there exists a long run relationship between real gross domestic product and total government expenditure.

Agbonkhese and Asekhome, (2014) applying OLS method of econometric technique, assessed the impact of public expenditure, credit to the economy, private capital formation, exchange rate and lagged values of GDP on current Gross Domestic Product. The result of their assessment showed that with the exception of exchange rate (which had a negative impact on GDP) other explanatory variables have a positive impact on Gross Domestic Product.

Emenini and Okezie (2014) analyzed the relationship between Nigeria's total government expenditure and economic growth from 1980 to 2012. Their analysis showed a co-integration between GDP and total government expenditure. According to them, the speed of adjustment to equilibrium is 44per cent within a year when the variables wander away from their equilibrium values.

Onakoya and Somoye, (2013) examined the impact of public capital expenditure on economic growth in Nigeria in the context of macroeconomic framework at sectoral levels. Their study showed that public capital expenditure contributes positively to economic growth in Nigeria. Their study suggested a positive but insignificant relationship to the services sector. Their study recommends privatization of state owned enterprises.

Akpan and Abang, (2013) investigated the impact of government expenditure in Nigeria utilizing time series data for the period 1970 to 2010. their study showed that at the aggregate level, government spending in Nigeria is growth promoting although the impact is very small and less than unity (0.16%). their study also showed that at the disaggregated level, only recurrent spending is significantly and positively related to growth while the impact of capital expenditure is negative and insignificant.

Stefan and Magnus, (2001) examined growth effects of government and taxation in rich countries. They applied an econometric panel study on a sample of rich countries covering the period 1970 to 1975. Their result pointed to a robust negative relationship between government expenditure and growth in rich countries. From their analysis, the more econometric problems are addressed, the more robust the relationship between government size and economic growth appears.

Awomuse, Olorunleke and Alimi, (2013) from their analysis of the effects of federal government size on economic growth on Nigeria (1961 to 2011) found out that there exists no long run relationship between government expenditure and economic growth in Nigeria. Their analysis revealed that the Wagner's law does not hold for over the period being tested. Using VAR Granger casualty test, they found out a weak empirical support in the proposition by Keynes that public expenditure is an exogenous factor and a policy instrument for increasing national output in the short run.

2.4 Summary of Related Literature

From the review of related literature, it can be seen that the Keynesian and neo-classical schools of thought are preeminent among the various studies. The Keynesian school of thought believes that increase in government expenditure should promote economic growth. The Neo-classical school of thought do not believe that increase in government expenditure should promote economic growth.

Researchers like Chude and Chude (2013), Njoku, et al (2014), Okoro (2013), Agbonkhese (2014), and Onakoya and Somoye, (2013) based their work on the keynesian model which believes that increase in government expenditure leads to increase in economic growth. On the other hand, Egbentunde and Fasanya, (2013), Stefan and Magnus, (2001), Awomunse, Olorunleke and Alimi, (2013) followed the neo-classical school of thought which posited that increase in government expenditure does not lead to increase in economic growth.

3.0 MATERIALS AND METHODS

This section described the dependent and independent variables used; discusses the method of analysis of the time series variables; presents the model specification; outlines the economic a priori expectations; shows the data source; gives the different forms of hypothesis testing of the results of the estimates and outlines the various diagnostic tests that showed the conformity of the variables used in the estimation procedure to the assumptions of the estimation technique.

3.1. Explanation of Variables

3.1.1 Dependent Variable

Gross Domestic Product: For the purpose of the study, real Gross Domestic Product (GDP) was used as the dependent variable. Real GDP is used as a proxy for economic growth because real GDP makes an adjustment to nominal GDP by using a base year as a benchmark that reflects price changes due to inflation or deflation. Real GDP allows for the measurement of changes in economic growth or decline of a country over several years. Nominal GDP is not used because it does not account for inflation or deflation. Adjustment for price changes helps economists to decide whether the growth rate of real GDP is positive or negative.

3.1.2 Independent Variables

Capital Expenditure: This comprises federal government expenses on capital projects like roads, airports, power, healthcare and so on. This type of expenditure adds to the capital stock of a country and raises her capacity to produce more in future.

Recurrent Expenditure: This captures federal government expenses on administration such as wages, salary, maintenance, interest payment on loans, etc. The purpose of this form of expenditure is to ensure normal functioning of government machinery.

3.2. Method of Analysis

Time series data were used in the regression analysis. Augmented Dickey Fuller test was used to test for existence of unit root, that is, for the existence of non-stationarity in the time series variables. After testing for unit root, the Ordinary Least Square method of estimation was used to estimate the coefficients of the independent variables and examine the nature of their relationships with the dependent variable.

3.2.1 Unit Root Test

Unit root test was conducted to test for the stationarity or non-stationarity of the variables used in the model. The purpose of conducting the unit root test was to avoid spurious regression which comes from regressing one non-stationary variable upon another non-stationary variable. The test for unit root was carried out before the estimation of the coefficients of the exogenous variables.

The Augmented Dickey Fuller test was used in the study to check for unit root. To run the unit root test using ADF method, the researcher specified the equation as follows:

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \sum_{i=1}^m \alpha_i \Delta Y_{t-i} + \mu_t$$

Where

$$\Delta Y_{t-1} = (Y_{t-1} - Y_{t-2}),$$

$$\Delta Y_{t-2} = (Y_{t-2} - Y_{t-3}), \text{ etc.}$$

Y_t = the variable of interest,

δ = the coefficient of the immediate past dependent variable,

Δ = the difference operator,

t = the time trend

μ_t = the white noise error term.

The null and alternative hypotheses for testing the existence of unit root in the variable Y_t were:

$$H_0: \delta = 0$$

$$H_1: \delta < 0$$

The null hypothesis states that there is unit root. That is the time series is non-stationary.

The alternative hypothesis states that there is no unit root. That is the time series is stationary.

The Augmented Dickey Fuller (ADF) test rejects the null hypothesis if after statistical testing, the time series is shown to be stationary, otherwise it does not reject it.

Dickey and Fuller have shown that under the null hypothesis that $\delta = 0$, the estimated t value of the coefficient of Y_{t-1} follows the τ (tau) statistic. If the computed absolute value of the tau statistics exceeds the critical tau

values, we reject the null hypothesis, otherwise we do not reject it. If the null hypothesis is rejected, it means that Y_{t-1} is a stationary time series.

In the event of non-stationarity, the time series would be differenced to make them stationary.

3.2.2 Ordinary Least Square (OLS) Regression Method

Ordinary least square (OLS) is used to estimate the relationship between the dependent and independent variables. This method is used in obtaining numerical estimates of the coefficients of the model due to the linear nature of the economic relationship.

3.3 Model Specification

Based on the objectives of the study, this research work adopted the Keynesian model. The Keynesian model believes that increase in government spending should promote economic growth. The study employed a multiple regression model and applied Ordinary Least Squares estimation technique because of its trait as a best linear unbiased estimator. The model expressed economic growth as a function of government capital expenditure and government recurrent expenditure. To examine the effect of the independent variables on economic growth, the model was specified as follows:

$$GDP = f(CAP, REC).$$

The transformation of the above model into a regression function is given below:

$$GDP = \beta_0 + \beta_1 CAP + \beta_2 REC + \mu_t$$

Where GDP = Real Gross Domestic Product;

CAP = Federal Government capital expenditure;

REC = Federal Government recurrent expenditure;

β_0 = the intercept term which gives the average value of GDP when capital and recurrent expenditure are set equal to zero;

β_1 = the coefficient of capital expenditure which measures the mean change in GDP per naira change in capital expenditure;

β_2 = the coefficient of recurrent expenditure which shows the change in GDP per naira change in recurrent expenditure;

μ_t = the disturbance term which captures the effect of other variables not included in the model on economic growth.

3.4 Economic a priori expectations

The economic a priori expectation involves an examination of the signs and magnitude of the estimated parameters to determine their conformity with theoretical expectations.

Theoretically and from the literature, an increase in government expenditure should lead to a rise in the growth of an economy. Thus the parameters β_0 , β_1 and β_2 should be positive. This means that government expenditure, capital and recurrent expenditure are expected to have a positive effect on the growth level.

3.5 Data Sources

To empirically investigate the impact of federal government expenditure on economic growth in Nigeria, a number of variables were taken into consideration in this study. They are: Real Gross Domestic Product (GDP), government capital expenditure and government recurrent expenditure. The study used time series data ranging from the year 1980 to 2014. All the variables used in the analysis were sourced from Central Bank of Nigeria's statistical bulletin for various years.

3.6 Hypothesis Testing

The study used Student's t-test to test for individual significance of the independent variables on the dependent variable. It also used F-test to test for overall significance of the independent variables on the dependent variable.

3.7 Diagnostic Testing

The classical linear regression model (CLRM) which is the corner stone of most economic theory makes some assumptions. They include: homoscedasticity or equal variance of the error term, no autocorrelation between the disturbances, correct specification of the model, etc. But not all these assumptions would hold in every type of data (Gujurati, 2009:447) thus there is need to carry out diagnostic tests.

These assumptions provide a checklist for guiding this research. To satisfy some of these econometric criteria, the researcher used the Durbin Watson test to check for autocorrelation, it uses White's test to check for heteroscedasticity and specification bias.

4.0 PRESENTATION, ANALYSIS, INTERPRETATION AND DISCUSSION OF RESULTS

This chapter is concerned with data presentation, analysis, interpretation and discussion of results. It presents the empirical result from estimation of the model. This chapter is presented in the following sequence: descriptive statistics, time series tests result, hypothesis testing, diagnostic testing and interpretation of results.

4.1 Descriptive Statistics

Before estimation of the model, the researcher examined the descriptive statistics of the variables. The descriptive statistics gives a quantitative summary about the behaviour of the variables in model.

Table 4.1: Descriptive Statistics

	RGDP	CEXP	REXP
Mean	453.1612	347.0624	895.5526
Median	388.4700	240.5700	168.3300
Maximum	950.1100	1152.800	3689.060
Minimum	227.2500	4.100000	4.750000
Std. Dev.	203.1597	371.8557	1203.845
Observations	33	34	34

Source: Researchers' computation

From the table above, we can see that on average, the Gross Domestic Product of the Nigerian economy stands at 453 billion naira a year, the federal government capital expenditures on average stand at about 347 billion naira while federal government recurrent expenditures on average stand at about 895 billion naira a year.

The mid-value for real GDP series is about 388 billion naira. The mid-value for capital expenditure is about 240 billion naira and the mid-value for recurrent expenditure series is about 168 billion naira.

The values of the standard deviation indicate that the standard error of the sample mean of estimating the true population mean of the real GDP is 203.1597, for capital expenditure it is 371.8557 and for recurrent expenditure it is 1203.845.

The maximum and minimum values show that the maximum value which the real gross domestic product can take in a year is about 950 billion naira while its minimum value is 227 billion naira. Also the maximum amount which the federal government can spend on capital expenses is about 1.152 billion naira while the minimum amount is about 4 billion naira. The maximum amount which the federal government can spend on recurrent expenses is 3.689 billion naira while its minimum is 4 billion naira.

The pair-wise correlation matrix is another form of descriptive statistics. The pair wise correlation matrix measures the strength of the linear association between the observed variables. This relationship falls between 0 and 1. From the table of correlation below, we can see that there is a strong linear relationship between the observed values with coefficients above 0.9.

Table 4.1.1

VARIABLES	RGDP	CEXP	REXP
RGDP	1.000000		
CEXP	0.932747	1.000000	
REXP	0.967854	0.922194	1.000000

4.2 Time Series Tests Results

4.2.1 Unit Root Test Result

A test for unit root was carried out on the variables used in the model. As noted in the previous chapter, a test for unit root is a test for non-stationarity in the variables. The importance of the unit root test stems from the fact that estimation in the presence of non-stationarity in the variables usually leads to biased or inconsistent estimates of the coefficients of the variables used in the model and this could lead to misleading inference if appropriate technique is not applied to correct the problem.

The unit root test was carried out using Augmented Dickey Fuller tests. The test result is given below.

Table 4.2.1

Variables	Test for Unit Root	ADF Test	Critical Values			Result
			1%	5%	10%	
RGDP	Level	0.076092	-4.284580	-3.562882	-3.215267	I(0)
	1st Difference	-4.889057	-4.296729	-3.568379	-3.218382	I(1)
CEXP	Level	-2.152716	-4.273277	-3.557759	-3.212361	I(0)
	1st Difference	-3.632957	-4.284580	-3.562882	-3.215267	I(1)
REXP	Level	-0.549608	-4.273277	-3.557759	-3.212361	I(0)
	1st Difference	-3.411402	-4.284580	-3.562882	-3.215267	I(1)

4.2.2 Ordinary Least Square Estimation Result

	Constant	CEXP	REXP
Coefficient	298.3123	0.147811	0.128799
Std. Error	11.61817	0.059462	0.019343

Source: Researchers' Computation

Based on the result above, the model is estimated as follows:

$$\text{GDP} = 298.3123 + 0.147811\text{CEXP} + 0.128799\text{REXP} + \mu_t$$

4.3 Hypothesis Testing

4.3.1 Test for Individual Significance

This is a test to check for individual significance of the exogenous variables on the endogenous variable. This test was conducted using Student's t-test.

To test for individual significance of capital expenditure on GDP, the null and alternative hypotheses were stated thus:

Null Hypothesis:

$$H_0: \beta_1 = 0$$

Alternative Hypothesis:

$$H_1: \beta_1 \neq 0$$

The null hypothesis states that capital expenditure has no significant effect on GDP.

The alternative hypothesis states that capital expenditure has a significant effect on GDP.

To test for individual significance of recurrent expenditure on GDP, the null and alternative hypotheses were stated thus:

Null Hypothesis:

$$H_0: \beta_2 = 0$$

Alternative Hypothesis:

$$H_1 \beta_2 \neq 0$$

The null hypothesis states that recurrent expenditure has no significant effect on GDP.

The alternative hypothesis states that recurrent expenditure has a significant effect on GDP.

Decision Rule: Reject the null hypothesis if the calculated t value is greater than the critical t value at chosen level of significance otherwise do not reject it. The chosen level of significance is 5%.

4.3.2 Test for Overall Significance

This is a test to check for joint significant effect of the explanatory variables on the dependent variable. This test was carried out using F-test.

Null Hypothesis:

$$H_0: \beta_1 = \beta_2 = 0$$

Alternative Hypothesis:

$$H_1 \beta_1 \neq \beta_2 \neq 0$$

The null hypothesis states that the explanatory variables do not have a joint effect on the dependent variable.

Decision Rule: Reject the null hypothesis if after testing, the calculated F value is greater than the critical F value at the chosen level of significance, otherwise do not reject it.

The tests results are presented below:

Table 4.3

	Constant	CEXP	REXP
t-Statistics	25.67637	2.485808	6.658794
Prob.	0.0000	0.0187	0.0000
5% critical t value (two-tailed test)	2.042272		
5% critical t value (one-tailed test)	1.697261		
The coefficient of determination (R^2)	0.947545		
The F-statistic	270.9591		
Prob. (F-statistic)	0.000000		
5% critical F value	3.315830		

Source: Researchers' computation

4.4 Diagnostic Testing

The Durbin Watson test statistics was used to test for the existence of autocorrelation among the disturbances. The Durbin Watson test statistics is expected to lie between 0 and 4. If there is no serial correlation, the Durbin Watson test statistics (d) is expected to be around 2. The closer d is to 0, the greater the evidence of positive autocorrelation and the closer d is to 4, the greater is the evidence of negative autocorrelation.

White's General Heteroscedasticity test was used to test for heteroscedasticity and specification bias. The White test tests the null hypothesis of no heteroscedasticity and it follows the chi-squared distribution. If the calculated chi-square exceeds the critical chi-square at 5% significance level, the conclusion is that there is heteroscedasticity. If the calculated chi-squared does not exceed the critical chi-squared, the conclusion is that there is no heteroscedasticity.

The test results are given below.

Table 4.4

Durbin Watson Statistics (d)	1.048648	
White Heteroscedasticity Test	Calculated Chi-Square	2.367597
	Prob.	0.7963
	5% Critical Chi-Square	11.0705

4.5 Interpretation of Results

Unit root test: The result of the unit root test showed that at level there was non-stationarity in all the variables used in the analysis. But after differencing the variables became stationary with real GDP becoming stationary 1% significance level, capital expenditure at 5% significance level and recurrent expenditure at 10% significance level.

Estimation result: The result from the Ordinary Least Square estimation procedure showed that the variables conform to a priori expectations. That is both capital and recurrent expenditures have a positive effect on real GDP. The intercept value of 298.3123 means that if federal government capital and recurrent expenditures are set equal to zero, the mean value of real GDP will be about 298.3123 naira yearly. The partial slope coefficient of 0.147811 suggest that with the influence of recurrent expenditure held constant, a naira increase in federal government capital expenditure would on the average lead to a N0.147811 increase in real GDP. In other words, if the federal government capital expenditure goes up by a thousand naira, on average, real GDP went up by about 147.811 naira. The partial slope coefficient of 0.128799 suggests that with the influence of capital expenditure held constant, a naira increase in federal government recurrent expenditure on the average led to a N0.128799 increase in real GDP. In other words, if federal government recurrent expenditure goes up by a thousand naira, on average, real GDP went up by about 128.799 naira.

Hypothesis Testing: The test result for individual significance of federal government capital expenditure on real GDP showed the t-calculated value of 2.485808 (0.0187) to be greater than the t-critical value 2.042272 at 5% significance level. This led to the rejection of the null hypothesis thus the conclusion that federal government capital expenditure has a significant effect on real GDP. In the same way, since the calculated t statistics of 6.658794(0.0000) was greater than the critical t statistics of 2.042272 at 5% significance level the null hypothesis of no significance was rejected and the researcher concluded that federal government recurrent expenditure has a significant effect on real GDP.

The test for overall significance of the independent variables on the dependent variable showed the calculated F-statistics of 270.9591(0.000000) to be greater than the critical F-statistics of 3.315830 at 5% significant level. The researcher thus rejected the null hypothesis and concluded that federal government capital and government expenditure had a joint effect on real GDP.

R squared: The R^2 value of about 0.947545 suggests that about 94% of the variations in real GDP was explained by the independent variables used in the model.

Diagnostic testing: The Durbin Watson Statistics of 1.048648 illustrates the absence of autocorrelation. This is because it lies close to 2.

The calculated chi-squared is less than the critical chi-squared thus the researcher does not reject the null hypothesis and concludes that there is no heteroscedasticity and specification bias in the distribution. This means that the estimates are reliable.

5.0 SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

This work investigated the impact of federal government expenditure on economic growth in Nigeria from the period 1981 to 2014. Empirical analysis was conducted by employing the ordinary least square multiple regression analysis to estimate the model specified. The result of the analysis is given in the succeeding sections.

5.1 Summary of Findings

This study set out to empirically investigate the effect of federal government expenditure on economic growth in Nigeria using annual time series data for the period 1980 to 2014. Some econometric tools were employed in order to explore the relationship between the variables used in the study. The study examined the stochastic characteristics of each variable by testing their stationarity using Augmented Dickey Fuller (ADF) test. The relationships between capital and recurrent expenditure, and Gross Domestic Product were examined using Ordinary Least Square estimation technique. Post estimation tests were also carried out to ascertain the reliability of the estimates. The result of the findings shows that the variables follow a priori expectations, that is there is a relationship between federal government expenditure and economic growth in Nigeria. Based on the empirical result, the findings of this research can be summarized as follows:

- a. Federal government capital expenditure has a significant effect on economic growth in Nigeria.
- b. Federal government recurrent expenditure has a significant effect on economic growth in Nigeria.

5.2 Conclusion

As mentioned earlier, the study seeks to investigate the effect of federal government expenditure (capital and recurrent) on economic growth in Nigeria for the period 1981-2014. The researcher investigated within the scope of study and found that total government expenditure contributes positively to economic growth in Nigeria. Based on this result, the researcher rejects the null hypotheses and concludes that there is a significant relationship between federal government expenditure (capital and recurrent) and economic growth in Nigeria.

5.3 Recommendations

Based on the findings, the researcher recommends the following:

Since government expenditure has been found to induce growth, the federal government should engage in more productive endeavours and direct resources to projects with long term benefits.

Government capital expenditure especially on agriculture and industry should be properly managed as they have the potential of raising the nation's production capacity and generating employment.

Government should increase its expenditure on rural roads and electricity as this will accelerate private sector growth as well as raise the standard of living of poor citizens in the country.

Government should pay its workers regularly. When workers receive their salaries regularly, there is an improvement in their standard of living and it signifies growth in the economy.

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