

## Impact of Government Size on the Nigerian Economy

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**ABSTRACT:** This study investigates the impact of government size on the Nigerian economy over the period (1970-2015) using econometrics model with ordinary least square (OLS) techniques. However, some of previous studies cited in this work stipulated that government size and government spending have a significant impact on the economic growth. Given this, it becomes the objective of this work to undertake a detailed investigation by evaluating the impact of government size on Nigeria economy. We discovered from our findings that the increase size of government and spending impede economic growth in Nigeria. To buttress the authenticity of our findings, we used Eview software package to run a multiple regression with real cross domestic product (RGDP) as the dependent variable and government size and total government expenditure as the core independent variables. The results reveal a high coefficient of determination ( $R^2$ ) of 0.93, that is, 93 percent. The econometric implication is that government size and total government expenditure are negatively related to RGDP meaning that a percentage increase for both of them decreases RGDP. Above all, with respect to the findings of this work, economic policies and recommendations were made which we believe that if well implemented will enhance the impact of government size on Nigeria's economy.

**KEYWORDS:** Real Gross Domestic Product, Total Government Expenditure, Government Size, Investment, Real Money Supply, Real Exchange Rate

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### I. INTRODUCTION

For quite number of years, federal government of Nigeria has allocated large sum of money for spending on economic and social development, yet the results on ground have been extremely disappointing. This is of particular concern because government spending of sub-national levels of government is directly expected to improve the welfare of people through adequate provision of economic and social services

However, over the past decades, the public sector spending has been increasing in geometric term through government various activities and interactions with its Ministries, Departments and Agencies MDA's, (Niloy 2003). Although, the general view 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 which include transport, electricity, telecommunications, water and sanitation, waste disposal, education and health can be growth retarding (for example, the negative effect associated with taxation and excessive debt).

The size and structure of government size will determine the pattern and form of growth in output of the economy. The structure of Nigerian public expenditure can be broadly categorized into capital and recurrent expenditure. The recurrent expenditure of government expenses on administration such as wages, salaries, interest on loans, maintenance etc, whereas expenses on capital projects like roads, airports, education, electricity generation etc, are referred to as capital expenditure.

Moreso, the analysis of the results for the growth effects of government size by individual sectors of the economy gives rise to information that is particularly useful for developing countries which are resource constrained and where the allocation of limited public resources between the sectors is an issue of paramount importance.

In this regard, we must say that education is the key sector to which public expenditure should be directed in order to promote economic growth. Thus it gives rise to the results of the finding by Landau (1986); Devaraija (1996), Miller and Russet (1997), which show that the share of government capital expenditure in

GDP is positively and significantly correlated with economic growth while the growth effect of current expenditure is insignificant.

In addition, the size of government and its impact on economic growth has emerged as a major public choice issue facing economics in transition. Given the openness of most LDCs, trade dependency, and size of government become germane to adjustment and stabilization programs.

However over the past decade, Nigeria as a whole has experienced imbalances and inefficiencies in the public sector that have impeded better economic performance. Though Nigerian's total spending as a proportion of GDP is somewhat below the EU average, the rapid and uncontrolled growth of its primary current spending to a level now above OECD (organization of economic corporation and development) and UE average, is very worrisome, this is because it put at risks long-term fiscal sustainability. This paper points out the major shortcomings in the budget management process and in the planning and control of public spending. This work will look into or will acknowledge recent action taken by public authorities to address some of the shortcomings and mistakes, and also make some recommendation for moving further ahead. Some policy options that can make public expenditure more efficient and effective at overall level will be looked into. At the end, administrative control efficient, the co-effectiveness of service provision and incentive for efficient resource allocation are all needed to be improved. This is to ensure that rising inflation, unemployment, misery, hunger and deteriorating infrastructure shall be taken care of.

## **II. STATEMENT OF THE PROBLEM**

Over the years, there has been expenditure on the public sector of Nigerian economy but the question is, has the expenditure led to any positive impact on the economic growth of Nigeria? The major risk to the attainment of the objectives is that, state governments either will be reluctant or many may not have data on their expenditure record. Also the involvement of top ranking officials of the finance and budget ministries before gating the accurate data is a problem that we may likely to encounter.

## **III. OBJECTIVES OF THE STUDY**

The overall objective of the study is aimed at examining the implications of Nigerian's growing government size on economic growth and the specific objectives are:

1. To estimate the impact of government size on Nigeria's economic growth.
2. To find out the impact of government size on investment.
3. To identify the best practices that will lead to effectiveness in public expenditure.

## **IV. REVIEW OF RELATED LITERATURE**

### **THEORETICAL LITERATURE**

Government size theory traditionally received a scanty attention till recently. This was partly due to the general acceptance of the belief that the invisible hand would regulate the market system. However, with the advent of welfare economics, the role of the state has expanded especially in the areas of infrastructural provision and the theory of government size or government expenditure is attracting increasing attention. This tendency has been reinforced by the widening interest of economists in the problem of distributive justice, planning, regional disparities and others.

Many writers have stressed in their stream of literature that public expenditure, its growth and structure have had a very close relationship with one influencing the other. One of the studies that have explored the principal causes of growth in the public sector is the work of the German economist, Adolph Wagner (1883). Wagner formulated what is now popularly known as the "law of increasing expansion of public spending and particularly states activities". He was one of the earliest economic theorists whose attempt emphasized on economic growth as the fundamental determinant of public sector growth. Based on the historical data on German economy, he postulated that there are inherent tendencies for the growth of public expenditure to increase but intensively and extensively overtime that there exists a financial relationship between the growth and the structure of the public expenditure. This law has variously been supported by different economists from different geopolitical regimes, and who among other things have ushered in varieties of hypothesis and counter hypothesis for explanation of the impact of government size on an economy in general. The scholars that contribute to this are peacock and Wiseman, Musgrave, Diarmond, and Batrial etc.

However, Wagner distinguished between three types of state activities and states that increased activity of the state in provision of other economic and social services, arise where the social benefits of the services are not susceptible of economic evaluation and once again, where the state could become a source of stability by taking over? It is worthy to note that Wagner was interested in those factors that continue to influence the size of public expenditure as a basis of providing his law; such factors are population, inflation, underpayment, price, employment changes and technological changes. The increase in government size on health and education raises the productivity of labour and enhance the growth of national output. Similarly, expenditure on infrastructure

such as roads, communications, power etc. reduces production costs and thus increases private sector investment and profitability of firms, hence, fostering economic growth. Supporting this view are scholars such as; Abdullah (2000), Al-Yousif (2000), Ranjan K.D, Sharma C. (2000), Cooray A.(2009) who maintained that expansion of government expenditure contributes positively to economic growth. However, some scholars did not support the claim that increasing government expenditure promotes economic growth, instead they assert that higher government expenditure may slowdown overall performance of the economy. In Nigeria, government size has continued to rise due to 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 need to produce both internal and external security for the people and the nation. Available statistics show that total government expenditure (capital and recurrent) and its components have continued to rise in the last three decades. For instance, government total recurrent expenditure increased from N 36, 219.20 million in 1990 to N 461, 600.00 million in 2000 and further to N1, 589,270.00 million in 2007. In 2008, only 33 per cent of the N2.33 trillion budgets were earmarked for capital project, 67 percent was leaving for recurrent expenses. Of the N2.87 trillion proposed in 2009, only N796 billion or 27.73 percent was voted for capital projects. More also, aggregate expenditure for 2011 is projected at N4,226.19 billion, comprising n196.12 billion for statutory transfers, N542.38 billion for debt service, N2,481.7 billion for recurrent (Non-debt) expenditure and N1,005. 99 billion for capital expenditure. This represents an 18.1 percent contraction from the N5, 159. 66 billion appropriated by the 2010 Amendment and Supplementary Budget. However, the N1, 005.99 billion voted for capital expenditure as against the N919.5 billion actually utilize in the extended 15 months of the 2009 fiscal years, which is the largest amount of capital resources utilized by MDAs in any fiscal year to date. Unfortunately, rising government expenditure has not translated to meaning, as Nigeria ranks among countries in the world. Many Nigerians have continued to wallow in abject poverty. Coupled with this is dilapidated infrastructure (especially roads and power supply) that has led to the collapse of many industries, including high level of unemployment. Moreover, macroeconomic indicators like balance of payments, import obligations, inflation rate, exchange rate and national savings reveal that Nigeria was not fared well in the last couple of the years (central bank of Nigeria statistical bulletin 2008). In Nigeria, many authors have also attempted to examine the impact of government size on Nigerian economy, how it is and its relationship on economic growth. For instance, Laudau D. (1983) examined the effect of government size on economic growth for a sampled of 96 countries, and discovered a negative effect of government size on growth of real output.

## **EMPIRICAL LITERATURE**

Several academic researchers have been carried out on empirical studies to provide affirmative answer on the impact of government size on the Nigerian economy. Musgrave (1973) used cross sectional study to review the reason for public expenditure. In some selected developing countries and his finding offer three main reasons for increased public expenditure. They are: the growth in per capita income, products mix and technological changes or technical changes. They explained that efficient product mix between the private and social goods changes as per-capita income rises and this change involve a rising share of social goods. Fatoriji (1984) conducted a research on the validity of Wagner's law on few developing nation; he compares the rate of growth of public expenditure and national income. The outcome of his study validated the presence of Wagner's law.

Bayo (1984) conducted a survey on increasing of the period of 1961 to 1977 he also tested the presence of the displacement effect. He concluded that, there is evidence that shows that the Wagner's law is readily applicable to the trend of public expenditure growth and structure in Nigeria, the displacement effects is met, at least not in the peacock-Wiseman's fashion. The 1967-1970 civil wars did not affect the tax expenditure trend significantly, but the displacement can be early explained in terms of the increased tax threshold which occurred in Nigeria, in the advent of the oil boom, unless the oil boom is considered as a "social upheaval" (which it is not) the displacement effect does not apply to the trend of public sector growth in Nigeria.

Osakwe (1993) contends that there is no direct connection between a change in price level and a change in public expenditure in Nigeria. In other words, an increase in the prices level will lead to an increase in the demand for money and hence the supply of money has a positive relationship with government spending.

Furness (1975) believes that, a third factors such as government deficit expenditure causes changes in money supply and gross national products. However, since it takes times for group repercussions to be fully realized where after the expenditure consequence are immediate; it is not surprising that increase in money frequently precede those income. Henrekson and Hasson (1998) found out that initial public expenditure has a positive effect on the level and rate of income. The productive effects of public goods are likely to exceed the social cost of raising funds at low level of public expenditure on productive goods and taxations.

Essien (1995) equally tested the applicability of Wagner's law in Nigeria. He discovered that growth in public expenditure would not likely to cause income growth. However, using empirical verification to existing theories, Saad and Kalakeel (2009), performed an econometric analysis on how government expenditure affects

economic growth. They used a macroeconomic model based on the new endogenous growth. The variables used in their study are government expenditure on education, defense, health and agriculture in Lebanon using an error correction model in the long run; they found expenditure on education and defense to be statistically significant.

Ekpo (1995) investigated the impact of government size on economic growth in Nigeria's economy over the period of 1960-1992. A Denison type model was employed and total expenditure was decomposing into capital and recurrent expenditure to explore the impacts on economic growth. The expectations were not realized due to a mixture of government expenditure that was not conducive to growth. Maku (2009), on the topic: "does government spending spur economic growth in Nigeria". Maku made use of Ram (1986) model to regress real GDP on private investment, human capital investment, government investment and consumption spending at absolute levels using a time series data over the last three decades. As a result of the fact that the explanatory variables were share of the dependent variable, it led to the superiority of the model and the author could not distil the individual effect of the explanatory variables on the dependent variable. The result also depicted that human capital investment as a share of real output had positive but significant effect on the growth rate of real GDP while government investment and consumption spending, private investment had insignificant effect on real GDP. Maku (2009) concluded therefore, that the rate of government expenditure to real GDP has been rising since the introduction of SAP without significant contribution towards economic growth in Nigeria. Similarly, the inconsistent relationship between government size and economic growth is also supported by the findings of Olukayode (2009), who investigated the impacts of government size on economic growth in Nigeria using time series data from 1977 to 2006 and adopting Ram (1986) model in which government expenditure is disaggregated in private investment, human capital investment, government investment and consumption spending at absolute levels. The results showed that all the expenditures have positive effect on economic growth.

Peacock and Wiseman (1999) looked at the increasing government size from the social and political perspectives. According to them, government size will increase as income increases but because the leaders want reelection into political offices so more infrastructures must be provided in order to convince the electorate that their interests are being catered for by the people they voted into power. Development implies changes that lead to improvement or progress; it is believed that an economy that raises its per capita level of real income over time without transforming its social and economic structure is unlikely to be perceived as developing. Pearce and Warford (1999) defined economic developments as achieving a set of social goals, since goals are bound to change over time, economic development is, to some extent, a process. Rostow-Musgrave (1999) carried out a research on growth of public expenditure and concluded that at early stages of development, the rate of growth of public expenditure will be very high because government provides the basic infrastructural facilities (social overheads) and most of these projects are capital intensive, therefore, the spending of government will increase rapidly.

Iyoha (2002) postulated five stages of expenditure growth; they are: "traditional society, precondition for take-off, the take off, the drive to maturity and the eye of high mass consumption. Therefore, "what determines the accepted expenditures growth depends critically on the assumption of the type of economy, that is, whether it is a free market economy, a mixed economy or a command economy. However, it is observed that the citizens of the country are less willing to pay tax and as such the resistance of the care of the government in form of increased its size to avoid social crises in the economy keep on rising. The resistance to pay tax by the people will make the state to have low revenue and hence, the costs of providing more facilities are borne by the government, therefore, making government size or expenditure to increase rapidly.

Furthermore, Abdullahi et al (2010) equally used a time series over the last four decades, they employed a disaggregated analysis to capture the effect of government expenditure on growth and social outcomes. He found out that total capital expenditure (TCAP), total recurrent expenditure (TREC) and education have negative effect on output growth which according to the author might not be uncorrelated due to the mismanagement and diversion of public funds by government officials and political appointees. On their study, expenditure also found to be insignificant in explaining economic growth and also related to misappropriation of public fund according to the author. On the contrary, rising government expenditure on transportation, communication and health result to an increase in national output. Therefore, the author theorized that higher government expenditure on transport and communication creates an enabling environment for business to thrive.

Alexiou (2009) provides an evidence of positive relationship between government expenditure and economic growth in a study comprising seven transition economics of South Eastern Europe. Two different methodologies used in the study reveal that government spending on capital formation, development assistance, private investment and trade openness exert positive and significant effect on economic growth. Bader and Qarn (2000) employ multivariate co integration and variance decomposition techniques to examine the casual relationship between government expenditure and economic growth for Egypt, Israel and Syria economies. The

result shows a bi-directional causality running from government expenditure to economic growth with a negative long-term relationship between the two variables.

Nuruden and Usman (2010) investigated the effect of government expenditure on economic growth in Nigeria using a disaggregated approach. The results reveal that government total capital expenditure, total recurrent expenditure, and government expenditure on education have negative effects on economic growth. On the contrary, rising government expenditure on transport and communication, and health result to an increase in economic growth; meaning rising government expenditure has not translated on meaningful development. In contrast to previous case studies testing Wagner’s hypothesis for Nigeria, Ighodaro and Oriakhi (2010) used disaggregated government expenditure data covering 1961-2007. Results show that a long run relationship exists between the dependent and the independent variables except in the case where only GDP is used as the independent variables; a result that suggest that Wagner’s hypothesis does not hold in the estimation.

In more recent study, Loto (2011) investigated the impact of government size on economic growth in Nigeria for the period 1980-2008 and applied Johansen co integration technique and error correlation model. The result showed that in the short run expenditures on agricultures and education were negatively related to economic growth. However, expenditures on health, national security, transportation, and communication were positively related to economic growth, though the impacts were not statistically significant.

Several studies have been conducted on the impact of government size on the economic growth, among which are as follows: Deverajan (1993), Lind (1994), Ram (1986), Ashauer (1999), Hasson and Henrkson (1994), Maku (2009). They all found a positive relationship between government expenditure and economic growth.

On the other hand, Feldestein and Horica (1980), Lindauer and valedvic (1992), Ogiogio (2005), Slemrod (1995), Foster and Henkaso (1998), Abdullahi et al (2010), all display a negative relationship between government expenditure and economic growth.

## V. METHODOLOGY

The ordinary least squares (OLS) technique of estimation would be used in estimating the models. The technique is preferable because its parameter estimators have optimal properties that are best linear unbiased estimators known as BLUE properties.

### MODEL SPECIFICATION

The relationship between the dependent variable and independent variables of interest is captured in a linear form with the Real Gross Domestic Product as the dependent variable and Government Size which is captured by the ratio of the total government expenditure to gross domestic product (RGDP), total government expenditure, investment, real money supply and real exchange rate as the independent variables in the model.

The model will be specified as follows:

$$RGDP = F(TGE, GSIZE, INV, RMOS, REXCH) \dots\dots\dots (1)$$

Transforming equation (1) into linear function it becomes:

$$LOG(RGDP) = \alpha_0 + \alpha_1 LOG(TGE) + \alpha_2(GSIZE) + \alpha_3 LOG(INV) + \alpha_4 LOG(RMOS) + \alpha_5 (REXCH) + U_t \dots\dots\dots (2)$$

Where

RGDP = Real Gross Domestic Product

TGE = Total Government Expenditure

GSIZE= Government Size

INV =Investment

RMOS = Real Money Supply

REXCH = Real Exchange Rate

$U_t$  = Stochastic Error Term

$\alpha_0$  = the Constant or Intercept

$\alpha_1 - \alpha_5$  = the coefficient of the explanatory variables

## VI. DATA ANALYSIS AND RESULTS

**TABLE 1: The table shows the estimated parameters, the t-statistics as well as other tests. Dependent Variable: Real Gross Domestic Product (RGDP)**

VARIABLES	COEFFICIENT	Std. ERROR	T. STATISTIC	PROB
Constant	3.020848	0.627041	4.829678	0.0000
LOGTGE	-0.513740	0.245443	-2.93115	0.0434
GSIZE	-0.459248	0.141793	-3.238859	0.0026
LOGINV	-0.136620	0.077599	-1.760599	0.0868
LOGRMOS	1.457432	0.222332	6.555221	0.000
TEXCH	-0.005969	0.004114	-1.450891	0.1556

Source: Author's Analysis

F – Statistic = 96.12918

R – Squared ( $R^2$ ) = 0.930320

Adjusted  $R^2$  = Durbin- Watson = 1.027717.

The complete form of our regression model is  $LOG(RGDP) = 3.028048 - 0.513740 LOG(TGE) - 0.459248(GSIZE) - 0.136620 LOG(INV) + 1.457432 LOG(RMOS) - 0.005969 + U_t$

### EVALUATION OF RESULTS

The results of model would be evaluated based on economic criteria, statistical (first order test) and econometric criteria (second order test). The essence of evaluation of the regression results is to decide whether the estimates of the parameters are theoretically meaningful and statistically significant.

### TOTAL GOVERNMENT EXPENDITURE

Given the results, the coefficient of the total government expenditure is -0.513740, this implies a negative relationship between government expenditure and Real GDP. In other words, an increase in total government expenditure would lead to a decrease in real GDP. That is to say, a percentage change in total government expenditure decreases real GDP by 51.37 percent. Thus, it conforms to a prior sign. Equally, the coefficient of the total government expenditure is statistically significantly different from zero at 5% level judging from its t-value which is -2.93115 which also greater than the t-tabulated (2.042) in absolute sense.

### GOVERNMENT SIZE

The sign of the coefficient of government size is negative (-0.459248) and this implies an inverse relationship between government size and RGDP, meaning that a percentage increase in government size causes Real GDP to fall by 45.92 percent. However, the coefficient of the government size is statistically significantly different from zero at 5% level of significant given its t-value as -3.238859 which are more than the t-tabulated (2.042) in absolute sense. Thus shows that government size is a variable affecting RGDP negatively.

### INVESTMENT

The coefficient of investment is -0.136620. This indicates negative relationship between investment and Real GDP and it does not conform to a prior expectation. Also the t-value of investment is -1.760599, meaning that its coefficient is statistically insignificantly different from zero at 5% level. Hence, it means that, in Nigerian scenario, investment has weak impact on real GDP.

### REAL MONEY SUPPLY

The coefficient of real money supply is 1.457432. This indicates a positive relationship between real money supply and real GDP and it conforms to a prior expectation that increase in real money supply will enhance economic great. In other words, a percentage increase in real money supply leads to 1.457432 percent increase in Real GDP. Given the t-value of real money supply which is 6.55221, we conclude that the coefficient of the real money supply is statistically significantly different from zero at 5% level of significance since its t-value is more than the t-tabulated (2.042). Then, we can say that real money supply is a variable affecting real GDP.

### REAL EXCHANGE RATE

For the real exchange rate, the t-value is 1.450891. Since this t-value (1.45089) is less than the t-tabulated (2.042), we reject the null hypothesis meaning that the coefficient of the real exchange rate is statistically insignificantly different from zero at 5% level. This implies that Real Exchange Rate has no impact on Real GDP.

### STATISTICAL CRITERIA (FIRST ORDER TESTS)

**TABLE 2: The summary of t-statistic**

Variable	t-value	t-tabulated	Decision	Reason	Conclusion
Constant	4.829678	2.042	REJECT $H_0$	$t_{cal} > t_{tab}$	SIGNIFICANT
LOG(TGE)	-2.93115	2.042	REJECT $H_0$	$t_{cal} > t_{tab}$	SIGNIFICANT
GSIZE	-3.238859	2.042	REJECT $H_0$	$t_{cal} > t_{tab}$	SIGNIFICANT
LOG(INV)	-1.760599	2.042	ACCEPT $H_0$	$t_{cal} < t_{tab}$	INSIGNIFICANT
LOG(RMOS)	6.55221	2.042	REJECT $H_0$	$t_{cal} > t_{tab}$	SIGNIFICANT
REXCH	11.450891	2.042	ACCEPT $H_0$	$t_{cal} < t_{tab}$	INSIGNIFICANT

Source: Author's Calculation

From the table 2 above, we found out that only LOG(INV) and REXCH are not statistically significant while constant, LOG(TGE), GSIZE and LOG(RMOS) are statistically significant.

**THE F-TEST**

This measures the overall significance of the estimated model. This test follows an F-distribution with  $(n_1, n_2)$  degree of freedom.

$$n_1 = (k-1), n_2 = (n-k).$$

**THE HYPOTHESIS TEST**

$H_0: \alpha_1 + \alpha_2 + \alpha_3 + \alpha_4 + \alpha_5 = 0$  (The model is insignificant)

$H_1: \alpha_1 + \alpha_2 + \alpha_3 + \alpha_4 + \alpha_5 \neq 0$  (The model is significant) at  $\alpha = 5\%$  with  $k-1$  ( $n_1$ ) and  $n-k$  ( $n_2$ ) degrees of freedom.

Where  $n$  = number of observation

$K$  = number of parameters.

**DECISION RULE**

Reject  $H_0$ : if  $F_{cal} > F_{tab}$  at  $\alpha = 5\%$

Accept  $H_0$ : if  $F_{cal} < F_{tab}$  at  $\alpha = 5\%$

From the regression result,  $F_{cal} = 96.12918$

$F_{tabulated} = 2.53$

**VII. CONCLUSION**

Since  $F_{cal}$  (96.12918) is greater than the  $F_{tabulated}$  (2.53) at 5% level of significant, we reject the null hypothesis and accept that the parameter estimates are not equal to zero (0). In other words, we equally conclude that the model has a good fit and it is statistically significant, meaning that there exist a linear relationship between the dependent variable RGDP and the explanatory variables in the model.

**ECONOMETRIC CRITERIA (SECOND ORDER TESTS)**

**STATIONARY TEST**

In carrying out stationarity test, the underlying assumption in any time series analysis is that they are stationary. In such view, the unit root test is used to test for stationarity using the augmented dickey-Fuller (ADE) test at 5% level.

**TEST HYPOTHESIS**

$H_0: P = 1$  (The variables are non-stationary)

$H_1: P \neq 1$  (the variables are stationary).

**DECISION RULE**

Reject  $H_0$  if the absolute values for the calculated ADF for any of the variables are greater than the absolute value of the 5% critical values.

**Table 3 Shows the Summary of Stationarity Test**

Variables	ADF Test Statistic	ADF at 5% Critical	Order of Difference	Conclusion
LOG(RGDP)	-5.901788	-2.936942	I(1)	STATIONARY
LOG(TGE)	-7.450399	-2.936942	I(1)	STATIONARY
GSIZE	-9.659570	-2.936942	I(1)	STATIONARY
LOG(INV)	-7.014680	-2.936942	I(1)	STATIONARY
LOG(RMOS)	-4.719849	-2.936942	I(1)	STATIONARY
REXCH	-5.854786	-2.936942	I(1)	STATIONARY

Source: Author's Calculation

From the table 3 above, we observed that all the variables are stationary at first differencing I(1) at 5% critical value.

**Normality test**

This test is carried out to check if the error term follows the normal distribution. The Jarque-Bera (JB) Test for Normality was used and it follows the chi-square distribution with 2 degree of freedom.

**VIII. HYPOTHESIS**

$H_0$ : Error terms are normally distributed

$H_1$ : Error terms are not normally distributed at 5% level of significant with 2 degree of freedom.

**DECISION RULE**

If  $JB_{cal} < JB_{tab}$ , accept  $H_0$  and reject if otherwise. From the result of the normality test,  $JB_{cal} = 1.840582$ , while the chi-square table is given  $JB_{tabulated} = 5.99147$  at 2 degree of freedom. Therefore, since  $JB_{cal}$

(1.840582) <  $J_{B_{tab}}$  (5.99147) at 5% level of significance, we accept the null hypothesis ( $H_0$ ) and conclude that the error term follows a normal distribution.

**MULTICOLLINEARITY TEST**

To detect multicollinearity, the correlation matrix is used and the rule of thumb employed is that if the pair wise correlation between two repressors is in excess of 0.8, then, there is a collinearity between the two explanatory variables.

**Table 4:**

Variable	LOG(GDP)	LOG(TGE)	GSIZE	LOGINV	LOG(RMOS)	REXCH
LOG(RGDP)	1.00000	0.870189	0.603183	0.811761	0.791433	0.656258
LOG(TGE)	0.870189	1.000000	0.864112	0.965875	0.993907	0.812473
GSIZE	0.603183	0.829989	1.000000	0.829989	0.865202	0.752974
LOG(INV)	0.811761	0.966575	0.829989	1.000000	0.962687	0.823471
LOG(RMOS)	0.791433	0.993907	0.865220	0.962687	1.000000	0.812473
REXCH	0.636258	0.81248	0.752974	0.823471	0.812473	1.000000

Source: Author’s Calculation

As we can see from the table 4 above, we observe that few of the pair wise correlation coefficient is in excess of 0.8, hence, we can say that multicollinearity does not exist in between the pair except in the few cases.

**TEST FOR HETEROSCEDASTICITY**

The presence of heteroscedasticity depicts that the error terms are not constant. We shall adopt the white general heteroscedasticity test (with cross terms). This term follows chi-square distribution with degree of freedom equal to the number of regressors (excluding the constant term) in the auxiliary regression

**Test hypothesis**

$H_0: X_1 = 0$  (There exists Homoscedasticity)

$H_1: X_1 \neq 0$  (There exists Heteroscedasticity)

**DECISION RULE:** If the  $R^2_{cal}$  exceeds the  $X^2_{tab}$  at 5% level of significance with 20 degree of freedom, the conclusion is that there is heteroscedasticity but if otherwise, there is no heteroscedasticity  $X^2_{cal} = n.R^2$

Where  $n = 42$  and  $R^2 = 0.602772$

Then,  $X^2_{cal} = 42 \times 0.602772 = 25.316424$

$X^2_{tab} = 31.4104$  at 20 different.

Conclusion, since the  $X^2_{cal} < X^2_{tab}$  at the 5% level of significance, we conclude that there is no heteroscedasticity, which implies that the residual have a constant variance (ie homoscedasticity).

**CO-INTEGRATION TEST**

The purpose of the co-integration test is to determine the existence of long term or equilibrium relationship among the dependent and the independent variables in a model. To do this, the model was estimated in level form and the residual of the regression are tested for stationarity using the ADF test. The table 4 below shows the result for co-integration.

**TABLE 5**

Variable	ADF STATISTIC	CRITICAL	VALUES	
Residual(u)	-3.722678	1%	5%	10%
		-3.600987	-2935001	-2.605836

Source: Author’s Calculation

From the results in the table 5 above, we observed that the variables are co-integration at level form (order one) at both 1%, 5% and 10% level of significance. Therefore, we conclude that there exists co-integration among the variable. In other words, there is long run relationship among the variables of the model.

**IX. SUMMARY OF FINDINGS**

This paper estimates the impact of government size on Nigerian economic growth for the period of 1970-2015. This paper, specifically examines some of the key variables affecting economic growth in Nigeria, namely, total government expenditure, government size, captured by the ratio of total government expenditure to real GDP investment, real money supply and real exchange rate.

However, the results of the work indicate that increase in total government expenditure and government size impedes economic growth while real money supply enhances economic growth in Nigerian. More also, investment and real exchange are not statistically significant, meaning that they have weak impact on Nigerian economic growth.

**X. CONCLUSION**



The conclusion to be drawn from this study is that the benefit of government size on the growth of any nation cannot be over emphasized.

Ideally, public spending is meant to enhance per capital income and in turn reduce poverty. This goal can only be achieved if national policies and programs are anchored on expenditure management and improvement in the quality of life of the population. Nevertheless to achieve a high and sustainable output growth, we proffer some policies recommendations which when properly implemented will surely stimulate greater growth of the output in the country.

Meanwhile, it is not all the areas that need proper treatment that are adequately treated due to various limitations being faced by this research work. But we recommended that further studies be genuinely carried out using different and more sophisticated methodologies and choice variables in order to harmonize the structural relationship between government size and economic growth in Nigeria.

### **POLICY RECOMMENDATIONS**

Based on the finding of this research work, we hereby proffer the following policy measures for long term sustenance of economic growth on the Nigerian economy.

1. Since the public spending over the years has not played a significant and positive role in promoting economic growth of Nigeria, government should therefore reduce its size and total spending in order to enhance economic growth in Nigeria
2. There should be institutional framework that is devoid of corruption which should be supervising all contracts awarded to any company to make sure that a quality project is executed.
3. There should be also optimal control of governments spending in Nigeria. This is because, public spending many times fails to translate into desired and expected services for a verity of reasons. One of such reasons is the possibility that the expenditure may be directed to the wrong goals or wrong people.

There is the need for the government to efficiently meet the challenges of infrastructural development in the entire country as this will help to launch the private sector in a full potential. This will also stimulate private investment and induce remarkable economic growth much more than government direct involvement in investment. This is because private investment has significantly stronger effect on growth than those government investments probably because it is more efficient and perhaps less closely associated with corruption

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