DOES SUBNATIONAL PUBLIC FINANCE COMPONENTS AFFECT STATES' FISCAL SUSTAINABILITY IN NIGERIA?

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ARTICLE INFO	ABSTRACT
	Objective: The study examined the effect of subnational public finance components on states' fiscal sustainability in Nigeria. Specifically, the study sought to examine the effect of internally generated revenue and statutory allocation, on states' fiscal sustainability. **Theoretical Framework:** Keynesian theory suggests that public expenditure revitalizes the economy, and increases the rate of fiscal unsustainability, which in turn makes households feel wealthier on the basis of government spending and leads to an increase in savings. **Method:** An ex-post facto research design was adopted to carry out the research for the period 2016-2022. The panel data were collected and sourced from Audited Financial Statements of subnational, CBN statistical Bulletin, CBN Annual report and accounts, and other publications of 36 states. Ordinary least square regression was used to analyse the hypothesis with the aid of E-views 12. **Results and Discussion:** The study found that internally generated revenue has a significant effect on states' fiscal sustainability in Nigeria. The study also found that statutory allocation has a significant effect on states' fiscal sustainability. The study recommends that sub-nationals should ensure a steady increase in internally generated revenue which will help to control the level of fiscal sustainability and increase the statutory allocation sharing formula in favour of sub-nationals because many states are unable to finance their expenditure. **Research Implications:** Furthermore, the viability of many states and the need to allocate more resources and power to the lower-tier governments to enhance their fiscal capability and operational efficiency. **Originality/Value:** This study has provided new evidence on the contribution of fiscal policy in increasing the sustainability index of debt to GDP among 36 states in Nigeria using up-to-date data set through the pairwise methodology. Doi: https://doi.org/10.26668/businessreview/2024.v9i6.4737

OS COMPONENTES SUBNACIONAIS DAS FINANÇAS PÚBLICAS AFETAM A SUSTENTABILIDADE FISCAL DOS ESTADOS NA NIGÉRIA?

RESUMO
Objetivo: O estudo examinou o efeito dos componentes das finanças públicas subnacionais sobre a sustentabilidade fiscal dos estados na Nigéria. Especificamente, o estudo procurou examinar o efeito da receita gerada internamente e da alocação estatutária sobre a sustentabilidade fiscal dos estados.

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Estrutura Teórica: A teoria keynesiana sugere que os gastos públicos revitalizam a economia e aumentam a taxa de insustentabilidade fiscal, o que, por sua vez, faz com que as famílias se sintam mais ricas com base nos gastos do governo e leva a um aumento na poupança.

Método: Foi adotado um projeto de pesquisa ex-post facto para realizar a pesquisa no período de 2016 a 2022. Os dados do painel foram coletados e obtidos das Demonstrações Financeiras Auditadas dos estados subnacionais, do Boletim Estatístico da CBN, do Relatório e Contas Anuais da CBN e de outras publicações de 36 estados. A regressão de mínimos quadrados ordinários foi usada para analisar a hipótese com o auxílio do E-views 12.

Resultados e Discussão: O estudo constatou que a receita gerada internamente tem um efeito significativo sobre a sustentabilidade fiscal dos estados na Nigéria. O estudo também constatou que a alocação estatutária tem um efeito significativo na sustentabilidade fiscal dos estados. O estudo recomenda que os estados subnacionais garantam um aumento constante da receita gerada internamente, o que ajudará a controlar o nível de sustentabilidade fiscal e a aumentar a fórmula de compartilhamento da alocação legal em favor dos estados subnacionais, pois muitos deles não conseguem financiar suas despesas.

Implicações para a Pesquisa: Além disso, a viabilidade de muitos estados e a necessidade de alocar mais recursos e poder aos governos de nível inferior para melhorar sua capacidade fiscal e eficiência operacional.

Originalidade/Valor: Este estudo forneceu novas evidências sobre a contribuição da política fiscal para o aumento do índice de sustentabilidade da dívida em relação ao PIB entre 36 estados da Nigéria, usando um conjunto de dados atualizados por meio da metodologia de pares.

Palavras-chave: Finanças Públicas Subnacionais, Receita Pública Gerada Internamente, Alocação Estatutária, Sustentabilidade Fiscal.

¿AFECTAN LOS COMPONENTES SUBNACIONALES DE LAS FINANZAS PÚBLICAS A LA SOSTENIBILIDAD FISCAL DE LOS ESTADOS EN NIGERIA?

RESUMEN

Objetivo: El estudio examinó el efecto de los componentes de las finanzas públicas subnacionales sobre la sostenibilidad fiscal de los estados en Nigeria. Específicamente, el estudio buscó examinar el efecto de los ingresos generados internamente y la asignación estatutaria, sobre la sostenibilidad fiscal de los estados.

Marco Teórico: La teoría keynesiana sugiere que el gasto público revitaliza la economía y aumenta la tasa de insostenibilidad fiscal, lo que a su vez hace que los hogares se sientan más ricos gracias al gasto público y provoca un aumento del ahorro.

Método: Para llevar a cabo la investigación se adoptó un diseño de investigación ex post facto para el período 2016-2022. Los datos del panel se recopilaron y se obtuvieron de los estados financieros auditados de los estados subnacionales, el boletín estadístico del CBN, el informe y las cuentas anuales del CBN y otras publicaciones de 36 estados. Se utilizó la regresión por mínimos cuadrados ordinarios para analizar la hipótesis con la ayuda de E-views 12.

Resultados y Discusión: El estudio concluyó que los ingresos generados internamente tienen un efecto significativo en la sostenibilidad fiscal de los estados nigerianos. El estudio también concluyó que la asignación estatutaria tiene un efecto significativo en la sostenibilidad fiscal de los estados. El estudio recomienda que los subnacionales garanticen un aumento constante de los ingresos generados internamente, lo que contribuirá a controlar el nivel de sostenibilidad fiscal y a aumentar la fórmula de reparto de las asignaciones estatutarias en favor de los subnacionales, ya que muchos estados no pueden financiar sus gastos.

Implicaciones de la Investigación: Además, la viabilidad de muchos estados y la necesidad de asignar más recursos y poder a los gobiernos subnacionales para mejorar su capacidad fiscal y su eficiencia operativa.

Originalidad/Valor: Este estudio ha aportado nuevas pruebas sobre la contribución de la política fiscal al aumento del índice de sostenibilidad de la deuda en relación con el PIB entre 36 estados de Nigeria utilizando un conjunto de datos actualizados a través de la metodología por pares.

Palabras clave: Finanzas Públicas Subnacionales, Ingresos Públicos Generados Internamente, Asignación Estatutaria, Sostenibilidad Fiscal.

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1 INTRODUCTION

Fiscal sustainability is the ability of governments to sustain their current fiscal policies in the long run is largely linked to the concept of fiscal risks. To the extent that the sustainability of public finances affects intergenerational fairness and embodies principles that apply at all times and to all governments, regardless of their current indebtedness (Zahariev et al, 2021). The sustainability of fiscal policy arguably is one of the most debated issues in sustainable accounting, following the high debt levels experienced by several developed economies since the early 1980s. Concern over increasing government debt and deficits and their negative consequences for macroeconomic stability has attracted considerable interest in academic literature and policy debates. The need to keep government debt under control and to maintain the ability to issue debt when needed is also essential for the smooth functioning of the economy.

The low internal revenue mobilization by subnational governments in Nigeria has been identified as a threat to fiscal sustainability (Adamu & Chandana, 2019). The Nigerian government's fiscal policy has been found to be unsustainable due to revenue shortfalls and increased government spending, resulting in huge budget deficits. Abomaye and Usoro (2018) showed that Nigeria's revenue has a correlation with global movement in oil prices, as the oil sector remains the only mainstay of the Nigerian economy, providing about 80% of its revenue receipt and foreign earnings. According to the NBS report, the 36 states and FCT IGR figure was N612.87 billion in H1 2020, indicating a negative growth of -11.7% year on year compared to N693.91bn recorded in 2019. However, the Q2 2020 36 states and FCT IGR figure was N259.73bn compared to N353.14bn recorded in Q1 2020, indicating a negative growth of -26.5% quarter on quarter. Lagos State has the highest Internally Generated Revenue with N204.51bn recorded in H1 2020, followed by Rivers State with N64.59bn, while Jigawa State recorded the least Internally Generated Revenue. In first quarter 2021, the internally generated revenue was N398,259,343,434.98 while in the second quarter, it amounted to N450,864,040,568.57, indicating a positive growth of 13.21%. Lagos state has the highest Internally Generated Revenue with N267,232,774,434.06 in H1 2021, followed by FCT with N69,072,879,664.43 and Rivers state with N57,324,672,372.42 (CBN, 2022).

The statutory allocation is the amount standing to the credit of the Federation account less the sum equivalent to 13 percent of the oil revenue, which is then shared among the three tiers of government, namely the federal government, state government, and local government. The revenue sharing formula is such that the federal government gets 52.68 percent, states get

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26.72 percent, and local governments get 20.60 percent. The Federation Account Allocation Committee (FAAC) is responsible for disbursing the revenue generated by the federal government to the three tiers of government. The FAAC disbursement for June 2023 was ₦1,134.03 trillion to the three tiers of government from the total revenue generated in May 2023. The amount disbursed accumulated from ₦701.79 billion recorded from the Statutory Account, ₦146.43 billion Exchange rate differential, ₦14.97 billion generated from Electronic Money Transfer Levy (EMTL), ₦0.64 billion Exchange gain allocation, and ₦3.62 billion from the Forestry Levy.

The relationship between subnational statutory allocation-generated revenue and states' fiscal sustainability in Nigeria is complex. States in Nigeria heavily depend on transfers from the federal government, which can crowd out their own revenues. A study of Adeusi, et al (2020) revealed that a 1 percent rise in transfer leads to about a 0.64 percent reduction in own revenues per capita, indicating a negative impact on states' own revenue generation. Nigeria's low statutory allocation and continued reliance on volatile oil revenue have been identified as a threat to fiscal sustainability. Additionally, the statutory allocation to the federal government has been found to have a negative impact on capital project spending, highlighting the intricate dynamics of revenue allocation and fiscal sustainability. The Nigerian government's fiscal policy has been deemed unsustainable due to revenue shortfalls and increased government spending, with the oil sector remaining the main source of revenue (Aluthge, et al., 2021).

There is yet to be a unified framework for analysing fiscal sustainability at the level of the subnational government in Nigeria. However, the national framework where fiscal sustainability is defined through a government's ability to repay debt is ill-suited for sub-national governments that exist under a different set of constraints, such for example debt limits and balanced budget requirements. At the sub-national level, theoretical frameworks of fiscal sustainability have only been developed in the past six years (Chapman, 2008, Ward & Dadayan, 2009, Raju, 2011, IPSASB, 2011, Mahdavi & Westerlund, 2011).

This study seeks to cover a significant gap in the empirical literature as previous researchers on fiscal sustainability have only contributed to existing methodologies and also produced alternative statistical tests for the investigation of sustainable fiscal policies (Polito & Wickens, 2005). This study focused on a complete empirical analysis that is not at the national level but on the subnational public finance components of states' fiscal sustainability in Nigeria as there is no research presently on states' fiscal sustainability in Nigeria. In effect, empirical works on fiscal sustainability are replete with varying and distinct measures. While these

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measures lack consensus, some are methodologically biased (Chalk & Hemming, 2000). This study intends to investigate the effect of subnational public finance components on states' fiscal sustainability in Nigeria from 2016-2022.

In line with the main objective of the study, the following hypotheses was tested:

H_{01}: Subnational public IGR revenue has no significant effect on states' fiscal sustainability in Nigeria.

H_{02}: Subnational statutory allocation does not significantly affect states' fiscal sustainability in Nigeria.

The remainder of this article is structured as follows: section 2 highlights the literature review, section 3 presents the methodology, while section 4 presents the results and findings. Section 5 concludes and provides policy recommendations to various stakeholders.

2 LITERATURE REVIEW

2.1 SUBNATIONAL PUBLIC FINANCE COMPONENTS

Subnational public finance refers to the role of the state government in the economy, assessing the government revenue and government expenditure of the public authorities and the adjustment of one or the other to achieve desirable effects and avoid undesirable ones. It is concerned with the management of public funds in a country's economy, including revenue, expenditures, and debt load through various government and quasi-government institutions (Adenugba & Ogechi, 2013). Subnational public finance is important for state governments to invest in public multisector economic goals and development, health care and education services, low-income housing, and other public services.

According to Worlu and Nkoro (2012), the principles of subnational public finance include openness and accountability, promoting an equitable society, sharing the burden of taxation fairly, promoting equitable development, sharing the benefits and burdens of the use of resources and public borrowing equitably between present and future generations, using public money in a prudent and responsible way, and responsible financial management and clear fiscal reporting.

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2.2 SUBNATIONAL PUBLIC INTERNALLY GENERATED REVENUE

According to Worlu and Nkoro (2012), internally generated revenue refers to the revenue generated by the state government from sources within its jurisdiction or operations. This revenue is not derived from federal funding, allocations, or subsidies. At the state and local government level in Nigeria, IGR includes taxes, rates, fees, fines, and other charges collected by the government from individuals and businesses within its jurisdiction. The National Bureau of Statistics (NBS) publishes reports on IGR at the state level, and the 36 states and the Federal Capital Territory (FCT) generated a total of N1.89 trillion in IGR in 2021, up by 22% from the previous year. Lagos state generated the highest IGR in the country, with N267.2 billion in the first half of 2021. Experts suggest that state governments can boost their IGR by leveraging technology, especially in the tax collection process (NBS, 2021).

2.3 SUBNATIONAL STATUTORY ALLOCATION

Subnational statutory allocation is the allocation from the federal government that goes to each state as a means of revenue assistance from the Federal Government. This allocation is sometimes based on some criteria such as population of the state, availability of natural resources and the need for infrastructural development in the state. Statutory allocation is the amount standing to the credit of the Federation account less the sum equivalent to 13 per cent of the revenue accruing to the Federation account directly from any natural resources as a first-line charge for distribution to the beneficiaries of the derivation funds. Statutory allocation to the states is based on the sharing of the federation account in which 56% goes to the federal government, 24% to the state government and 20% to local government (Olaoye & Bankole, 2019).

Subnational statutory allocation refers to the funds allocated by the state government to different entities for the performance of statutory functions (Onuigbo & Eme, 2015). These allocations are determined by statutory formulas that are established by law. In Nigeria, for example, the Constitution of the Federal Republic of Nigeria 1999 and the Allocation of Revenue (Federation Account, etc.) Act No.1 1982 stipulate that the revenues generated by the federal government should be credited into the Federation Account and disbursed monthly among the three tiers of government as defined in the Revenue Act 1982. The purpose of these allocations is to finance development projects and promote good governance and even development.

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2.4 FISCAL SUSTAINABILITY

The notion of fiscal sustainability indicates the ability of the government to smoothly finance its budget without excessive accumulation of public debt in the long run. More often, a technical definition of fiscal sustainability can be derived from the government's intertemporal budget constraint (IBC). A sustainable budget process requires that the expected present discounted value of all future stock of debt converge to 0 (Trehan & Walsh, 1991).

Earlier studies on fiscal sustainability such as Domar (1944) discussed the issue of fiscal sustainability in the context of a growing economy. Domar's concept of fiscal sustainability is known as Domar's stability condition. He defined fiscal sustainability in terms of a stabilising debt-to-GDP ratio or deficit-to-GDP ratio. Domar's condition states that sustainable fiscal policy requires the growth rate of national output (n) to exceed the cost of government borrowing (r) or the growth rate of public debt if there is no fresh borrowing. However, if the cost of borrowing exceeds the growth rates of national output, any deficit can lead to a perpetually unsustainable fiscal policy. The novelty of Domar's approach is that it helps to compute the required primary surplus (PS) or deficit in stabilising the debt-to-national output ratio at a particular level, for a given growth-interest rate differential.

Andrey et al (2021) are of the opinion that fiscal sustainability, which is the ability of governments to sustain their current fiscal policies in the long run, is largely linked to the concept of fiscal risks. To the extent that the sustainability of public finances affects intergenerational fairness and embodies principles that apply at all times and to all governments, regardless of their current indebtedness. (Olusola (2014) stressed that fiscal sustainability describes the condition of fiscal policies, perhaps, due to the persistent implementation of fiscal rules, the absence of political apathy, and the existence of an economy; that is free from perpetual debt accumulation. Stemming from this, fiscal sustainability has been considered a multi-dimensional concept.

2.5 THEORETICAL FRAMEWORK

Maynard Keynes advanced his economic postulation in 1936. According to the Keynesian economist, fiscal policy is a key tool of sustainability management, and the role of government is very crucial in maintaining the economy at the fiscal sustainability. This is done by managing the level of aggregate demand until the economy attains fiscal sustainability.

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Therefore, an increase in government tools increases aggregate demand. A minimal reduction in personal income tax (PIT) increases disposable income which in turn increases aggregate demand. Nevertheless, government expenditure is one of the components of aggregate demand. Keynes (1934) focused on aggregate demand function to curb fiscal unsustainability. The Keynesian view of long-run aggregate supply is different. They argue that the economy can be below full capacity in the long term. Keynesians argue output can be below full capacity for various reasons such as wages are sticky downwards (labour markets don't clear), negative multiplier effect. Once there is a fall in aggregate demand, this causes others to have less income and reduce their spending creating a negative knock-on effect, and a paradox of thrift. Therefore, in a recession, people lose confidence and therefore save more. By spending less this causes a further fall in demand (Onofrei et al, 2020).

Keynes states that in the short run, economic growth through fiscal unsustainability is firmly influenced by total spending in the economy. This theory regards the economy as being naturally unstable and required active government intervention through spending to achieve fiscal unsustainability. Bowden (1982) in Ojong and Hycenth (2013) states that Keynesian theory posits that our ability to understand what determines the level of spending will help us to know what determine the level of employment, production of output and income in the economy. Keynesian theory suggests that public expenditure revitalize the economy, increase the rate of fiscal unsustainability, which in turn makes households feel wealthier on the basis of government spending and leads to increase in savings.

2.6 EMPIRICAL REVIEW

Maulid et al (2022) analysed the causality between tax revenue, state expenditure, inflation and economic growth in Indonesia during the 1973-2019 period to provide policy advice to the Indonesian government. This country was selected as an object with consideration that its economy has grown impressively and has been able to rise from the Asian economic crisis. A brief overview of the policies developed during the research period is presented to provide insight into the policies taken by the government. The use of quantitative methods through the Vector Error Correction Model and Granger causality test was carried out to provide an in-depth analysis. The result showed a positive long-term two-way causality relationship between tax revenues and state expenditures as well as tax revenues and economic growth. This indicates that the government's efforts to implement state expenditure have

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succeeded in increasing tax revenues. Conversely, an increase in tax revenue allows the government to make state expenditures, both in development and other activities, to improve people's economy, leading to increased economic growth. However, the result of tests on inflation show that this variable is caused by economic growth and does not apply the other way around, but this variable has a negative effect on tax revenue, state expenditure and economic growth so its needs to be suppressed to ensure the stable economic growth. Conversely, most of the intext citations were not referenced in the work.

Onofrei et al (2021) highlighted the specificity of fiscal sustainability in some developing EU countries by analysing the implications of fiscal rules on governments' fiscal behaviours. We employ a panel data analysis to evaluate developing EU countries for the period 2000–2014 and we investigate the status of convergence of fiscal responsibility coordinates by computing the convergence score of fiscal responsibility. The research is based on interdisciplinary coordinates and helps to consolidate judgments from both legal and financial perspectives, contributing to the literature that investigates the relationship between the legal framework related to government decision-making and public finance sustainability. The choice of the study sample in relation to developing EU countries represents a contribution and a point of reference for the literature that investigates the sustainability of developing EU countries and highlights the importance of fiscal risk management and control mechanisms in enhancing the performance of the public sector and fiscal sustainability. The results suggest that it is important to reinforce the interaction between the legal framework and the institutional one by identifying good practices for designing and operating effective independent fiscal institutions, making them capable not only of advising the government on fiscal policy matters but also of promoting sound fiscal policy and sustainable public finance.

Udeh (2021) ascertained the effect of non-oil revenue of the government on fiscal sustainability of Nigeria. The scope of the research covers a period of thirty-five years running from 1981 to 2015. The study adopted an ex-post facto research design to achieve the objectives. The researcher made use of multiple linear regression models. Secondary data on oil and non-oil revenue of the government for the period were collected from CBN statistical bulletin. Economic growth which is the dependent variable was represented by gross domestic product (GDP). The researcher applied the augmented Dickey-Fuller unit root test, co-integration test and error correction model in analysis of data. From the findings, oil and non-oil revenue exerted a positive and significant effect on gross domestic product. On this premise, the study did not conduct postestimation test.

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Ilori and Akinwunmi (2020) examined the effects of generating non-oil revenues on Nigeria's fiscal sustainability and economic development from 1989 through 2018 using secondary data extracted the statistical bulletin of the Central Bank of Nigeria. The study employed the model for analytical co-integration and error correction. The study employed the co-integration model and error correction model. Test stationarity of the time series, the Augmented Dickey-Fuller (ADF) test was applied. Similar analytical processes were applied to the multivariate data on components of oil and non-oil revenue, exchange rates, and real gross domestic products. Results generated indicated that the oil revenue harms real gross domestic products in Nigeria, but this is the same with effects reported from non-oil revenue. Nonetheless, Nigeria's exchange rate gives a positive sign and statistical significance for real gross domestic products. Consequently, the study concludes that the continuing decline in global crude oil prices, resistance from insurgents in Nigeria's oil-producing area, the profligate expenditure of the Nigerian Government, the global COVID-19 health pandemic, among other factors, are harming the economic development of Nigeria.

Falade (2020) examined the effects of fiscal policy variables on the performance of the key sectors of the economy namely, Industrial, Agricultural and Service sectors were investigated using an Autoregressive Distributed Lag (ARDL) and Error Correction Model (ECM) for the period of 1970-2018. The obtained results indicated that while both domestic and foreign debts have no significant effects on the three sectors examined in the short run, it was observed that foreign debt and government consumption expenditure have incremental effects on the industrial sector's output. Similarly, it was observed that while domestic debt crowd-in agricultural and services sectors' outputs, it has a crowd-out effect on industrial output in the long run. It is also noteworthy that while government investment expenditure has a positive effect on industrial output, its effects on agricultural output are detrimental in the long run. This implies that the government can neutralize the negative effects of its domestic debt on the industrial sector's output either by increasing its consumption expenditure or rely more on foreign debt. It is recommended that government should focus more on investing in infrastructure such as irrigation, access road to farmland, storage facilities, processing equipment like milling machine in other to boost productivity in the sector.

Saibu (2018) examined public spending, fiscal sustainability and macroeconomic performance in Nigeria. Using the framework of an intertemporal budget constrain for the government, a fiscal sustainability equation is derived and the conditionality for establishing sustainability is ascertained. The empirical strategy applies the unit root test, cointegration test

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and dynamic OLS (DOLS) regression approach for testing the sustainability of the fiscal stance from 1961 to 2016. The empirical evidence shows evidence of weak sustainability especially as reported in the DOLS regression result. Similarly, the result for the effect of fiscal sustainability and economic performance also reports weak response of economic performance to fiscal sustainability. On the overall, the evidence from this study does not significantly deviate from extant studies in this strand of the literature. The main policy implication of this research is that the Nigerian government should ensure a more robust and systemic link between tax and expenditures policies and the evolution of public debt. In passing, a focus on determining a short-term government constrain framework and fiscal sustainability indicators for signalling short and medium-term fiscal imbalances and to correct them will be a worthwhile direction for future research.

3 METHODOLOGY

The research design for this study was expo-facto research design. Expo-facto design involves describing the relationship between the past factors on the present trend or occurrence. The population of this study constitutes the 36 states public sector finances within the Nigerian subnational economy. The subnational public sector finances of the Nigerian economy are made up of state government finances. However, the research sample of this study is subnational. This is arrived at after applying the purposive sampling technique (Kothari, 2004). This study examines how subnational government finances affect the Nigerian economy, so as to draw inferences on the study population from the regression, based on the Sample Regression Function (SRF) specified (Gujarati & Porter, 2009).

The data of this study is on the state government's finances from 2016-2022. The data are published in internal and external documents to the federal and state government finances. The internally published documents are Audited Financial Statements of subnational, CBN statistical Bulletin, CBN Annual report and accounts, other CBN publications, publications of the National Bureau of Statistics (NBS), and Ministry of Finance (MOF) Medium Term Fiscal Framework and other publications. The external published documents comprise of World Bank's World Development Indicators, UNDP Human Development Report, BudgiT, and other international organizations' publications. The reputation and recognition of both internal and external secondary sources (organizations) enhance the reliability and suitability of the data obtained for this study.

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The panel data was analysed using E-views version 12. Descriptive statistics, correlation matrix, normality test and regression analysis will be carried out and post estimation analysis such as Heteroskedasticity test, serial correlation and Hausman test was also carried out. The specific model given below for the Hausman test describes a convenient version for regression applications that involves testing whether certain transformations of the original regressors have zero coefficients.

3.1 THE MODEL SPECIFICATION

The model adopted for this study is given as thus:

$$SUI_{it} = \beta_o + \beta_1 SPIGR_{it} + \beta_2 SSA_{it} + e_{it} \qquad (1)$$

Where:

SUI = Sustainability index

SPIGR= Subnational Public Internally Generated Revenue

SSA= Subnational Statutory Allocation

a0 = Constant,

e_{it} = Error term

a1,a2, = the slope or the coefficient of the independent variables.

3.2 DECISION RULES

The decision rule to test the hypothesis of the study is as follows:

If the p-value of the t-coefficient is less than 5% (0.05), the null hypothesis is rejected, otherwise accept.

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4 RESULTS AND DISCUSSIONS

Table 1

Descriptive Statistics

	FISCAL SUS INDEX	IGR	STATUTORY ALLOCATION
Mean	0.482351	10.05605	10.31479
Median	0.312811	10.16718	10.19987
Maximum	1.951880	11.81940	11.65365
Minimum	-0.187087	8.476896	9.605279
Std. Dev.	0.448893	0.658910	0.465753
Skewness	0.906195	-0.518080	0.464893
Kurtosis	2.829795	3.437027	2.552935
Jarque-Bera	24.85294	9.484653	7.982770
Probability	0.000004	0.008718	0.018474
Sum Sq. Dev.	36.06932	77.71498	38.82972
Observations	216	216	216

Source: E-Views 12 (2024)

The Table 1 revealed the data used in the study with fiscal sustainability, internally generated revenue and statutory allocation having a mean value of 0.482351, 10.05605 and 10.31479 respectively. The deviation from the mean (standard deviation) was 0.448893, 0.658910 and 0.465753 respectively. This means that it was normally distributed because the standard deviation value was lower than the mean value. In like manner, the Jacque-Bera values confirm the normality of the data.

Table 2

Correlation Matrix

	FISCAL SUS INDEX	IGR	STATUTORY ALLOCATION
FISCAL SUS INDEX	1	-0.7412	-0.3501
IGR	-0.74122	1	0.7141
STATUTOR ALLOCATION	-0.35018	0.7141	1

Source: E-Views 12, 2024

Table 2 explained the correlation between public finance components and the states' fiscal sustainability in Nigeria where the fiscal sustainability index was correlated with IGR to the value of -0.74 which signifies there is no correlation since the value is negative, While the fiscal sustainability index was correlated with statutory allocation to the value of -0.35 which signifies there is no correlation since the value is negative.

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Table 3

Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	12.335828	2	0.3110

Source: E-Views 12, 2024

The result of the Hausman test in the Table 3 indicates that the fixed effect regression model is the most appropriate model to analyse the data of the study. With the probability of 0.3110, the random effect was rejected. Therefore, the fixed effect estimator was used to run the regression.

Table 4

Panel Result

Dependent Variable: FISCAL_SUS_INDEX
Periods included: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.183826	0.688398	0.267034	0.7898
IGR_REVENUE	0.235275	0.051933	4.530369	0.0000
STATUTORY_ALLOCATION	0.496319	0.048310	10.27367	0.0000

Weighted Statistics			
R-squared	0.815076	Mean dependent var	0.497888
Adjusted R-squared	0.809403	S.D. dependent var	0.456865
S.E. of regression	0.199455	Sum squared resid	6.484529
F-statistic	143.6886	Durbin-Watson stat	1.818951
Prob(F-statistic)	0.000000		

Source: E-Views 12, 2024

Internally generated revenue had a significant effect on states' fiscal sustainability in Nigeria because the p-value was 0.0068 which was less than the 0.05 significant level, indicating that increase in Internally generated revenue will automatically increase fiscal sustainability since the coefficient is 0.235275. Subsequently, statutory allocation had a significant effect on states' fiscal sustainability in Nigeria because the p-value was 0.000 which was less than the 0.05 significant level, indicating that increase in statutory allocation will have an increase on states' fiscal sustainability in Nigeria since the coefficient is 0.496319.

The coefficient of determination R^2 value at 0.81 shows that 81% of change in the dependent variables is explained by the independent variables. The probability of the F-

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Statistics which is less than 0.05 indicates that the independent variables jointly explain the independent variables. Therefore, the model is fit and appropriate.

4.1 DISCUSSION OF FINDINGS

Based on the findings, the study rejects the null hypotheses which stated that internally generated revenue has a significant effect on states' fiscal sustainability in Nigeria at 5% significant level, indicating that an increase in internally generated revenue will have an increase on states' fiscal sustainability in Nigeria. The implication of this findings indicate that IGR can help build financial buffers in good times by setting aside revenue windfalls in stabilization fund. Thus, improvements in internally generated revenue across different sources can boost fiscal sustainability. Research works such as: Adamu and Chandana (2019) and Adenugba and Ogechi (2013)., all support the findings of this study.

Subsequently, statutory allocation had a significant effect on states' fiscal sustainability in Nigeria at 5% significant level, indicating that an increase in statutory allocation will automatically increase the states' fiscal sustainability in Nigeria. The implication of this findings indicate that funds are allocated statutorily can have significant implications for the financial health and sustainability of state government institutions. Therefore, the way funds are allocated statutorily can play a crucial role in shaping the fiscal sustainability of government entities. Research works such as: Andrey et al (2021), Igyo et al. (2016), all support the findings of this study.

5 CONCLUSION AND RECOMMENDATIONS

This research examined the effect of c subnational public finance components on states' fiscal sustainability in Nigeria for a period of 7 years (2016 – 2022). The findings reached that internally generated revenue has a significant effect on states' fiscal sustainability in Nigeria. Therefore, an increase in internally generated revenue will automatically increase on states' fiscal sustainability in Nigeria. In conclusion, internally generated revenue plays a crucial role in states' fiscal sustainability. By diversifying their revenue sources and addressing challenges, governments can create new streams of predictable, sustainable income to fund services and support economic growth.

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The study also found out that statutory allocation had a significant effect on states' fiscal sustainability in Nigeria. Meaning an increase in statutory allocation will automatically have an increase on states' fiscal sustainability in Nigeria. Therefore, it was concluded that funds that are allocated statutorily can play a crucial role in shaping the fiscal sustainability of government.

Drawing from our research findings, the recommendations are proffered as follows:

1. the state governments should adopt consistent fiscal policy measures that can entrench budget discipline, transparency and accountability aimed at raising levels of living, higher incomes, the provision of more jobs, better education, and greater attention to financing of local industries, also to enhance foreign investment by ensuring steady internal generated revenue which will help to control the level of fiscal sustainability;

2. government should increase the statutory allocation sharing formula in favour of state government, because many states are unable to finance their expenditure. Hence the viability of many states and the need to allocate more resources power to the lower tier governments to enhance their fiscal capability and operational efficiency.

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