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Fiscal Federalism and Economic Growth in Nigeria: An Empirical Analysis

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Authors' contributions

This work was carried out in collaboration among all authors. Authors OFM, KFA and LRA designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors KFA and LRA managed the analyses of the study. Author OFM managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Nigeria as a nation operates a federal structure of government, 'Federalism' refers to the existence in a country of more than one level of government, each with different expenditure responsibilities and taxing powers. The major aim of this work is to assess the impact of fiscal federalism and government expenditure on economic growth in Nigeria.

Secondary data employed in this work was collected from the Central Bank of Nigeria's (CBN) Statistical Bulletin, CBN Annual Report and Statement of Accounts, National Bureau of Statistics (NBS) and The World Bank Group for years 2000, 2017 and 2018 and part of 2019, respectively. The data covers the period, 1990-2017 on an annual basis. Ordinary Least Square (OLS) was used to estimate multiple regression model where Gross Domestic Product (GDP) as dependent variable and independent variables were interest rate, inflation rate, exchange rate, growth rate of share of

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federal government from the Federation account, growth rate of share of state government from the federal account, growth rate of share of local government from the Federation account. The results obtained from the regression shows that there exists a positive relationship between the economic growth and share of federal revenue, state government revenue, exchange rate and interest rate from the federation account and economic process in Nigeria. From the above result, it can, therefore, be concluded that a policy to maintain macroeconomic stability by controlling the rate of inflation within the reasonable limit is required to promote economic growth.

Keywords: Economic growth; government expenditure; fiscal federalism; inflation.

1. INTRODUCTION

Nigeria as a nation operates a federal structure of government; Federalism refers to the existence in one country of more than one level of government, each with different expenditure responsibilities and taxing powers [1]. This shows that fiscal federalism, a consequence of federalism, is all about the relationship among the different units of government with respect to the allocation of national revenue and the assignment of functions and taxing power to the constituent units. The existence of imbalance between functions and resources base makes it expedient for the higher level of government to transfer revenue to the lower level. The sharing of funds from the federation account is one of the contentious and sensitive issues in the Nigerian polity that has remained a central element of inter fiscal relations. In Nigeria, revenue allocation is taken as the distribution of national revenue among the various tiers of government in the federation in such a way as to reflect the structure of fiscal federalism. This issue is so important that in some other countries it has become a national guestion [2,3]. This shows that in any nation the stability as a political entity depends to a large extent on revenue allocation. A democratically elected government can be sustained if only there is an appropriate distribution of national revenue among state governments themselves.

In recent years, it has been observed that there is a growing concern towards greater fiscal decentralization. Theory of fiscal federalism lays out a general framework for the assignment of functions to different levels of government and the appropriate fiscal instruments for carrying out these functions.

At the most general level, this theory contends that the central government should have the basic responsibility for economic stabilization function and for uncommon redistribution in the form of assistance to the poor. In both cases, it is argued that the lower level government has some basic constraints that would not allow them to perform effectively [4].

In a pluralistic society like Nigeria, federalism is theoretically about equality and equity, justice and fair play amongst both the constituent units and the common groups that comprise it. It is also about mobilization and utilization of societal resources in a manner that facilitates balanced growth and development. The greater the sense of equity, fairness and justice in the federation, the more the likelihood of stability, harmonious co-existence and growth within it [5,6].

In the division of public sector functions and finances among different tiers of government, economics emphasizes the need to focus on the necessity for improving the performance of the public sector and the provision of their services by ensuring proper alignment of responsibilities and fiscal instruments. While economic analysis, in the theory of fiscal federalism, seeks to guide this division by focusing on efficiency and welfare maximization, it should be recognized that the construction of optimal jurisdiction authority in purely economic practice goes bevond considerations. Political consideration, as well as historic events and exigencies, have in practice plaved maior roles in influencina intergovernmental fiscal relations in most federations [7].

The imbalance between resource needs and availability of different government requires the sorting out of one basic issue in a federal system, and this is the issue of allocation of revenue between different levels of government and among government at the same level of jurisdiction in Nigeria.

Three roles were identified for the government sector within the framework of Fiscal Federalism: correcting for various some of market failure, ensure an equitable distribution of income and seeking to maintain stability in the macroeconomy at full employment and stable prices [8]. The theoretical framework in fiscal federalism was basically a Keynesian one which canvassed for an activist role of the state in economic affairs. This enables the government to make use of a macroeconomic policy known as fiscal policy. The government uses fiscal policy to influence the level of aggregate demand in the economy in an effort to achieve economic objectives of price stability, full employment and economic growth [9,10].

A major challenge in the formulation of fiscal policy in Nigeria is how to involve the subnational governments. Under current revenue sharing arrangements, the budget of the state and local government are heavily affected by oil revenue uncertainty and exhibited substantial cyclical changes. It is in the light of the above, that the current fiscal responsibility Bill Sections 32, 33 and 34 of the fiscal responsibility Act 2007, deal with how government revenue is to be handled by the Ministries, Departments and Agencies of government (MDAs) which appears to have some promising provisions towards ensuring a stable and predictable resource transfer between the federal and sub-national governments [11]. In practice, the sub-national governments do not make serious efforts to generate revenue internally, because of their dependence on the allocation from the federallygenerated revenue [12].

2. LITERATURE REVIEW

2.1 Conceptual Issues

Federalism is an institutional arrangement aimed at addressing governmental problems that bother on maintaining unity while at the same time preserving diversity. This implies that each tier of government is coordinated in its sphere of authority and should have appropriate taxing powers to exploit its independent sources of revenue [13]. If state authorities find that the services allotted them are too expensive for them to perform, and if they call on federal authorities for grants and subsidies to assist them, they are coordinated with the federal no longer government but subordinate to it. Financial subordination makes an end of federalism; in fact, no matter how carefully the legal forms may be preserved. It follows that both state and federal authorities in a federation must be given the fiscal autonomy in the constitution to have access to control their own internally generated revenues. Each must have a power to tax and to borrow for the financing of its own services by itself. [14], states that federalism is an

arrangement whereby powers within a country are shared between central and component units in such a way that each unit operates directly within its jurisdiction. The cardinal principle of federalism is that no level of government is subordinate to another, though there must be central government for this exercise. [15] states that fiscal federalism is the form of government where the component units of a political organization participate in sharing powers and functions in a cooperative manner through the combined forces of ethnic pluralism and cultural diversity. [16] and [17], state that fiscal federalism concern the division of public sector functions and finances in a logical way among multiple layers of government. They further opined that the finances and functions of government should be shared in a manner that is acceptable to all involved. Fiscal federalism is the allocation of tax powers and expenditure responsibilities between various levels of government. [18], posits that Nigerian fiscal federalism structure involves the allocation of expenditure and tax-raising power among federal, state and local governments. [19] states that fiscal federalism is the relations among various levels of government in respect to allocation of national revenue and tax powers to the constituent units in a federation. He asserts that the principle of fiscal federalism is anchored on revenue sharing (vertical) and distribution of revenue (horizontal) among various tiers of government. [20], states that fiscal federalism refers to the allocation of resources among tiers of government to discharge the responsibilities assigned within their jurisdiction. [21], supports the views of [22], when he opined that in a federal state, each unit should have itsown sphere of responsibilities, and each should be blamed or commended on how it functions within its own sphere. Fiscal Federalism refers to the fiscal arrangement among the different tiers of government in a federal structure. [23] states that fiscal federalism is the criterion for government to share revenue among various tiers of government. [24], indicates that these revenues have fixed principles; and this heightened its inclusion in section 162(2) of the 1999 Constitution of Nigeria. Fiscal federalism otherwise known as resource control or what [25] prefers to call local control over local resources is variously conceptualized. The concept is a part of a broader public finance discipline and was first introduced by the German-bornrn American economist, Richard Musgrave in 1959. Resource control has economic, political and social definitions. From the economic point of view it is

defined as "existence, in one country, of more than one level of government with each having different taxing powers and expenditure responsibilities [26]. [27], see it as "allocation of tax powers and disbursing responsibilities among the levels of government in a federation. Politically, former Governor Bisi Akande of Osun State in 1995 defined it as derivation. [28], on the other hand sees it as deregulation. But the most meaningful attempt at giving it academic definition was at Obafemi Awolowo University Memorial Lecture in 2001 where Prof. Adebayo conceptualized fiscal federalism Adedeji resources control as "the practice of true federalism and natural law in which the federating units express their rights to privately control the natural resources within their borders, and make agreed contributions towards the maintenance of common services of the sovereign nation-state to which they belong" [29].

This perhaps informed the creation of six geopolitical zones in the country during the 1995 constitutional conference at Abuja. At the conference, societies or nationalities that were socially, culturally and geographically contiguous were grouped together to form a zone (as is the case of Niger Delta region) on the basis of which national appointments, employment, federal character, rotational presidency, but not yet economic federalism, are based. The various definitions above underscore the economic benefits of fiscal federalism thereof which Bello -Imam identify. First, there are variations in human wants and desires not only from one community to the other but also from one nationality to the other. Thus, only federal arrangement could take care of communal, societal and national disparities at various levels of government [30]. Secondly not only does federalism encourage effective majority participation in governance directly. it encourages checks and balances that ensure accountability and responsiveness. The units of government under this arrangement avail the people the opportunity of involvement in decision - making, execution and monitoring. Finally, federalism affords the levels fiscal of governments the opportunity to embark on different developmental projects dear to their community, society or nationality, using different approaches without undue uniformity imposed from the centre.

2.2 Empirical Review

Fiscal Federalism and Economic Growth process of a country. [31] could not find a robust relation between economic growth and decentralization, using a sample of a few developing countries. However, in Nigeria a cross-sectional analysis on the expenditure responsiveness of states to federal allocation during the state government's fiscal expenditure was stimulated by federal grants during the period of analysis. Similarly, [32] employed the OLS technique to investigate the fiscal decentralization on economic growth in Nigeria between 1979 and 1999 and finds an inverse relationship between economic growth and fiscal federalism. He also finds evidence of mismatch in spending and taxing responsibilities with states being a higher hit. [33] on the impact of fiscal decentralization on macroeconomic performance for the period 1971-1990, realized that decentralization of expenditures to the local level increases the growth of real GDP per capita in unitary states more strongly than in federal states.

In a cross-country, evidence on the relationship between fiscal decentralization, inflation and growth, [34], used Error Correction Model (ECM) to ascertain the long-run causal relationship and short-run dynamics on the impact of the extent of decentralization of government expenditures and/or revenue allocation on the levels of economic activities in Nigeria. They found that more decentralized governance, especially in terms of increased local governments and increased transfer of revenues to lower tiers of government, would stimulate economic activities and/or economic growth in Nigeria. [35], focus on the role of financing sources of Nigerian State governments in financing their real asset investment. Using OLS technique, the study finds that Federal allocation and stabilization funds are significant in the financing of real asset investment at both 5% and 1% levels of significance.

Internally Generated Revenue (IGR), Loans (LNS), Grants (GT) and Value Added Tax (VAT) are found insignificant in financing the real asset investments of Nigerian state governments for the period 1984-2008. The impact of revenue allocation formula of individual federating units on economic growth of Nigeria is demonstrated in the study of [36], utilizing OLS technique, finds that both shares of federal government and local governments revenue from federation account contribute to economic growth process in Nigeria. The study finds no contribution of share of states revenue from federation to economic growth process in Nigeria, which is contrary to the findings of the studies of [37] and [38]. [39],

uses the growth rate of shares of the federating units from federation account as proxies and finds direct relationship between revenue to federal, and local allocation states, governments and economic growth process in Nigeria. [40], adopts the preliminary test of time series data, and ECM and Pair-wise Granger Causality test to ascertain the causal relationship and the direction of causality between revenue allocation that the lag values of all the independent variables (revenue allocation to federal government, states. and local governments) jointly impact on RGDP of Nigeria for the period 1993 to 2012, with only revenue allocation to states showing a negative significant result. In a panel data analysis, [41], find a weakly significant negative relation between the degree of fiscal federalism and the average growth rate of GDP per capita for a sample of 46 countries over the period from 1970 to 1989. For the sub-sample of industrial countries, this effect is not significant. The negative influence for developing countries is robust though only weakly significant as well. According to these estimates, an additional decentralization of spending by 10 percent reduces the growth of real GDP per capita in developing countries.

3. METHODOLOGY

3.1 Theoretical Framework and Model Specification

3.1.1 Theoretical framework

The theoretical framework for this study is the Neo classical theory of growth which states that the growth rate of an economy is a function of the growth of capital, labour and technical progress. However, following [42], since capital investment is finance from national income, therefore, it is only labour growth and technical progress that ultimately determine economic growth rate. This study therefore adopts the Solow Growth Model by expunging capital as a determinant of growth.

3.2 Model Specification

This study follows the work of [43], in model specification with suitable adjustments.

Functional Model,

GDP=f(K, L)(1)

GDP = f(ER, IR, CPI)(2)

GDP = f (ER, IR, CPI, FEDREV, SGREV, LGR) (3)

GDP = f (ER, IR, CPI, FEDREV, SGREV, LGR) (4)

Incorporating the relevant variables of the degree of fiscal federalism of a country, we can capture the impact of fiscal de-centralization on economic growth. This is by introducing two sets of fiscal variables into the equation (4). The first set of fiscal variables is the share of three of the tiers of government in total public revenue; while the second set is the share of state government allocation and local government allocation. Equation (4) can thus be rewritten using parameters in an econometrical form as follows:

 $GDP = b_0 + b_1ER + b_2IR + b_3CPI + b_4FEDREV + b_5SGREV + b_6LGR$ (5)

 $GDP = b_0 + b_1ER + b_2IR + b_3CPI + b_4FEDEX + b_5SGEX + b_6LGR + U_t$ (6)

Where,

ER= Exchange rate (N/\$) IR= Interest Rate

CPI= Consumer Price Indices

FEDEX= Revenue allocation to federal government.

SGEX= Revenue allocation to state government from federal allocation.

LGR= Revenue allocation share of local government

3.3 Apriori Expectation

b₀>0, b₁>0, b₂>0, b₃>0, b₄>0, b₅>0, b₆>0

3.4 Sources of Data

Sources of data were collected from the Central Bank of Nigeria's (CBN, 2000; 2017) Statistical Bulletin, CBN Annual Report and Statement of Accounts, National Bureau of Statistics (NBS, 2017) and The World Bank Group (2019) for years 2000, 2017 and 2018 and 2019 respectively. The data covers the period, 1990-2017 on an annual basis.

3.5 Estimation Techniques

The techniques used for this work are ordinary least square (OLS) and auto regressive distributive lag (ARDL). Ordinary Least Square is considered for this work because of its properties which have been subjected to empirical analysis which was found to be efficient and unbiased. Auto Regressive Distributive Lag (ARDL), to test for long run and short run relationship between the dependent and the independent variables. Auto Regressive Distributive Lag is used to predict current value of dependent variables based on both the current values of explanatory variables and the lagged values of this explanatory variable.

4. DATA ANALYSIS AND DISCUSSION OF RESULTS

4.1 Introduction

This section contains data analysis and discussion of results. Data for the study is a time series data between 1990 and 2017.

4.2 Estimation Results

The result of the ADF unit root test on the basis of Schwarz criterion revealed that only inflation rate was integrated of order one, that is, the inflation rate is stationary at level (Table 1). However, after the first difference, all other variables became stationary. This result informed our decision to adopt the ARDL model for the estimation of our parameters. Here, the major merit of this econometric technique lays in its ability to estimate both short and long run parameters simultaneously, these parameters are usually unbiased.

From Table 2 results, at 5% level of significant, inflationary rate (-0.000394) and local governmen (-0.012344) are negatively correlated to logarithm of gross domestic product with t-statistic of (-0.549669) and (-0.738334), respectively. While all other variables are positively correlated with GDP. The R-squared is 98.99% which explained the variation in the dependent variable as explained by the variation in the explanatory variables. F-statistic, the probability is zero which shows that the overall model is significant.

Table 3 results show that there is a negative relationship that exists between federal government revenue allocation and gross domestic product. The local government revenue allocation is positively correlated to GDP while the relationship between state government revenue is positively related to gross domestic product. The R-squared (0.998694) shows that the variation in the dependent variables is explained by 99.86 percent variation in independent variables. Local government variables account for adjustment.

Table 1. ADF unit root result

Variables	At level					At first difference			Order of
	1%	5%	10%	t-stat	1%	5%	10%	t-stat	integration
Exc-rate	-4.3393	-3.5875	-3.2292	-2.0944	-4.3561	-3.5950	-3.2235	-4.7448	l(1)
Fed gov	-4.3393	-3.5875	-3.2992	-1.8207	-4.3561	-3.5950	-3.2335	-4.3005	l(1)
Inf rate	-4.3561	-3.5950	-3.2345	-3.3725	_	_	_	_	l(0)
Int rate	-4.3393	-3.5875	-3.2292	-2.2391	-4.3561	-3.5950	-3.2335	-5.5321	l(1)
Locgov	-4.3393	-3.5875	-3.2292	-3.0985	-4.3561	-3.5950	-3.2335	-7.0839	l(l)
Realgdp	-4.3561	-3.5950	-3.2335	-2.2351	-4.4163	-3.6220	-3.2486	-4.7727	l(1)
Stagov	-4.3561	-3.5950	-3.2335	-2.4911	-4.3561	-3.5950	-3.2335	-3.4388	l(1)
Source: Authors' computation using views									

Source: Authors' computation, using views

Table 2. Regression result

Dependent Variable: LOGREALGDP Method: Least Squares Date: 10/29/18 Time: 05:06 Sample: 1990 2017 Included observations: 28 Variable Coef

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF_RATE	-0.000394	0.000717	-0.549669	0.5883
INT_RATE	0.082462	0.022167	3.720113	0.0013
LOGFEDGOV	0.248111	0.108482	2.287120	0.0327
LOGEXC	0.063033	0.019679	3.203080	0.0043
LOGLOCGOV	-0.012344	0.016718	-0.738334	0.4685
LOGSTAGOV	0.086548	0.087475	0.989401	0.3337
С	7.092012	0.270799	26.18919	0.0000

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R-squared	0.989990	Mean dependent var	10.44415
Adjusted R-squared	0.987129	S.D. dependent var	0.482594
S.E. of regression	0.054750	Akaike info criterion	-2.759777
Sum squared resid	0.062948	Schwarz criterion	-2.426726
Log likelihood	45.63688	Hannan-Quinn criter.	-2.657960
F-statistic	346.1350	Durbin-Watson stat	0.761206
Prob(F-statistic)	0.000000		

Table 3. Estimated ARDL model short run

Dependent Variable: LOGREALGDP Method: ARDL Date: 10/29/18 Time: 05:10 Sample (adjusted): 1994 2017 Included observations: 24 after adjustments Maximum dependent lags: 4 (Automatic selection) Model selection method: Akaike info criterion (AIC) Dynamic regressors (4 lags, automatic): LOGFEDGOV LOGLOCGOV LOGSTAGOV Fixed regressors: C Number of models evalulated: 500 Selected Model: APDI (1, 0, 4, 0)						
Variable	Coefficient	Std. Error	t-Statistic	Prob.*		
LOGREALGDP(-1)	0.882028	0.066069	13.35016	0.0000		
LOGFEDGOV	-0.050674	0.050595	-1.001557	0.3324		
LOGLOCGOV	0.018044	0.006175	2.922174	0.0105		
LOGLOCGOV(-1)	0.008449	0.005926	1.425697	0.1744		
LOGLOCGOV(-2)	0.024439	0.009501	2.572316	0.0212		
LOGLOCGOV(-3)	0.029318	0.010163	2.884748	0.0113		
LOGLOCGOV(-4)	0.019567	0.010797	1.812357	0.0900		
LOGSTAGOV	0.008037	0.035304	0.227653	0.8230		
С	0.965972	0.427367	2.260291	0.0391		
R-squared	0.998694	Mean depende	nt var	10.53839		
Adjusted R-squared	0.997997	S.D. dependent var 0.456617				
S.E. of regression	0.020435	Akaike info criterion -4.663100				
Sum squared resid	0.006264	Schwarz criterion -4.221330				
Log likelihood	64.95721	Hannan-Quinn criter4.545899				
F-statistic	1433.536	Durbin-Watson stat 2.017780				
Prob(F-statistic)	0.000000					

*Note: p-values and any subsequent tests do not account for model selection

Table 4. Co-integration result (Bound test)

ARDL Bounds Test			
Date: 10/29/18 Time: 05:13			
Sample: 1994 2017			
Included observations: 24			
Null Hypothesis: No long-run relati	onships exist		
Test Statistic	Value	k	
F-statistic	9.616723	3	
Critical Value Bounds			
Significance	I0 Bound	I1 Bound	
10%	2.72	3.77	
5%	3.23	4.35	
2.5%	3.69	4.89	
1%	4.29	5.61	

Table 5. Estimated ARDL model long run

Test Equation:								
Dependent Variable: D(LOGREALGDP)								
Method: Least Squares								
Date: 10/29/18 Time: 05:1	Date: 10/29/18 Time: 05:13							
Sample: 1994 2017	Sample: 1994 2017							
Included observations: 24								
Variable	Coefficient	Std. Error	t-Statistic	Prob.				
D(LOGLOCGOV)	0.018089	0.006383	2.833817	0.0126				
D(LOGLOCGOV(-1))	-0.066105	0.020570	-3.213676	0.0058				
D(LOGLOCGOV(-2))	-0.044920	0.015841	-2.835575	0.0125				
D(LOGLOCGOV(-3))	-0.018482	0.012191	-1.516100	0.1503				
С	0.913250	0.469819	1.943834	0.0709				
LOGFEDGOV(-1)	-0.004766	0.054056	-0.088159	0.9309				
LOGLOCGOV(-1)	0.092725	0.017404	5.327794	0.0001				
LOGSTAGOV(-1)	-0.025874	0.044337	-0.583565	0.5682				
LOGREALGDP(-1)	-0.118749	0.069560	-1.707143	0.1084				
R-squared	0.771093	Mean dependent var 0.052029						
Adjusted R-squared	d 0.649009 S.D. dependent var							
S.E. of regression	. of regression 0.020637 Akaike info criterion							
Sum squared resid	0.006388	Schwarz crite	-4.201725					
Log likelihood	64.72194	Hannan-Quinn criter4.526293						
F-statistic 6.316085 Durbin-Watson stat 1.946227								
Prob(F-statistic) 0.001135								

In Table 4, the result for the bound test shows that the F-statistic is 9.616723 which is greater than the upper bound and the lower bound, there is a long run relationship between the variables which shows that the variables are co-integrated.

5. CONCLUSION AND RECOMMENDA-TIONS

5.1 Conclusion

This study examined the impact of fiscal federalism on economic growth in Nigeria. The result of the econometric analysis shows that a long run equilibrium relationship exists between gross domestic product and revenue allocation to tiers of government in the country. We can, therefore, conclude the following from our findings:

- Both rate of inflation and revenue allocation of local government share increases, as gross domestic product tends to fall. Hence, high rate of inflation in the country is fast eroding the capacity of local government's contribution to the national economy.
- Although, share of both states and federal governments contribute positively to economic growth, the state government's contribution is minimal.

 Other variables affecting economic growth such as interest rate and the exchange rate used in the model are said to contribute positively to economic growth, hence encouraging investment in capital projects.

5.2 Recommendations

Based on the reliability of the results of the study, the following recommendations are put forward.

- There should be devolution of powers from the federal/centre to the component states and local governments. In order words, principle of true federalism should be respected in Nigeria.
- Each state and local governments should also be encouraged to look inward for revenue generation, with a view to improving their financial status and consequently contribute to the national economy.
- Each tier of government should look up to domestic borrowings rather than foreign borrowings. This is because domestic debt is non-inflationary and not subject to exchange rate pressure. Domestic debt promotes macroeconomic stability which on the aggregate significantly impact economic growth in the country.

 There is need to reform tax administration to complement non-oil revenue in Nigeria with a view to reducing the dominance of oil sector in the country.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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