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INTERNALLY GENERATED REVENUE (IGR) AND FISCAL VIABILITY OF STATE GOVERNMENTS IN NIGERIA

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ABSTRACT

The study assessed the effect of Internally Generated Revenue (IGR) on the fiscal viability of State governments in Nigeria between 1986 and 2018. The study used the Vector Error Correction Model (VECM) to determine the impact of IGR on the revenue generation, total expenditure and the fiscal deficit of States in Nigeria. Finding from the study revealed that the IGR of States in Nigeria had a poor impact on revenue generation, recording its peak value of only 17% contribution. Its contribution to the total expenditure was also small, also recording its peak value at a paltry 9%. Although the IGR in Nigerian states had the desired effect of reducing fiscal deficit, its contribution was however low. In conclusion, the IGR of Nigerian States contributed poorly to the fiscal viability of States. It therefore recommended that to increase revenue, encouragement of tax compliance is advocated. Also, control measures should be put in place to check possible frauds and embezzlement in revenue generation and utilization of State governments.

Keywords: Internally Generated Revenue (IGR), Fiscal Viability, Government Revenue, Government Expenditure, Fiscal Deficit.

1.0 INTRODUCTION

Revenue generation and its sustainability is of paramount importance as a result of the fact that revenue represents the life wire of establishments both in developed and developing countries. The importance of revenue generation, allocation, and its distribution towards maintaining both the existing and new socio-political and economic structure in any economy cannot be overemphasized (Morufu & Babatope, 2017).

Revenue generation ensures financial viability which represents the ability to generate sufficient income to meet operating payments, debt commitments and, where applicable, to allow growth while maintaining service levels. It is the ability of an economy to continue to achieve its operating objectives and fulfill its mission over the long term.

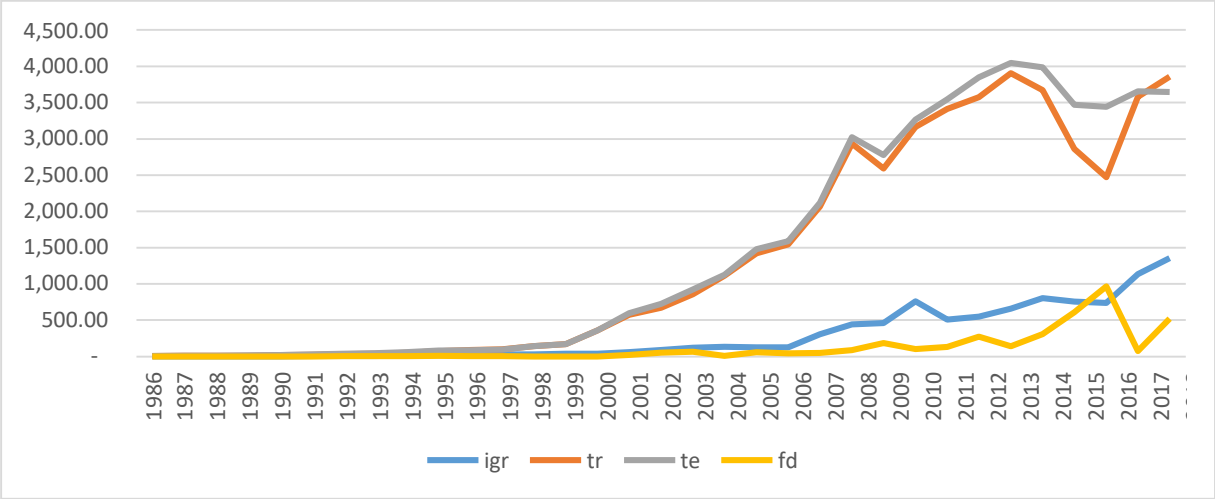
In Nigeria, Internally Generated Revenue (IGR) is the revenue that state governments generate within the areas of their jurisdiction (Igbinigie, 2018). The various sources of internal revenue available to state governments include tax revenues, non-tax revenues, and other miscellaneous sources. Tax revenues include PAYE (Pay As You Earn), direct assessment, withholding tax, property tax, capital gains tax for individuals, sales or consumption tax, pool betting taxes, lottery and casino taxes, business premises and registration fees, development levies for taxable individuals, fees for right of occupancy on urban land owned by the State government, market taxes and levies. Non Tax revenues include earnings and sales, fines and fees, licenses, rent on government properties and interest repayment and dividend.

According to Asimiyu and Kizito (2014) fiscal viability refers to the ability to generate sufficient income to meet operating payments, debt commitments and, where applicable, to allow growth while maintaining service levels. It is the ability of an economy to continue to achieve its operating objectives and fulfill its mission over the long term. Morufu & Babatope (2017) asserted that a state that is viable is one that has a stable polity, has capacity to, in all transparency, implement a budget, upgrade and maintain existing infrastructure, pay its civil servants and carry out projected capital infrastructural development. To assess the viability of State governments the study used fiscal policy variable of total State government revenue, total State government expenditure, and also the fiscal deficit levels of Nigerian States.
In recent years, the issues of resource control, revenue allocation and fiscal federalism have dominated discussions at various levels of Nigeria's political debate (Omodero, Ekwe & Ihendinihu, 2018). Like most federal systems, Nigeria has a revenue distribution system in which the federal government shares revenue with the states and local governments. Different formulas at different times have been adopted.

Despite these efforts, revenue allocation has remained a contentious issue among the three tiers of government in Nigeria. Within the last decade, the 36 state governments have been at daggers-drawn with the Federal Government over the formulation of a revenue sharing formula that would be acceptable to all the stakeholders. One major impact of this seemingly never ending controversy is the fact that fiscal federalism in Nigeria has not been able to contribute optimally to social and economic development (Asimiyu & Kizito, 2014). In addition, not only are there concerns about the sharing formulae for federally collected revenues, there are challenges emanating from the mono product nature of the source of funding, with up to 70% coming from oil which is highly volatile.

There are issues with the options, capacity and opportunities for some of the federating units (particularly the States and Local governments) to raise internally generated revenues. Amid calls for salary increment in Nigeria, which is very much justified considering the high cost of living in the country, the fiscal crises however in many Nigerian states is scary. The current fiscal situation of governments in the country is unsustainable and anti-growth (Nkechi, & Onuora, 2018). Most States' inability to meet vital financial obligations without allocation from

the Federal Government is becoming clearer by the day following shortfalls in crude oil earnings which saw substantial drops from the Federal Account Allocation Committee (FAAC) disbursements to States. Figure 1 presents a graphical analysis of the IGR, total revenue, to tal expenditure and the fiscal deficit of State governments in Nigeria.



Blue key- internally generated revenue (**IGR**), Orange key- total revenue (**TR**), Grey key- total expenditure (**TE**), Yellow key- fiscal deficit (**FD**)
Figure 1: Graph of IGR, Total revenue, Total expenditure, and Fiscal Deficit of State governments in Nigeria (1986-2018)

The graphs on Figure 1 showed that the IGR of States in the country maintained a closer level with revenue, the expenditure and the fiscal deficit of States up till 1990. From 1991 however, total State government revenue and her expenditure grew astronomically far outpacing the IGR level up to 2018. Figures from the CBN (2017) showed that while IGR was only N1.86 billion in 1986, total State revenue and expenditure were N4.70 billion and N5.77 billion respectively. In 1990 the IGR was N2.76 billion, total State revenue and expenditure shot up to N19.97 billion and N20.05 billion respectively. In the year 2000, while the IGR was N37.79 billion, the total State revenue and expenditure were N359.070 billion and N3595.6 7 billion respectively. In the year 2010, while the IGR was only N757.9 billion, the total State revenue and expenditure had grown to N3162.54 billion and N3266.23 7 billion respectively. In 2017 while the IGR grew to N 1133.62 billion, the total State revenue and expenditure had grown to N3162.54 billion and N 3654.96 billion respectively. In contrast to the revenue and expenditure of States in Nigeria, the fiscal deficit of States remained below the IGR level except for 2016.

According to BudgIT, a data-simplifying civic organization, in 2016, 33, out of the 36 States of the Federation, were unable to fulfill recurrent obligations with the exception of *Lagos, Rivers, and Enugu States*; in 2015, only 19 States were in that situation. In a bid to ameliorate the situation for these states, the Federal government gave out several trenches of bailout funds to states so as to meet their financial obligations (BudgIT, 2017). But despite these interventions, running to N1.8 trillion in bailout, as at the end of 2018, 17 states still owe pensions and salaries (BudgIT, 2018). The reality is that majority of Nigerian States are experiencing fiscal crunch, despite the revenue generating structures in these States.

The major objective of this study was to assess the dynamic relationship of IGR on the fiscal viability of State governments in Nigeria.

2.0 LITERATURE REVIEW

Empirical Literature

Several literatures consisting of both Nigeria case study and literatures from other countries were reviewed. Nkechi and Onuora (2018) investigated the effect of IGR on infrastructural development of the South Eastern states in Nigeria. Secondary data were used for the study, and they were extracted from budget estimates of each of the five South Eastern States of Imo, Abia, Ebonyi, Enugu and Anambra States from the period of 2013-2017. The study employed descriptive statistics, correlation and linear multiple regression for data analysis and data interpretation. Findings from the study revealed that there is a significant positive relationship between the IGR and infrastructural development in the South East States.

In a similar study, but considering only Akwa Ibom State, Nnanseh and Akpan (2013) assessed the effects of IGR on infrastructural development. The study specifically sought to ascertain the extent to which IGR has contributed to the provision of such infrastructures as water, electricity, and road. An ex-post facto research design was adopted and the data used were obtained from secondary sources. The data were analyzed with simple percentage statistics while Simple Regression statistics was used in testing the hypotheses. It was found that IGR contributed significantly and positively to the provision of water, electricity and roads just like the work by . Nkechi and Onuora (2018). However, these contributions were skewed more to roads than electricity and water.

In an analysis of South Western States, Morufu and Babatope (2017) appraised the influence of IGR on the revenue profile of South Western State governments in Nigeria and how this has impacted on their capital expenditure for the period of 2006-2015. The study adopted descriptive statistics and OLS Multiple regression analysis to carry out its study. Three States of Osun, Ondo and Ekiti were selected from the six South-western States to form the sample for the study. Data collected from secondary sources where of specific variables such as State IGRs and revenue profile/total revenue and capital expenditure were extracted from the financial statements of the selected States collected from State Government's Accountant General Offices for the period. Findings from the study showed that there was a significant difference between the major

components of IGR of the sampled States except taxes. The result of the study showed that there was a significant positive correlation between IGR and revenue profile of Ekiti, Osun and Ondo States. The study further showed that the IGR had no significant influence on capital expenditure of Ekiti and Ondo State respectively. However, there was a significant influence of Osun state IGR on capital expenditure.
In a similar study, but using only Cross River State as a case study, Peter and Ferdinand (2017) analyzed the relationship between IGR and capital expenditure utilization in Cross River State, Nigeria from 2007 to 2015. Secondary data sought from Cross River State budget office, internal revenue service and ministry of finance were used for the study. Descriptive statistics were used to analyze the relationship between IGR and capital expenditure utilization in Cross River State. Findings from the study indicated that increase in government expenditure without corresponding revenue will widen the budget deficit, stating that the Cross River State government should increase the size of its IGR in order to accommodate the capital expenditure of the state.

In contrast to the works Nkechi and Onuora (2018), Morufu and Babatope (2017) and the work of Peter and Ferdinand (2017), Asimiyu and Kizito (2014) carried out a study titled 'the analysis of IGR and its implications on fiscal viability of State governments in Nigeria'. The study examined the growth rate of State governments IGR in Nigeria, and also compared the growth rate of IGR in urban and rural states as well as investigates the ability of IGR to finance state governments' expenditures. The scope of the paper covers 5 States randomly selected from the 36 states in Nigeria between 1999 and 2011. Secondary data were collected from the CBN Annual Statistical Bulletin. The data were analyzed using descriptive statistics such as mean/averages, variance, percentages, tables and charts. Findings from the study revealed that on the overall, the growth rate of State governments IGR was 20.1% which is very low, and this growth rate of IGR is higher in rural states than in urban states. It was also discovered that the growth rate of State governments' recurrent and total expenditures were 30% and 34.2% respectively, and these growth rates are higher than the growth rate of IGR. It was further discovered that the IGR of urban States financed a greater proportion of their recurrent and total expenditures than the IGR of rural States. A direct relationship was found to exist between the growth rates of IGR and capital expenditures.

In a departure from IGR based study, Nwosu and Okafor (2014) carried out a study titled 'government revenue and expenditure in Nigeria'. The study examined the relationship between both total and disaggregated government expenditure (current and capital expenditures), and total and disaggregated revenue (oil and non-oil revenues) in Nigeria using time series data from 1970 to 2011. The study utilized co-integration techniques and an Error Correction Mechanism (ECM), and the Granger causality test as the methods of analyses. The Co-integration tests indicated the existence of long-run equilibrium relationships between government expenditure variables and revenues variables. The ECM results also showed that total government expenditure, capital and recurrent expenditures have long-run unidirectional relationships with

total revenue, oil and non-oil revenue variables as well as unidirectional causalities running from expenditures to revenue variables. The findings support spend-tax hypothesis in Nigeria indicating that changes in government expenditure instigate changes in government revenue.
In a similar study like the work of Morufu and Babatope (2017) that assessed South Western States, Tunji, Olajide, & Olubukunola (2014) examined the roles that IGR plays in the administration of State governments in Nigeria, using Ogun State in the South Western part of the country, as case study. Secondary data was used for the study. Data on these variables were collected from Ogun State Treasury Office from 2004 to 2013. The study adopted the econometric tool of Ordinary Least Square (OLS) Regression method. The study revealed that IGR plays significant role in growing the revenue of the State. It was even revealed in some instances that the internally generated revenue of Ogun State exceeds statutory allocation from the Federal Government.

Abata (2014) examined the impact of tax revenue on the Nigerian economy using the Lagos State Federal Board of Inland Revenue (FBIR) as case study. The study used primary data for its analysis. Descriptive survey design was adopted and simple random sampling technique was used in the selection of the sample size. 100 copies of questionnaires were administered to workers of the Lagos State Federal Board of Inland Revenue (FBIR). 75 questionnaires were retrieved and found usable for the study hence, giving a 75% response rate. The study used Chi-square statistical tool of analysis. The findings showed that tax revenue significantly impacted on federal government budget implementation in Nigeria, tax administrative system significantly affected the revenue generated in Nigeria, tax evasion significantly affected government revenue in Nigeria, and lack of training on the part of tax officers significantly affected the generation of government revenue in the country.

In contrast to other studies using South Eastern and South Western States as case studies and using descriptive statistics for analysis, Adejoh and Sule (2013) assessed revenue generation and its impact on government developmental effort using a study of selected local council in Kogi East senatorial district. The researchers used both primary and secondary methods of data collection to generate the needed data. The data obtained through secondary data were analyzed using Simple Least Square regression method. The findings of the study are; there is a significant relationship between revenue generated and developmental effort of government in the area.

In contrast to other studies that were based on Nigeria, Kazentet (2011) assessed the role and contribution of internally generated fund (IGF) on the development of Asutifi district of Ghana. Secondary and primary data were used for the study from field sample surveys and documentations. Statistical tools such as correlation and regression analysis were used to find the linkage between IGR and development expenditure for the past eight years of 2003 to 2010. Findings from the study showed that the trend analysis revealed that the IGF and development expenditure of the district have a positive and strong relationship. Both IGF and development

expenditures have improved through time. The study also noted that the district spends higher cost to raise IGF from the different sources excluding land royalties.

An analysis of these literatures showed that most of the Nigeria IGR related literatures were based on particular States, while others were region based. None of the literatures was carried out using Nigeria as a whole as a case study. Although the work of Asimiyu and Kizito (2014) had a similar topic, it only covered 5 States of the federation while using descriptive statistics to carry out its analysis. It was also found that none of the Nigeria IGR studies used complete fiscal policy variables to capture fiscal viability, this study however used the composite State government revenue, expenditure, and State government fiscal deficit to assess the fiscal viability of State governments in Nigeria as a whole, while employing the Vector Error Correction Model (VECM) in its analysis.

Theoretical Literature and Framework

Peacock and Wiseman (P-W) Theory- The study adopted the Peacock and Wiseman (1961) theory as theoretical framework. The theory was used because it underscores the various stages of growth of financial expenditure within a State which requires the right combination of revenue to attain this level of expenditure. The three basic propositions underlying the P-W analysis are that; (i) governments can always find profitable ways to expend available funds, (ii) citizens, in general, are unwilling to accept higher taxes, and (iii) governments must be responsive to the wishes of their citizens. From these basic tenets, P-W derive the key concept of a 'tolerable burden of taxation'.

Peacock and Wiseman emphasized the time pattern of public spending. Their analysis involves three related elements. These are displacement, inspection and concentration effects. Using empirical data for the British economy after 1890, Wiseman and Peacock observed that the relative growth of the public sector in the United Kingdom followed a discrete step like pattern rather than a continuous growth pattern. During the period under the study, they found that government fiscal activities, in the country have risen step by step to successive new plateaus. Moreover, the absolute and relative increases (steps upward) in taxing and spending activities by the British government have generally taken place during periods of major social disturbance or crisis such as war or depression. These kinds of changed fiscal situation caused the previous lower tax and expenditure levels to be replaced by new and higher budgetary levels. This movement from the older level of expenditure and taxation to a new and higher level is called the displacement effect after the social disturbance has ended; the new level of tax is tolerated by the society.

The emerged new levels of tax tolerance make the society willing to support higher levels of public expenditure. In other words, the tax threshold has increased, thus there is no strong

motivation to return to the lower pre-crisis level of taxation. The higher government revenues are used to support permanently higher levels of public sector allocation.

The theory reveals that as the social disturbance cause a relative expansion of the public sector, the displacement effect which occurs helps to explain the time pattern by which the government growth takes place. This displacement effect does not require that the new higher plateau of expenditure, continue the same expenditure composition that was created by the social disturbance. Some of the increased expenditures like interest on debt are the direct results of the social disturbance. While other expenditures arose as a result of technological development and expansion of government activity into new areas. For instance, war and other social disturbance, frequently force the people and their government to find out a lasting solution to the long standing and pending problems, which were previously neglected. This is known as **'inspection effect'.** Inspection effect is the inadequacy of revenue in comparison with the 'required' public expenditure.

In addition to the displacement and inspection effect, Peacock and Wiseman, also give narration about a concentration (scale) effect. It refers to the apparent tendency for the government economic activity to become an increasing proportion of total public sector economic activity, when a society is experiencing economic growth. This occurs because the government has to initiate a number of measures to sustain higher economic activity. Since each major disturbance leads to a situation in which, the government assuming a larger proportion of the total national economic activity, the net result is **'the concentration effect'.**

Public expenditure has a tendency to grow on account of a systematic expansion of government activities, both in terms of intensity and quality. The regular and dynamic changes in state activity and public spending caused by macro variables like population growth, urbanization, awareness of civic rights on the part of citizens and political and social commitments on the part of democratic governments voted to power are major factors giving a big push to upward trend in public expenditure. Wiseman-Peacock hypothesis appears to be quite relevant because it emphasizes the jerks and jumps in public expenditure, and the corresponding need of an appropriate revenue generation structure to meet government increasing financial commitments. Following this theoretical background which shows governments increasing financial commitments which requires a viable revenue generating structure within the State, the study adapted the work of Nwosu and Okafor (2014), using the variables of internally generated revenue (IGR), total revenue (TR), total expenditure (TE), and fiscal deficit (FD) to assess the dynamic relationship between IGR and the fiscal viability of State governments in Nigeria.

METHODOLOGY

Types and Sources of data

The study used secondary data for its analysis. It used annual times series data spanning 1986 to 2018. The choice of the base year of 1986 stems from the fact that the period witnessed the beginning of the Structural Adjustment Program (SAP) which had a main goal of reducing the fiscal imbalances of governance in the country which was brought about by heavy reliance of the oil price shock. Also, the choice of the terminal year of 2018 was chosen, as the period is recent enough long enough to capture the relationship between IGR and the fiscal viability of state governments in Nigeria. The time series data of internally generated revenue (IGR), total revenue (TR), total expenditure (TE) and fiscal deficit (FD) were gotten from the Annual Central Bank of Nigeria (CBN) statistical bulletin.

Method of Analysis

The study employed the Vector Error Correction Model (VECM) to assess the short-run and the long-run dynamic equilibrium effect of IGR on revenue generation, the expenditure, and the fiscal deficit of State governments in Nigeria. The foremost advantage of VECM is that it has nice interpretation with long term and short term equations. **VECM** offers a possibility to apply **Vector Autoregressive Model (VAR)** to integrated multivariate time series. In practice you need to determine the number of cointegrating relationships. When you fix that number you restrict certain coefficients of the VAR model. So, the advantage of VECM here is that the resulting VAR from VECM representation has more efficient coefficient estimates (Stack Exchange, 2013).
To ascertain the existence of cointegrating relationship among the variables, the Johansen cointegration test was used.

Model Specification

To determine the impact of IGR on the fiscal viability of State governments in Nigeria, this study adapted the study by Nwosu and Okafor (2014) to carry out its empirical analysis. While the study by Nwosu and Okafor (2014) used the variables of Government expenditure (decomposing this into recurrent and capital expenditures), and government revenue (decomposing this into oil and non-oil revenues), this study however used the following variables; internally generated revenue (IGR), total revenue, (TR) total expenditure (TE), and fiscal deficit (FD). The revenue of the State is deponent on the IGR of the State, while the expenditure of the State depends the IGR accruing to the State. And lastly the fiscal deficit of the State depends on the difference between the revenue and the expenditure annually within the State. As such, the ordering of the variables follows from IGR to total revenue, total expenditure, and fiscal deficit.

The functional form of the model is given as follows as specified in VECM form, where each of the variable is a function of itself and other variables in the model:

[1] $$LnIGR_t = \varphi_0 + \sum_{t=0}^{p} \varphi_1 LnIGR_{t-1} + \sum_{t=0}^{p} \varphi_2 LnTR_{t-1} + \sum_{t=0}^{p} \varphi_3 LnTE_{t-1} + \sum_{t=0}^{p} \varphi_4 LnFD_{t-1} + \varepsilon_t$$

[2] $$LnTR_t = \alpha_0 + \sum_{t=0}^{p} \alpha_1 LnTR_{t-1} + \sum_{t=0}^{p} \alpha_2 LnIGR_{t-1} + \sum_{t=0}^{p} \alpha_3 LnTE_{t-1} + \sum_{t=0}^{p} \alpha_4 LnFD_{t-1} + \varepsilon_t$$

[3] $$LnTE_t = \beta_0 + \sum_{t=0}^{p} \beta_1 LnTE_{t-1} + \sum_{t=0}^{p} \beta_2 LnIGR_{t-1} + \sum_{t=0}^{p} \beta_3 LnTR_{t-1} + \sum_{t=0}^{p} \beta_4 LnFD_{t-1} + \varepsilon_t$$

[4] $$LnFD_t = \delta_0 + \sum_{t=0}^{p} \delta_1 LnFD_{t-1} + \sum_{t=0}^{p} \delta_2 LnIGR_{t-1} + \sum_{t=0}^{p} \delta_3 LnTR_{t-1} + \sum_{t=0}^{p} \delta_4 LnTE_{t-1} + \varepsilon_t$$

Apriori Expectation- *IGR*, *TR*, *TE*>0, while *FD*< *0.*

where, α_0, β_0, δ_0 and φ_0 are the intercepts of Equations [1], [2], [3] and [4] respectively, while α_1 to α_4, β_1 to β_4, δ_1 to δ_4, and φ_1 to φ_4 represents the coefficients of the variables in the model. ε_t in each of the equation represents the error term. *LnIGR* represents the natural log of Internally Generated Revenue, *LnTR* stands for the natural log of Total Revenue, *LnTE* represents the natural log of total expenditure, while *LnFD* stands for the natural log of Fiscal Deficit.

Estimation Procedure

Unit Root Test- This study used the Augmented Dickey-Fuller (ADF) test to carry out its unit root test. The Augmented Dickey-Fuller test (ADF) tests the null hypothesis that a unit root is present in a time series sample. The alternative hypothesis is different depending on which version of the test is used, but is usually stationary or trend-stationary. This test is an augmented version of the Dickey-Fuller test.

Lag Length Selection Test- The lag length test was conducted to determine the appropriate lag length to be used to carry the VECM analysis. In the econometric literature, a number of selection criteria have been proposed that can be used to determine the optimal lag order. The selection criteria considered in this study are the Akaike Information Criterion (AIC), the Schwarz Information Criterion (SIC) and the Hannan-Quinn Criterion (HQC).

Cointegration Test- If two or more series are individually integrated (in the time series sense) but some linear combination of them has a lower order of integration, then the series are said to be cointegrated. Cointegration has become an important property in contemporary time series analysis. This study used the Johansen test to carry out this test. The Johansen test is a procedure for testing cointegration of several, say *k*, 1(1) time series.

Impulse Response Function (IRF)- The IRF is a tool used to trace out the time path of the various shocks on the variables contained in the VECM system. It shows the time path response of variable to shock in itself and shock to other variables in the model.

Variance Decomposition (VD)- This tool shows the proportion of movement in a sequence that occurs due to its own shock versus shocks to other variables in the model. In other words, it shows the apportionment of forecasting errors of a variable to itself and other variables in the system.

Residual Diagnostic Test- The study used the VEC Residual serial correlation LM test to test for serial correlation in the model. It also used the Inverse roots of AR Characteristic Polynomial to ascertain the stability of the VECM model.

PRESENTATION AND ANALYSIS OF RESULT

Unit Root Test

To test for unit root or stationarity in the time series data, the Augmented Dickey-Fuller test (ADF) was carried out.

Table 1: *ADF Unit Root Tests Results*

Variable	Order	ADF Calculated	ADF Critical Value	Conclusion
IGR	At levels	-1.823893	-3.557759	1(1)
	1st difference	-5.994291	-3.562882	
TR	At levels	-0.124566	-3.557759	1(1)
	1st difference	-5.419140	-3.562882	
TE	At levels	0.775247	-3.557759	1(1)
	1st difference	-4.779178	-3.562882	
FD	At levels	-2.363790	-3.557759	1(1)
	1st difference	-8.523711	-3.562882	

Computed at the 5% ADF Critical level

The ADF unit root result on Table 1 shows that all the time series data were non stationary at levels, they however were stationary at 1st difference.

Lag Length Selection Test

To determine the optimal lag length to employ in the analysis, the lag length selection criterion test is conducted on Table 2.

Table 4: *Lag Order Selection Criteria Result*

Lag	LogL	LR	FPE	AIC	SC	HQ

0	-91.94750	NA	0.005734	6.190162	6.375192	6.250477
1	17.15702	183.0140	1.43e-05	0.183418	1.108571*	0.484995
2	41.77000	34.93455*	8.68e-06*	-0.372258*	1.293017	0.170580*

Note: * indicates lag order selected by the criterion, LR: Sequential modified

LR test statistic (each test at 5 percent level of significance), FPE: Final predictor error, AIC: Akaike information criterion, SC: Schwarz information criterion and HQ: Hannan-Quinn information criterion respectively.
The lag length selection results showed that 2 lags were selected by most of the selection criterion except the SIC.Hence, since the majority of the criterion selected 2 lags, this study used 2 lags to carry out the VECM analysis.

Co-integration Test
The Johansen cointegrataion test is employed as given on Table 3 to determine whether a long-run relationship exist in the model.

Table 3: *Johansen Cointegrataion Test Result*

Hypothesized No. of CE(s)	**Trace stat.**	**0.05% CV**	**No. of CE(S)**	**Max-Eigen Stat.**	**0.05% CV**
None *	81.95614	47.85613	None *	43.20946	27.58434
At most 1 *	38.74668	29.79707	At most 1 *	29.35834	21.13162
At most 2	9.388335	15.49471	At most 2	5.433499	14.26460
At most 3 *	3.954836	3.841466	At most 3 *	3.954836	3.841466

*(**) denotes rejection of the hypothesis at the 5%(1%) level

The cointegration test revealed that both the Trace test and the Max-Eigen test at the 5% level indicated 2 cointegrating equations respectively among the variables. The result showed that the variables converge in the long-run thereby depicting the existence of long-run relationship between IGR and fiscal policy among States in Nigeria.

Table 4: *Overparameterized VECM Result*

Error Correction:	**D(LNIGR)**	**D(LNTR)**	**D(LNTE)**	**D(LNFD)**
CointEq1	-0.089454	-0.167519	-0.219847	-0.356338
	(0.12296)	(0.08950)	(0.06786)	(0.22627)
	[-0.72753]	[-1.87174]	[-3.23950]	[-1.57485]
D(LNIGR(-1))	-0.042910	0.158637	0.260084	-0.334207
	(0.26881)	(0.19566)	(0.14836)	(0.11677)
	[-0.15963]	[0.81077]	[1.75301]	[2.86199]
D(LNIGR(-2))	0.011760	0.006690	0.022134	-0.428408
	(0.24725)	(0.17997)	(0.13647)	(0.18756)
	[0.04757]	[0.03718]	[0.16219]	[-2.28407]
D(LNTR(-1))	0.378898	1.022468	1.494653	9.684811
	(1.22803)	(0.89388)	(0.67780)	(6.43967)
	[0.30854]	[1.14385]	[2.20515]	[1.50393]
D(LNTR(-2))	-0.412200	0.469595	1.322076	0.969020
	(1.16544)	(0.84832)	(0.64325)	(6.11144)
	[-0.35369]	[0.55356]	[2.05529]	[0.15856]
D(LNTE(-1))	-0.929826	-1.581542	-2.388511	-11.09403
	(1.80073)	(1.31075)	(0.99390)	(9.44287)
	[-0.51636]	[-1.20659]	[-2.40317]	[-1.17486]
D(LNTE(-2))	0.787072	-0.742607	-1.592759	-1.866631
	(1.45877)	(1.06183)	(0.80516)	(7.64964)
	[0.53955]	[-0.69936]	[-1.97820]	[-0.24402]
D(LNFD(-1))	0.064143	0.125985	0.152572	0.251607
	(0.09700)	(0.07061)	(0.05354)	(0.50867)
	[0.66124]	[1.78429]	[2.84969]	[0.49463]
D(LNFD(-2))	0.069215	0.040767	0.062464	0.187645
	(0.05833)	(0.04246)	(0.03219)	(0.30587)
	[1.18665]	[0.96020]	[1.94025]	[0.61349]
C	0.221889	0.299482	0.332127	0.246241
	(0.15646)	(0.11388)	(0.08635)	(0.82044)
	[1.41822]	[2.62972]	[3.84609]	[0.30013]

In assessing IGR and the fiscal viability of State governments in Nigeria, the VECM result assesses the dynamic equilibrium relationship between IGR and total revenue, total expenditure

and fiscal deficit. The error correction component (CointEq1) of the models were correctly signed, however only the model of total expenditure was statistically significant, using the standard error (that is half of the coefficient was greater than the standard error in parenthesis). It showed that 0.09%, 0.17%, 0.22%, 0.36% of disequilibrium is corrected annually in the IGR, Total Revenue (*LNTR*), Total Expenditure (*LNTE*) and Fiscal Deficit (*LNFD*) models respectively.

An analysis of the coefficient of total revenue (TR) showed that IGR had a positive impact on total revenue for both period lags, however, both lags were statistically insignificant using their standard errors. The 1st lag showed that IGR increased total revenue by 16%. The insignificance despite been positive revealed that the contribution of IGR to the total revenue of State governments in Nigeria was poor.

The coefficient of total expenditure also showed that IGR had a positive impact on total State government expenditure, but was also insignificant for both periods. Its coefficient showed that IGR increased expenditure by 26% and 2% for periods 1 and 2 respectively. The insignificance points to the fact that IGR as a component of total State government expenditure was also poor. The coefficient of fiscal deficit revealed that the IGR of state governments reduced fiscal deficit by 33% and 43% for periods 1 and 2 respectively and both lags were statistically significant using their standard errors. This result revealed that IGR was an important fiscal policy variable in Nigerian States to reduce fiscal deficit.

Impulse Response Function (IRF)

The Impulse Response Function (IRF) traces out the time path of the various shocks on the variables contained in the VECM. The IRFs are useful here in analyzing the interactions among variables in the model. The interpretations of the IRF are split into 33 periods representing the 33 years span of the time series analysis.

Response of total revenue (*LnTR*) to shocks from IGR (*LnIGR*)

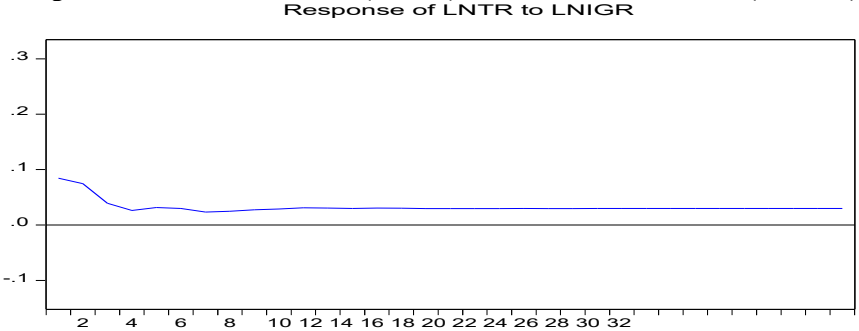


Figure 1: *Response of LnTR to shocks from LnIGR*

The IRF of total revenue on Figure 1 showed that for the 33 periods a one standard deviation positive shock or innovation to IGR had the expected positive effect on total revenue, however, the graph showed a low effect of IGR on total revenue among States, having elasticity less than 0.1 all through the periods. The result showed that IGR had a low impact on the total revenue of states in Nigeria.

Response of total expenditure (*LnTE*) to shocks from IGR (*LnIGR*)

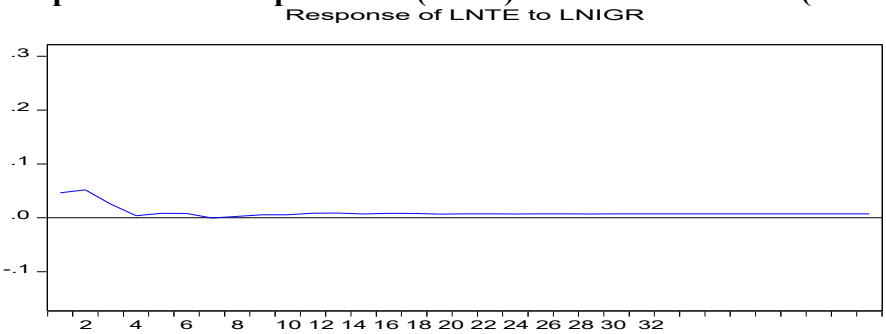


Figure 2: *Response of LnTE to shocks from LnIGR*

The result of the IRF of total expenditure to shocks from IGR also showed that IGR had a poor effect on the expenditure of State governments in Nigeria over the study period. This finding is similar to the IRF of total revenue, indicating that the IGR of State governments contributed a small quantity to the expenditure of States in the country.

Response of fiscal deficit (*LnFD*) to shocks from IGR (*LnIGR*)

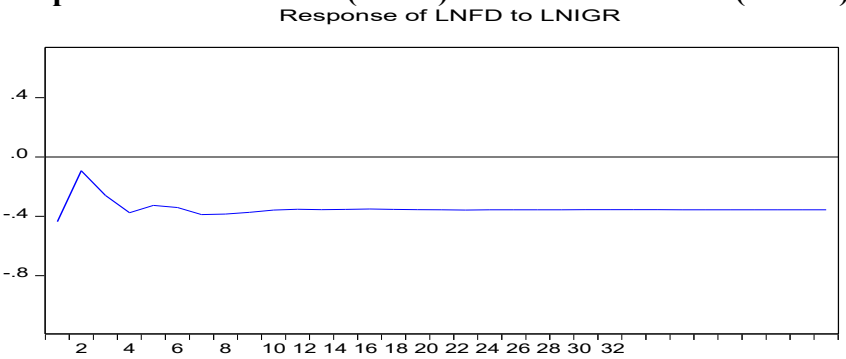


Figure 3: *Response of LnFD to shocks from LnIGR*

Following apriori expectation, a one standard deviation positive shock or innovation to IGR had the expected negative effect on the fiscal deficit of State governments in Nigeria. The graph indicated that the IGR of Nigerian States contributed to reducing the fiscal deficit if state governments for the 33 years under analysis. Recording its highest elasticity of -0.43 in 1986, in subsequent periods, IGR reduced fiscal deficit by about 0.35 in States. The IRF of fiscal deficit showed that IGR was an important fiscal policy variable to reduce the fiscal deficits of State governments in Nigeria.

Variance Decomposition (VD) Result

The VD assesses the proportion of movement in a sequence that occurs due to its own shock versus shocks to other variables in the model. As such, the VD shows the apportionment of forecasting errors of a variable to itself and other variables in the system.

Variance Decomposition of TR

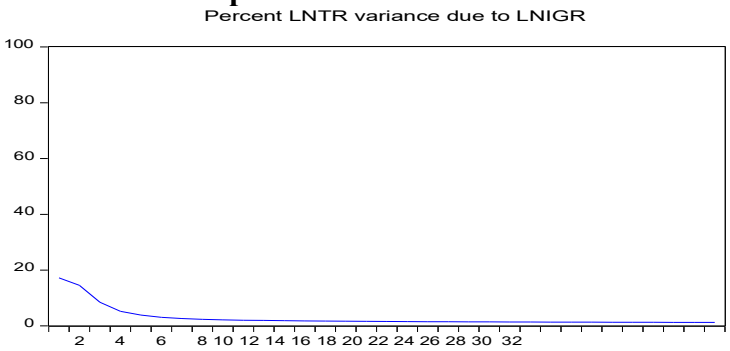


Figure 4: *Variance Decomposition of TR*

The VD of total revenue showed that IGR had a peak value or contribution to total revenue with a percentage value of 17.21 in the 1st period representing 1986, it continually dropped to the 33 period with a value of approximately 1%. This result showed that the proportion of IGR in the total revenue of State governments was extremely low.

Variance Decomposition of Total Expenditure (TE)

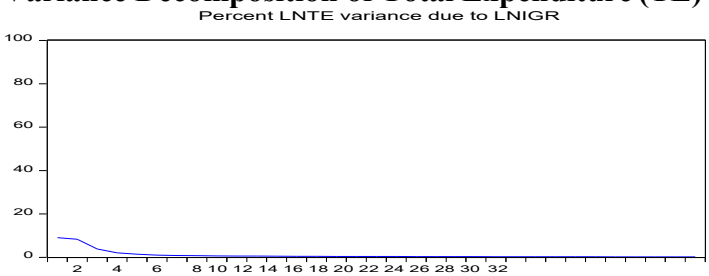


Figure 5: *Variance Decomposition of TE*

The VD of total expenditure further showed the poor contribution of IGR to total expenditure among States in the country. With a peak value of 9 per cent in the 1st period, subsequent periods from period 5 were approximately 1% or less than 1%, indicating that the proportion of IGR in total State government's expenditure was low.

Variance Decomposition of Fiscal Deficit (FD)

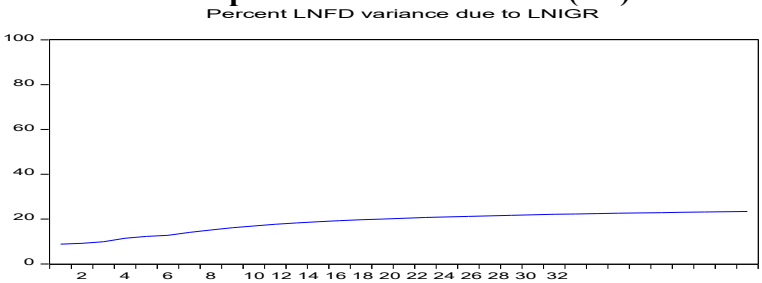


Figure 6: *Variance Decomposition of FD*

The variance decomposition of FD showed that IGR had a steady but low impact on fiscal deficit for the period under analysis. With its lowest contribution of 8% from the 1st period, it grew to 16.96% in the 10th period, 21.26 and 26.43 per cents in the 20th and 33rd periods respectively. In support of the variance decomposition test, this result also showed that the IGR had a low percentage contribution to fiscal deficit among State governments in Nigeria.

Residual Diagnostic Test
Serial Autocorrelation Tests

The VEC residual serial correlation LM test wasused to test for serial correlation in the VECM model as presented on Table 5.

Table 5: *VEC Residual Serial Correlation LM Test Result*

Null hypothesis: No serial correlation at lag h

Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	17.01301	16	0.3848	1.090284	(16, 40.4)	0.3949
2	15.01956	16	0.5232	0.941369	(16, 40.4)	0.5327
3	12.71994	16	0.6931	0.777192	(16, 40.4)	0.7005

Null hypothesis: No serial correlation at lags 1 to h

Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	17.01301	16	0.3848	1.090284	(16, 40.4)	0.3949
2	29.02771	32	0.6178	0.860402	(32, 34.8)	0.6647
3	44.26959	48	0.6265	0.761653	(48, 21.3)	0.7862

The VEC residual serial correlation LM tests on Table 5 accepted the null hypothesis which states that there is no serial autocorrelation in the VECM model, since all its lags were greater than 5%. The study thus concluded that the VECM model is free from serial autocorrelation.

Stability Test

The result of the Inverse roots of AR characteristic polynomial VECM stability test is presented on Figure 5.

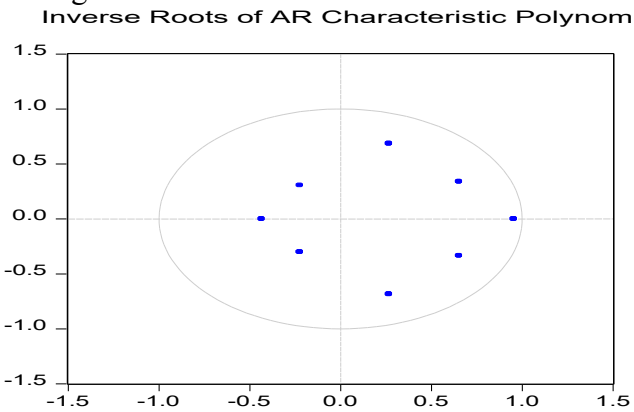


Figure 7: Inverse roots of the AR characteristic polynomial

The result of the Inverse roots of the AR characteristic polynomial showed that the graph has roots with modulus which are less than one and they lie within the unit circle, indicating that the VECM model is stable.

CONCLUSION AND RECOMMENDATION

Conclusion

In assessing the dynamic relationship between IGR and the fiscal viability of State governments in Nigeria using total State government revenue, expenditure, and fiscal deficit as fiscal policy variables, the study concluded that:

i. The IGR of State government although had a positive impact on revenue generation, however its impact was insignificant on the total revenue using the Over parameterized VECM result. Also, the result of the Variance Decomposition impulse response test also showed that IGR had minimal effect on revenue generation in Nigerian States recording its peak value of 17.21% contribution in the mid-1980s to as low as 1.91% from the 11th period. The insignificance despite been positive revealed that the contribution of IGR to the total revenue of State governments in Nigeria was poor.

ii. Also, the study concluded that the IGR had a positive impact on total State government expenditure, but it was also insignificant, recording its peak value of 9% in the mid-1980s. The insignificance points to the fact that IGR as a component of total State government expenditure was also poor.

iii. The finding of the effect of IGR on fiscal deficit led to the conclusion that the IGR in Nigerian States had the desired effect of reducing fiscal deficit, and its contribution was significant.

In summary, the study concluded that the IGR of States had an insignificant impact on total State government revenue and expenditure. Despite its significant impact on fiscal deficit, the study concluded that the IGR of Nigerian States contributed poorly to the fiscal viability of these States. The implication of this follows that the IGR of Nigerian States needs to be increased and also its effective utilization needs to improve upon.

Recommendation

To increase revenue generation and improve on its effect on the fiscal viability of Nigerian States, the study gave these recommendations:
To make IGR significant on the total revenue and expenditure of States, there is need to increase IGR of Nigerian States by encouraging tax compliance. Along this line, there is the need to publicize tax services so as to encourage tax compliance. Also, Training and re-training programmes for the revenue officials should be organized to enable them improve on revenue collection.
To improve on the contribution of IGR on total State government expenditure, effective control measures should be put in place to check possible frauds and embezzlement in revenue generation and utilization among Nigerian States. As such a good internal control system to monitor and control the activities of revenue outfits of States is advocated. This will also ensure that all money collected is accounted for and all monies are expended for the purpose which it is meant to serve.

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