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FISCAL SPENDING AND THE NIGERIAN ECONOMIC GROWTH: A MULTIPLIER APPROACH

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#### Abstract

This study examines the impact of government spending on the Nigerian economic growth between the periods of 1990-2019. It utilizes Autoregressive Distributed Lag Model (ARDL) analysis on Nigerian Gross Domestic Product (GDP) and total spending of all the three tiers of Nigerian government - the local government, state government and the federal government. GDP is the dependent variable while total expenditures of the local government, state government and the federal capital territory and the federal government are the independent variables. Net export of goods and services is introduced as a control variable. Augmented Dicky Fuller test was applied to test for unit root to avoid running a spurious regression. The Central Bank of Nigeria (CBN) Statistical Bulletin 2019 is the source of the data used in the study. Regression results show a significant positive relationship between the dependent variable and all the independent variable except the local government. Fiscal policies should be targeted at increasing the revenues of the government - the state and federal government in particular to stimulate provision of infrastructural development that will drive the economic growth further.

Keywords: Fiscal Spending; Economic Growth; Government Revenue

### Introduction

Government fiscal plans and the impact on the economic growth are much debated among scholars over decades. Spending on public utilities directly and provision of services and infrastructure provide liquidity in the economy and facilitates business transactions. Since the intervention of Keynes (1936) in the debate of whether public spending aids economic growth, there has been a shift towards the embrace of employing fiscal spending in stimulating the economy among economists and financial scholars. The growing support for the Keynesian model is hinged on the theory that causality runs from public spending to incomes with the implication that government can increase national income using the instrument of fiscal stimulus as a catalyst.

A contrarian point of view argues that the end result of government spending in the economy is disastrous and does not really serve any economic benefit in the long run. Following Adam Smith's seminar work on the economy in the *Wealth of Nations*, finance scholars have pushed their disapproval of using government expenditure to stimulate economic growth. From the out effect argument by the monetarists to high-taxation-high-spending compensatory logic (Reidl, 2010), the classical theorists have been critical of fiscal expansionary model.

In developing countries such as Nigeria, the issue has been dominant. Government is mostly seen as the major provider of both capital projects – critical infrastructure and majority employments in the economy. It means that the role of government in stimulating the economy is not only in providing administrative and regulatory oversights but also in actual participation in distribution of capital into the economy.

The government of Nigeria is divided into 3 tiers for easy administrative purposes, with different budgetary provisions that make up the aggregate national government spending. Each of this division performs functions autonomous of each other at times, while functions overlap at other times. Each of the tiers has the complement of democratic governance structure, the executive, legislature and judiciary. The first tier, the local government, is the closest to the grassroots and responsible for regulations, provision of basic services and infrastructure as well as governing at the local level. There are 774 local governments in Nigeria at this first tier. The second division, the state government, consists of 36 states – sub-nationals – and the Federal Capital Territory (FCT). This tier has higher responsibilities than the first tier and therefore has larger financial outlays. The last and the highest tier of the three is the federal government, which is the sovereign in charge of the monetary policies, the foreign policies, national defense, internal security, immigration, external trade and national accounts.

Statutorily, the Nigerian fiscal architecture allows both the local and state governments to generate revenues autonomously to be used within their jurisdictions while revenue garnered into the *Federation Account* by the agencies of the federal government are allocated to the three tiers. Section 162 (1) of the Constitution of the Federal Republic of Nigeria 1999 (as amended) established the *Federation Account* into which all revenues collected by the Government of the Federation must be deposited. The law made exemptions for revenues collected from few other sources from being lodged in the *Federation Account*. Among these sources are personal income tax of the residents of the officers and men of the armed forces and the Nigeria police force. The federal government collects revenue from oil and gas sales together with other revenues like customs duties, excise duties, solid mineral tax, VAT and others on behalf of the other tiers.

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government is the custodian of the *Federal Account*. Section 162 (2) of the constitution also laid out the process and modalities for sharing the monies in the *Federation's Account for* the 3 tiers of government. The share of each tier accounts for large percentage of revenue available for spending. Revenues must be allocated to the federal, states and local governments through a sharing arrangement of 52.68%, 26.72% and 20.60% for the federal, states and local governments respectively. The allocation is not in equal amount to every state or local government. Depending on the peculiarities of each state, the constitution takes into consideration allocation principles such as equality of all states, population, population density internally generated revenue, land mass and terrain. In addition, 13% of the revenues derived from extraction of natural resources lodged in the *Federation Account* is allocated to the states where the natural resources is extracted, based on the principle of derivation.

Additionally, the federal government raises funds through borrowings locally and from foreign sources through issuance of debt instruments and from multilateral and bilateral finance institutions, these are added to the share of the federal government from the *Federation Account*, which forms the component of the federal government budget. Similarly, the state governments are empowered to raise debt from the financial institutions and markets locally while they are restricted by the federal government guarantee in the amount they can raise in foreign debts. Thus, the components of the states' revenue include, share from the Federation Account, Personal Income Tax of residents within each state, land use charges, loans from financial institutions, debt (state bonds) from the financial markets, sale of assets, foreign loans (to be guaranteed by the federal government), grants from development agencies, and others.

This study investigates how fiscal spending can aid economic growth in Nigeria. It uses the aggregates expenditure of each of the three tiers of governments' annual budgets from 1990-2019 to determine whether or not fiscal expenditure is significant to the expansion of the economy. The consolidated character of the government income and the allocation of resources to the three tiers of government from a pool make it imperative to study the impact of government spending of the three tiers on the GDP growth in Nigeria.

# **Review of Literature**

The debate concerning utilizing fiscal spending to engineer national economic growth has been on between the Keysian School and the monetarists for decades. Keysians believe that aggregate demand can be stimulated through spending on capital projects during the period of low demand in the economy. It is also believed that government can raise employment through massive spending on infrastructure and capital goods (Giavazzi and Pagano and McAleese, as cited in Barry and Devereux, 1992). Again, it is assumed that the crowding out effect on private sector financing of government spending should not arise in an open economy, which allows for capital importation into the private sector of the economy through foreign direct investments (FDI) and foreign portfolio investments (Barry & Devereux, 1992).

On the other hand, the monetarists reason that the acclaimed positive advantages of fiscal spending are based on false premise that revenues are derived from straightforward taxes that do not distort the economy. However, typically taxation has a negative effect on economic output (Badri and Allahyari, as cited by Dladla and Khobai, 2018) taxation reduces income of the productive units of the economy. Since the income, which would have been saved by the households or reinvested by businesses, is accrued to government in form of taxes, economic outputs are reduced to the extent of taxation.

Empirical studies (Fatas and Mihoy, 2001; Blanchard and Perotti, 2002; Mountford and Uhlig, 2009) study the veracity of the Keynesian model relating government spending on consumption and output indicate positive impacts over a short period. Nevertheless, Agnello, Furceri and Sousa (2011) investigate the short-run and medium term impact of fiscal policies on economic activity of 132 countries from 1960 to 2008. The study found that fiscal spending provided a short-run net impetus to the economies while fiscal spending increases the crowding in effects as incidents of crisis such as banking crisis are controlled for, which gives the impetus for fiscal spending. In the long-run, increase in fiscal spending results in crowding out effects notably in debt crisis situation.

Empirical studies on the effects of fiscal spending on Nigerian economy have been having mixed results. Jelilov and Musa (2016) examine why government spending has not stimulated corresponding economic growth in Nigeria between 1981 and 2012. The study finds that government expenditure affects the economic growth in a positive and significant way. Okoro (2013) investigates the impact of government spending on the economic growth in Nigeria using time series data from 1980 to 2011. It uses the OLS multiple regression technique on the real GDP as the exogenous variable while both government capital and recurrent expenditures are endogenous variables. Results show that the relationship involving government spending and economic growth in Nigeria is balanced in the long-term, with the short-run properties adjusting to the long-run equilibrium at 60% per annum.

Iheanacho (2016) studies the short-run and long-run relationship between public expenditure and economic growth in Nigeria from 1986 to 2014. The study employs cointegration and error correlation techniques on two variables; public sector expenditure and gross capital formation drawn from the Cobb Douglass production function, while it controlled for the effect of non-oil revenue. The results of the empirical tests show that recurrent expenditure is principally responsible for the economic growth in Nigeria. There exist a long-run relationship between recurrent expenditure and economic growth. It is negative and significant but positive in the short-term which shows the double effects of recurrent expenditure on the economic growth. Capital spending, on the other hand, has a negative but significant effect on the economy on the long-run. Emori, Duke and Nneji (2015) examine the effect of fiscal spending on the Nigerian economy using the GDP, spending on education, health, agriculture, transport and communication using OLS regression technique. Results indicate that the effect of public spending on the Nigerian economy is significant.

# Methods

The source of data for this study is the CBN *Statistical Bulletin 2019*. The data is tested for unit root using Augmented Dickey Fuller test. The Autoregressive Distributed Lag Model (ARDL) is employed to test for the impact of fiscal spending on the economic growth of Nigeria in the short and long run. The three tiers of government of local, states (including the Federal Capital Territory) and federal government are represented individually in the model. Values of net export of goods and services at constant basic prices are introduced as a control variable for the test. Net export is considered in the expenditure approach of GDP determination in an economy. Real GDP data is at current basic prices – it is regarded as the most appropriate to compare different years. The period of the study, 1990-2019, depicts government funding for over a quarter of century.

#### with

 $\boldsymbol{\Phi}(L) = 1 - \boldsymbol{\Phi}_1 L - \dots - \boldsymbol{\Phi}_p L^p,$  $\boldsymbol{\vartheta}(L) = \boldsymbol{\theta}_0 - \boldsymbol{\theta}_1 L - \dots - \boldsymbol{\theta}_q L^q.$ 

Hence, the general ARDL  $(p,q_1,q_2...,q_k)$  model;

 $\Phi(L)y_t = \boldsymbol{\varphi} + \boldsymbol{\vartheta}_1(L)x_{1t} + \boldsymbol{\vartheta}_2(L)x_{2t} + \boldsymbol{\vartheta}_k(L)x_{kt} + \mu_t.....2$ 

Using the lag operator L applied to each component of a vector,  $Lky=y_{t-k}$ , is convenient to define the lag polynomial  $\Phi(L,p)$  and the vector polynomial  $\beta(L,q)$ .

As long as it can be assumed that the error term  $u_t$  is a white noise process, or more generally, it is stationary and independent of  $x_t$ ,  $x_{t-1}$ ,... and  $y_t$ ,  $y_{t-1}$ ,..., the ARDL models can be estimated consistently by ordinary least squares.

The model estimation can thus be written as:

#### Where,

Gross Domestic Product
Local Government Spending
State Governments and Federal Capital Territory Spending
Federal Government Spending
Net Export

### **Empirical Results and Discussions**

### Figure 1: Graph of Federal Government, State Government and Local Government Spending and Net Export Growth



### Source: Authors' computation

Figure 1 above shows a flat-to-moderate rise in GDP from 1990 to 2002 after which a sharp upward trajectory was witnessed from 2003 to 2019. On the other hand, increase in government expenditure is barely noticeable until about 2004 when a little rise is observed for all the exogenous variables until 2012 when a sharp rise is noticed for net-export. In figure 1, the independent variables significantly accounted for GDP between 1993 and 2000, from where government spending and net export were less dominant for the GDP. It indicates an expansion in the economy in the direction of private spending.

Table 1. Descript	GDP LG STFCT FG NX						
	GDP	LG	STFCT	FG	NX		
Mean	4.412717	2.282831	2.815220	3.095348	2.838133		
Median	4.559032	2.716555	3.110512	3.207376	3.003310		
Maximum	4.853624	3.256937	3.653529	3.987436	3.765116		
Minimum	0.000000	0.000000	1.302114	1.780101	0.000000		

# Table 1: Descriptive Statistic

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	-			-	
Std. Dev.	0.860248	1.036360	0.804358	0.650619	0.944064
Skewness	-4.694893	-0.986478	-0.553555	-0.570150	-1.150836
Kurtosis	24.71609	2.887336	1.754950	2.183429	3.978393
Jarque-Bera	699.6059	4.881562	3.469803	2.458840	7.036811
Probability	0.000000	0.087093	0.176418	0.292462	0.029647
~ • · · · ·					

Source: Authors' computation

**Note:** GDP represents gross domestic product, FG represents federal government spending, STFCT represents states governments and FCT spending, LG represents local government spending, and, NX represents net export.

Table 1 reports the mean values of 4.412717, 2.282831, 2.815220, 3.095348, and 2.838133 for GDP, LG, STFCT, FG and NX respectively. From table 1, the standard deviation values for the GDP (0.860248), LG (1.036360), STFCT (0.804358) and FG (0.650619) indicate that the data spread from the mean value of GDP, LG, STFCT and FG are 86.02%, 103.63%, 80.44%, 65.06% respectively. The skewness values of -4.694893, -0.986478, -0.553555 and - 0.570150 for GDP, LG, STFCT and FG respectively indicate that the variables are negatively skewed; in other words, the distributions are right-skewed. The Kurtosis values reported in table 1 for GDP is 24.71609. This connotes that the distribution is leptokurtic (slim or long-tailed), while LG, 2.887336, STFCT, 1.754950 and FG, 2.183429 are less than 3 which denotes that the distributions are platykurtic or short-tailed, relative to normal distribution.

VARIABLE	ADF-STAT	5% CV	P- VALUE	ORDER OF INT.
GDP	-3.215091	-	0.0315	l(1)
		2.991878		
LG	-5.731952	-	0.0001	l(1)
		2.971853		
STFCT	-2.977287	-	0.0490	I(0)
		2.967767		
FG	-3.088794	-	0.0410	I(0)
		2.991878		
NX	-5.388661	-	0.0003	l(1)
		3.012363		

# Table 2: ADF Unit Root Tests

# Source: Authors' computation 2021

The results of the ADF unit root tests presented in table 2 reveal that STFCT and FG are stationary at level I(0) while GDP, LG and NX are stationary at first difference I(1). This is a case of mixed integrations; hence cointegration by Engle and Granger and/or Johansen is not applicable. The applicable method is the ARDL and Bond test approach to cointegration, which is applied in this study. The process of this application involves the followings-model selection, test of autocorrelation, model stability test, long run form and bond test, short run form and error correction form, and cointegration graph. All of these steps are followed to achieve the objectives set out for this study.

# **Model Selection**

To test the hypotheses for this study, Autoregression Distributed Lag (ARDL) of various orders are tested but the study presents the top 20 ARDL models below based on

their information criteria. The Akaike Information Criterial (AIC) is adopted for the section of the optimum ARDL model. The result is presented in figure 2.

#### Figure 2 - Optimum ARDL Selection for Economic Growth Nexus with Federal Government Spending, State Government Spending and Local Government Spending Akaike Information Criteria (top 20 models)



### Source: Authors' Computation

From the figure, the smallest AIC value is 2.44 and can be traced to ARDL (1,0,0,2,1). Therefore, the optimum ARDL model is the ARDL with order (2,1,2,2,1).

### Testing for Autocorrelation

The classical assumption says that if the residuals are autocorrelated, the estimated parameters will be inconsistent and bias. Thus, the study conducts a test for the violation of this assumption on the ARDL models selected. Table 4.3 presents the results.

	Spending			
Lag Value	AC	РАС	Q-Stat	Prob*
1	-0.169	-0.169	0.7712	0.380
2	-0.002	-0.032	0.7714	0.680
3	-0.125	-0.135	1.2370	0.744
4	-0.116	-0.169	1.6536	0.799

Table 3 – Autocorrelation Test for Ardl (2,1,2,2,1) Quoted for Economic Growth and Fiscal
Spending

# Source: Authors' computation 2021

Table 4.4 below gives the coefficients of autocorrelation and partial autocorrelation with their corresponding Q statistics and probabilities up to lag 4. The p-values are in every lag greater than 5%, meaning that the hypothesis of no autocorrelation cannot be rejected. The fitted ARDL (2,1,2,2,1) for this study is free from autocorrelation.

Stability Test

Table 4 – Stability Test by Statistical Evidence for ARDL (2,1,2,2,1)

AR-Root	Modulus	Cycle
-0.169	-0.169	0.7712

Source: Authors' computation 2021

The result shows that the modulus for ARDL (2,1,2,2,1) is 0.54. It is overt that the modulus is less than unity. This implies that the model is stable. After the stability test the study proceeds to cointegration test by bound approach.

### Cointegration Test Based on Bound Approach Table 5 - Bound Test

Test-stat	Value	Sig	I(0)	l(1)
F-Statistic	6.244682	10%	2.45	3.52
К	4	5%	2.86	4.01
		2.5%	3.25	4.49
		1%	3.74	5.06

# Source: Authors' computation 2021

As shown in the table, the F statistic is 6.244682, the lower bound I(0) values at 5% for the actual sample size is 2.45 while the upper bound 1(1) at 5% is 3.52. It seems good that the F statistic 6.244682 exceeds the upper value. This suggests that the null hypothesis that no level relationship and it is rejected at 5% level of significance. This investigation finds out that there is an existence of cointegrating relationship between economic growth, federal government spending, state government spending and local government spending. Having established cointegrating relationship, the study proceeds to examine long-run multiplier effect among the variables.

# Long Run Multiplier Effects

This serves as a background to test the hypotheses whether there are positive or negative multiplier effects from the set of the covariates to the explained variable in each model. The test result is reported in table 6.

Regressor	Coefficient	Std-error	T-value	P-Value				
LG	-0.780489	0.593207	-1.316318	0.2078				
STFCT	3.868363	0.749732	5.159663	0.0001				
FG	-1.696480	0.985450	-1.721528	0.1057				
NX	-0.940905	0.238066	-3.952294	0.0013				
Comment Authority (2021)								

# Table 6 - Economic Growth and Fiscal Spending-Treated for Log Run Multiplier Effects

# Source: Authors' Computation (2021)

The result shows that the coefficients of LG, STFCT, LG and NX are approximately - 0.78, 3.87, -1.70, and -0.94 respectively; with corresponding probabilities of 20%, 0%, 11%, and 0%. These imply that positive multiplier effects run from state government spending to economic growth in the long-run while local governments spending, federal government spending and net exports have negative effect on the economic growth. This implies that 1% change in state governments spending induces economic growth by 386%. On the other hand, 1% rise in federal government spending, local government spending and net export lead to 170%, 78% and 94% reduction on economic growth respectively. However, federal government spending, local government spending does. This equally suggests that economic growth is mostly driven by state government spending in the long-run rather than federal government spending, local government spending and net export. Also, it was explicit that in the long run, the magnitude of impact of state government spending on

economic growth is stronger than that of Federal government spending, local government spending and net export. The study provides explanation for the short-run dynamics for in the table below;

Relationship	and Aujustinent i	arameter		
Regressor	Coefficient	Std-error	T-value	/alue
D(LG)	0.520114	0.820129	0.634186	0.5355
D(LG(-1))	1.092484	0.716428	1.524904	0.1481
D(STFCT)	6.583713	1.618456	4.067898	0.010
D(FG)	-2.887304	1.774637	-1.626983	0.1246
D(NX)	-0.723784	0.270255	-2.678154	0.0172
*ECM(-1)	-0.701938	0.220616	-7.714491	0.0000

Table 7 - Economic Growth and Fiscal Spending-Treated for Short Run DynamicRelationship and Adjustment Parameter

# Source: Authors' Computation (2021)

\*ECM is the adjustment term

The table reveals the adjustment parameter of -0.88 with the probability value of 0%. This satisfies the two basic assumption of short-run adjustment parameter and this implies that long run influence runs from Federal government spending, state government spending, local government spending and net export to economic growth. The 70% disequilibrium is to be corrected within a year. This suggests that 70% disequilibrium in economic growth is to be corrected/adjusted when federal government spending, state government spending, local government spending and net export jointly changes by 1%. The federal government spending has negative and insignificant short-run dynamic influence on economic growth. The state governments spending have positive and significant effect on economic growth. The result reveals that net export has negative but significant effect on economic growth.

### **Discussion of Findings**

It was revealed from the findings that federal government spending has negative and insignificant effect on economic growth both in the short-run and long run. This finding does not conform to the finding of Jelilove and Musa (2016). Theoretically, an increase in federal government spending should lead to increase in economic growth. However, the apparent deviation from the norm could be as a result of decades of lack of efficient fiscal planning which results in low budgetary provisions for capital expenditure and public infrastructure, which would have stimulated economic activities leading to rise in growth. Again, it could be a result of mismanagement of budgeted funds due to extensive leakages in the federal public accounting system. On the other hand, it was documented that the state governments spending has positive and significant effects on economic growth in both short-run and long run. This is in line with *apriori* expectation and it conforms to the findings of Emori et al. (2015). This could be as a result of state governments spending primarily on sectors with the largest contributors to the GDP, such as agriculture and mining exploration. Furthermore, it is evidenced that local government spending has negative and insignificant effect on economic growth in the long-run while in the short run it exerts positive but insignificant effect on economic growth. This speaks to the apparent lack of financial resources accrued to the third and smallest tier of the Nigerian fiscal administration.

### **Conclusion and Policy Implications**

Findings from the results show that the local government fiscal spending has a significant and negative impact on the Nigerian economy in the short-run but insignificant and negative impact on the long run. The spending by the states and the federal capital territory administration shows positive and significant impact on the economy in both short run and long run. The federal spending is found to have negative and insignificant effect on the GDP in both short run and long run.

The result is at variance with the Keynesian argument that government spending can be employed to stimulate economic growth in an economy. The three tiers of government can intensify their spending on infrastructural developments – roads, railways, electricity, dams, public schools, healthcare, communication and technological expansion, among others. The effects of fiscal spending on these items will increase economic activities in the country in both short run and long run, especially in the private sector, which will stimulate innovation, growth and development.

As a primary product export dependent economy, reliance on hydrocarbons for government revenue makes the country vulnerable to the shock and volatility in the oil and gas markets. Therefore, fiscal policy should be focussed on spending on infrastructural facilities to enhance manufacturing and exports in order to extend foreign revenue earnings to exports of finished goods from the basic raw material level.

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