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TIERS OF GOVERNMENT SPENDING AND PRIVATE CONSUMPTION IN NIGERIA

Bassey Okon Ebi* & Sunday Uwem Etim

ABSTRACT

The paper examines the relative impact of federal and state level expenditures as well as capital and recurrent expenditures on private consumption in Nigeria for the period 1981 to 2017. Auto Regressive Distributed Lag estimation method was applied to estimate the desired relationship among the variables. Results showed that on average: federal government spent more than the 36 state governments over the period of this study; both federal government and aggregate state government expenditures impacted positively and significantly on private consumption, with federal government expenditure exerting greater impact than aggregate state government expenditures; aggregate recurrent expenditure crowd-in aggregate private consumption while aggregate capital expenditure crowd-out aggregate private consumption. The paper concludes that expansion in government spending seemed to be effective and generate crowding in effect more at the country level than states level. The stronger impact of the federal spending over states may be a reflection of the suitability of federal government spending over the heterogeneous nature of production and consumption patterns of states in Nigeria.

KEY WORDS:

Tiers of Government, Capital Expenditure, Recurrent Expenditure, Consumption, Nigeria

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1. INTRODUCTION

Consumption is the largest components of Gross Domestic Product (GDP) of any economy and constitute essential variable for the analysis of economic-wellbeing of citizenry. For instance, Nigeria's private consumption accounted for 79.9 % of its GDP in 2017 (National Bureau of Statistics, NBS, 2018). This implies that, identifying the factors that affects consumption is important in planning sound economic policies that will improve economic wellbeing of the

people.

In spite of the importance of consumption in determining economic well-being of a country, trends in private consumption expenditure in Nigeria are mixed. Specifically, though Nigeria's private consumption accounted for 79.9 % of its GDP in 2017, compared with 81.5 % in the previous year 2016, Nigeria's private consumption contribution to GDP ratio was on average 54.8 % between 1981 and 2017. The data reached an all-time high of 81.5 % in 2016 and a record low of 9.8 % in 1981 (NBS, 2018).

Fiscal policy, specially expenditure policies of governments can influence a great number of macroeconomic variables including consumption spending. However, trends in government total expenditure compared to consumption in Nigeria between 1981 and 2017, except in 1994 and 2000, increased consistently. During this period, the growth in total expenditure in absolute term was on the average about 29.1%. However, much of the growth in government expenditure was in the area of recurrent expenditure. On the average, the recurrent expenditure accounted for a larger proportion of total expenditure during the reference period. Recurrent expenditure, in nominal term, accounted for about 70% of total expenditures while capital expenditures accounted for about 30%. As a percentage of GDP, total federal government expenditure over the period of this study ranged between the lowest level of 10.2 % in 1996 and the highest level of 29.4% in 1981, averaging 19.6% for the period between 1981 and 2017 (NBS, 2018; Ebi & Nyong, 2021; Ebi, 2018; Ebi & Imoke, 2017; and Ebi & Ayodele, 2017).

Again linking this important component of aggregate income (consumption) to spending policies of government has created intense debate in both theory and empirics. On the theoretical ground, there are three major contending schools in this debate namely: The Keynesian school (the crowding-in hypothesis), the neoclassical school (the crowding-out hypothesis) and the Ricardian equivalence school. According to the Keynesian school, expansionary fiscal policy through expansion on government spending increases (crowds-in) both private investment and private consumption. On the other hand, the neoclassical school (the crowding-out hypothesis) contends that financing through an increase in government expenditure will reduce (crowds-out) private consumption. While the Ricardian equivalence school holds that, government spending, regardless the way of financing, does not affect household

consumption as household internalize government's budget constraint into their own life time budget constraints (Mahumd & Ahmed, 2012; Bouakez & Rebei, 2007; and Linnemann, 2006).

On the empirical ground, there is no clear evidence on the impact of government spending on private consumption. A number of empirical studies found a positive impact of government spending on private consumption (Akpan & Udofia, 2016; Arab & Haghghat, 2014; Onodje, 2009; Schclarek, 2004). On the opposite side, other studies found support for the substitutability between government spending and private consumption (Keho, 2019; Mahmud & Ahmed, 2012; and Coenen & Straub, 2005).

These literature points towards the importance of the relationship between government spending and private consumption, however, this area of research is relatively understudied for African countries like Nigeria. Again, the few studies in the context of Nigeria like Akpan & Udofia (2016) and Onodje (2009) used expenditure from only federal government. Their results may be misleading especially when one considers the huge spending from state level in Nigeria.

This paper presents two main contributions with respect to literature: firstly, it disaggregated the effect of government spending on private consumption in Nigeria into two levels: federal government spending and aggregate state government spending. The paper also disaggregated aggregate government expenditure into productive (capital) and unproductive (recurrent) government spending in order to identify the one with a greater impact on private consumption. The pertinent question of concern here is how does private consumption respond to capital and recurrent government expenditures and to different levels of government spending in Nigeria.

2. LITERATURE REVIEW

While significant amount of studies exists investigating the impact of aggregate government expenditure on private consumption spending, very few exist on how different level of government expenditures affect aggregate consumption as well as how productive and unproductive government spending affects aggregate consumption. Accordingly, the empirical literature here is divided into three subsections namely: empirical literature on aggregate government expenditure and consumption spending, empirical literature on levels of government

expenditure and consumption spending, and empirical literature on capital and recurrent government expenditure and consumption.

2.1. Empirical literature on impact of Aggregate Government Expenditure on Consumption

Notwithstanding the fact of increased interest of researchers in the influence of government spending on private consumption and its effectiveness as tool to economy stabilization, both theory and empirical evidence does do not speak with one voice and, depending on the methodology used, provides different results. While most of reviewed studies find positive response of private consumption to increase in government spending (Akpan & Udofia, 2016; Arab & Haghghat , 2014; Onodje, 2009; Schclarek, 2004; Perotti, 1999; Giavazzi and Pagano, 1996; etc). In contrast (Keho, 2019; Mahmud & Ahmed, 2012; Coenen & Straub, 2005; etc) showed negative response of private consumption to government spending expansion.

Specifically, Akpan & Udofia (2016) examined the effect of economic policies on private consumption expenditure in Nigeria from 1981 to 2014. The study employed the fiscal and monetary policy variables (government expenditure and broad money supply) in order to establish this relationship and adopted the Ordinary Least Square (OLS) method of estimation. The result indicated a positive and significant relationship between government expenditure and private consumption expenditure in Nigeria.

Khan, et al, (2015) investigated the impact of government spending on private consumption in China using annual data from 1985 to 2013. The study used the Autoregressive Distributed Lag (ARDL) approach to estimate the long and short run estimates of the model. The results of study revealed that government spending has positive relationship with private consumption in China. Moreover, government spending has almost the same impact on private consumption in both long and short run, but the coefficient of government spending is statistically insignificant in the short run.

Arab & Haghghat (2014) employed annual data of 22 OECD countries spanning 1998 to 2012 to investigate the relationship between government spending and private sector consumption. The results of the model estimation using fixed effects method, indicated a positive effect of government spending on private

consumption. Hence, Keynesian hypothesis of positive relationship and complementary (Crowding-in) between these two variables for the OECD economies was accepted.

Ezeabasili & Egbunike (2014) examined the effect of fiscal deficit on private consumption in Nigeria, utilizing data from 1970 to 2006. The study employed the ordinary least squares (OLS) estimation method based on the error correction model. Empirical result showed that government consumption and fiscal deficits have depressive effect on private consumption in Nigeria. Specifically, a one percent increase in fiscal deficit and government expenditure reduce private consumption by approximately 0.3 percent and 0.7 percent, respectively.

Alwagdani (2014) examined the asymmetric effects of exogenous fiscal policy shocks on the level and growth rate of private consumption in Saudi Arabia for the period spanning from 1973 to 2011. The Structural Vector Autoregression (SVAR) estimation technique was used as the estimation method. The result showed that private consumption increases in the face of both expansionary and contractionary shocks. Overall, the evidence from this study supports the existence of crowding-in effect of public spending on private consumption, which supported the Keynesian crowding-in hypothesis.

Onodje (2009) examines whether government expenditure shocks and tax revenue shocks have Keynesian effects in Nigeria. Data spanning the period 1980 to 2004 were used to estimate a Vector Error Correction Model. The estimation results showed that both government consumption and tax revenue shocks had Keynesian effects in Nigeria.

Schclarek (2004) used yearly data between 1970 and 2000 for thirty-eight countries, of which half were industrialized and half developing countries and indicated that government consumption shocks had Keynesian effects for both industrial and developing countries. But in the case of tax shocks, the evidence suggested that they do not have any effect on private consumption.

Perotti (1999) Used methodology that involves a panel of Euler-type consumption functions for 19 OECD countries over the period 1965-1994. He found that government expenditure shocks had Keynesian effects on private consumption under a fiscal regime of low debt; but a fiscal regime of high debt

led to non-Keynesian effect on private consumption expenditure.

Giavazzi & Pagano (1996) Using an Error Correction Consumption Model and Panel Regression for 19 OECD countries over the period 1970 -1992, found that government spending, taxes and transfers had clear impact on private consumption expenditure. They found that a dollar rise in taxes increases private consumption by fifteen to twenty cents.

All the above literature reviewed favoured Keynesian theory/framework. On the contrary, Keho (2019) examines the impact of government spending on household consumption for the Economic Community of West African States (ECOWAS), using the Common Correlated Effect Mean Group (CCEMG) estimator that accounts for both parameter heterogeneity and cross-sectional dependence. The study provides various pieces of evidence through whole-panel and country-level analyses. The panel estimates indicated that government consumption had, on average, a negative effect on private consumption, implying that government and private consumption are substitutes. Country-level results reveal, however, considerable heterogeneity in the degree of substitutability across countries. They show crowding out effects in six countries, crowding in effects in one country and no significant effect in five countries. Keho (2019) concluded that government consumption is not a good instrument in stimulating aggregate demand and economic growth in ECOWAS countries.

Mahmud & Ahmed (2012) examines public-private consumption relationship for Bangladesh economy through the lens of economic theories using the Cointegration and Error Correction modeling strategies to tackle the problem of non-stationary data. Two different variant of cointegration technique were employed and in either case a valid long run positive relationship was found. However, the Error Correction Model indicated an inverse relationship between public and private consumption in the short run. The test for Granger causality showed no long run causal relationship between government spending and household consumption. In general, their finding goes with the Barro-Ricardian equivalence hypothesis of government spending that household consumption is unrelated with government consumption decision in the long-run.

Kwan (2006) empirically investigated the relationship between government spending and private consumption for East Asia countries using panel co-

integrating regression. The results of panel regression show that on average government spending and private consumption are substitute in East Asia, however, the cross-section analysis revealed that the value of elasticity of substitute is moderate for China, Hong Kong, Japan, and Korea, while high for Malaysia and Thailand and zero for Philippines. However, in case of Indonesia and Singapore it was complementary.

Coenen & Sraub (2005) examined effects of government spending shocks on private consumption within an estimated New-Keynesian model of the euro area featuring non-Ricardian households. Employing Bayesian inference methods, they showed that there was only a fairly small chance that government spending shocks crowd in consumption, mainly because the estimated share of non-Ricardian households is relatively low, but also due to the large negative wealth effect induced by the highly persistent nature of government spending shocks.

2.2. Empirical literature on impact of levels of government expenditure and consumption

Agibaeva (2015) examined the response of private consumption to increase in government spending in Norway using both VAR and ARDL estimation techniques and quarterly data from 1995 to 2014. In addition, the paper considers government spending on three scale levels: general, central and local government expenditures. The results of the paper prove the presence of crowding in effect in scale of general government for long-run period, having small decrease in the short run, which is consistent with theory and model. The results of VAR estimation for general government spending completely match the estimated results of ARDL model. For central government spending, the response of private consumption was positive, small for short-run and strong for long run. While VAR estimation for central government spending predicts small decline in the first quarter, but sufficient increase after second quarter. However, the response of private consumption to increase in local government spending was estimated to be negative both for short-run and long run periods. The author pointed that, the negative results may be due to inappropriate method of estimating local government spending expansion. The author concluded that fiscal policy stimulation through expansion in government spending turns to be effective and generate crowding in effect only for country level, while for lower tiers of government it may cause drastic decrease in private consumption causing crowding out effect.

Guo-ping, et al, (2007) conducted panel cointegration analysis among different regions in China and estimated intertemporal and intratemporal substitution between government spending and private consumption. As the result, they found prevailing degree of complementarity in 20 out of 29 regions and very weak degree of substitution in 4 regions of China.

The present study intends to follow Agibaeva (2015) approach but applied to Nigeria. The problem of inappropriate method of estimating local government spending expansion would be avoided since this work intend to use federal and state government expenditure data which are really available. In addition, aggregate expenditure will be divided into capital and recurrent expenditures.

2.3. Impact of capital and recurrent government expenditures on private consumption

Asimakopoulos & Lorusso (2016), examined the effect of capital and recurrent public spending on private consumption using US quarterly data for the sample period 1963 to 2013 and a new Keynesian model incorporating price and wage rigidities, monetary policy and various fiscal rules. They found that price and wage rigidities along with a positive shock to the part of public spending that is productive were sufficient to boost private consumption. Moreover, they showed that the initial positive reaction of private consumption was adequate to create a positive present value consumption multiplier for more than five years.

Samadi & Seyadi (2013) divided government spending into two groups based on Barrow and showed that in the first group, government spending (spending affecting utility) and private consumption are complementary in the short run and independent in the long run. The second group spending (spending and services as inputs in the process of the private sector productions) in the short and long runs, has a direct relationship with private consumption (complementary).

Leeper, et al, (2010) used a real business cycle model with productive government spending to assess the effects of various delays on the implementation of pre-announced public spending in the U.S. economy. Their findings suggest that the introduction of non-Ricardian agents is not a necessary condition causing a positive response in private consumption. On the contrary, the assumption of a sufficiently productive government capital may lead to the crowding-in effect on private consumption.

Kraipornsak (2010) categorized government spending into recurrent spending and capital spending in Thailand. Using the Vector Error Correction Mechanism, he found no effect of government capital spending on private consumption while the government recurrent spending had a negative effect on consumption.

Linnemann (2006) employed a new Keynesian model to the US economy between 1960 and 2003 and shows that, under a specific non-separable utility function with a sufficiently strong link between marginal utility of consumption and labour, it is possible to find a crowding-in effect on private consumption from an increase in government spending, even if the latter is not productive. The strong assumption made by this author is that a lump-sum tax is residually determined via the government budget constraint, thus moving away from any use of debt and distortionary taxation or even any kind of fiscal rules.

Following the empirical work of by Leeper et al. (2010); and Asimakopulos & Lorusso (2016) this study also split the overall government spending into productive (capital) and unproductive (recurrent) expenditures in the context of Nigeria.

The summary of the review of previous empirical studies in the preceding section showed that, while a significant amount of studies exists investigating the impact of aggregate government expenditure on private consumption spending globally, very few exist on how different levels of government expenditures affect aggregate consumption as well as how capital and recurrent government spending affects aggregate private consumption.

In the context of Nigeria very few studies have been conducted in Nigeria on the impact of government expenditure on private consumption. The few studies in the context of Nigeria used expenditure from only federal government. As earlier stated, the results may be misleading in the light of huge spending from states in Nigeria. By considering government spending from both federal and state governments, the study identified which tiers of government spending is more effective in stimulating aggregate private consumption in Nigeria, as well as identifying the relative effectiveness of capital and recurrent government spending in influencing aggregate private consumption in Nigeria.

3. MODEL AND METHOD

3.1. Model

The empirical model for this study is anchored on eclectic theoretical approach. The model encompassed three main theories namely the Keynesian theory of absolute income (the crowding-in hypothesis), the neoclassical theory (crowding-out hypothesis) and the New Keynesian live cycle hypothesis. From Keynesian theory of absolute income, consumption depends on current income

$$C_t = a + bY_t \quad (1)$$

Where:

C_t = current consumption expenditure

a = autonomous consumption

b = marginal propensity to consume.

Y_t = income.

From Keynesian Income determination model,

$$Y_t = C_t + I_t + G_t + NX \quad (2)$$

Thus,

$$C_t = Y_t - I_t - G_t - NX \quad (3)$$

That is:

$$C_t = f(Y_t, I_t, G_t, NX_t) \quad (4)$$

Where:

C_t = Aggregate private consumption now (APC)

Y_t = Aggregate income proxy by GDP.

I_t = Aggregate investment proxy by Gross Fixed Capital Formation now (AGFC)

NX_t = Net export.

G_t = Total Government Expenditure which is firstly divided into federal government expenditure (FGEX) and aggregate state governments expenditure (ASGEX). This is to enable us analyze the response of private consumption on increase in government spending shocks in two different levels: federal government and aggregate state governments spending. This will allow us to decide whether expansionary fiscal policy in terms of increase in government spending is effective in stimulating aggregate household's consumption and which of them is more effective.

Secondly Aggregate expenditure from both federal and state governments are divided into aggregate capital expenditure (ACAPEX) and aggregate recurrent expenditure (ARECEX).

Accordingly, equation (4) becomes

$$APC = f(FGEX, ASGEX, ACAPEX, ARECEX, GDP, AGFC, NX, U) \quad (5)$$

Equation 5 in its econometric linear form can be specified as follows.

$$APC = \alpha_0 + \alpha_1 FGEX + \alpha_2 ASGEX + \alpha_3 ACAPEX + \alpha_4 ARECEX + \alpha_5 GDP + \alpha_6 AGFC + \alpha_7 NX + u \quad (6)$$

Where:

APC = Aggregate private consumption (in million #)

FGEX = federal government expenditure (in billion #)

ASGEX = Aggregate state governments expenditure (in billion #)

ACAPEX = Aggregate capital expenditure (in billion #)

ARECEX = Aggregate recurrent expenditure (in billion #)

GDP = proxy for Aggregate National income (in billion #)

AGFC = Gross Fixed Capital Formation as a proxy for aggregate investment (in million #)

NX_t = Net export (in billion #)

α_0 is the constant term.

α_1 to α_7 are the coefficients of the respective variables in the equation to be estimated; and U is the random error term.

The a priori expectations concerning the signs of the coefficients of variables in the model is that $\alpha_0 > 0$; α_1 , to α_4 may be $> < 0$ depending on Keynesian or Neoclassical theory. , α_5 to $\alpha_7 > 0$.

3.2. Data sources and collection

The dataset are secondary time series data sourced from the Secondary sources mainly from Central Bank of Nigeria statistical bulletin (Various years). The Data spanned 1981 to 2017.

3.3. Model estimation procedures

This study employed several estimation techniques and procedures in estimating and testing the specified equations. The first procedure in the estimation of the equations is the determination of the stationarity properties and the integrating order of the variables. The unit root tests are conducted to

determine the integrating order of the variables in the specified models. These tests are necessary given the time series nature of the variables captured in this study. The unit root was tested using the Augmented Dickey-Fuller (ADF) test and the Phillips-Perron (PP) test.

The study employed Autoregressive Distributed Lag (ARDL) techniques. ARDL have been used for decades, but it gained wide acceptance relatively recently. Pesaran and Shin (1998), Pesaran (2001) popularized ARDL by showing its usefulness as very valuable tool for testing long-run relationship between economics variables. According to Pesaran and Shin (1998) and Pesaran (2001), there are several advantages of ARDL model. First of all, it is suitable regardless of interaction order, which of $I(0)$ and $I(1)$, however we have to be sure that none of our variables are in $I(2)$. Second, ARDL employs a very simple set-up of single equation that makes the process of implementation and interpretation very straightforward and smooth. Third, variables can contain different lag-length that is not necessarily equal. In addition, considering small sample estimations, ARDL gives more robust results.

4. RESULTS AND DISCUSSION OF FINDINGS

4.1. Results of the Descriptive Statistics

The result of the descriptive statistics tests conducted to check the performance of the variables using measures of central tendencies and some measures of dispersion is summarized in Table 1. From table 1, the mean value of aggregate private consumption (APC) was #212455.1 million over the period 1981 to 2016. During the same period, the average expenditure by federal government (FGEX) was #1431.198 billion, while average aggregate expenditures by state governments (ASEXP) stood at # 1118.422 billion. the mean aggregate capital expenditure (ACAPEX) and mean aggregate recurrent expenditure (ARECEX) s from both federal and state governments stood at # 856.8409 billion and # 1676.027 billion respectively. This results points to the fact that, on average, federal government of Nigeria spent more than the 36 states and the FCT, while the mean aggregate capital expenditure (ACAPEX) from both federal government and states was less than the mean aggregate recurrent expenditures.

A further examination of the descriptive statistics revealed that aggregate private consumption (APC) had a minimum amount of #35323.7 million, while its

maximum value was #436267.8 million. In the same manner, the minimum value of federal government expenditure (FGEX) was #9.636500 billion while its maximum value was #4813.383 billion. In the same period of evaluation, the minimum value of aggregate state government expenditures (ASEXP) was #5.774700 billion, while its maximum value was #4046.800 billion. Aggregate capital expenditure had a minimum value of # 6.498700 billion and a maximum value of #2998.796 billion, while aggregate recurrent expenditure (ARECEX) was minimum at #9.457700 billion and maximum at # 6577.833 billion.

The analysis of the deviation of the variables from their true values showed that the standard deviation of the variables during the period were as follows: #109505.1 billion for aggregate private consumption; #1687.540 billion for federal government expenditure; # 1442.027 billion for aggregate state government expenditures; # 997.3164 billion for aggregate capital expenditure and #2147.490 billion for aggregate recurrent expenditure.

Examination of skewness showed that the distributions of the variables were all positively skewed. Analysis of kurtosis reveals that the distributions for gross domestic product was leptokurtic, while the rest of the variables were platykurtic. The high values of Jarque-Bera statistics and their low probability values (except for aggregate private consumption (APC) variable) indicate that the residuals in the model estimated were normally distributed.

Table 1: Descriptive statistics

	APC	FGEX	ASEXP	ACAPEX	ARECEX	GDP	AGFC	NX
Mean	212455.1	1431.19	1118.4	856.84	1676.02	22393.3	13.24	1.20E+10
Median	206615.2	594.082	249.41	387.99	402.787	4948.17	6.600	4.53E+09
Maximum	436267.8	4813.38	4046.8	2998.7	6577.83	101489.5	41.21	4.59E+10
Minimum	35323.70	9.63650	5.7747	6.4987	9.45770	144.831	2.100	-6.58E+09
Std. Dev.	109505.1	1687.54	1442.0	997.31	2147.49	31287.3	12.607	1.49E+10
Skewness	0.147881	0.88737	0.9620	0.8849	1.03140	1.32721	1.0061	0.982032
Kurtosis	2.613563	2.20265	2.3047	2.2850	2.56114	3.38578	2.601	2.521072
Jarque-Bera	0.35521	5.678302	6.278326	5.465661	6.671673	10.79226	6.3121	6.130383
Probability	0.83727	0.058475	0.043319	0.065035	0.035585	0.004534	0.0425	0.046645
Sum	7648384.	51523.14	40263.18	30846.27	60336.98	806161.8	476.7100	4.31E+11
Sum Sq. Dev.	4.20E+11	99672706	72780420	34812400	1.61E+08	3.43E+10	5563.467	7.76E+21
Observations	36	36	36	36	36	36	36	36

Source: Author's computation, 2019

4.2. Econometrics results

4.2.1. Unit root tests results

The Augmented Dickey-Fuller (ADF) tests was employed in testing for unit root or stationarity of the data. For the data or series to be stationary, then its calculated t-statistics value must be negative and greater than the critical value at least 10% level of significance. The test results as shown in table 2 revealed that the variables were not stationary at level except GDP. When the variables underwent first difference operation, they were all found to be stationary after first difference and are integrated of order one 1(1) except GDP with 1(0). Hence, apart from GDP, all other variables were not stationary at level. This informed our choice of ARDL for estimation of the model, since ARDL approach is applicable irrespective of the order of integration i.e. I(0) and I(1) except when 2(1) is present in the series.

TABLE 2: Augmented Dickey-Fuller (ADF) Unit Root Test Result

Variables	Level	1 st Difference	Order of Integration
APC	-0.877623	-2.763513*	I(1)
FGEX	-2.253661	-13.11417***	I(1)
ASGEX	-0.457509	-4.680668***	I(1)
ACAPEX	-0.929382	-4.930729***	I(1)
ARECEX	3.381927	-4.024387***	I(1)
GDP	-2.962746**	-	I(0)
AGFC	-0.411759	-2.651599*	I(1)
NX	-1.642978	-4.763604***	I(1)

Source: Author's computation, 2019

Test critical values at level: 1% = -3.632900, 5% = -2.948404, 10% = -2.612874

Test critical values at 1st difference: 1% = -3.639407, 5% = -2.951125, 10% = -2.614300

***, **, and * significant at 1%, 5%, and 10% respectively.

4.2.2. Bounds Test for Co-Integration in the Model

The bound test results in table 3 below reveals that the calculated F- statistic value of 11.80626 is above the lower bound value of 2.73 and the upper bound value of 3.9 at the 1-percent significance level; indicating the presence of co integration or long run relationship among the variables.

TABLE 3: Bounds Test for Co-Integration

Critical Value Bounds		
Significance	I(0)	I(1)
10%	1.92	2.89
5%	2.17	3.21
2.5%	2.43	3.51
1%	2.73	3.9
K=7	Lag=2	F-statistic = 11.80626

Source: Author's computation, 2019

4.2.3. Estimated Long Run Model

Since there is evidence of existence of long run relationship among variables as shown in the Bounds Test for Co-Integration in table 3, we proceed to estimate the long and short run parameters of the variables through ARDL approach. Table 4 below contains the long run results of the model using ARDL approach. In the long run, both coefficients of federal government expenditure (FGEX) and aggregate state government expenditures (ASEXP) are statistically significant as indicated by their p-values of 0.0003 and 0.0013 respectively. The coefficients of federal government expenditure (FGEX) and aggregate state government expenditures (ASEXP) were positive signed in line with Keynesian crowding-in hypothesis of government spending on private consumption. Specifically, the coefficient of federal government expenditure (FGEX) was 14.66925 which is greater than that of aggregate state government expenditures (ASEXP) with a coefficient of 13.76339. This implies that a one unit increases in federal government expenditure (FGEX) will leads to amplify the aggregate private consumption (APC) by 14.66925%. Similarly, a one unit change in aggregate state government expenditures (ASEXP) will augment private consumption by 13.76339% on average.

Table 4 also shows that the coefficients of Aggregate capital expenditure (ACAPEX) and aggregate recurrent expenditure (ARECEX) are statistically significant with p-values of 0.0014 and 0.0008 respectively. While the coefficient of aggregate capital expenditure (ACAPEX) negative in line with the crowding-out effect of the Neoclassical theory, the coefficient of aggregate recurrent expenditure (ARECEX) is positive in agreement with Keynesian crowding-in hypothesis of government spending on private consumption. Specifically, the coefficient of aggregate capital expenditure (-12.38657) is less than that of aggregate recurrent expenditure (17.63082) in absolute term. This implies that aggregate recurrent expenditure is more potent in stimulating aggregate private

consumption than aggregate capital expenditure. Thus, *Ceteris Paribus*, while a 1% increase in aggregate capital expenditure will reduce aggregate private consumption by 12.38657%, a 1% increase in aggregate recurrent expenditure will increase aggregate private consumption by 17.63082%.

The results also show GDP and net export (NX) with positive signs. However, GDP is significant, NX is insignificant as indicated by their p-values of 0.0006 and 0.4761 respectively. Coefficient of investment proxy by AGFC has negative but significant value of -8.012456 and p-value of 0.0243.

TABLE 4: Estimated Long Run Coefficients (Dependent variable D(APC))

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FGEX	14.66925	3.103248	4.72706	0.0003
ASEXP	13.76339	3.476507	3.958969	0.0013
ACAPEX	-12.38657	3.178704	-3.896734	0.0014
ARECEX	17.63082	420.4973	4.192850	0.0008
GDP	24.49806	5.612994	4.364526	0.0006
AGFC	-8.012456	3.198332	-2.505198	0.0243
NX	7.52E-07	1.03E-06	0.730855	0.4761
C	22228.19	7650.030	2.905634	0.0109

Source: Author's computation, 2019

4.2.4. Short run (Error Correction Mechanism) results

The short run results of ARDL are reported in table 5. The coefficients of federal government expenditure (FGEX), aggregate capital expenditure (ACAPEX), aggregate recurrent expenditure (ARECEX), GDP and AGFC are all statistically significant and positive except the coefficient of AGFC. The Error Correction Term (CointEq(-1)) which shows the speed of adjustment from disequilibrium to equilibrium in next period has a negative and statistically significant value of -0.991846. This indicates that private consumption will adjust to equilibrium with a speed of -0.991846 (about 99%) from disequilibrium to equilibrium in a year.

Table 5: Estimated short run coefficient (Dependent variable D(APC))

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FGEX, 2)	14.41439	1.057757	-13.62731	0.0000
D(FGEX(-1), 2)	8.748627	2.947099	2.968555	0.0096
D(ACAPEX, 2)	13.52020	1.047136	12.91159	0.0000
D(ARECEX, 2)	14.05646	1.110989	12.65221	0.0000
D(ARECEX(-1), 2)	32.79366	2.561020	12.80492	0.0000
D(GDP, 2)	30.21192	3.320363	9.098978	0.0000
D(GDP(-1), 2)	11.13701	3.261422	3.414772	0.0038
D(AGFC, 2)	5.662566	1.659777	3.411643	0.0039
D(AGFC(-1), 2)	-7.389196	1.623817	-4.550510	0.0004
CointEq(-1)*	-0.991846	0.077705	-12.76426	0.0000
R-squared	0.952938	Mean dependent var	949.3918	
Adjusted R-squared	0.934523	S.D. dependent var	71283.02	
S.E. of regression	18240.27	Akaike info criterion	22.70570	
Sum squared resid	7.65E+09	Schwarz criterion	23.15919	
Log likelihood	-364.6440	Hannan-Quinn criter.	22.85828	
Durbin-Watson stat	1.998089			

Source: Author's computation, 2019

4.2.5. Diagnostic Test of the model

The conventional test for serial auto-correlation is the Durbin-Watson (DW) statistic. But in the case of an auto-regressive model, the DW statistic is said to be inadequate in determining whether there is serial correlation in a regression model. Hence, the alternative serial correlation test for an auto-regressive model is the Q-statistic test or the LM test for serial correlation. The LM test for serial correlation is employed in this study since the models are autoregressive. The results of test are presented in table 6. The results of diagnostic tests using Breusch-Godfrey Serial Correlation LM Test suggest that our results are free from serial auto-correlation since the F-statistics value was insignificant.

Table 6: Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.032684	Prob. F(2,13)	0.9679
Obs*R-squared	0.165102	Prob. Chi-Square(2)	0.9208

Source: Author's compilation, 20197

4.2.6. Short-run Residual Stability Test

For the test of stability of the model, CUSUM and CUCUMsq were employed. it

can be seen from figure 1 and 2 that the plot of CUSUM and CUSUMsq falls

within critical bound of 5% and confirmed the long run association among variables as well as stability of the coefficients in the model.

Figure 1: CUSUM

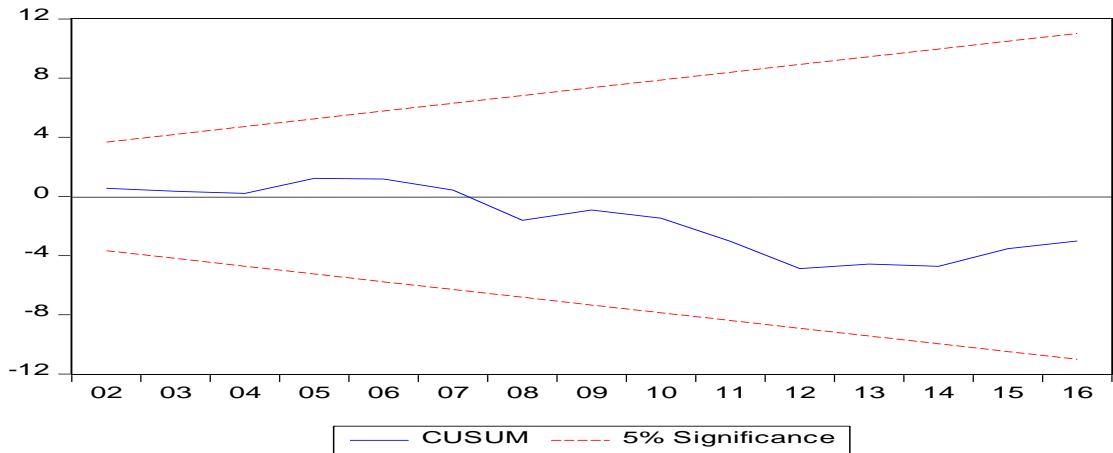
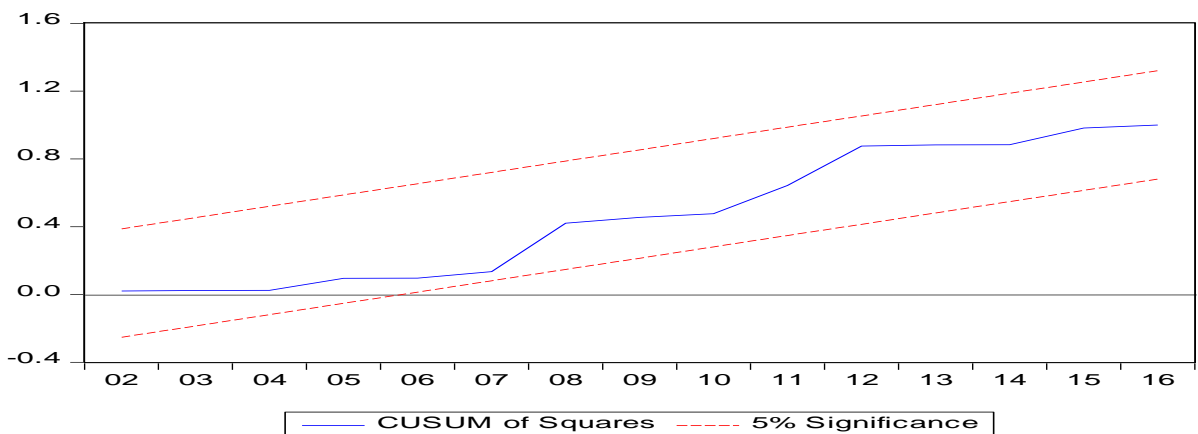


Figure 2: CUSUMsq



4.3. Discussion of findings

The impact of the level of government spending vis-a-vis: the relative impact of federal government expenditure and aggregate state government expenditures on private consumption in Nigeria was analyzed. The relative impact of aggregate capital expenditure and aggregate recurrent expenditure was also examined. Findings reveals that both federal government expenditure and aggregate state government expenditures impacted positively and significantly on private consumption in Nigeria. The finding is in agreement with Akpan and Udofia, 2016; and Onodje, 2009) that government expenditure shocks had Keynesian effects in Nigeria. This implies a positive relationship and

complementary (Crowding-in) between government expenditures and private

consumption in Nigeria. That is increase in government expenditure leads to increase in aggregate private consumption. On the contrary, the finding disagreed with Ezeabasili and Egbunike (2014) that government expenditure expansion has depressive effect on private consumption in Nigeria.

The results also provided a strong evidence that, though both federal government expenditure and aggregate state government expenditures impacted positively and significantly on aggregate private consumption in Nigeria, the impact of federal government expenditure on private consumption was stronger than that of the states. This result is in partial agreement with Agibaeva (2015) that expansion in government spending turns to be effective and generate crowding in effect only for country level, while for lower tiers of government it may cause drastic decrease in private consumption causing crowding out effect.

The results of the impact of capital expenditure and recurrent expenditure on aggregate private consumption expenditure in Nigeria showed that aggregate recurrent expenditure crowd-in aggregate private consumption while aggregate capital expenditure crowd-out aggregate private consumption. The findings conformed with Linnemann (2006) that it is possible to find a crowding-in effect on private consumption from an increase in government spending, even if the latter is not productive and Kraipornsak (2010) who found no effect of government capital spending on private consumption. On the other hand, the results disagreed with Leeper, et al, (2010) and Samadi & Seyadi (2013) who found that capital expenditure has a direct relationship with private consumption (complementary).

5. CONCLUSION

The focus of this paper was to estimate the impact of government expenditure on private consumption in Nigeria. A significant contribution of the work is the separation of government expenditure into federal government expenditures and the state governments expenditure as well as capital and recurrent expenditure. The results of study revealed that both federal government expenditure and aggregate state government expenditures impacted positively and significantly on private consumption in Nigeria with federal government expenditure exerting greater impact than aggregate state government expenditures. Thus, the estimated positive results are consistent with Keynesian

theoretical framework. Hence, fiscal policy stimulation through expansion in

government spending turns to be effective and generate crowding in effect more at country level than state level. Recurrent expenditure also crowd-in aggregate private consumption in line with Keynesian theory while aggregate capital expenditure may cause drastic decrease in private consumption causing crowding out effect as theorized by Neoclassical theory. The result seems to reflect the heterogeneous nature of states in Nigeria in terms of production and consumption patterns and the skewed nature of government spending in favour of recurrent expenditure.

DISCLOSURE OF CONFLICT

The authors declare that they have no conflicts of interest.

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