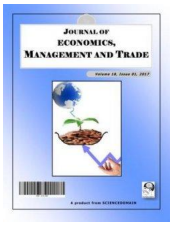

Journal of Economics, Management and Trade

21(3): 1-13, 2018; Article no.JEMT.40029
ISSN: 2456-9216
(Past name: British Journal of Economics, Management & Trade, Past ISSN: 2278-098X)

An Assessment of Government Sectoral Spending on Productivity in Nigeria: Error Correction Analysis

Paul, Ndubuisi[1*]

[1]Department of Banking and Finance, Abia State University, Uturu, Nigeria.

Author's contribution

The sole author designed, analyzed and interpreted and prepared the manuscript.

Article Information

DOI: 10.9734/JEMT/2018/40029
Editor(s):
(1) Chiang-Ming Chen, Department of Economics, National Chi Nan University, Taiwan.
Reviewers:
(1) Jegede Charles Ayodele, Lagos State University, Nigeria.
(2) Imam Mukhlis, Universitas Negeri Malang, Indonesia.
Complete Peer review History: http://www.sciencedomain.org/review-history/23775

Original Research Article

Received 17th December 2017
Accepted 23rd February 2018
Published 22nd March 2018

ABSTRACT

This study sets out to examine the role of government sectoral expenditure on productivity in Nigeria. The research covered the period between 1982 and 2015. Data on government sectoral expenditure and productivity were sourced from secondary sources and analysed using Dickey-Fuller Unit root test, Johansen cointegration test and Vector Error Correction Test (VECM) findings revealed stationarity of the variables as well as the existence of long-run relationships with economic growth index. Findings also indicate that Administration and transfer expenditure exert positive and significant influence on growth index in the long-run. It is therefore recommended that public sector financial management should be strengthened to ensure transparency in expenditure and resource allocation.

Keywords: Capital expenditure; recurrent expenditure; economic growth; sectoral allocation.

1. INTRODUCTION

The most critical function of government expenditure is to maintain a reasonable degree of price level stability and an appropriate rate of economic growth that will ginger the economy to achieve full development potential and stabilization. Economic stabilization is achieved when government spending, through its fiscal role succeeds in maintaining high employment, a

**Corresponding author: E-mail: pauloabsu2017@gmail.com;*

reasonable degree of price level stability and appropriate rate of economic growth, with all allowances for positive effects on trade, the balance of payment (BOP), savings investment and productivity [1].

However, scholars have argued that increase in government spending can be an effective tool to stimulate aggregate demand for a stagnant economy brings about crowed-in-effects on the private sector. According to the Keynesian school, the government could reverse economic downturns by borrowing money to the private sector through various spending programmes. High levels of government consumption are likely to increase employment, profitability and investment through multiplier effects on aggregate demand. Thus, government expenditure, even of a recurrent nature, can contribute positively to economic growth, [2]. In other words, endogenous models as seen in Barro [3], predicts that only those productive government expenditures will positively affect the long- run growth rate.

Agbonkhese and Asekome [4], opines that public expenditure theories evolved out of the perceived failure of market economies to efficiently and equitably allocate economic resources for social and economic infrastructure development This failure necessitated the emergence of welfare economies (state intervention in economic activities) leading consequently to the rapid expansion of the government sector, and by implication, growth in public expenditure. As the public sector size continued to grow relatively, the need for an appropriate mechanism that would ensure efficiency in resource allocation arose. In a bid to fill this perceived gap, the budget, which contained a package of public expenditure plan and tax legislation of the government for the year readily come to be veritable toot for controlling, monitoring and relating government expenditure plans to policies of finance and taxation.

Despite the accentuated role of public finance, the failure to link policy and budgets in the planning process may be the single most critical factor contributing to poor governance in developing countries, In Nigeria, the system is fragmented, as government expenditures are inconsistent with policies, thereby making limiting of the positive effect of such expenditure planning by way of budget have been seen as annual political rituals as opposed to being a serious technical component an economic planning aimed at achieving specific developmental targets in line with trend in global developments.

In Nigeria, various tiers of government formulate budget expenditure independent of one another. But a common feature of the expenditure planning system of all the tiers of government is that their plans and implementations are all anchored on statutory revenue from the Federation account, which unfortunately is benchmarked on crude oil export. Another issue that seems common to both the Federal, State and Local government is that sectoral expenditures are not indexed to economic development agenda as planned expenditures are seen as the mere allocation of funds to programmes and projects not necessarily schedule expenditures that are needed to catalyze economic growth in different sectors of the economy. The above has led to situations whose planned projects are not adequately implemented due to inadequate fund releases or lack of synchronization of project schedules public sector financial management systems.

There seems to be agreement among scholars and development partners as to the fact that Nigerian's problem of nation-building has little to do with poor policy formulation, but more with improper planning, but most with lack of transparency in implementation.

Nevertheless, this study will delineate issues concerning the extent to which government expenditure in various sub-sectors (Administration, Social and Community Services, Economic Services, and Transfers) have affected the level of economic growth of the country.

2. THEORETICAL REVIEW

Public expenditure refers to the expenses which a government incurs for (i) its own maintenance, (ii) the society and the economy and (iii) helping other countries [5].

Public expenditure refers broadly to expenditure made by local, state and national government agencies as distinct from those of private individuals, organizations or firms. There is a functional relationship between the growth of an economy and government activities with the result that the governmental sector grows faster than the economy [5].

Generally, government expenditure constitutes outlay for the provision of public goods and

services, particularly in areas where the price mechanism fails to effectively allocate resources to maximise welfare. These public goods are usually non-excludable and non-rival in consumption, thus, making it impossible for potential producers to recover the cost.

Government expenditures can be classified as recurrent, capital and transfers. Recurrent expenditures are expenses on current goods and services that do not include: overheads, payments of salaries and wages, etc. Capital expenditure involves government acquisition of capital goods for the purpose of creating a future stream of value, and they include spending on infrastructure, research and development, etc. Transfer payments are expenditures on non-compensatory payments such as subsidies, social security, etc. to individuals, businesses or lower levels of government for the purpose of improving welfare and income redistribution.

In the words of Pigou [6], in every developed society there is some form of government organization. The governing authority, whether central or local is endowed with functions and duties, the detailed nature of which varies in different places. These duties involve expenditure and consequently, require also the raising of revenue. Despite the tremendous transformation on Pigou's view of what a government and its inherent responsibility, the fundamental concepts and principles of public as a veritable tool through which government policy choices are carried out remains intrinsically unaltered in present economies, Jhingan [7] posits that government expenditure policy involves decisions which influence the flow of funds from government into private economy with the view of achieving economic stability, employment generation and economic growth. However, it is imperative to access the effect of this government expenditure on the adjudged critical sectors of the economy. For Nigeria to be ripe in its quest to become one of the largest economies in the world by the year 2020, determining the effect of public expenditure on economic growth is a strategy to fast-track growth in the nation's economy.

3. EMPIRICAL REVIEW

Though scanty in Nigeria, the reasonable number of studies on the effect of sectoral expenditure on economic growth have been conducted over the years, particularly in recent years. A number of these studies focused on the relation between government expenditure and economic growth in developed and developing countries like Nigeria. In their various studies, diverse results have as well emerged.

Niloy et al. [8] employed disaggregated approach, they examined the growth effects of government expenditure for a panel of thirty developing countries (including Nigeria) over the decades of the 1970s and 1980s, with a particular focus on sectoral expenditures. The research result primarily showed that the share of government capital expenditure is positively correlated with economic growth, but current expenditure is insignificant. The result at sectoral level revealed that government investment and total expenditure on education are the only outlays that remain significantly associated with growth through the analysis. Although public investments and expenditure in other sectors (transport and communication, defence) were found to have a significant association with growth, but do not survive when government budget constraint and other sectoral expenditures were incorporated into the analysis. Josaphat et al. [9], used the same disaggregated approach as followed by Niloy et al. [8]. They investigated the impact of government spending on economic growth in Tanzania (1965-1966) using time series data for 32years. They formulated a simple growth accounting model. It was found that increased productive expenditure (physical investment) has a negative impact on growth and consumption expenditure relates positively to the growth and which in particular appears to be associated with increased private consumption. The outcome revealed that expenditure on human capital investment was insignificant in their regression and confirmed the view that public investment in Tanzania has not been productive as at the time of the research.

Gregorous and Ghosh [10] employed the heterogeneous panel data to study the impact of government expenditure on economic growth. Their results assert that countries with large government expenditure tend to experience higher economic growth. There is a^ positive correlation between economic growth and public spending on infrastructural facilities (Nitoy et al. [8]. Devarajan, Sivaroop and Zon [11] examined the impact of particular (functional) categories of government spending using a sample of 14 emerging economies and discovered that government spending on health, transport and communication have positive impacts on economic growth. While, Folster and Herrekson,

[12]; were of the opinion that government spending on education and defence did not have a positive impact on economic growth.

Fajingbesi and Odusola [13] empirically investigated the relationship between government expenditure and economic growth in Nigeria. The estimation results showed that real government capital expenditure has a positive and significant influence on real output while real government recurrent expenditure has a positive but insignificant effect on growth. Ogriogio [14], revealed a long run relationship between government expenditure and economic growth, implying that capital expenditures are either distorted or not spent on growth stimulating sectors. In other studies, only the government expenditure representing the expenditure side of the national budget in Nigeria was discovered to exert significant influence on the GDP. Liu, HSU and Youris [15] investigated the casualty results unfold that total government' expenditure causes the growth of GDP. On the other hand, the growth of GDP does not cause expansion of government expenditure. Also, the unidirectional influence shown by the causality test, the estimation results indicate that public expenditure raises the US economic growth. The researchers concluded that judging from the causality test, Keynesian hypothesis exerts more influence than the Wegner and Wagner's law in the US.

Usman et al. [16] empirically examined the public expenditure and economic growth in Nigeria. The study adopted augmented solar model as specified in Cobb-Douglas. The study focuses on sectoral government expenditure which is decomposed to three streams, expenditure in building human capital-public expenditure on education and health, expenditure in building infrastructure-public expenditure on transport and communication, and other social services, and expenditure on the administration to study the impact of government expenditure on economic growth. The results reveal that spending doesn't have an impact on growth in the short run. However, there is a long run relationship between public expenditure and economic growth.

Adewara and Oloni [17] in the composition of Public Expenditure and Economic growth in Nigeria examined the relationship between public expenditure compositions from 1960-2008 on economic growth using the Vector Autoregressive Model (VAR). The study exposes that expenditure on education has failed to enhance economic growth due to the high rate of rent-seeking in the country and high rate of unemployment.

Ebiringa and Chatse-Anyaogu [18] investigated the impact of government sectoral expenditure on the economic growth of Nigeria. They opined that government expenditure remains the bedrock of Nigeria's economic growth. The study adopted the ECM method to analyze the long run effect of selected macro-economic variables on growth. The finding of their work shows that expenditure on telecommunication, defence and security, education and health sectors have a positive effect on Nigeria economic growth, But, transportation and agriculture expenditures have impacted negatively on the economic growth. Chude and Chude [2] examined the impact of Government on Economic growth in Nigeria between the period 1977-2012. The study pays attention to the sectoral expenditure analysis. The study used Export facto design and Error Correction Model (ECM) in its analysis. The study shows that total expenditure on education is highly and statistically significant and has a positive relationship in economic growth in Nigeria in the long run- Okoro [19] explores Government Spending and Economic growth in Nigeria using the period of 1980-2011. The study employed ECM and Granger causality test in its analysis. The findings show that there exists a long-run equilibrium relationship between government spending and economic growth in Nigeria,

Easterly and Rebelo [20], investigated the impact of government expenditure and income on Gross Domestic Product (GDP) and discovered that government activities influence the direction of Economic growth in Nigeria.

Nwinee and Torbibra [1], investigated Government sectoral spending Economic growth in Nigeria, the short run estimation results show that government spending on Education had a positive but statistically significant relationship with Consumer Price Index (CPI). That means government spending on Education does not significantly increase the output level of GDP but significantly affects prices stability in the Nigerian Economy.

Yusuf, et al. [21] using Autoregressive Distributed Lag Model (Bound Test Approach) on Analysis of the impact of sectoral Government Expenditure on Economy in Nigeria. Bound test co-integration approach reveals that public

expenditures have not performed well to the expectation in promoting the economic growth. Contrarily to expectation, government expenditures on the Education, Defense and Agriculture sectors have failed to promote the economic growth.

Robinson, et al. [22], investigated Government Expenditure and Growth. The Nigerian Experience using Augmented Dickey Fuller (ADF) test for stationarity, discovered that government expenditures would increase the inflow of better living, the inflow of foreign and local businessmen and relevant capital that will enhance growth and development of an economy. They further revealed that there is an inverse relationship between government expenditure on the health sector and economic growth in Nigeria. Also that there exists a long-run relationship between government expenditure and economic growth in Nigeria.

4. RESEARCH METHODOLOGY

The study made use of secondary data from the Federal Ministry of Finance as published by the Central Bank of Nigeria (CBN) in her annual statistical Bulletin. All the Federal Government planned expenditure and actual expenditure in the economic, social and administrative structures for the period 1982-2015 was covered.

4.1 Model Specification

This study adopted the econometric model in evaluating the effect on economic growth in Nigeria based on government expenditure. The model used was to determine the long run relationship between productivity captured by (GDP) and selected sectoral expenditure (Administration, Social and Community Services, Economic Services, and Transfers). Based on this specification, a functional model was specified as follows:

$$GDP = f(EGA, ESS, EES, EDS) \quad (1)$$

Where;

GDP = Gross Domestic Product (productivity)
EGA = Expenditure on general administration
ESS = expenditure on provision of social and community services
EES = expenditure on provision of economic services
EDS = Expenditure on public debt servicing, pension and gratuities
Ut = Stochastic variable

4.2 Estimation of Model

We applied Vector Autoregression (VAR) for multivariate analysis of GDP on the expenditure variables to determine the long run relationship and also to test the significance effect of government expenditure on economic growth. Unit root test procedure was used to find out the order of time series variable stationarity. Test of significance of parameter. Estimates (t-statistic) will be carried out at *5%* level. This will enable us to compare the probability of computed t-statistic or f-statistic at various situations of empirical analysis with the critical value of 5% to establish significance. When the computed t-statistic probability associated with it is greater than the critical value of 5%, the parameter is statistically significant but otherwise is not significant.

4.3 Unit Root Test

The main reason is to determine whether the data is stationary, i.e. whether it has unit roots and also the order of integration. It is expected that the variables be integrated at first difference, 1(1). If the variables are 1(1), we proceed with the Johansen co-integration analysis. This is done using Unit root test.

The unit root test is evaluated using the Augmented Dickey-Fuller (ADF) which can be determined as;

$$\Delta Yt = \alpha + \beta_t + \delta\gamma_{t-1} + \gamma\sum_{i-1}^{m}\Delta\gamma_{t-1} + \varepsilon_t \quad (2)$$

Where;

α represent the drift
t represent deterministic trend and
m is a lag length large enough to ensure that $£_t$ is a white noise process if the variables are stationary and integrated of order 1(0) or otherwise.

4.4 CO-Integration Test

The co-integration test is a statistical property of time series variable. Two or more time series are co-integrated if share a random stochastic drift (Wooldridge,[23]). The test assumes that the co-integrating vector is constant during the period of study. The test is therefore used to confirm the long run relationship between the dependent and independent variables. In this study, Johansen Co-integration test will be employed. Gregory and Hansen [24] noted that the Johansen test is a test for co-integration that allows for more than

one co-integrating relationship. Having established the order of integration, the next thing is to use Johansen[25] procedure of maximum likelihood to determine the number of cointegrating vectors.

Consider the following level vector autoregression, VAR of order

$$y_t = \mu + A_1 y_{t-1} + \ldots\ldots\ldots + A_p y_{t-P} + \varepsilon_t \quad (3)$$

Where $_{it}$ *is an* $(n \times 1)$ *vector of government sectoral spending and economic growth in log form that are integrated at order one- commonly denoted 1(1), n=5,* A_P *are the parameters to be estimated,* ε_t *are the random errors.* This (VAR) can be re-written as;

$$\Delta y_t = \mu + \prod y_{t-1} + \sum_{i=1}^{p=1} \Gamma_i \Delta y_{t-i} + \varepsilon_t \quad (4)$$

Where,

$$\Pi = \sum_{i=1}^{p} A_i - 1 \text{ and } \Gamma_i = -\sum_{j=i+1}^{p} A_j \quad (5)$$

If the coefficient matrix Π has reduced rank $r < n$, then there exist $n \times r$ matrices of α and β each with rank r such that

$$\Pi = \alpha\beta' \quad (6)$$

Where r is the number of co-integrating relationships, the element is α is known as the adjustment parameters in the vector error correction model, and each column of β is a cointegrating vector. It can be shown that, for a given r, the maximum likelihood estimator of β defines the combination of $_{at-1}$ that yield the r largest canonical correlations of Δy with $_{it-1}$ after correcting for lagged differences and deterministic variables when present. The two different likelihood ratio test of significance of these canonical correlations are the trace test and maximum eigenvalue test, shown in equation 7 and eight respectively below

$$\lambda_{trace}(r) = -T \sum_{i=r+1}^{n} \ln(1 - \widehat{\lambda_i}) \quad (7)$$

and

$$\lambda_{max}(r, r+1) = -Tln(1 - \hat{\lambda}_{r+1}) \quad (8)$$

Here, T is the sample size, and $\hat{\lambda}_i$ is the i^{th} ordered eigenvalue from the Π matrix in equation 3 or largest canonical correlation. The trace tests the null hypothesis that the number of r co-integrating vector against the alternative hypothesis of n co-integrating vector where n is the number of endogenous variables. The maximum eigenvalue tests the null hypothesis that there are r cointegrating vectors against an alternative of $r + 1$ (see Brooks [27]).

4.5 Error Correction Mechanism (ECM)

In agreement with Engel and Granger, in a situation of the situation of long run cointegration, we applied the ECM to ascertain the speed of adjustment from the short-run equilibrium to the long-run equilibrium state. If co-integration is accepted, it suggests that the model is best specified in the first difference of its variables with one lag of the residual [ECM (-1)] as an additional regressor. The (ECM) incorporates the variables at both side levels and first differences and thus captures the short-run disequilibrium situations as well as the long-run adjustments between variables [26]. This study uses Akaike information criteria for selected the optimal lag length. The short run equilibrium relationship is tested using vector error correction model (VECM). VECM has restricted VAR that has cointegration restriction built into the specification. The VECM analysis in this study is based on equation 2, and it involves five cointegrating vectors as thus:

$$\Delta lngdp_t = \alpha_0 + \sum_{i=1}^{n} \beta_{1i} \Delta lngdp_{t-1} + \sum_{i=0}^{n} \beta_{2i} \Delta lncx_{1_{t-1}} + \sum_{i=0}^{n} \beta_{3i} \Delta lndx_{2_{t-1}} + \sum_{i=0}^{n} \beta_{3i} \Delta lnnx_{2_{t-1}} + \sum_{i=0}^{n} \beta_{3i} \Delta lnrx_{2_{t-1}} + \lambda_1 ecm_{t-1} + \mu_t \quad (9)$$

ecm_{t-1} *is the error correction term obtained from the cointegration model. The error coefficients* (λ_1) *indicate the rate at which the cointegration model corrects its previous period's disequilibrium or speed of adjustment to restore the long run equilibrium relationship. A negative and significant* ecm_{t-1} *coefficient implies that any short-run movement between the dependant and explanatory variables will converge back to the long run relationship.*

5. RESULTS AND DISCUSSION OF FINDINGS

The unit root test for recurrent expenditure shows that all the variables are stationary at 1% except economic services which is stationary at 5%.

The unit root test for capital expenditure shows that the variables Gross Domestic Product (GDP), Economic Services and Transfers are stationary at 1% while Administration and Social and Community Services are stationary at 5%. Having established that the variables are stationary, we move on to verify the long run relationship using the Johansen Cointegration Test.

The result shows that five components of the trace statistics are greater than the critical values at 5% level and as such, indicates five co-integrating equation at the 5% level. This implies that there exist the long run relationship between dependent and independent variables.

The results indicate that the 1st and 2nd values of trace statistics are greater than the critical value for GDP series and sectoral analysis for capital expenditure variables and therefore significant at 5% level. The trace test, therefore, indicates two co-integrating equations at 5% level. This also implies that there exist a long run relationship between dependent and independent variables.

5.1 Effects of Government expenditure on Economic Growth

Having established a long run relationship between the GDP series and recurrent and capital expenditures, employed the Vector Error Correction Model (VECM) to determine the predictions of recurrent and capital expenditure variables on GDP. The results of the analysis are presented in Tables 5 and 6.

Table 1. Summary of unit root test for recurrent expenditure

Variables	Lagged length	Method	Test statistics	Critical values		Remarks
				1%	5%	
GDP	0	ADF	-3.863831	-3.653730	-2.957110	stationary@l%
EGA	0	ADF	-6.614258	-3.653730	-2.957110	stationary @1%
ESS	0	ADF	-4.892394	-3.653730	-2.957110	stationary @1%
EES	0	ADF	-3.126457	-3.653730	-2.957110	stationary @5%
EDS	0	ADF	-5.726087	-3.653730	-2.957110	stationary @1%

Source: Author's Computation

Table 2. Summary of unit root for capital expenditure

Variables	Lagged length	Method	Test statistics	Critical values		Remarks
				1%	5%	
GDP	0	ADF	-3.863831	-3.653730	-2.957110	stationary@l%
EGA	3	ADF	-4.034371	-4.309824	-3.574244	stationary @5%
ESS	5	ADF	-4.228907	-4.339330	-3.587527	stationary @5%
EES	0	ADF	-7.535466	-3.653730	-2.957110	stationary @1%
EDS	0	ADF	-6.354974	-3.653730	-2.957110	stationary @1%

Source: Author's Computation

Table 3. Result of Johansen Co integration Test for recurrent expenditure

Date: 07/06/016 Time: 11:20
Sample (adjusted): 1984-2015
Included observations: 32 after adjustments
Trend assumption: Linear deterministic trend
Series: GDP, EGA ESS EES EDS
Lag interval (in first difference):1 to 1
Unrestricted co-integration Rank Test (Trace)

Hypothesized No of CE(s)	Elgen value	Trace statistic	0.05 the critical value	Prob.**
None*	0.976713	250.6544	69.81889	0.0000
At most 1 *	0.848955	130.3391	47.855613	0.0000
At most 2 *	0.723206	69.85340	29.79707	0.0000
At most 3 *	0.515271	28.75003	15.49471	0.0003
At most 4 *	0.159932	5.576716	3.841466	0.0182

Source: *Author's computation*

Table 4. Result of Johansen Co integration test for capital expenditure

Date: 07/06/016 Time: 11:30
Sample (adjusted): 1984-2015
Included observations: 32 after adjustments
Trend assumption: Linear deterministic trend
Series: GDP, EGA ESS EES EDS
Lag interval (in first difference):1 to 1

Unrestricted co-integration Rank Test (Trace)

Hypothesized No of CE(s)	Elgen value	Trace Statistic	0.05 the critical value	Prob.**
None*	0.892811	145.2653	69.81889	0.0000
At most 1 *	0.808622	73.80402	47.85613	0.0000
At most 2 *	0.333947	20.89191	29.79707	0.3644
At most 3 *	0.207377	7.887554	15.49471	0.4775
At most 4 *	0.013980	0.450511	3.841466	0.0182

Source: Author's computation

Trace test indicates two cointegrating eqn(s) at the 0.05 level

Table 5. VECM for GDP and recurrent expenditure series

Dependent Variable: D(GDP)
Method Least Squares
Date: 07/06/016 Time: 11.37
Sample (adjusted): 1986-2015
Included observations: 30 after adjustment

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-1))	0.894282	0.174411	5.127443	0.0001
D(EGA(-1))	-24.52696	3.330720	-7.363862	0.0000
D(EGA(-2))	-17.03586	5.158950	-3.302195	0.0048
D(EGA(-3))	-70.62502	7.142572	-9.887897	0.0000
D(ESS(-1))	39.80331	4.386064	9.074951	0.0000
D(ESS(-2))	-5.182887	7.852506	-0.660030	0.5192
D(ESS(-3))	63.50103	7.822546	8.117694	0.0000
D(EES(-1))	21.42314	13.22867	1.619447	0.1262
D(EES(-2))	16.84092	7.823442	2.152623	0.0480
D (EES(-3))	59.72472	11.15854	5.352376	0.0001
D(EDS(-1))	6.911426	3.798034	1.819738	0.0888
D(EDS(-2))	20.39564	3.858250	5.286241	0.0001
D (EDS(-3))	11 .28046	5.287553	2.133400	0.0498
ECT (-1)	-0.035527	0.150347	-0.236301	0.8164
C	5.732558	187,2337	0.030617	0.9760
R-squared	0.992764	Mean dependent var		2964.245
Adjusted R-squared	0.986011	S.D, dependent var		5818.969
S.E- of regression	688.2508	Akaike info criterion		16.21304
Sum squared resid	7105338.	Schwaiz criterion		16.91364
Log likelihood	-228.1955	Harman-Quinn enter.		16.43716
F-statistic	146.9991	Durbin-Watson stat		1.855731
Prob(F-Statistic)	0.000000			

Source: Author's Computation

The result of the analysis shows that EGA at lag 1, 2 and 3 are negative and significantly related to GDP. Also, ESS at lag 1 and 3 are positive and significantly related to GDP. Ex at lag 2 and 3 are positive and significantly related to GDP. While EDS at lag 2 and 3 are positive and significantly related to GDP.

Table 6. VECM for GDP and capital expenditure series

Dependent Variable: D(GDP)				
Method Least Squares				
Date: 07/06/016 Time: 11: 40				
Sample (adjusted): 1986-2015				
Included observations: 30 after adjustment				
Variable	**Coefficient**	**Std. error**	**t-Statistic**	**Prob.**
D(GDP(-1))	0.327036	0.307492	1.063560	0.3024
D(EGA(-1))	101.0873	39.13278	2.583187	0.0193
D(EGA(-2))	25.65638	45.95640	0.558277	0.5839
D(EGA(-3))	40.7051 1	64.31663	0.632886	0.5352
D(ESS(-2))	41.50444	50.34994	-0.824320	0.4212
D(ESS(-3))	43.66850	52.66212	0.829220	0.4185
D(EES(-1))	-14.20642	11.48796	-1.236636	0.2330
D(EES(-3))	-7.694490	10.99734	-0.699669	0.4936
D(EDS(-1))	93.94045	16.30905	5.760019	0.0000
D(EDS(-2))	66.10445	25.76901	2.565269	0.0201
D (EDS(-3))	43.97132	21.03021	2.090865	0.0519
ECT (-1)	-0.010017	0.129197	-0.077535	0.9391
C	-395.4141	823.1603	-0.480361	0.6371
R-squared	0.807408	Mean dependent var		2964.245
Adjusted R-squared	0.671460	S.D, dependent var		5818.969
S.E- of regression	3335.339	Akaike info criterion		19.36122
Sum squared resid	1.89E-MDS	Schwaiz criterion		19.96840
Log-likelihood	-277.4183	Harman-Quinn enter.		19.55546
F-statistic	5.939116	Durbin-Watson stat		1.772875
Prob(F-Statistic)	0.000523			

Source: Author's Computation

In other words, recurrent expenditure exerts both positive and negative significant impacts on GDP. The Error Correction Model is correctly signed though not significant. The Variables are highly fitted (R^2 = 99.3%) and overall regression (F-statistic '= 146.9991) and F-statistic is significant with no autocorrelation (Dw = 1.855731). We therefore concluded that recurrent expenditure is a good predictor of economic growth (GDP).

The result of the above analysis shows that EGA at current lag and EDS at lag 1 and 2 are positive and significantly related to GDP, while ESS and EES are insignificant in impact on GDP. The Error Correction Model is correctly signed though not significant.

The variables are highly fitted (R^2 = 80.7%) and overall regression (F-statistic = 5.939116) and F-statistics is significant with no autocorrelation by the rule of thumb (Dw = 1.772875).

We, however, conclude that capital expenditures expenditures on EGA and EDS are good predictors of economic growth.

6. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary of Findings

Based on the results of the analysis the following findings were made: A significant long run relationship exists between government expenditure and economic growth in Nigeria.

- Capital expenditures on administration and transfers make a significant impact on economic growth in Nigeria.
- Capital expenditure on economic services, social and community services have not made a significant impact on economic growth in Nigeria.
- Recurrent expenditure on all the sectors has made a significant impact on economic growth in Nigeria.

6.2 Conclusion

Based on the above findings, we, therefore, conclude that government capital and recurrent expenditure could be used to predict economic growth in Nigeria.

6.3 Recommendations

Based on the above conclusions the following recommendations are made:

- Effort must be made by stakeholders to restructure and reform the system of policy formulation, planning, budgeting and budget implementation, monitoring, control and evaluation in Nigeria towards an integrative model that is based on the constraints of resource envelope. To this end, the expertise of such organization as World Bank may be explored to develop the local capacity within the framework of computer-based fiscal information management system,
- Also, efforts must be made by all stakeholders to strengthen the public sector financial management system in Nigeria to ensure that transparency in expenditure is assured.

COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

1. Nwinee BF, Torbibra LL. Government sectoral spending and Economic growth in Nigeria. Nigerian Journal of Economic Research. 2014;37(1).
2. Chude NP, Chude DI. Impact of government Expenditure on Economic growth in Nigeria, UK, European Centre for Research Training and Development. 2013;1(4):64-71.
3. Barro R. Government spending in a simple model of endogenous growth. Journal of Political Economy. 1990;98(5): 103-125.
4. Agbonknese AO, Asekome MO. Impact of public expenditure on the growth of Nigerian economy. The Source of Economic and Social Studies. 2012;25(1).
5. Bhatia HL. Public finance, 25th edition, India. Vikas Publishing House, PVT Ltd; 2002.
6. Pigou AC. The economics of welfare. Palgrave Macmillan; 2013.
7. Jhingan ML. The economics of development and planning (39th ed). Virginia Publications Ltd. New Delhi; 2009.
8. Niloy B, Hague ME, Osborn DR. Public expenditure and economic growth: A disaggregated analysis for developing countries; 2003. Available:www.socialcse.ac.u
9. Josaphat PK, Oliver M. Government spending and economic growth in Tanzania, 1965-996: CREDIT Research Paper Journal of Emerging Trend in Economics and Management Sciences (JETEMS). 2000;3(4):403-407.
10. Gregorous A, Ghosh S. Fiscal policy in an endogenous growth model with public capital and pollution. Japanese Economic Review. 2007;56(6):67-84.
11. Devarajan S, Swaroop V, Zou H. The composition of public expenditure and economic growth. Journal of Monetary Economics. 1996;37:313-344.
12. Folster SF, Henrekson M. Growth and the public sector: A critique of the critics. The Research Institute of industrial economics was working paper No. 492; 1999.
13. Fajingbesi AA, Odusola AF. Public expenditure and growth. A Paper presented at a training programme on Fiscal Policy Planning management in Nigeria; organized by NCEMA, Ibadan. 1999;137-179.
14. Ogriogio GO. Government Expenditure and Economic Growth in Nigeria. Journal of Economic Management. 1995;2:I. Available:http://astonjournal.com/bej
15. Liu Chih HL, HSU C, Younis MZ. The Association between Government Expenditure and Economic Growth: The Granger Causality Test of the US Data, 1974-2002. Journal of Public Budgeting, Accounting and Financial Management. 2008;20(4):439-452.
16. Usman A, Mobolaji H, Kitishi A, Yaru M, Yakubu T. Public expenditure and economic growth in Nigeria. Asain Economic and Financial Review,! 2011; 3:104-113.
17. Adewara SO, Oloni EF. The composition of public expenditure and economic growth in Nigeria. Journal of Economics, 2012;10(9).
18. Ebiringa OF, Chalse-Anyaogu NB. Impact of government sectoral expenditure on the economic growth. Journal of Finance. 2012;2(4).
19. Okoro AS. Government spending and economic growth in Nigeria (1990-2011). Singaporean Journal of Business

Economic and Management Studies. 2013;2(5).
20. Easterly W, Rebelo S. Fiscal policy and economic growth. Journal of Monetary Economics. 1993;32(3):417-458.
21. Yusuf SA, Babalola BTA, Aninkan OD, Solako MA. Analysis of impact of sectoral government expenditure on economic growth in Nigeria. Board Test o-integration Approach, UK, European Journal of Business and Management. 2015;7(12).
22. Robinson MO, Eravivoke KE, Ukariwe A. Government expenditure and economic growth: The Nigerian experience, Italy., Mediterranean Journal of Social Sciences MCSER Publishing. 2014;5(10): 89-94.
23. Wooldridge JM. Econometric analysis of cross section and panel data. MIT Press; 2010.
24. Gregory AW, Hansen BE. Residual-based tests for cointegration in models with regime shifts. Journal of Econometrics. 1996;70(1):99-126.
25. Johansen S. Determination of cointegration rank in the presence of a linear trend. Oxford Bulletin of Economics and Statistics. 1992;54(3):383-397.
26. Mukhtar T, Zakaria M, Ahmed M. An empirical investigation for the twin deficits hypothesis In Pakistan. Journal of Economic Cooperation among Islamic Countries. 2007;28(4).
27. Brooks C. Introductory econometrics for finance. Cambridge university press; 2014.

APPENDIX A

Recurrent expenditure profile of Federal Government of Nigeria and economic growth (N'bn)

	Year	Ax	Ex	Cx	Tx	GDP
1	1982	0.91	0.29	0.1S	3.46	94.33
2	1983	1.04	0.33	0.20	3.93	101.01
3	1984	0.90	0.29	0.17	3.39	110.06
4	1985	1.10	0.35	0.21	4.16	116.27
5	1986	1.43	0.46	0.27	5.41	134.59
6	1987	1.45	0.47	0.28	5.50	134.6
7	1988	3.84	0.30	0.69	10.81	193.13
8	1989	5.78	2,11	1.22	10.30	263.29
9	1990	6.27	4.23	1.42	14.07	382.26
10	1991	6.54.	3.40	1.61	24.67	472.65
11	1992	6.95	2.68	1.30	27.31	545.67
12	1993	8.68	1.34	3.08	39.93	875.34
13	1994	30.57	14.66	7.75	83.75	1089.68
14	1995	20.54	10.09	3.91	55.44	1399.70
15	1996	28.76	13.82	5.92	79.13	2907.36
16	1997	46.55	15.99	4.75	57.20	4032.30
17	1998	56.18	22.06	6.20	74.12	4189.25
18	199	50.68	21.44	11.57	94.40	3989.45
19	2000	183.64	71.37	87.08	107.58	4679.21
20	2001	144.53	84.79	28.59	203.69	6713.57
21	2002	180.80	79.63	53.01	265.86	6895.20
22	2003	266.51	152.19	52.95	223.15	7795.76
23	2004	307.97	102.61	96.07	477.65	9913.52
24	2005	306.77	134.39	58.78	610.70	11411.07
25	2006	434.67	151.65	64.31	670.60	14610,88
26	2007	522.20	194.17	79.69	594.05	18564.59
27	2008	262.36	256.67	179.07	527.17	20657.32
28	2009	731.02	332.93	313.75	739.66	24296.33
29	2010	714.42	354.19	432.61	635.75	24794.24
30	2011	1117.44	550.90	562.75	878.34	54612.26
31	2012	1262.39	785.44	310.44	956.18	62980.4
32	2013	1159.40	790.06	230.10	1145.66	71713.94
33	2014	1111.82	844.07	291.23	1441.95	80092.56
34	2015	898.54	6.15.34	181.34	834.62	89043.62

Source; CBN Statistical Bulletin 2014

APPENDIX B

Capital expenditure profile of Federal Government of Nigeria and economic growth (N'bn)

	Year	Ax	Ex	Cx	Tx	GDP
1	1982	0.72	3.63	1.30	0.92	94.33
2	1983	0.39	2.54	0.97	2.52	101.01
3	1984	1.10	2.29	1.03	0.47	110.06
4	1985	0.26	0.66	0.24	2.94	116.27
5	1986	0.46	0.89	1.15	2.96	134.59
6	1987	0.26	1.10	0.66	6.51	134.60
7	1988	1.82	2.16	0.62	1.78	193.13
8	1989	1.90	2.13	1.73	2.59	263.29
9	1990	2.62	3.93	1.84	6.65	382.26
10	1991	2.92	3.49	2.10	15.55	472.65
11	1992	3.35	3.15	1.49	20.36	545.67
12	1993	5.12	2.34	2.13	30.18	875.34
13	1994	8.08	18.34	3.58	24.50	1089.68
14	1995	8.79	27.10	4.99	30.04	1399.70
15	1996	13.34	43.15	9.22	55.44	2907.36
16	1997	14.86	117.83	8.66	71.58	4032.30
17	1998	49.55	169.61	6.90	43.59	4189.25
18	199	35.27	200.86	23.37	49.52	3989.45
19	2000	42.74	323.58	17,25	114,46	4679.21
20	2001	53.28	111.51	27.97	46.70	6713.57
21	2002	49.25	259.76	53.34	76.35	6895,20
22	2003	73.58	215.33	32.47	0.00	7795.76
23	2004	87.96	97.98	55.74	0.01	9913.52
24	2005	137.77	167.72	30.03	15.73	11411.07
25	2006	171.57	265.03	71.36	11.50	14610.88
26	2007	185.22	262.21	78,68	26.27	18564.59
27	2008	226.97	358.38	150.90	23.04	20657.32
28	2009	287.10	504.29	152.17	17.33	24296.33
29	2010	291.66	506.01	144.93	210.20	24794.24
30	2011	260.20	412.20	151.77	59.70	54612.26
31	2012	231.80	386.40	92.85	207.50	62980.40
32	2013	190.50	321.04	97.40	265.90	71713.94
33	2014	283.65	505.77	154.71	164.27	80092.56
34	2015	1049.27	181.83	615.34	834.62	89043.62

Source: CBN Statistical Bulletin 2014

Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sciencedomain.org/review-history/23775