

## GOVERNMENT EXPENDITURE AND ECONOMIC GROWTH: THE CASE OF NIGERIA

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### Abstract

The role of government in the growth and development process of an economy has remained a contentious issue among economists and policymakers in developed and developing nations. While Keynesian economists present an argument for growth-inducing role of government expenditure on the economy, critics also argue that government participation in economic activities is fraught with inefficiencies and therefore an impediment to growth. A third dimension to the argument derives from whether or not the interaction between government expenditure and growth is linear or non-linear thereby raising the issue of whether there exists an optimum size of government expenditure for an economy. Over the years, fiscal operations in Nigeria show a steady increase in government expenditure *vis-à-vis* sub-optimal economic performance (measured by growth in GDP). Studies on government expenditure-economic growth nexus show mixed results. To contribute to literature on the subject, this study examines the relationship between government expenditure and economic growth to determine the extent to which output growth in Nigeria is affected by government spending. The study is based on historical data between 1981 and 2017. Government expenditure is analyzed in the study in its aggregate form and constituent parts, while controlling for inflation. The study shows significant short-run negative effect of lagged current expenditure on economic growth. It also shows strong positive effect of lagged capital expenditure on growth. However, within the scope of this study, there is no evidence of long-run effect of government expenditure on economic growth. This indicates non-sustainable pattern of government expenditure in Nigeria. It is therefore recommended that more funds be allocated to capital expenditure to enhance capacity for sustainable growth.

**Keywords:** Government expenditure, economic growth, economic performance.

## 1 INTRODUCTION

Governments have a primary responsibility to ensure that structures for contract enforcement, protection of lives and property, development of critical infrastructure and social amenities are in place for the economy to function. Mitchell (2005) posits that economic activity would be very low or non-existent if these core functions of government are not financed. This therefore underscores the imperative of budgetary allocations to the government. The government must therefore be enabled to undertake some level of expenditure towards engagement of growth-oriented activities. Hence, the role of government in the growth process of an economy has often been debated in the context of size. Essentially, the argument has been on whether or not large government expenditure is consistent with government objective of achieving accelerated economic growth.

Advocates of large government expenditure argue that increased government expenditure on public goods like education, healthcare and infrastructure are necessary for higher levels of productivity. They further contend that increased government spending enhances the spending capacity of economic agents thereby making further production imperative. Keynesian economists, for instance, present an argument for government participation in economic activities as the panacea for enhanced performance. They argue that government spending stimulates demand through increased expenditure on sundry consumption thereby raising the growth of economic activity. Large government expenditure stimulates both public and private sector demand for goods and services leading to increased production of same in response to demand pressure. Evans and Karras (1994), Anaman (2004), Kustepelli (2005) and Heidari, Parvin and Fazeli, (2010) present empirical support for positive association between government expenditure and economic growth.

On the other hand, critics argue that large government expenditure stifles growth due to high level of inefficiency associated with government institutions and governance. Large-scale government participation in an economy is also criticized on the premise that private sector participation in economic activities is greatly impaired thereby further slowing down the growth process. Critics assert that while government spendings are politically motivated, private sector spendings are purely based on economic considerations and thereby more efficient and more competitive. Efficiency and competitiveness are necessary conditions for growth. The rising trend of privatization of government enterprises is clear evidence that the private sector can deliver services more efficiently (higher quality at a lower cost). Folster and Henrekson (2001), Bassanini, Scarpetta, and Hemmings (2001) and Chandra (2004) present evidence of negative association between government expenditure and economic growth. It is also important to note that when government expenditure is not efficiently applied to growth and development-oriented activities, it can be inflationary and therefore growth-retarding.

Mitchell (2005) attributes the negative impact of high government expenditure on economic growth on factors like costs associated with funding sources, financing of growth- destructive activities like participation in international organizations (IMF, OECD, etc.) which advocate growth-retarding policies, subsidizing economically unsustainable decisions like welfare programmes and unemployment benefits or insurance programmes which discourage enterprise and private savings, and low level of creativity and innovation due to exclusion of the private from economic activities. The private sector drives economic growth through the process of creative destruction or disruptive innovation. With regard to funding sources, taxes, for instance, adversely affects the propensity to work or produce while borrowing crowds out private sector participation in the economy as well as raise interest rate and thereby inflation.

A third dimension to the debate derives from whether or not the relationship between growth and government expenditure is linear. Barro (1990) and Armev (1995) show non-linear relationship between the variables. They produced evidence that the relationship is one of an inverted U-shaped curve which implies a positive relationship up to a certain point (threshold) and then a negative relationship beyond the identified threshold. The U-shaped curve indicates that before the optimum level, benefits accruing from government spending outweigh the associated cost. However, beyond this point government spending becomes a burden as cost of additional outlays outweighs the benefits deliverable to the economy thereby retarding growth. Thus, in some instances low government expenditure enhances growth while in some other instances, government need to spend more to achieve rapid output growth. Hence, there is no one-off conclusion on the nexus between government spending and economic growth.

Gupta (1989) argues that the nexus between economic growth and government expenditure depends on how government expenditure is defined. This argument appears validated in Hansson and Henrekson (1994) who produced evidence that government consumption expenditure retards economic growth while expenditure on education promotes growth.

## **1.1 Theoretical Framework**

The Keynesian theory on economic stimulus provides the theoretical framework for this research. The theory is predicated on the underlying assumption that following an economic shock, households lack capacity to sustain consumption pattern leading to excess supply. In the emerging scenario, businesses are forced to reduce production thereby further lowering output growth (more recession). Keynes (1936) therefore argues that government can spend its way out of recession by putting more money in the hands of the public. The argument is that increased government spending raises private spending leading to increased production and higher output growth. To Keynes, it does not matter how the money is spent so long as it provides income and employment.

However, critics of the theory, like Riedl (2010), argue that government spending as espoused by Keynes cannot stimulate growth because it is either financed from taxes or borrowing. Taxation amounts to a redistribution of existing income, with no new purchasing power created. It is also a disincentive to production and income. Domestic borrowing reduces private sector investment and output while foreign borrowing has implications for balance of payments. However, Riedl (2010) posits that government spending can support long-term growth if it is directed at promoting productivity and employment supporting activities like education (human capital development), physical capital (plant and equipment, tools, etc.), technology, public infrastructure and utilities, development of institutions that promote contract enforcement.

Another important theory on the economic growth-government expenditure nexus posits that government expenditure is driven by economic growth (Wagner, 1883). Wagner contends that government expenditure rises in response to challenges posed by expansion of economic activities.

This study aligns with views espoused in Riedl (2010) that the capacity for public spending to promote output growth depends on the type of activity being financed by the government.

## **2 REVIEW OF RELATED LITERATURE**

The work of Asghari, Heidari and Zonouzi (2014) investigated how government expenditure affects economic growth in selected countries between 1990 and 2011. Countries included in the study sample are Algeria, Egypt, Iran, Jordan, Lebanon, Malta, Morocco, Saudi Arabia, Sudan, Syria, Tunisia and Yemen. Model estimation was based on the method of Panel Smooth Threshold Regression (PSTR). The study indicates non-linear relationship between the variables. It further presents a negative relationship between government consumption expenditure and economic growth which implies that high levels of consumption diminish capacity for productive investment thereby impeding growth. This result validates the outcome of an earlier study by Gupta (1988) though Gupta (1988) further suggest that level of economic development plays a vital role in the interaction between growth and government spending. Specifically, the research shows that government consumption negatively affects growth in developed economies but enhances it in developing economies.

Gunalp and Gur (2002) estimated the effect of government spending on economic growth in a sample of thirty-four developing nations drawn from Asia, Latin America and Africa. Estimates from the panel analysis show strong support for positive or growth-enhancing effect of government expenditure on economic growth in the sample. The result further indicates evidence of country-specific effect. Most of the Asian countries in the sample that have history of rapid growth and competitive export industries, abundant stock of human and physical capital, sound governance and political systems, and strong economic fundamentals show positive relationship between economic growth and government expenditure. However, the reverse was observed for most of the African and Latin American countries due, largely, to weak institutions, unstable economic and political systems.

The work of Pula and Elshani (2017) examined the nexus between public expenditure and economic growth in order to ascertain which of Keynes or Wagners laws apply to Kosovo. In essence, the work aimed at ascertaining which of the two variables drives the other. The study analyzed quarterly data from 2004-2016 using Johansen and Granger causality tests. The co-integration test reveals long-run association between economic growth and the explanatory variables. With regard to causality, the result shows government expenditure as the driver of growth and thereby validates the Keynesian argument for Kosovo. It further shows one-way causality from economic growth to government revenue as well as bi-directional causality between foreign direct investment (FDI) and economic growth and between export and economic growth. The work of Paparas and Stoian (2016) however produced empirical support for Wagner law for Romania. Using Johansen co-integration and Granger causality tests Paparas and Stoian (2016) examined the relationship between government expenditure and economic growth in Romania between 1995 and 2015.

Though the study produced mixed results in the short-run (Wagner law was validated in two out of five of its representations), the long-run result shows economic growth as the driver of government expenditure. Wang, Peculea and Xu (2016) used ARDL method to further validate Wagner law for Romania based on data for 1991-2014.

Studies have also produced evidence in support of linearity argument on the nexus between government expenditure and output growth. Armeiy (1995) demonstrated non-linear relationship between growth and government spending. The study produced an inverted U-shaped relationship between the variables. The result was further validated in Veddar and Gallaway (1998). Also, the work of Chen and Lee (2005) used an inverted U-shaped Armeiy curve to analyze the nexus between growth and government spending. The study identified threshold effect in the relationship which implies positive impact of government size on output performance up to a certain level (the threshold) and negative impact beyond this point. This indicates that additional expenditures beyond the identified threshold become less productive thereby lowering growth rate. Karagiani (2009) established non-linear causal relationship between national income and government spending in selected European countries. In their respective studies, Hearth (2009) and Fachini (2011) also produced empirical support for non-linear relationship between growth and government expenditure for Sri-Lanka over 1953-2003 and France (1871-2008). The work of Fallahi and Shoorkchali (2012) sought to validate the existence of non-linear or inverted U-shaped relationship between government spending and economic growth for Greece using annual data from 1961 to 2008. The result of the smooth transition regression did not support inverted U-shaped relationship between the variables. It rather shows linear and positive association between them.

Using data on 12 Western European industrial countries, Pevcin (2004) produced evidence of strong negative relationship between government expenditure and economic growth. The study further indicates existence of an optimal level of government expenditure in an economy. In a research work by Berg (2007) which examined the nexus between government spending and economic growth based on a sample of rich OECD countries, the result provides strong empirical support for negative impact of government expenditure on growth. The study analyzed data over 1970-2005 using OLS and Bayesian algorithm methods. Loto (2008) conducted a sectoral study on how government expenditure on selected sectors of the economy affects output growth in Nigeria. The study covered agricultural, health, transportation, security and communication sectors. The result shows expenditure on agriculture as an impediment to economic growth while expenditure on other sectors did not significantly enhance growth.

The work of Zareen and Qayyum (2014) analyzed the relationship between government size and economic growth in Pakistan and provides evidence that large government size retards growth. Herath (2012) also presents evidence that large government expenditure can be an impediment to growth through reduction of constructive features of government intervention.

Argument on whether or not there exists an optimum level of government expenditure that supports growth seems resolved in Sjoberg (2003) which produced evidence that if government expenditure is either too small or too large, growth is impeded. This suggests existence of an optimum level of government expenditure that is consistent with increased output. This level of expenditure optimizes available capacity to generate increased output.

Hansson and Henrekson (1994) provide empirical support for Gupta (1989) who argued that the relationship between government expenditure and economic growth depends on what constitutes government expenditure or how the concept is defined. Evidence from Hansson and Henrekson (1994) indicates that consumption-oriented expenditure is an impediment to growth whereas expenditure that targets improvement in education (capacity building) positively impacts output growth. Similarly, Sjoberg (2003) finds that while government consumption expenditure reduces growth, expenditure on education enhances capacity for growth.

The work of Ifarajimi and Ola (2017) used dynamic ordinary least squares (DOLS) to estimate the impact of government expenditure on economic growth in Nigeria between 1981 and 2015. The result of the study indicates strong impact of government expenditures on administration and economic services on economic growth. Using the Johansen method Ogundipe and Oluwatobi (2013) shows that over the period 1970-2009 expenditure on health and education sectors in Nigeria correlated strongly with economic growth. In a research by Hasnul (2015), ordinary least squares method (OLS) was used to estimate the effect of government spending on economic growth in Malaysia between 1970 and 2014. Evidence from the study indicates that expenditures on housing and development reduced output growth while expenditures on education, defence, healthcare and government operations did not significantly affect economic growth.

Kimoro, Keong and Sea (2017) used generalized method of moments (GMM) to estimate the effect of government expenditure and government efficiency on economic growth using panel data on 25 low income Sub-Saharan African (SSA) countries for the period 2002-2015. The result shows that increased government expenditure accelerates economic growth in the economies. However, when efficiency of government spending was introduced as an interactive variable, the result shows non-significant effect of government spending, an indication of inefficiency in government fiscal operations. Alexiou (2009) used two distinct panel estimation methods to determine the impact of government spending on economic growth in 7 transition economies in South Eastern Europe (SEE). The result indicates that expenditures on capital formation and development assistance facilitate economic growth in these economies. There is also evidence that private sector investment spending strongly enhanced growth, an indication that government and private sector play complementary roles in driving economic growth in South Eastern Europe.

The work of Babatunde (2018) used a sample of 237 respondents within Lagos metropolis to ascertain public perception on the nexus between government expenditure and the expectations of citizens. Based on the outcome of the study, the author concludes that while public spending on agriculture and natural resources did not align with public expectations, expenditure on transportation and communication, education, and healthcare are consistent with public expectations on good governance.

From the study of selected OECD countries, Connolly and Li (2016) report strong negative association between public social expenditure and economic growth. In a panel study of 26 Sub-Saharan African countries over 1987-1997, Yasin (n.d) used fixed and random effects methods to estimate the effect of public spending on economic growth. The result indicates that both public and private sector expenditure significantly enhance output growth. The work of Dupor (2017) which examined the response of the American economy to government expenditure in the post-recession period of 2009 shows non-cost effective response of job creation to government expenditure as well as crowding out effect of the private sector by high government expenditure on defence. These results indicate negative correlation between economic growth and government spending. The research conducted by Nurlina (2015) which examined the nexus between government expenditure and economic growth in Indonesia from 2004 to 2013 shows that increase in total government expenditure enhances economic growth.

Studies have also been conducted to determine causal relationships between government spending and economic growth with mixed results. Abu Bader and Abu-Qarn (2003) reports bi-directional causality between the variables. The study which examined the causal relationship between government spending in Israel, Egypt and Syria also shows strong relationship between the variables over the long-run. However, when decomposed into civilian and military expenditures, it was observed that while military expenditures retard growth in the study sample, civilian expenditures contribute positively to growth in Israel and Egypt. The work of Loizedes and Vamvoukas (2005) which analyzed how government spending correlate with economic growth in Ireland, Greece and the United Kingdom shows causal impact of government spending on growth for all the countries. However, when inflation was introduced in the model, the authors report reverse causality (from growth to government expenditure) for United Kingdom and Greece. Further evidence of causation between government spending and economic growth was produced by Jiranyakul and Brahmasrene (2007). The work presents evidence of uni-directional causality from government spending to economic growth.

The outcome of Olugbenga and Owoye (2007) which analyzed panel data for 30 OECD countries over 1970-2005 was rather mixed. It indicates empirical support for causal impact of government spending on growth for 16 of the countries while causality was observed from growth to government expenditure for 10 other countries. Bi-directional causality was reported for 4 countries. Liu, Hsu and Younis (2008) analyzed the nexus between government expenditure and economic growth in the United States of America between 1947 and 2002 using the Granger causality method. The study shows uni-directional causality from government expenditure to economic growth. Chiawa, Torruam and Abur (2012) conducted a cointegration and causality analysis of the nexus between government expenditure and economic growth in Nigeria. The study produced empirical support for strong long-run association between the variables. With regard to short-run interaction, the result shows that capital and recurrent expenditures increase in response to output growth.

Studies on the nexus between government expenditure and economic growth in Nigeria also produced mixed results. Using the method of ordinary least squares, Okoro (2013) finds that between 1980 and 2011 there is evidence that government recurrent expenditure enhanced economic growth while there is no evidence that capital expenditure significantly impacted growth. The work of Iheanacho (2016), however, shows that both recurrent and capital expenditure are impediments to economic growth. Nkechukwu and

Okoh (2013) examined the short- and long-run interactions between government capital expenditure and economic growth in Nigeria using disaggregated data on capital expenditure between 1981 and 2013. The VECM estimates show strong long-run impact of road and education expenditures on economic growth as well as strong negative impact of agriculture and health expenditures on growth. The short-run estimates based on Granger causality method indicate bi-directional causality between capital expenditure on agriculture and economic growth as well as between capital expenditure on health and economic growth. There is also evidence of uni-directional causality from road infrastructure to economic growth and from education to economic growth.

The research work by Garba and Abdulahi (2013) examined the nexus between public expenditure and economic growth in Nigeria over the period 1970-2008 using co-integration and Granger causality tests. The co-integration test shows evidence of long-run cohesion among the variables. Estimates from the Granger causality test show bi-directional causality between government expenditure and economic growth. Danladi, Akomolafe, Olarinde and Anyadiegwu (2015) used the autoregressive distributed lag (ARDL) and Granger causality estimation methods to determine the relationship between government expenditure and economic growth in Nigeria between 1981 and 2013. The regression result shows strong positive effect of government spending on economic growth. The result was further validated by the Granger causality result which shows causal impact of government expenditure on economic growth.

### 3 SCOPE AND METHODOLOGY

The study was designed to estimate the effect of government expenditure on economic growth in Nigeria between 1981 and 2017. *Ex-post facto* research design was used for the study. Model estimation was based on the method of autoregressive distributed lag (ARDL) since the variables have mixed order of integration.

#### 3.1 Model Specification

The model used for this study is presented as follows:

$$LGDP = \beta_0 + \beta_1 LTEXP + \beta_2 LREXP + \beta_3 LCAPEXP + \beta_4 INF + \varepsilon_{it} \quad \dots\dots\dots (i)$$

Where: LGDP = Log GDP; LTEXP = Log Total Expenditure; LREXP = Log Recurrent Expenditure; LCAPEXP = Log Capital Expenditure; INF = Inflation;  $\beta_0$  = Constant;  $\beta_1$  .....  $\beta_4$  = Parameters to be estimated;  $\varepsilon_{it}$  = Error Term

### 4 RESULTS AND DISCUSSIONS

#### 4.1 Unit Root Test

The ADF unit root result shown in table 1 indicates mixed order of integration. Following from Pesaran, Shin and Smith (2001), the autoregressive distributed lag (ARDL) was adopted for the study. The ARDL test provides estimates for short and long-run interactions between the dependent and independent variables. It also provides information on whether or not the variables are co-integrated based on estimates from the bounds test.

**Table 1: Unit Root Test using the ADF Test Statistics**

Variables	ADF Test Stat @ Level	Critical Value @ 5%	ADF Test Stat @ 1 <sup>st</sup> Diff.	Critical Value @ 5%	Order of Integration
LGDP	-0.792308	-2.945842	-3.157455	-2.948404	1 <sup>st</sup> Difference
LCAPEXP	-1.297595	-2.948404	-6.155599	-2.948404	1 <sup>st</sup> Difference
LREXP	-1.068334	-2.948404	-8.161504	-2.948404	1 <sup>st</sup> Difference
LXP	-1.196785	-2.948404	-7.298338	-2.948404	1 <sup>st</sup> Difference
INF	-2.983983	-2.945842	-	-	Level

#### 4.2 ARDL Results

##### 4.2.1 Short-Run Estimates

Table 2 shows the short-run estimates from ARDL test. The result shows that lagged recurrent expenditure (LREXP (-1)) has significant negative effect on current level of economic growth. The result indicates that

current expenditure in the previous year adversely affects economic growth in the current year. The study further shows significant positive effect of lagged capital expenditure (LCAPEXP (-1)) on economic growth. This implies that government expenditure in the past year enhances growth in the current year. The effect of lagged expenditure variables on current economic growth is an indication of fiscal persistence (Afonso and Agnello, 2008). Further evidence from the study indicates that lagged and current inflation are major determinants of economic growth in Nigeria.

The negative error correction shows the ability of the model to converge to equilibrium after a shock and the coefficient (-0.261) indicates that the adjustment process is relatively slow, about 26 per cent. This implies that only about 26 per cent of disequilibrium caused by shocks from the previous period is corrected in the current period.

**Table 2: Error Correction or Short-run Estimates**

ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LREXP)	0.026760	0.031609	0.846599	0.4059
D(LREXP(-1))	-0.122851	0.040437	-3.038108	0.0058
D(LCAPEXP)	0.015390	0.028488	0.540228	0.5942
D(LCAPEXP(-1))	0.079971	0.030760	2.599861	0.0160
D(INF)	0.002207	0.000598	3.689541	0.0012
D(INF(-1))	0.001367	0.000549	2.491195	0.0204
CointEq(-1)*	-0.260720	0.021243	-12.27294	0.0000

#### 4.2.2 Long-run Estimates

The long-run estimates (table 3) show that none of the expenditure variables (both the aggregate and its constituents) has significant effect on economic growth. This indicates that the pattern government spending in Nigeria does not support long-term growth

**Table 3: Long-run Estimates**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTEXP	0.032936	1.184464	0.027806	0.9781
LREXP	0.839199	0.801477	1.047065	0.3059
LCAPEXP	0.138792	0.426153	0.325686	0.7476
INF	0.008722	0.006005	1.452456	0.1599
C	3.543891	0.767260	4.618890	0.0001

#### 4.3 Bounds Test

The bounds test shown in table 4 provides information on whether or not the variables are co-integrated. Co-integration is established if the F-statistic is greater than the upper bound of the critical value at 5 per cent. Since the F-statistic shown in the table (20.62) is greater than the upper bound critical value (3.49), evidence of long-run relationship among the variables is proved.

**Table 4: Bounds Test**

Test Statistic	Value	Significance	I(0)	I(1)
F-Statistic	20.62129	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87

#### 4.4 Breusch-Godfrey Test for Autocorrelation

The result of the Breusch-Godfrey test (shown in table 5) which was used to ascertain existence or not of serial correlation in the model indicates acceptance of the null hypothesis that there is no serial correlation in the model since the Prob. (F-statistic) > 5%

**Table 5: Breusch-Godfrey Serial Correlation LM Test**

F-statistic	0.653753	Prob. F(2,21)	0.5304
Obs*R-squared	2.051449	Prob. Chi-Square(2)	0.3585

#### 4.5 Breusch-Pagan-Godfrey Heteroskedasticity Test

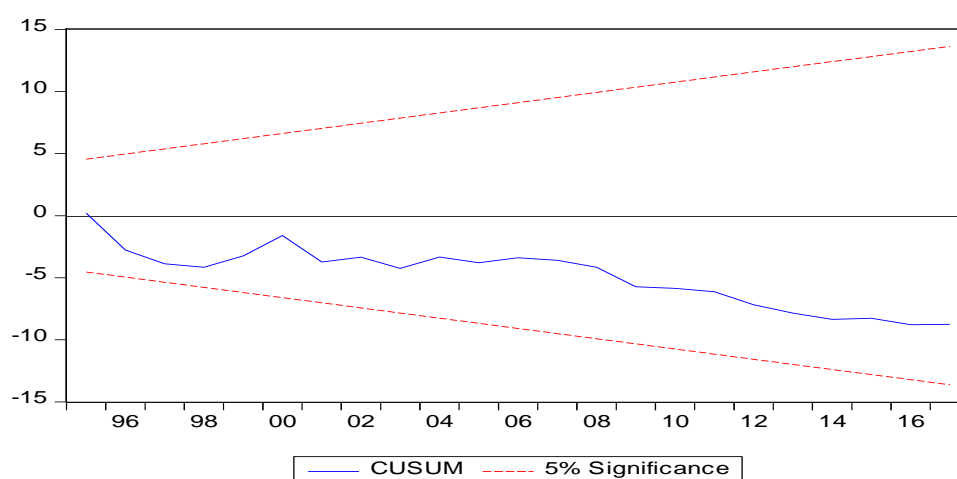
This test is used to determine if the variance of the errors in a linear regression depend on the values of the explanatory variables which indicates presence of heteroskedasticity. The result indicates rejection of null hypothesis of equal or constant variance. This implies existence of homoskedasticity. Non equal variance or heteroskedasticity is therefore assumed.

**Table 6: Heteroskedasticity Test: Breusch-Pagan-Godfrey**

F-statistic	3.159183	Prob. F(11,23)	0.0096
Obs*R-squared	21.06085	Prob. Chi-Square(11)	0.0327
Scaled explained SS	5.065085	Prob. Chi-Square(11)	0.9280

#### 4.6 Stability Test

Stability test was conducted to determine the structural stability of the model with the use of plots of the cumulative sum (CUSUM) of recursive residuals. Fig. 1 shows that the series lie between the upper and lower critical bounds (shown by the broken lines). This satisfies the condition for structural stability of the model, an indication that the model is therefore fit for policy formulation.



**Figure 1: Cumulative sum of Residuals**

### 5 SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

The study examined the relationship between government expenditure and economic growth to determine the extent to which output growth in Nigeria is affected by government spending. The study is based on historical data between 1981 and 2017. Government expenditure is analyzed in the study in its aggregate form and constituent parts, while controlling for inflation. Evidence from the ARDL estimation shows significant short-run negative effect of lagged current expenditure on economic growth. It also shows strong



positive effect of lagged capital expenditure on growth. However, within the scope of this study, there is no evidence of long-run effect of government expenditure on economic growth. This indicates non-sustainable pattern of government expenditure in Nigeria. It is therefore recommended that more funds be allocated to capital expenditure to enhance capacity for sustainable growth.

## ACKNOWLEDGEMENT

The authors duly acknowledge the support of Covenant University Ota towards their participation at the conference.

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