__Original Research Article__

Economic Growth Effect of Government Expenditure: Evidence from the Nigeria Economy (1981 – 2016)

Abstract

This study ascertained the effect of government expenditure on economic growth in Nigeria from 1981 to 2016. This study was inspired by two leading controversial issues in the theoretical and empirical studies regarding effect of government expenditure on economic growth for emerging economies. Specifically, this study ascertained the effect of government recurrent and capital expenditure on growth rate of real gross domestic product. The study utilized secondary data from Central Bank of Nigeria Statistical Bulletin. The data collected were analysed using the Autoregressive Distributive Lag (ARDL) Co-integration and Granger causality test. The findings emanating from this study revealed that government recurrent and capital expenditure have no significant effect on Nigeria's economic growth In view of these findings, there need for policy makers to review its composition by ensuring capital expenditure takes at least 50% of annual total expenditure. Measures such as reducing foreign training, bogus allowances for political office holders, etc. should be tailored towards reducing government consumption expenditures.

Keywords: Economic Growth; Government Expenditure.

1. INTRODUCTION

The societies we are privilege to enjoy today unarguably depend on the reality of constituted authorities – governments. Without that, provision of public goods such as national defence, education, health, transport and communication, police and fire protection among others owing to market failure would be practically complicated. As such, the conduit to assuaging the needs of the citizens by governments is to embark on expenditure through allocation of funds to various sectors of the economy. Rhetorically and sedulously trusting the assertion of Mohammadi, Maleki and Gashti (2012), economists know that health and education are the most important tasks of governments as their inherent duties and also they believe that the governmental intervention in the area of market failure and economic balance is necessary. Heedlessly, for Iheanacho (2016), monetary economists trust on the functions of public sector expenditure as an instrument which the government can apply to resolve some economic problems such as reduction in inequality, inflation, fall in exchange rate, unemployment, dwindling oil price and the desire to restore the economy on the part of full employment, price stability, balance of payment equilibrium and above all, increase in economic growth. In Hamzah (2011), government can facilitate economic growth through provider for defence, social security, judiciary, property rights, regulations, infrastructure development, workforce productivity, community services, economic infrastructure, regulation of externalities, and pleasure marketplace. The standard of living of people in economies that consistently experience economic growth is preferred to economies with volatility in growth rate consequent to coherent progress in basic infrastructures and development in human capital.

The nexus between government expenditure and economic growth has received considerable attention in recent years, especially for developing countries owing to the relevancy of government expenditure in accelerating growth and development, and the liquidity challenges befalling developing economies being a resultant effect of underdeveloped nature of the financial system. The expenditure pattern of the government tends to determine the pace of growth and development a country can attain at any point in time. Government expenditure on critical areas such as real sector, health, infrastructures and education among others will cause upsurge in a country's aggregate productive capacity. Nwakoby, Okaro and Ananwude (2016) note that government expenditure in agriculture would in the long run improve the foreign exchange earnings from non-oil exports. If it is incurred to improved education and healthcare, productivity and employment is enhanced, while wasteful spending such as excessive government expenditure on official travels and conferences might not contribute much to economic growth and development (Lwanga & Mawejje, 2014), hence governments are faced with the task of appropriately allocating expenditure to different segments of the economy to sustain growth.

Tamoya (2011) vividly stated that decision makers risk doing more harm than good to their economies over the long-run if the appropriate level and composition of government expenditure is not

58 maintained. However, the sources of fund to financing government expenditure should not be ignored
59 too as this would also affect growth. Government relying substantially on tax from citizens' income to
60 finance expenditure may deter the culture of savings which ultimately affects investments, shifting to
61 fiscal deficit results in higher debt burden and crowding out of private investments. In Nigeria, studies
62 on the economic effect of government expenditure have been well documented in literature. The
63 findings from these studies show mixed results attributed mostly to the methodology applied. We
64 observe from these empirical studies that it was the monetary value of government expenditure and real
65 gross domestic product that were used in data analysis. With this scenario, this study utilized the
66 percentage changes in components government expenditure and real gross domestic product to
67 determine how government spending has affected economic growth in Nigeria.
68
69 This study is divided into sections. The background to the study was presented in section one; review
70 of relevant literature in section two; methodology in section three; analysis, findings and discussion in
71 section four, whereas the conclusion and policy implication in section five.
72
73 **2.   REVIEW OF RELEVANT LITERATURE**
74 **Concept of Government Expenditure and Economic Growth**
75 Government expenditure is the expenditure of the government on amenities and services for the growth
76 and development of the economy usually on annual basis. Government expenditure has been on the
77 forefront of macroeconomic policies in Nigeria owing to the increasing public needs of the increasing
78 population. The term "government expenditure" was born out of revenue allocation which refers to the
79 redistribution of fiscal capacity between the various levels of government or the disposition of
80 responsibilities between tiers of the government (Okoro, 2013). The nature of the impact of public
81 expenditure on growth will depend on its form (Kweka & Morrissey, 2000). Government expenditure
82 on education and health care would raise labour productivity whereas government expenditure on such
83 infrastructure as roads and communications would also boost the rate of private domestic investment,
84 which in turn fosters economic growth (Alshahrani & Alsadiq, 2014).
85
86 The concept of economic growth is seen from different angles based majorly on the level of
87 development experience in the country at that particular point in time. Economic growth is the
88 monetary value of goods and services produced in a country over a particular period of time. The
89 growth of the economy is usually measured using various criteria and yardsticks. The gross domestic
90 product is the traditional measure of economic growth, however, some scholars measured economic
91 growth with per capita income. In the perspective of Nworji, Okwu, Obiwuru and Nworji (2012), the
92 increase in a country's potential Gross Domestic Product (GDP), although this differs depending on
93 how national product has been measured, is referred to as economic growth and must be sustained for a
94 developing economy to break the circle of poverty.
95
96 **Relationship between Government Expenditure and Economic Growth**
97 Economic growth as mostly represented by the growth in real gross domestic product is an indicator of
98 the health of a country over a given period of time. A significant change in pattern of government
99 expenditure ultimately affects national output for an emerging economy like Nigeria thus a positive
100 relationship between government expenditure and economic growth. In Dereje (2012), there is a
101 possible relationship between the share of government spending to GDP and the growth rate of per
102 capita real GDP, and also there is a constant return to capital that broadly includes private capital and
103 public services. Following the Keynesian school of thought, government expenditure stimulates
104 economic growth increase in government expenditure raises aggregate demand which results in more
105 productive economic activities to meet demands of population.
106
107 When considering the appropriate policy measures that stimulate growth, policymakers are usually
108 interested in demand management policies which concentrate on the management of money supply and
109 government expenditures and supply side policies (Jiranyakul, 2007). However, the mismatch between
110 the performance of Nigeria's economy and massive increase in government capital expenditure over the
111 years raises a critical question on its role in promoting economic growth and development (Onakoya,
112 Somoye &, Russell, 2013). Government expenditure as part of the macro-economy is the provision of
113 necessary government services to the public, and provision of these services have a relationship with
114 the growth of the economy (Udoka & Anyingang, 2015).
115
116 **Theoretical Background**

In theoretical literature, many theories have been modelled in discussing the linkage between government expenditure and economic growth. The Keynesian theory, Wagner's law of government expenditure and the Peacock and Wiseman's Hypothesis based on their popularity in literature. The Keynesian theory of public expenditure believes that money is all that matter in economic growth and development and as such, it is the government that can effectively and efficiently provides such magnitude of money via public expenditure. Keynes believed the role of the government to be crucial as it can avoid depression by increasing aggregate demand and thus, switching on the economy again by the multiplier effect. Besides, it is a tool that bring stability in the short run but this need to be done cautiously as too much of public expenditure lead to inflationary situations while too little of it leads to unemployment (Essays UK, 2013). The Keynesian school of thought are on the tent that market failures exist thus needed government interventions. The view of the Keynesian theory is against the classical economists which are of the opinion that government intervention is not beneficial to the economic growth and development as private sector can articulate and manage the activities of the state to attain a desired level of growth.

Wagner's law of government expenditure was named after Adolph Wagner, a German political economist that published a book titled "law of increasing state activity" following his research in Western Europe at the end of the 19th century. Adolph Wagner analysed the linear relationship between government expenditure and economic growth and empirical envisage a fundamental cause and effect relationship between government expenditure and economic growth. From Adolph Wagner hypothesis, there is a positive and direct relationship between government expenditure and economic growth, that is, government responsibility/function are raised by virtue of higher spending.

Following the criticism that greeted the Wagner's law of government expenditure with respect to its universal application, the Peacock and Wiseman's Hypothesis was developed by T. Peacock and Jack Wiseman in their 1961 following an empirical study of the British economy for the period 1890-1955 to affirm the validity of the Wagner's assentation. According to Neog, Phukan and Barthakur (2014) and Aggarwal (2017), Peacock and Wiseman upheld the validity of Wagner's law but empirically stated that the British public sector has grown on a "step-like" rather than a "continuous growth" basis. Following Neog, Phukan and Barthakur (2014), Peacock and Wiseman hypothesis has three major concepts: displacement, inspection and concentration effect. In terms of the displacement effect, during the time of war, the government further increases the tax rates and enlarges the tax structure to generate more funds to meet the increase in the defence expenditure. After the war the new tax rate or tax structures may remain the same, as the people get used to them hence, the increase in revenue results in rise in government expenditure.

Empirical Studies

Adigwe, Anyanwu and Udeh (2016) examined the long run relationship between government expenditure and economic growth, short run and long run adjustment and the effect of government expenditure on Nigeria's economic growth for a period of forty five (45) years from 1970 to 2015. The result of the long run test revealed the existence of a long run relationship between government expenditure and economic growth in Nigeria, VECM analysis suggested that Nigeria would achieve a steady level of growth if preference is giving to capital expenditure over recurrent expenditure, and the granger causality effect result envisages that recurrent and capital expenditure which are the two components of government expenditure have significant effect on Nigeria's economic growth.

Alshahrani and Alsadiq (2014) ascertained the effects of different types of government expenditures, on economic growth in Saudi Arabia. The study used different econometric techniques to estimate the short- and long-run effects of these expenditures on growth and employed annual data over the period 1969-2010. Findings indicated that while private domestic and public investments, as well as healthcare expenditure, stimulate growth in the long-run, openness to trade and spending in the housing sector can also boost short-run production.

Muritala and Abayomi (2011) empirically examined the trends as well as effects of government spending on the growth rates of real GDP in Nigeria from 1970-2008 using econometrics model with Ordinary Least Square (OLS) technique. The paper tested for presence of stationary between the variables using Durbin Watson unit root test. In an attempt to establish long-run relationship between public expenditure and economic growth, the result revealed that the variables are co integrated at 5% and 10% critical level. The findings showed that there that there is a positive relationship between real GDP as against the recurrent and capital expenditure.

Nworji, Okwu, Obiwuru and Nworji (2012) determined the effect of public expenditure on economic in Nigeria for the period 1970 – 2009. The tool of analysis was the OLS multiple regression model specified on perceived causal relationship between government expenditure and economic growth. Results of the analysis showed that capital and recurrent expenditure on economic services had insignificant negative effect on economic growth during the study period. Also, capital expenditure on transfers had insignificant positive effect on growth. But capital and recurrent expenditures on social and community services and recurrent expenditure on transfers had significant positive effect on economic growth.

Carter, Craigwell and Lowe (2013) provided empirical evidence on the relationship between the components of government expenditure and economic growth in Barbados. Both the Dynamic Ordinary Least Squares and the Unrestricted Error Correction Model were employed to analyse time series data spanning from 1976-2011. Generally the findings suggested that total government spending produces a drag on economic growth, particularly in the short-run, with a much smaller impact over time. More specifically the results indicated that while outlays on health and social security have little influences on per capita economic growth; government expenditure on education typically has a significant and negative impact on growth, both in the long and short runs.

Nasiru (2012) investigated the relationship between government expenditure (disaggregated into capital and recurrent) and economic growth in Nigeria over the period (1961-2010). The paper employed the Bounds Test approach to co-integration based on unrestricted Error Correction Model and Pair wise Granger Causality tests. The results from the Bounds Test indicated that there exists no long-run relationship between government expenditure and economic growth in Nigeria only when real GDP is taken as dependent variable. In addition, the causality results revealed that government capital expenditure granger causes economic growth. While no causal relationship was observed between government recurrent expenditure and economic growth.

Abu and Abdullahi (2010) evaluated the effect of government expenditure on economic growth. The study employed a disaggregated analysis. The results revealed that government total capital expenditure, total recurrent expenditures, and government expenditure on education have negative effect on economic growth. On the contrary, rising government expenditure on transport and communication, and health resulted to an increase in economic growth.

Adamu and Hajara (2015) explored the impact of public expenditure on economic growth in Nigeria using time series data for the period 1970-2012. The tools of analysis were the ADF unit root test and ordinary least square multiple regression accompanied by pairwise Granger causality test. Empirical findings from the study showed that there is positive and insignificant relationship between capital expenditure and economic growth, while recurrent expenditure had a significant positive impact on economic growth. Also, Granger causality test demonstrated a unidirectional causality running from the fiscal variables to economic growth in validation of the Keynesian theory.

Alexiou (2009) provided further evidence on the relationship between economic growth and government spending. For the first time two different panel data methodologies have been applied to seven transition economies in the South Eastern Europe. More specifically, the evidence generated indicated that four out of the five variables used in the estimation i.e. government spending on capital formation, development assistance, private investment and trade-openness all have positive and significant effect on economic growth. Population growth in contrast, is found to be statistically insignificant.

Using time series data of 32 years period (1980 - 2011), Okoro (2013) investigated the impact of government spending on the Nigerian economic growth. Employing the ordinary least square multiple regression analysis to estimate the model specified. Real Gross Domestic Product was adopted as the dependent variable, while government capital expenditure and government recurrent expenditure represented the independent variables. With the application of Granger Causality test, Johansen co-integration Test and Error Correction Mechanism, the result showed that there exists a long-run equilibrium relationship between government spending and economic growth in Nigeria.

Ebong, Ogwumike, Udongwo and Ayodele (2016) examined the impact of government capital expenditures on economic growth in Nigeria during 1970 and 2012. A multiple regression model based

on a modified endogenous growth framework was utilized to capture the interrelationships among capital expenditures on agriculture, education, health economic infrastructure and economic growth. Drawing on error correction and co-integration specifications, an OLS technique was used to analyse annual time series. Government capital expenditures had differential effects on economic growth. Capital expenditures on Agriculture did not exert any significant influence on growth both in the long and short runs.

Nwaeze, Njoku and Nwaeze (2014) assessed the nature and impact of Federal Government Expenditure on Nigeria's economic growth for the period 1992 – 2011. Time series data for the twenty year period were sourced from secondary sources and Ordinary Least Square (OLS) multiple regression technique was used to estimate the hypothesis formulated. Real Gross Domestic Product, proxy for economic growth was adopted as the dependent variable while Total Recurrent Expenditure and Total Capital Expenditure constitute the independent variables. The results of the study showed that the Federal Government Expenditure has a positive and insignificant impact on the economic growth of Nigeria for the period under study.

Ebiringa and Charles-Anyaogu (2012) adopted a Cochrane-Orcutt and ECM method to measure the long run effect of selected macroeconomic variables economic growth. The result showed that expenditure on telecommunication, Defence and security, Education and Health Sector have made positive impact on Nigeria's economic growth. But transportation and agricultural expenditures have impacted negatively in the economic growth in Nigeria.

Asghar, Azim and Rehman (2011) observed empirically the effect of government spending in social sectors on economic growth during the period 1974-2008 in Pakistan. The results of the study revealed the existence of positive relationship between government expenditure on human capital and economic and community services and economic growth. The government expenditure on law and order and subsidies appear to be negatively related to economic growth.

Agbonkhese and Asekome (2014) evaluated the impact of public expenditure on the growth of the Nigerian economy, and to ascertained whether there is a relationship between gross domestic product (GDP) and government expenditure in Nigeria. It covered the period of 1981 – 2011 and the Ordinary Least Square (OLS) method of econometric technique was used. The econometric analysis indicated that although there is a positive relationship between the dependent and independent variables, the adjustment of economic growth or gross domestic product was a fair one which made it difficult to reject the null hypothesis.

Oni, Aninkan and Akinsanya (2014) looked into the joint effects of capital and recurrent expenditures of government on the economic growth of Nigeria using the ordinary least square method for estimating multiple regression models covering 1980-2011 time period. The regression results showed that both capital and recurrent expenditures impacted positively on economic growth during the period of study. The recurrent expenditure has a stronger and more accelerating effect on growth than capital expenditure.

Ayinde, Kuranga and Lukman (2015) modelled and investigated the impact of capital expenditure, recurrent expenditure and various sources of Government revenue on Nigeria's economic growth using secondary data gathered from 1981 to 2011. The statistical and econometric tools used for the study include the unit root test, co-integration, error correction mechanism and combined estimators' analysis. Results from the analysis disclosed the positive impact of capital expenditure, oil revenue, federation account and federal retained revenue on economic growth.

Mushtaq, Nazir, Bashir, Ahmed and Nadeem (2014) explored association among government spending, exports of country, imports of country and its economic growth over the period 1995 to 2011 using a panel of eight countries. Stationarity of variables was tested by using IPS test for unit root whereas co-integration was tested by applying Pedroni panel co-integration test. Fixed effects model was used for estimation of model as suggested by results of Hausman test. Results of Pedroni cointegration test implied the presence of co-integration between variables. Results of fixed effects model showed that government spending, exports and domestic private investment affect economic growth positively and significantly. However, imports affect economic growth negatively and significantly.

296 Egbetunde and Fasanya (2013) examined the impact of public expenditure on economic growth in
297 Nigeria during the period 1970 to 2010. The study employed the bounds testing (ARDL) approach to
298 examine the long run and short run relationships between public expenditure and economic growth in
299 Nigeria. The bounds test suggested that the variables of interest put in the framework are bound
300 together in the long-run. The associated equilibrium correction was also significant confirming the
301 existence of long-run relationships. They findings indicated the impact of total public spending on
302 growth to be negative which is consistent with other past studies. Recurrent expenditure however was
303 found to have little significant positive impact on growth.

305 Hamzah (2011) ascertained the association between government expenditure and economic growth in
306 Malaysia from 1970 to 2007. The study employed OLS regression for the empirical analysis.
307 Surprisingly, the study found that the rising of the total government development expenditure has a
308 significant and negative relationship with economic growth. Similar results apply to the total
309 government development expenditure in economic services.

311 Bojanic (2013) addressed the relationship between economic growth and productivity to budget share
312 ratios of government expenditures in Bolivia since 1940. Government expenditures were classified
313 according to their functional and economic characteristics and place of origin. The results indicated that
314 defence expenditures, decentralized expenditures (local or regional), and expenditures in Santa Cruz
315 Department represent the best ways for government to boost the country's growth. Expenditures on
316 additional areas, such as education, and in other promising departments, such as Beni and Oruro, have
317 the potential for generating significant growth and should be considered areas for possible government
318 intervention.

320 Chamorro-Narvaez (2012) identified the effects of the two economic components of government
321 spending, namely, capital and current spending, on the per capita economic growth rate in a set of Latin
322 American countries over the period 1975 – 2000. The results emanating from the analysis suggested
323 that neither government capital nor current expenditures have any impact on the per capita economic
324 growth rate.

326 Iheanacho (2016) looked into the long and short run relationship between public expenditure and
327 economic growth in Nigeria over the period of 1986-2014, using Johansen co-integration and error
328 correction approach. The result showed recurrent expenditure is the major driver of economic growth
329 in Nigeria. Controlling for the influence of non-oil revenue, the study showed a negative and
330 significant long run relationship between economic growth and recurrent expenditure coexists with a
331 positive short run relationship, highlighting the dual effects of recurrent expenditure on economic
332 growth in Nigeria.

334 Mohammadi, Maleki and Gashti (2012) determined the effect of governmental expenditure
335 composition on the economic development of Economic Cooperation Organization Countries (ECO) in
336 the period 1995-2009. The method used was the dynamic panel data method and generalized method of
337 moments (GMM). The findings showed that the health expenditure by governmental statistically has
338 significant and negative effect on growth, educational expenditure by governmental statistically has
339 Significant and positive effect also the governmental defence expenditure has significant & statistically
340 has positive effect on the economic development of ECO countries.

342 Akpokerere and Ighoroje (2013) assessed effect of government expenditure on economic growth in
343 Nigeria using a disaggregated approach for the period 1977 – 2009. The results of the estimation
344 entailed that Government total capital expenditure, total recurrent expenditures, government
345 expenditure on education and power have negative effect on economic growth and are significant. On
346 the contrary, rising government expenditure on transport and communication and health results to an
347 increase in economic growth.

349 Udoka and Anyingang (2015) evaluated the effect of public expenditure on the growth and
350 development of Nigerian economy (1980-2012). Ex-post facto research design was adopted and data
351 were analysed using Ordinary least square multiple regression statistical technique. Result of the
352 findings revealed that aggregate expenditure had a positive impact on economic growth and
353 development of the Nigerian economy, recurrent expenditure had a significant relationship on the
354 growth and development of the Nigerian economy. The result also indicated that capital expenditure
355 also had a significant effect on the growth and development of the Nigerian economy.

356
357 Dereje (2012) analysed the relationship between the components of government expenditure and
358 economic growth in Ethiopia from 1970 to 2011. Both descriptive and econometric techniques were
359 employed for the purpose of analysis. The long run estimation result revealed that real government
360 spending on human capital formation is growth promoting; real government consumption is growth
361 retarding and real government physical investment becomes insignificant in explaining growth of real
362 per capita income. Real Private investment and real openness affect the growth of real per capita
363 income positively and significantly. The result of VECM revealed that all components of government
364 expenditure do not have significant effect in explaining growth of real per capita income in the short
365 run.
366
367 Al-Bataineh (2012) analysed the impact of public expenditures on economic growth using a time series
368 data on Jordan for the period 1990-2010 using for these purposes the different regression model, and
369 Dicky- fuller and Phillips- perron unit root tests were examine the integration order of the variables,
370 Johansson co-integration test was also used. The study found that the government expenditure at the
371 aggregate level has positive impact on the growth of GDP which is compatible with the Keynesians
372 theory. It was also found that the payment is proven to have no influence on GDP growth.
373
374 Onakoya, Somoye and Russell (2013) investigated the impact of public capital expenditure on
375 economic growth in Nigeria in the context of macro-econometric framework at sectorial levels. The
376 research adopted a three-stage least squares (3SLS) technique and macro-econometric model of
377 simultaneous equations to capture the disaggregated impact of public capital expenditure on the
378 different sectors of the economy. The study showed that public capital expenditure contributes
379 positively to economic growth in Nigeria.
380

381 **3. METHODOLOGY**
382 The methodology followed the approach of the Autoregressive Distribute Lag (ARDL) model. The
383 direction of causality was ascertained using the granger causality technique. The stationarity properties
384 of the data sourced from the Central Bank of Nigeria (CBN) were tested via Augmented Dickey-Fuller
385 (ADF), Philip Peron (PP) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) tests. Economic growth was
386 defined in terms of Growth Rate of Real Gross Domestic Product (GRRGDP), while government
387 expenditure was measured using also the percentage changes in the components of government
388 expenditure: Recurrent Expenditure (REXP) and Capital Expenditure (CEXP). The model of
389 Alshahrani and Alsadiq (2014) was followed and stated as:
390 $$y_t = \beta_0 + \beta_1\left(\frac{IP}{Y}\right)_t + \beta_2\left(\frac{IG}{Y}\right)_t + \beta_3 Open_t + \sum_{i=0}^n \beta_i \Delta EXP_t^i + \varepsilon_t \text{---}$$
391 Equ.1
392 where y is the growth rate of the real non-oil per capita GDP in period t, IP is real private domestic
393 investment, IG is real government investment, Y is real non-oil GDP, (Open) is openness to trade
394 calculated as the sum of real exports and imports over real non-oil GDP, (EXP^i) represents various
395 components of government expenditure in the subset, βs are unknown parameters to be estimated, and
396 ε is the usual random disturbance term. The model (Equ.1) was however, modified based on peculiarity
397 of the Nigeria government expenditure pattern thus:
398 $$RGDPGR = f(PCREXP, PCCEXP)\text{---}Equ.2$$
399 Econometric transformation of Equ.2 results as thus:
400 $$GRRGDP_{it} = \beta_0 + \beta_1 PCREXP_{it} + \beta_2 PCCEXP_{it} + \varepsilon_{it} \text{---}Equ.3$$
401

402 **4. ANALYSIS, FINDINGS AND DISCUSSION**
403 **Stationarity Characteristic of the Data**
404 The stationarity characteristic of the data in Tables 1 – 4 report mixed order of integration that is, either
405 as 1(0) or 1(1). That notwithstanding, the data were found to free from stationarity issues. The mixed of
406 integration necessitated the adoption of the Autoregressive Distribute Lag (ARDL) model of
407 estimation.
408
409
410
411
412

Table 1: Result of ADF Test at Level

Variables	Intercept	Trend and Intercept	None	Remark
GRRGDP	-4.512011 (0.00)*	-4.641949 (0.00)*	-1.382897 (0.15)	Stationary
PCREXP	2.348498 (0.99)	-0.667090 (0.97)	3.933926 (0.99)	Not Stationary

| PCCEXP | -1.142910 (0.69) | -2.395787 (0.38) | -0.253794 (0.59) | Not Stationary |

Table 2: Result of ADF Test at First Difference

Variables	Intercept	Trend and Intercept	None	Remark
GRRGDP	-7.943588 (0.00)*	-7.931819 (0.00)*	-8.080538 (0.00)*	Stationary
PCREXP	-5.733958 (0.00)*	-3.842017 (0.02)**	-4.775142 (0.03)**	Stationary
PCCEXP	-7.475509 (0.00)*	-7.347241 (0.00)*	-7.361155 (0.00)*	Stationary

Table 3: Result of PP Test at Level

Variables	Intercept	Trend and Intercept	None	Remark
GRRGDP	-4.512011 (0.00)*	-4.613723 (0.00)*	-3.444175 (0.00)*	Stationary
PCREXP	2.535525 (1.00)	-0.530805 (0.98)	4.153049 (1.00)	Not Stationary
PCCEXP	-1.026842 (0.73)	-2.395787 (0.38)	-0.080579 (0.65)	Not Stationary

Table 4: Result of PP Test at First Difference

Variables	Intercept	Trend and Intercept	None	Remark
GDPGR	-12.43864 (0.00)*	-16.49997 (0.00)*	-12.53437 (0.00)*	Stationary
GREXP	-5.915199 (0.00)*	-7.678769 (0.00)*	-4.871698 (0.00)*	Stationary
GCEXP	-7.475509 (0.00)*	-7.347241 (0.00)*	-7.239692 (0.00)*	Stationary

Descriptive Properties of the Data

Table 5 details the descriptive statistics of the data. The mean, median, maximum, standard deviation and number of observations are clearly seen. The skewness reveals GRRGDP as not positively skewed toward normality. From the p-values of the Jarque-Bera statistics, the data were normally distributed thus free from any outlier that may likely affect the result of the regression estimates.

Table 5: Data Descriptive Features

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	P-value	Obs
GDPGR	3.148611	4.540000	12.74000	-13.13000	5.782879	-1.078232	3.969616	8.385746	0.015103	36
GREXP	1068568.	313880.0	4178590.	4750.000	1375246.	1.077378	2.635110	7.164181	0.027817	36
GCEXP	368005.3	255670.0	1152800.	4100.000	372270.1	0.655318	2.061156	8.898791	0.042360	36

Model Sensitivity Test

The model was subjected to sensitivity analysis via serial correlation LM test, heteroskedasticity test and Ramsey RESET test. The serial correlation (Table 6), heteroskedasticity test (Table 7) and Ramsey RESET (Table 8) disclose that the model passed the above stated preliminary test on the argument that the p-values for serial correlation LM test, heteroskedasticity test and Ramsey RESET test are insignificant at 5% level of significance. Furthermore, the disaggregation of government expenditure into recurrent and capital expenditure resulted in the correlation matrix in Table 8 which envisages no multicollinearity problem. The correlation between recurrent and capital expenditure is 0.177

Table 6: Serial Correlation LM Test

Regression Estimates	F-statistic	Prob. F(2,31)
GRRGDP →PCREXP + PCCEXP	0.735537	0.4874

Table 7: Harvey Heteroskedasticity test

Regression Estimates	F-statistic	Prob. F(2,33)
GRRGDP →PCREXP + PCCEXP	1.074769	0.3530

Table 8: Ramsey Reset Specification

Estimates	t-statistic	df	P-value
GRRGDP →PCREXP + PCCEXP	1.440067	32	0.1596

Table 9: Correlation Matrix

	GDPGR	GREXP	GCEXP
GRRGDP	1.00000	0.2614	0.3955
PCREXP	0.2614	1.0000	0.1770
PCCEXP	0.39555	0.1770	1.0000

ARDL Co-integration Relationship

The result of the ARDL co-integration reveal that there is a long run relationship between growth rate of real gross domestic product and government total recurrent and capital expenditure. This assertion is arrive on the fact that the f-statistics of the bound test of 8.77 is greater than the upper and lower bound

critical values of 4.85 and 3.79 at 5% level of significance. On this premises, null hypothesis of no co-integration relationship between the dependent and explanatory variables are rejected at significance level of 5%.

Table 10: Bound Test for Economic Growth and Government Expenditure

T-Test	5% Critical Value Bound		Remark
F-Statistic	**Lower Bound**	**Upper Bound**	
8.772020	3.79	4.85	Null Hypothesis Rejected

Source: E-views 9.0 version data output

Nature of Long Run Relationship/ARDL Error Correction Model

The determination of the nature of the long run relationship and the speed of the adjustment to equilibrium is presented in Table 10. From the result in Table 10, government recurrent and capital expenditure have insignificant negative relationship with gross domestic product growth rate. In terms of the speed of adjustment, Table 10 reveals that the model move toward equilibrium following disequilibrium in the explanatory variables. The ECM is negatively signed with a coefficient of -0.73, a suggestion that 73% of error generated in previous period is corrected in current period.

Table 11: ARDL Co-integrating and Long Run Form for GRRGDP→PCREXP+PCCEXP

	Co-integration Form			
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(PCREXP)	-0.000001	0.000001	-1.118030	0.2721
D(PCCEXP)	0.000007	0.000005	1.617873	0.1158
CointEq(-1)	-0.729290	0.154858	-4.709417	0.0000
	Long Run Equation			
PCREXP	-0.000002	0.000002	-1.101176	0.2793
PCCEXP	0.000010	0.000006	1.681375	0.1027
C	1.869904	1.596175	1.171490	0.2503

Source: E-views 9.0 version data output

Short Run ARDL Relationship

The short run nexus between the government expenditure and economic growth is detailed in Table 11 shows that there is an insignificant positive relationship between government capital expenditure and gross domestic product growth rate in Nigeria, while recurrent expenditure of the government depicted a negative insignificant relationship with gross domestic product growth rate. When the two components of government expenditure: recurrent and capital are held constant, the growth rate of the gross domestic product would be 0.69%. A percentage rise in recurrent expenditure decreases the growth rate of gross domestic product by 1.56%, whereas a unit increase in capital expenditure causes 1.12% appreciation in gross domestic product growth rate.

Table 12: ARDL Regression: Gross Domestic Product Growth Rate and Government Expenditure

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.694949	1.277780	0.543872	0.5902
GREXP	-1.56E-06	1.37E-06	-1.134139	0.2649
GCEXP	1.12E-05	5.07E-06	2.206492	0.0344
R-squared	0.188105	Mean dependent var		3.148611
Adjusted R-squared	0.138899	S.D. dependent var		5.782879
S.E. of regression	5.366252	Akaike info criterion		6.277792
Sum squared resid	950.2898	Schwarz criterion		6.409752
Log likelihood	-110.0003	Hannan-Quinn criter.		6.323849
F-statistic	3.822826	Durbin-Watson stat		2.019909
Prob (F-statistic)	0.032118			

Source: E-views 9.0 version data output

The adjusted R-squared reveals that only 13.89% changes in growth rate of gross domestic product as a result of fluctuation in both recurrent and capital and capital expenditure of the government. From the p-value of the coefficient of the f-statistic (0.03), components of government expenditure significantly explained the changes in growth rate of gross domestic product. There is no autocorrelation in the estimated output (Watson statistic of 2.01).

Variance Decomposition

From the result in Table 13, it is observed that government recurrent and capital expenditure have been contributing to gross domestic product growth rate in Nigeria from period 1 – 10. Capital expenditure of the government was seen to have influenced gross domestic product compared to recurrent

expenditure. Nevertheless, the variation in gross domestic product growth rate was better explained by itself.

Table 13: Variance Decomposition of GRRGDP

Period	S.E.	GRRGDPGR	PCREXP	PCCEXP
1	4.890485	100.0000	0.000000	0.000000
2	5.274506	93.52377	0.278587	6.197642
3	5.498145	86.85555	0.762643	12.38181
4	5.692862	81.52427	1.237592	17.23814
5	5.852702	77.58183	1.737020	20.68115
6	5.981210	74.65633	2.234525	23.10915
7	6.078678	72.56429	2.739418	24.69629
8	6.148406	71.12915	3.237537	25.63331
9	6.194468	70.20487	3.722306	26.07282
10	6.222400	69.64734	4.178986	26.17368

Source: Data output via E-views 9.0

Impulse Response Function

The impulse response function analysis was performed and the result summarized in Table 14. From the impulse response function, economic growth responds negatively to government recurrent expenditure both in short and long run but positively to capital expenditure.

Table 14: Impulse Response Function of GDPGR

Period	GDPGR	GREXP	GCEXP
1	4.890485	0.000000	0.000000
2	1.449780	-0.278395	1.313092
3	0.487221	-0.391203	1.420831
4	0.406019	-0.412969	1.357822
5	0.392477	-0.440356	1.223721
6	0.365011	-0.452103	1.087714
7	0.323308	-0.461330	0.926332
8	0.275936	-0.460064	0.751514
9	0.223029	-0.452128	0.560698
10	0.166180	-0.435578	0.359829

Source: Data output via E-views 9.0

Granger Causality Analysis

The effect of government expenditure on economic growth in Nigeria was ascertained with the aid of the granger causality analysis and presented in Table 15. There is no empirical evidence that growth rate of gross domestic product is affected by government recurrent and capital expenditure because, there is no presence of either unidirectional or bidirectional causal relationship between government expenditure and economic growth. Causality does not flow from any direction at 5% significance level.

Table 15: Granger Causality Result for Economic Growth and Government Expenditure

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
PCREXP does not Granger Cause GRRGDP	35	0.17077	0.6822	No Causality
GRRGDP does not Granger Cause PCREXP		1.43811	0.2392	No Causality
PCCEXP does not Granger Cause GRRGDP	35	1.63321	0.2105	No Causality
GRRGDP does not Granger Cause PCCEXP		1.03363	0.3169	No Causality

Source: Data output via E-views 9.0

Discussion of Findings

The ARDL co-integration result depicts that government expenditure is related in long run with economic growth in Nigeria. This implies that Nigeria will achieve considerable growth and development if expenditure are properly utilized and this tallies with Egbetunde and Fasanya (2013) and Okoro (2013). From the result in Table 10, capital expenditure has positive relationship economic growth, while recurrent has negative relationship with economic growth. Capital expenditure associating positively with economic supports previous works of Muritala and Abayomi (2011), Nworji, Okwu, Obiwuru and Nworji (2012), Nwaeze, Njoku and Nwaeze (2014), Oni, Aninkan and Akinsanya (2014) and Egbetunde and Fasanya (2013) but disagrees with Okoro (2013) who established a negative link between capital expenditure and economic growth. With respect to the negative relationship between recurrent expenditure and economic growth, earlier study by Abu and Abdullahi (2010) is affirmed. The result in Table 15 showed that recurrent and capital expenditure have no significant effect on economic growth and industrial development in Nigeria. This could be attributed

to the fact that fund allocated for government expenditure are mismanaged or siphon by politician and those in corridors of power. In Nigeria implementation of government expenditure is not up to 50%, annual budget are usually passed in according to law in second quarter of a fiscal year. This findings is in unison with Inuwa (2012), Egbetunde and Fasanya (2013), Nworji, Okwu, Obiwuru and Nworji (2012) and Oni, Aninkan and Akinsanya (2014) but could not confirm significant effect of government expenditure on economic growth as documented by Okoro (2013).

5. CONCLUSION AND POLICY IMPLICATION

In developing countries like Nigeria which have resource constraint due to underdeveloped nature of the stock market, government expenditure is vital to accelerate the pace of economic growth and development. The level of economic growth achieved in the country so far is poor when compared to the drastic and magnificent rise in government expenditure which calls for the need for government to re-organise its fiscal policy to better the life of the citizens.

Recurrent expenditure/government consumption expenditure constitutes over 70% of total expenditure, yet no commensurate influence on economic growth and development. Consequently, there need for policy makers to review its composition by ensuring capital expenditure takes at least 50% of annual total expenditure. With this, more jobs will be created and infrastructural project completed. This in turn leads to expansion in productive economic activities hence, reduction in the level of poverty. Measures such as reducing foreign training, bogus allowances for political office holders, etc. should be tailored towards reducing government consumption expenditures.

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