EFFECT OF FISCAL DECENTRALISATION ON ECONOMIC GROWTH IN NIGERIA

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Abstract

The relationship between fiscal decentralisation and economic growth has been a subject of ongoing scrutiny. Yet, empirical findings have failed to provide a consistent guide due to a lack of consensus. This study therefore investigated the relationship between fiscal decentralisation and economic growth, using time series data from 1993 to 2021. The motivation for this study arises from the imperative to bridge the gaps in the existing studies and provide empirical insights into the effect of fiscal decentralisation on economic growth. Understanding whether fiscal decentralisation acts as a catalyst or impediment to economic growth is essential for policymakers, researchers, and stakeholders seeking to formulate effective strategies for sustainable development. This study investigates the relationship between fiscal decentralization and economic growth using time series data from 1993 to 202 in Nigeria. The objectives include examining the impact of decentralizing fiscal expenditure, revenue, and deficits on economic growth. The study also distinguishes between the federal government and sub-national government components of these fiscal aspects. The neoclassical economic growth theory and Bhardhan and Mookherjee's decentralisation model, guide the study, which employs the OLS estimation method on data from the CBN, IMF and World Bank data sources. The study reveals that sub-national expenditure and revenue decentralisation have a greater pro-growth effect than their federal government counterparts and that fiscal deficit decentralisation has no effect on economic growth in Nigeria. Consequently, the study recommends that policymakers should promote government revenue and expenditure decentralisation to enhance economic growth.

Keywords*: Fiscal Decentralisation, Economic Growth, Federal Government and Sub-national Government*

1. Introduction

Fiscal decentralisation, the transfer of financial responsibilities and decision-making powers from a central government to sub-national entities, is a topic of increasing importance globally. In the context of economic growth, understanding the impact of fiscal decentralisation is crucial, as it shapes resource allocation, local governance, and overall development strategies (Melat et al., 2023). Nigeria, as a diverse and populous nation, provides an interesting backdrop for examining the interplay between fiscal decentralisation and economic growth. The discourse on fiscal decentralisation in Nigeria is multifaceted, encompassing issues of local autonomy, political dynamics, and the persistent quest for sustainable economic development. Central to this discussion is the concept of "resource control agitation," wherein various regions within the country actively seek greater control over resources, emphasising the need for more decentralised fiscal policies. This agitation reflects a broader desire for localised decision-making and resource management, driven by the recognition of regional diversity and distinct developmental priorities.

The literature suggests that fiscal decentralisation can have both positive and negative impacts on economic growth through various channels, including revenue and expenditure, fiscal discipline, political economy factors, and fiscal equalisation. However, the specific effects may vary depending on the institutional context and policy design. Further research is needed to deepen our understanding of the complex relationship between fiscal decentralisation and economic growth. Baskaran & Minasyan (2018) investigated the relationship between fiscal decentralization and fiscal discipline using cross-country data. Their findings suggest that fiscal decentralization can enhance fiscal discipline, which, in turn, positively impacts economic growth. Baskaran et al. (2020) investigate the relationship between fiscal decentralization, government spending, and economic growth. They revealed that fiscal decentralisation promotes economic growth by restraining government spending. Subnational governments, when endowed with fiscal autonomy, tend to allocate resources more efficiently, resulting in a higher economic growth rate. Fiscal decentralization can enhance economic growth, but its impact is contingent upon factors such as institutional quality, political accountability, and administrative capacity. Strong institutions and effective governance mechanisms are crucial for realizing the potential benefits of fiscal decentralization (Hanif, Wallace and Gago-de-Santos, 2020). Fiscal decentralisation holds promise for promoting economic growth in Nigeria by enhancing resource allocation efficiency and service delivery, several challenges and diverging factors need to be addressed. Addressing fiscal capacity disparities, improving governance and accountability, enhancing coordination mechanisms, and prioritizing investments in infrastructure and human capital are essential for realizing the full potential of fiscal decentralization to drive inclusive and sustainable economic growth across the country. One of the challenges of fiscal decentralization in Nigeria is the significant disparity in fiscal capacity among different states and local governments. While some regions may have ample resources to finance development projects, others may struggle due to limited revenue generation capacity. This disparity can exacerbate regional inequalities and hinder overall economic growth if not addressed through appropriate fiscal equalisation mechanisms (Smith, 2021).

The motivation for this study arises from the zeal to bridge this gap and provide empirical insights into the relationship between fiscal decentralisation and economic outcomes. Understanding whether fiscal decentralisation acts as a catalyst or impediment to economic growth. In this context, this study aims to examine the effect of fiscal decentralisation and economic growth in Nigeria, with a specific focus on which of the federal and sub-national government expenditure and sources of its financing, are pertinent to economic growth.

The rest of the paper is organised as follows: Section two contains the literature review, Section three discusses the methodology, Section four is on presentation and discussion of the empirical results and Section five contains conclusion and policy recommendation.

2. Literature Review

This section reviews theories of the roles of fiscal decentralisation on economic growth and theories of economic growth as well as relevant empirical literature on the effect of fiscal decentralisation on economic growth.

2.1 Role of Fiscal Decentralisation on Economic Growth

There is a wide literature on the relationship between fiscal decentralisation and economic growth, prominent among which are the theories of Bardhan and Mookherjee, fiscal federalism and competition and innovation that are as reviewed below.

In their theoretical model developed in 1998 and 2003, Bardhan and Mookherjee conducted a comparative analysis of public goods delivery, contrasting decentralized and centralized systems. Using this model, they demonstrated that the positive effect of decentralisation on service delivery was conditional on the political context.

They showed that the welfare consequences of decentralising service delivery would depend on the method chosen for financing local governments. Leaning on the existing empirical literature, they argued that expenditure decentralisation not accompanied by revenue decentralisation limits the expansionary effect of decentralisation on service levels. Caution was made that revenue decentralisation might lead to the presence of local capture by local elites, which might not be welfare-enhancing. Though the user fees mechanism offers some distinctive advantages over the traditional intergovernmental fiscal grants, they cautioned that it fails when the objective of government is redistributed across communities or when a significant proportion of intended beneficiaries cannot afford to pay for the service.

Concerning the idea of fiscal federalism, as earlier developed by economists like Musgrave (1959) and Oates (1972), they were concerned with the appropriate division of fiscal responsibilities between central and sub-national governments. They emphasised the need to achieve an optimal allocation of resources, balancing efficiency, equity, and macroeconomic stability.

In respect of the competition and innovation theory espoused by Weingast (1995), it was posited that fiscal decentralisation creates a competitive environment among sub-national entities. The competition for residents, businesses and investments incentivises local governments to innovate in policy design, improve public services, and adopt efficient governance practices. This dynamic is expected to contribute to overall economic growth. The idea is that decentralising fiscal powers creates a competitive environment among sub-national entities, leading to increased innovation, efficiency and overall economic growth.

2.2 Theory of Economic Growth

There exist many theories and models of economic growth in literature. The relevant ones include, amongst others, the classical growth model, neoclassical growth model and endogenous growth model which are reviewed sequentially.

Classical growth theory (1723-1823) is based mainly on the work of two major classical scholars, Adam Smith and David Ricardo. Adam Smith's theory argues that the sources of output growth are capital accumulation, supply of land, growth of labour force, and change in institutions, which is determined exogenously and is very important in determining economic growth. He also mentioned that the production function comprising land, labour and capital is subjected to increasing returns to scale. David Ricardo's theory added technological know-how as one of the sources of growth, apart from the ones given by Adam Smith. He also argues that production function is subjected to diminishing return to scale and he classified the factors of production into two, viz: variable factor and fixed factor. Land and capital are described as fixed factors while labour and technological know-how are characterized as variable factors (Jhingan et al., 2012). In all, the classical growth theory posited that sources of growth are land improvements, growth of the labour force and growth of capital stock.

The failure of the classical growth theory in explaining the role of technology led to the development of a new growth model known as the neoclassical growth model which was first introduced by Solow (1956) and Swan (1958). The theory posits growth in output to be a function of growth in inputs: capital, labour, and technological progress. Any increase in savings rate leads to only an increase in both the steady-state level of output per capita and capital per capita over time without affecting the growth rate of output. The growth rate of output remains unchanged due to the law of diminishing marginal product of capital because any further capital increase will lead to a fall in output back to the steady state. Also, population growth reduces the steady-state level of capital per head and output per head as it increases over time and it increases the steady-state growth rate of output. Long-run growth of output also depends on improvement in technology and an absence of this will allow output per person to converge to a steady state value, which depends positively on the savings rate and negatively on the population growth rate (Dornbusch et al., 2011).

Unlike the neoclassical growth model that attributes long-run growth to technological progress and population growth rate without clarifying the economic determinants of technological progress, the endogenous growth theory argues that physical capital and knowledge capital are the main determinants of economic growth. The model assumes a constant marginal product of capital, unlike the neoclassical or exogenous growth model which assumes a diminishing marginal product of capital. The neoclassical theory assumes conditional convergence whereby countries with different saving rates but similar rates of technological progress and population growth rates will have different income levels but similar growth rates of income. The endogenous growth theory predicts that the higher the saving rate, the higher will be the growth rate of income (Dornbusch et al., 2011)

2.3 Review of Empirical Studies

Several studies have investigated the relationship between fiscal decentralisation and economic growth and overall performance of many countries. Thus, the outcomes of the studies have been mixed.

In a separate study, Martinez-Vazquez (2012) and Cheibub, (2009) examined the relationship between economic growth and fiscal decentralisation in the OECD using the ARDL technique. The findings revealed a nil effect of revenue decentralisation on economic growth. Similar findings were reported by Shah (2017); and Krause (2014).

Udoh et al. (2015) investigated how the decentralized system of expenditure impacted human resource development in Nigeria. The study found that expenditure decentralization exerted a negative effect on human resource development. The pattern and nature of expenditure decentralization in Nigeria, in the long run, seemed to support the inefficient application of resources with the increased cost of governance rather than ensuring cost-effectiveness in the provision of public services.

In their empirical studies, Ewetan et al. (2016) examined the long-run and causal relationship between fiscal decentralisation and economic growth in Nigeria for the period 1970 to 2012. The results from the multivariate vector autoregressive model provided evidence of a long-run positive relationship between fiscal decentralisation and economic growth in Nigeria.

Jin and Rider (2019) investigated the effect of expenditure decentralisation and fiscal equalisation on short- and long-run economic growth by estimating a two-step generalised method of moment (GMM), simultaneous equation models, using panel data for China and India. For the period 1985 to 2005. The study found that expenditure decentralisation has a negative effect on short-run economic growth in both China and India. Other studies that reported a negative effect of fiscal decentralisation on economic growth include Zhang and Zou (1998) in China and Davoodi and Zou (1998) in the United States, Baskaran and Feld (2013); Rodríguez-Pose and Krøijer (2009) for Central and Eastern European Nation.

Canavire-Bacarreza, Martinez-Vazquez and Yedgenov (2019) investigated the relationship between fiscal decentralization and economic growth by addressing the endogeneity issue stemming from reverse causality and unobserved factors that have plagued previous extensive literature on this subject. The study found that indeed both instruments are strong and valid in the first stage of estimation and that on average, a 10 percent increase in subnational expenditure or revenue shares will increase GDP per capita growth.

Hanif, Wallace and Gago-de-Santos (2020) examined how fiscal decentralization has affected economic growth. In this context, they examined the effect of tax revenue and expenditure decentralization on economic growth in developing federations. For this purpose, a panel data of 15 developing federations from 2000 to 2015. The results show that in federal developing countries, both tax revenue and expenditure decentralization have a significant, positive impact on economic growth. What is more, our findings show that the impact of fiscal decentralization on economic growth depends upon the level of perceived corruption and the quality of the country's institutions.

Hung and Thanh (2022) examined the simultaneous relationship between fiscal decentralization, economic growth, and human development using the panel data of 18 countries over the 2011–2017 period. The results indicate that a significant relationship does exist between fiscal decentralization, economic growth, and human development from different directions. Specifically, economic growth and human development are positively and negatively affected by fiscal decentralization, respectively. These results hold with alternative estimation methods and sub-indexes of decentralization. Interestingly, economic growth is fostered by the human development index, as justified by the statistical evidence of the studied sample, but these results are found to be consistent as well when it comes to expenditure-based decentralization.

Alves et al (2023) investigated the relationship between fiscal decentralization and economic growth in Brazilian states from 1996 to 2015. Using five decentralization measures and the GMM-System model to address the endogeneity problem, we have identified a positive relationship between the indicators of fiscal decentralization and economic growth and observed that the industry and service sectors are the most affected by this decentralization. Our results suggest that local governments with more autonomy make states more efficient, thus increasing economic growth.

It is pertinent to point out here that, in virtually all these empirical studies, the focus had been an examination of the economic growth effects of only expenditure and revenue forms of decentralisation to a complete exclusion of the issue of fiscal deficit decentralisation. The study, therefore, fills these gaps, not only by augmenting the existing studies that are lacking in consensus but also by incorporating fiscal deficit to determine which of the federal and sub-national fiscal deficit components, if any, is more pro-growth.

3. Methodology

3.1 Theoretical Framework

There are two strands of theory underlying this study: one is on the role of fiscal decentralisation on economic growth and the other is on the generalised growth theory.

The former is premised on the proposition put forward by Bardhan and Mookherjee (1998, 2003) who, in their theoretical model, compared the delivery of public goods under decentralised and centralised systems. Using this model, they demonstrated that the positive effect of decentralisation on service delivery was conditional on the political context. They showed that the welfare consequences of decentralising service delivery would depend on the method chosen for financing local governments. Leaning on the existing empirical literature, they argued that expenditure decentralisation not accompanied by revenue decentralisation limits the expansionary effect of decentralisation on service levels. Caution was made that revenue decentralisation might lead to the presence of local capture by local elites, which might not be welfare-enhancing. Though the user fees mechanism offers some distinctive advantages over the traditional intergovernmental fiscal grants, they cautioned that it fails when the objective of government is redistribution across communities or when a significant proportion of intended beneficiaries cannot afford to pay for the service. They argued that sub-national units can derive limited benefit from the mobility of individuals and firms since they are greatly constrained by cost and social norms such as the exclusion of outsiders. High agency costs might accompany decentralisation, given the potentially weak monitoring of bureaucrats and politicians. This enhances the likelihood that there would be 'elite capture' or that the benefit of public spending will be largely appropriated by the well-to-do or well-connected, particularly in highly unequal societies. It is stressed that the stub-national unit, through fiscal decentralisation, gains the authority to raise and manage revenue independently. This autonomy can lead to improved fiscal discipline and efficient resource mobilisation. Local entities may be better positioned to design tax policies that align with local economic conditions, ensuring a stable revenue base for development initiatives. As sub-national entities gain more fiscal responsibilities, they are compelled to strengthen their administrative and managerial capabilities. This institutional development should create an enabling environment for sustained economic growth. According to this theory, fiscal decentralisation influences economic growth by enhancing efficiency, responsiveness, competition, resource mobilisation and institutional development at the sub-national unit. The framework suggests that a well-designed and effectively implemented fiscal decentralisation policy can contribute significantly to overall economic development.

Regarding the second strand of the theory, which is on economic growth, the theoretical foundation of the growth of GDP (or economic growth) equation can be found in the neoclassical growth theory-based growth accounting framework, which is widely used in empirical studies. According to Dornbusch et al. (2011), the derivation of the growth accounting equation is as follows:

$$Y = F(K,\ N,\ A) \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \qquad (1)$$

where: A= technological progress, K= capital stock, N= labour and Y= output.

Assuming output change as a result of the change in each of the input K, N and A multiplied by their marginal productivity gives Equation 3 below:

$$\Delta Y = MPN.\Delta N + MPK.\Delta K + F(K,N).\Delta A \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \qquad (2)$$

where MPN and MPK indicate marginal productivities of labour and capital respectively. If Equation 2 above is divided by Equation 1, then we arrive at:

$$\frac{\Delta Y}{Y} = \frac{MPN}{Y}.\Delta N + \frac{MPK}{Y}.\Delta K + \frac{\Delta A}{A} \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \qquad (3)$$

Multiplying and dividing the first and second part of the Right Hand Side (RHS) by N and K respectively will give:

$$\frac{\Delta Y}{Y} = \left(\frac{MPN}{Y}N\right)\frac{\Delta N}{N} + \left(\frac{MPK}{Y}K\right)\frac{\Delta K}{K} + \frac{\Delta A}{A} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \qquad (4)$$

Assuming a perfectly competitive market, so that factors are paid their respective marginal products then, MPN = w and MPK = r, where w and r are the market wage rate and net capital rental rate. $\frac{MPN}{Y}N$ and $\frac{MPK}{Y}K$ indicate the share of labour and capital from the total income respectively as given in Equation (5). Replacing the labour and capital share with $1-\alpha$ and α respectively will give us the growth accounting equation below:

$$\frac{\Delta Y}{Y} = (1-\alpha)\frac{\Delta N}{N} + \alpha\frac{\Delta K}{K} + \frac{\Delta A}{A} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \qquad (5)$$

For notational convenience, the $1-\alpha$ and α in this Equation (5) are replaced by β_1 and β_2 respectively to arrive at Equation (5a) thus:

$$\frac{\Delta Y}{Y} = \beta_1\frac{\Delta N}{N} + \beta_2\frac{\Delta K}{K} + \frac{\Delta A}{A} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \qquad (5a)$$

The above is the derivation of the growth accounting equation which, in turn, is based on the neoclassical growth framework. It is this growth accounting equation that serves as the basis for the model specification adopted in this study.

3.2 Model Specification

The study employs an extended neo-classical growth equation to explore the impact of fiscal decentralization on economic growth, incorporating the level of technology (A) as a broad representation of productivity and efficiency. The model identifies determinants of productivity growth (ΔA/A) and formulates a total factor productivity growth (ΔA/A) function, emphasizing the role of various factors, including government expenditure, revenue, fiscal deficit, trade openness, net foreign direct investment (FDI), and literacy rate.

(a) Size of budgetary variables: Examining government expenditure, revenue, and fiscal deficit at both federal (FG) and sub-national (SUB) levels, the study recognizes that infrastructure-focused spending could enhance economic growth, while unproductive expenditures might hinder it. Empirical evidence remains inconclusive, leaving the net effects open for empirical determination.

(b) Fiscal decentralization measure: Considering the distribution of fiscal responsibilities between the federal and sub-national governments, the study acknowledges the diverse effects of fiscal decentralization on economic growth. While some studies associate fiscal decentralization with positive outcomes such as higher per capita income and poverty reduction, the multidimensionality of its effects necessitates empirical investigation.
(c) Control variables: Trade openness, net FDI, and literacy rate are posited as control variables. The study suggests positive effects of trade openness, literacy rate, and FDI on productivity growth based on theoretical reasoning and empirical evidence.

Mathematical Format of the Productivity Growth ($\frac{\Delta A}{A}$) Relationship

The mathematical specification of the productivity growth model (ΔA/A) includes government expenditure decentralization, expressed as

$$\frac{\Delta A}{A} = \beta_3 FGEXP + \beta_4 SUBEXP + \beta_5 FDI + \beta_6 OPENS + \beta_7 LIL \quad \ldots\ldots\ldots \quad (6)$$

The study sets a priori expectations that β_5, β_6, and β_7 are positive, leaving β_3 and β_4 for empirical determination.

The determination of whether government expenditure decentralization promotes productivity growth and economic growth relies on comparing the estimates of the coefficients of federal (β_3) and sub-national (β_4) expenditures. Increased centralization is supported if β_3 is positive, statistically significant, and greater than β_4, indicating that centralizing government expenditure enhances productivity growth and economic growth. Conversely, if β_4 is positive, statistically significant, and greater than β_3, increased decentralization is favoured, suggesting that sub-national expenditure positively influences productivity growth and economic growth.

$$\frac{\Delta A}{A} = \theta_3 TGEXP_t + \theta_4 FGTE_t + \beta_5 FDI + \beta_6 OPEN + \beta_7 LIL \ldots\ldots \quad (6a)$$

Equation 6a provides an alternative specification, incorporating total government expenditure (TGEXP) and federal government expenditure (FGTE) about GDP and total expenditure, respectively. This alternative allows for a robustness check by assessing the sign and statistical significance of θ_4, the coefficient of FGTE, to determine the effect of fiscal decentralization on productivity growth. In essence, both Equation 6 and Equation 6a complement each other, serving as bases for economic growth equations to be empirically estimated in the study.

Economic Growth Equations to be Estimated

This study employs four models to estimate the economic growth effects of fiscal decentralisation. The first two models focus on expenditure decentralization, while the latter two explore financing decentralisation, considering both revenue and fiscal deficit components.

Model 1: Expenditure Decentralisation

$$\left(\frac{\Delta Y}{Y}\right)_t = \beta_0 + \beta_1\left(\frac{\Delta L}{L}\right)_t + \beta_2\left(\frac{\Delta K}{K}\right)_t + \beta_3 FGEXP_t + \beta_4 SUBEXP_t + \beta_5 FDI_t + \beta_6 OPENS_t + \beta_7 LIL_t + u_t \quad (7)$$

Model 2: Alternative Expenditure Decentralisation

$$\left(\frac{\Delta Y}{Y}\right)_t = \beta_0 + \beta_1\left(\frac{\Delta L}{L}\right)_t + \beta_2\left(\frac{\Delta K}{K}\right)_t + \theta_3 TGEXP_t + \theta_4 FGTE_t + \beta_5 FDI_t + \beta_6 OPENS_t + \beta_7 LIL_t + u_t \quad (8)$$

Model 3: Revenue and Fiscal Deficit Decentralisation

$$\left(\frac{\Delta Y}{Y}\right)_t = \beta_0 + \beta_1\left(\frac{\Delta L}{L}\right)_t + \beta_2\left(\frac{\Delta K}{K}\right)_t + \delta_3 FGR_t + \delta_4 SUBR_t + \delta_5 FGD_t + \delta_6 SUBD_t + \beta_5 FDI_t + \beta_6 OPENS_t + \beta_7 LIL_t + u_t \quad (9)$$

Model 4: Combined Revenue and Fiscal Deficit Decentralisation

$$\left(\frac{\Delta Y}{Y}\right)_t = \beta_0 + \beta_1\left(\frac{\Delta L}{L}\right)_t + \beta_2\left(\frac{\Delta K}{K}\right)_t + \prec_3 TGR_t + \prec_4 FGRr_t + \prec_5 TGD_t + \prec_6 FGDd_t + \beta_5 FDI_t + \beta_6 OPENS_t + \beta_7 LIL_t + u_t \quad (10)$$

In these equations, ΔY/Y represents economic growth, ΔL/L and ΔK/K denote the growth rates of labour and capital, respectively. The coefficients (β_3, β_4, θ_3, θ_4, δ_3, δ_4, δ_5, δ_6, $\prec_3$, $\prec_4$, $\prec_5$ and $\prec_6$) capture the impact of fiscal decentralisation components, and control variables include net foreign direct investment (FDI), trade openness (OPENS), and literacy rate (LIL). The error term is denoted as ut.

The models provide a comprehensive framework to evaluate the economic growth effects of different dimensions of fiscal decentralisation, incorporating both expenditure and financing aspects.

3.3 Estimation Techniques

The descriptive, correlation and line graph analyses were employed; it is the Ordinary Least Squares that is employed as the regression analysis estimation method (OLS). The choice of OLS was informed because of the number of observations that is less than 30 years so it is not long enough to carry out longrun phenomenon.

Data Nature, Coverage, Sources and Measurement

The data employed covers the period from 1993 to 2021. Economic growth, the dependent variable, is measured as the annual change in the growth rate of real GDP. The federal government expenditure (FGEXP), sub-national expenditure (SUBEXP), total government expenditure (TGEXP), federal government revenue (FGR), sub-national revenue (SUBR), total government revenue (TGR), federal government deficit (FGD), sub-national deficit (SBD), total government deficit (TGD) are all expressed about GDP.

Also, FGTE is the federal government expenditure measured as a percentage of total expenditure in the same manner that FGRr is the federal government revenue measured as a percentage of total revenue and FGDd is the federal government deficit as a percentage of total deficit. The 5 control variables are openness (OPENS) which is measured as the sum of exports and imports of goods and services as a percentage of GDP, net foreign direct investment (FDI) is expressed as a percentage of GDP and literacy rate (LIL) that is measured as the size of literate population as the percentage of people aged 15 years and above. Finally, the growth of private capital stock $\frac{\Delta K}{K}$ is the annual percentage change of capital stock in real terms and labour force growth $\frac{\Delta L}{L}$ is measured as labour force annual percentage change. Data on expenditures, revenues and deficits of both the federal government and sub-national government (which is the combination of 36 state governments and the administration of the federal capital territory as well as the 774 local governments) are obtained from the CBN Statistical Bulletin (2022) while data on the control variables are obtained from WDI (2022), except the data on capital stock that comes from IMF Investment and Capital Stock Dataset (2022).

4. Presentation of Results

4.1 Descriptive Statistics

Table 1 presents the results of the summary statistics. The table consists of the columns for the variables and their description, the mean, standard deviation (Std Dev), minimum (Min) and maximum (Max) values

Table 1: The Descriptive Statistics

Variables	Description	Mean	Std Dev	Min	Max
$\frac{\Delta Y}{Y}$	Economic Growth - Annual GDP growth, %	4.158	3.847	-2.035	15.329
FGEXP	Federal Government Expenditure – % of GDP	8.278	2.759	5.089	17.286
SUBEXP	Sub-national Expenditure – % of GDP	6.263	2.368	2.610	11.022
TGEXP	Total Government Expenditure – % of GDP	14.540	3.577	9.898	21.693
FGTE	Federal Government Total Expenditure – ratio of total expenditure – in %	57.125	11.393	42.394	80.584
FGR	Federal Government Revenue – % of GDP	6.155	2.426	2.478	12.086

SUBR	Sub-national Revenue – % of GDP	5.9529	2.415	2.773	10.796
TGR	Total Government Revenue – % of GDP	12.107	3.851	6.014	18.789
FGRr	Federal Government Revenue – the ratio of total revenue – in %	50.551	11.560	39.668	76.533
FGD	Federal Government Deficits – % of GDP	2.178	1.831	0.322	8.566
SUBD	Sub-national deficits – % of GDP	0.356	0.230	0.026	0.832
TGD	Total Government Deficits – % of GDP	2.892	2.061	0.375	9.654
FGDd	Federal Government Deficits – ratio of total deficit – in %	67.510	21.756	4.664	98.993
$\frac{\Delta K}{K}$	Growth of Private Capital Stock – Annual % growth	2.509	2.011	0.040	8.716
$\frac{\Delta L}{L}$	Labour force Growth - Annual % growth	2.526	1.193	-0.098	5.556
OPENS	Trade Openness - the sum of imports and exports of goods and services - % of GDP	36.239	9.825	16.352	53.278
FDI	Net Foreign Direct Investment Inflows - % of GDP	1.642	1.256	0.184	5.791
LIL	Literacy Rate - % of People aged 15 years and above	89.735	6.572	76.463	99.780

Source: Authors computation, 2023.

Explanatory Note: Min = Minimum, Max = Maximum, Std Dev = Standard Deviation

The results from Table 1 reveal that the mean and standard deviation of economic growth, $\frac{\Delta Y}{Y}$, is 4.16 and 3.85 per cent respectively, with a minimum value of -2.04 per cent in the year 1993 and a maximum value is 15.33 per cent in 2002. This implies positive overall growth, but the wide standard deviation suggests significant variability in growth rates. As for federal government expenditure on GDP (FGEXP), the mean and standard deviation are 18.27 and 3.85 per cent respectively, with a minimum value of 5.09 per cent in 2014 and a maximum value is 17.29 per cent in 1999. Concerning sub-national expenditure about GDP (SUBEXP), the mean and standard deviation are 6.26 and 2.37 per cent respectively, with a minimum value of 2.61 per cent in 1999 and a maximum value is 11.02 per cent in 2008. This indicates a greater share of expenditure at the federal level. The high standard deviation for federal government expenditure suggests

considerable variation, possibly reflecting different spending priorities or fiscal policies across regions.

Also, total government expenditure on GDP (TGEXP), has a mean and standard deviation of 14.54 and 3.57 per cent respectively, with a minimum value of 9.89 per cent in 2017 and a maximum value was 21.69 per cent in 1993. This implies a significant portion of GDP allocated to public spending, with notable variability. In the case of federal government expenditure about total expenditure (FGTE), the mean and standard deviation are 57.125 and 11.39 per cent respectively, with a minimum value of 42.39 per cent in 2008 and a maximum value is 80.58 per cent in 1997. This implies a dominant role of the federal government in budget allocation.

The mean and standard deviation of federal government revenue about GDP (FGR) are 6.155 and 2.42 per cent respectively, with a minimum value of 2.47 per cent in 2020 and a maximum value is 12.08 per cent in 1999. As for total government revenue about GDP (TGR), the mean and standard deviation are 12.11 and 3.85 per cent respectively, with a minimum value of 6.02 per cent in 2020 while the maximum value was 18.79 per cent in 2008. Federal government revenue (FGR) accounts for a smaller proportion of GDP compared to total government revenue (TGR), suggesting a significant contribution from sub-national governments. The high standard deviation for federal government revenue indicates variability in revenue generation, which could be due to differences in economic performance or tax policies across regions.

Concerning federal government revenue total revenue (FGRr), the mean and standard deviation are 50.55 and 11.56 per cent respectively, with a minimum value of 39.67 per cent in 2017 and a maximum value is 76.53 per cent in 1996. Regarding federal government deficits in GDP (FGD), the mean and standard deviation are 2.17 and 1.83 percent respectively, with a minimum value of 0.32 per cent in 1995 and a maximum value is 8.56 per cent in 1993. In the case of sub-national deficits about GDP (SUBD), the mean and standard deviation are 0.35 and 0.23 per cent respectively, with a minimum value of 0.03 per cent in 1999 while the maximum value is 8.56 per cent in 2021

Federal government deficits (FGD) and sub-national deficits (SUBD) are relatively small as a percentage of GDP, indicating overall fiscal discipline. Concerning total government deficits about GDP (TGD), the mean and standard deviation are 2.89 and 2.06 per cent respectively, with a minimum value of 0.37 per cent in 2018 and a maximum value is 9.65 per cent in 2023. This suggests manageable levels of fiscal deficit, but the wide standard deviation highlights variability across regions.

In the case of federal government deficits about total deficits (FGDd), the mean and standard deviation are 67.51 and 21.75 per cent of total deficits respectively, with a minimum value of 4.66 per cent in 19995 while the maximum value is 98.9 per cent in 1999. The dominance of federal government deficits about total deficits (FGDd) suggests a disproportionate burden on the federal government in financing deficits.

4.2 Correlation Analysis

The correlation matrix shows the simple or Pearson correlation between every pair of

variables employed in the study. The numbers reported in parentheses below the correlation coefficients are the p-values. A correlation is interpreted to exist if the p-value of the affected correlation coefficients is less than 0.05 which is the chosen significance level adopted in the study.

Table 2: Correlation Matrix of the Variables

Variables	(1) $\frac{\Delta Y}{Y}$	(2) FGEXP	(3) SUBE	(4) TGEXP	(5) FGTE	(6) FGR	(7) SUBR	(8) TGR	(9) FGRr	(10) FGD	(11) SUBD	(12) TGD	(13) FGDd	(14) OPENS	(15) FDI	(16) LIL	(17) $\frac{\Delta K}{K}$	(18) $\frac{\Delta L}{L}$
(1) $\frac{\Delta Y}{Y}$	1.00																	
(2) FGEXP	-0.13 (0.46)	1.00																
(3) SUBEXP	0.71 (0.000)	-0.03 (0.867)	1.00															
(4) TGEXP	0.36 (0.05)	0.74 (0.00)	0.63 (0.00)	1.00														
(5) FGTE	-0.58 (0.00)	0.60 (0.00)	-0.78 (0.00)	-0.06 (0.00)	1.00													
(6) FGR	0.21 (0.27)	0.74 (0.00)	0.18 (0.34)	0.69 (0.00)	0.38 (0.04)	1.00												
(7) SUBR	0.72 (0.00)	0.01 (0.96)	0.69 (0.00)	0.67 (0.00)	-0.75 (0.00)	0.27 (0.16)	1.00											
(8) TGR	0.59 (0.00)	0.47 (0.00)	-0.74 (0.00)	0.80 (0.00)	-0.23 (0.23)	0.75 (0.00)	0.79 (0.00)	1.00										
(9) FGRr	-0.36 (0.13)	0.59 (0.00)	-0.60 (0.00)	0.07 (0.00)	0.94 (0.00)	0.66 (0.00)	-0.53 (0.00)	0.08 (0.67)	1.00									
(10) FGD	-0.47 (0.01)	0.51 (0.00)	-0.28 (0.14)	0.21 (0.28)	0.38 (0.04)	-0.20 (0.29)	-0.32 (0.08)	-0.33 (0.08)	0.02 (0.93)	1.00								
(11) SUBD	-0.27 (0.16)	-0.38 (0.04)	-0.12 (0.53)	-0.38 (0.04)	-0.23 (0.23)	-0.81 (0.00)	-0.23 (0.23)	-0.65 (0.00)	-0.54 (0.00)	0.47 (0.00)	1.00							
(12) TGD	-0.47 (0.00)	0.42 (0.02)	-0.28 (0.15)	0.15 (0.45)	0.32 (0.09)	-0.29 (0.12)	-0.33 (0.08)	-0.39 (0.03)	-0.05 (0.79)	0.79 (0.00)	0.57 (0.00)	1.00						
(13) FGDd	0.07 (0.70)	-0.05 (0.77)	0.28 (0.14)	0.14 (0.46)	-0.35 (0.06)	-0.28 (0.15)	0.24 (0.20)	-0.02 (0.90)	0.45 (0.01)	0.28 (0.15)	0.31 (0.14)	0.34 (0.12)	1.00					

(14)	OPENS	0.45 (0.01)	0.29 (0.13)	0.42 (0.02)	0.50 (0.00)	-0.06 (0.74)	0.63 (0.00)	0.48 (0.00)	0.69 (0.00)	0.20 (0.29)	-0.38 (0.04)	-0.62 (0.00)	-0.44 (0.02)	-0.30 (0.11)	1.00				
(15)	FDI	-0.03 (0.86)	0.42 (0.02)	0.28 (0.13)	0.52 (0.00)	-0.01 (0.97)	0.21 (0.26)	0.29 (0.12)	0.32 (0.08)	0.01 (0.93)	0.33 (0.07)	-0.09 (0.63)	0.30 (0.11)	0.14 (0.47)	0.05 (0.77)	1.00			
(16)	LIL	0.28 (0.13)	0.47 (0.01)	0.35 (0.06)	0.39 (0.00)	-0.02 (0.90)	-0.48 (0.01)	0.05 (0.10)	0.15 (0.07)	0.12 (0.00)	0.30 (0.06)	-0.13 (0.03)	0.74 (0.23)	0.78 (0.12)	0.76 (0.02)	0.73 (0.00)	1.00		
(17)	$\frac{\Delta K}{K}$	-0.17 (0.37)	-0.57 (0.02)	-0.08 (0.69)	-0.49 (0.10)	-0.34 (0.06)	-0.70 (0.03)	0.14 (0.48)	0.38 (0.04)	0.16 (0.60)	0.32 (0.07)	-0.11 (0.02)	0.72 (0.03)	0.74 (0.32)	0.78 (0.00)	-0.76 (0.00)	0.76 (0.00)	1.00	
(18)	$\frac{\Delta L}{L}$	-0.13 (0.49)	-0.02 (0.89)	-0.13 (0.51)	-0.13 (0.00)	-0.59 (0.02)	-0.23 (0.01)	0.68 (0.03)	0..20 (0.00)	-0.36 (0.84)	-0.32 (0.52)	-0.11 (0.72)	0.72 (0.75)	0.67 (0.20)	0.56 (0.02)	-0.74 (0.21)	0.72 (0.03)	-0.86 (0.05)	1.00

Source: Author's computation (2023).

Explanatory Notes: The following are the meanings of the acronyms: ΔY/Y= economic growth, FGEXP = federal government expenditure about GDP, SUBEXP = sub-national government expenditure about GDP, TGEXP = total government expenditure about GDP, FGTE = federal government expenditure about total expenditure, FGR = federal government revenue about GDP, SUBR = sub-national revenue in relation GDP, TGR = total government revenue about GDP, FGRr = federal government revenue about total revenue, FGD = federal government fiscal deficit about GDP, SUBD = federal government deficit about total deficit, ΔL/L= labour force growth, ΔK/K = growth of capital stock, LIL = literacy level, FDI = foreign direct investment, OPENS = trade openness. Below the correlation coefficients are their respective p-values in parentheses. A p-value of 0.05 or less indicates the statistical significance of the coefficient.

Starting from the first column and first row and based on the statistical significance of correlation coefficients at the 5% level, it is shown that $\frac{\Delta Y}{Y}$ is positively correlated with SUBEXP, TGEXP, SUBR, TGR and OPEN; negatively correlated with FGD and TGD and uncorrelated with any other variables employed in the study. Coming to the second column and second row, and based on the statistical significance of correlation coefficients at the 5% level, it is shown that FGEXP is positively correlated with $\frac{\Delta Y}{Y}$, TGEXP, FGTE, TGR, FGRr, FGD, SUBD, TGD, FDI and LIL; negatively correlated with $\frac{\Delta K}{K}$; and uncorrelated with any other variable employed in the study. Concerning the third column and third row, it is shown that SUBEXP is positively correlated with $\frac{\Delta Y}{Y}$, FGEXP, TGEXP, SUBR and OPENS; negatively correlated with and TGR, FGR; and uncorrelated with any other variable employed in the study. Coming to the fourth column and fourth row, it is observed that TGEXP is positively correlated with SUBEXP, FGEXP, $\frac{\Delta Y}{Y}$, FGTE, FGR, SUBR, TGR, FGRr, OPENS, FDI and LIL; negatively correlated with $\frac{\Delta K}{K}$ *and* $\frac{\Delta L}{L}$; and uncorrelated with any other variable employed in the study. Regarding

the fifth column and fifth row, it is shown that FGTE is positively correlated with, FGEXP, FGRr, FGD and $\frac{\Delta L}{L}$; negatively correlated with TGEXP, SUBEXP, $\frac{\Delta Y}{Y}$ and SUBR; and uncorrelated with any other variable employed in the study. Moving to the sixth column and sixth row, it is shown that FRG is positively correlated with FGTE, TGEXP, FGEXP, TGR, FGRr, OPENS, LIL and $\frac{\Delta L}{L}$; negatively correlated with $\frac{\Delta Y}{Y}$ and SUBD, and $\frac{\Delta K}{K}$; and uncorrelated with any other variables employed in the study.

Coming to the seventh column and seventh row, SUBR is seen to be positively correlated with TGEXP, SUBEXP TGR, OPEN and $\frac{\Delta Y}{Y}$; negatively correlated with FGTE and FGRr; and uncorrelated with any other variable employed in the study. Concerning the eighth column and eighth row, it is shown that TGR is positively correlated with SUBR and FGR. TGEXP, SUBEXP, $\frac{\Delta Y}{Y}$, OPENS, LIL. $\frac{\Delta L}{L}$ and $\frac{\Delta L}{L}$; were negatively correlated with FGTE, SUBD, and TGD; and uncorrelated with any other variables employed in the study. Coming to the ninth column and ninth row, it is revealed that FGRr is positively correlated with FGR, FGTE, TGEXP, FGEXP, SUBD, FGDD, LIL and $\frac{\Delta K}{K}$; negatively correlated with SUBR and SUBEXP; and uncorrelated with any other variables employed in the study. In the tenth column and tenth row, it is shown that FGD is positively correlated with FGEXP, SUBD, TGD, LIL and $\frac{\Delta K}{K}$; negatively correlated with $\frac{\Delta Y}{Y}$, $\frac{\Delta L}{L}$ and OPEN; and uncorrelated with any other variable covered by the study. Moving to the eleventh column and eleventh row, it is seen that SUBD is positively correlated with TGR, FGR, TGEXP, FGEXP and TGD; negatively correlated with FGD, OPENS, LIL, $\frac{\Delta K}{K}$ and $\frac{\Delta L}{L}$; and uncorrelated with any other variable covered by the study.

On the whole, the correlation coefficients are all lower than 0.8. Based on the generally recognised rule of thumb that a correlation coefficient above 0.8 threshold in an absolute sense should be a concern about the existence of a severe multicollinearity problem and because no correlation coefficient involving a pair of explanatory variables that is greater than 0.8 threshold, there seems to be no serious multicollinearity problem. As a formal and confirmatory test, this study also conducts the Variance Inflation Factor (VIF) test to verify the presence and severity of multicollinearity in the estimated models.

4.3 Presentation of Regression Results

The estimates of the equations are presented in Table 3, which contains regression results for the four models. Each model estimation results are divided into 3 columns. Column 1 is for the coefficient. Column 2 is for the t-statistic and Column 3 contains the p-values. A coefficient is considered to be statistically significant only if the p-value of its t-statistic is less than or equal to 0.05 critical significance level.

Table 3a: Estimates of the Effects of Fiscal Decentralisation on Economic Growth Variables

	Model 1			Model 2		
	Coeff	**t-stat**	**p-value**	**coeff**	**t-stat**	**p-value**
FGEXP	-0.320	-1.301	0.206	-	-	-
SUBEXP	1.245	5.175	0.000	-	-	-
TGEXP	-	-	-	0.145	0.654	0.519
FGTE	-	-	-	-0.244	-4.588	0.000
FGR	-	-	-			
SUBR	-	-	-	-	-	-
FGD	-	-	-	-	-	-
SUBD	-	-	-	-	-	-
TGR	-	-	-	-	-	-
FGRr	-	-	-	-	-	-
TGD	-	-	-	-	-	-
FGDd	-	-	-	-	-	-
OPENS	0.051	0.792	0.437	0.079	1.213	0.238
FDI	-1.021	-2.164	0.041	-0.844	-1.650	0.113
LIL	0.042	0.415	0.682	0.024	0.238	0.814
$\frac{\Delta K}{K}$	-0.745	-2.037	0.050	-0.797	-1.934	0.066
$\frac{\Delta L}{L}$	0.359	0.749	0.461	0.300	0.581	0.567
Cons	-3.195	-0.357	0.724	13.608	1.316	0.202
R^2	-	0.657	-		0.646	-
F- Statistic	5.765	-	0.000	5.487	-	0.001
VIF Test Statistic for Multicollinearity	-	2.446	-	-	-	2.670
Breutch-Godfrey LM Test Statistic for Autocorrelation	1.885	-	0.179	0.518	-	0.603
Breutch-Pergan Godfrey Test Statistic for Heteroscedasticity	0.134	-	0.990	0.105	-	0.997
Jarque-Bera Statistic for Normality of Residuals	0.539	-	0.763	0.225	-	0.839

Source: Author's Computation, (2023).

Explanatory Notes: The following are the meanings of the acronyms; FGEXP = federal government expenditure, SUBEXP = sub-national expenditure, TGEXP = total government expenditure, FGTE = federal government expenditure about total expenditure, OPENS = trade openness, LIL = literacy level, FDI = net foreign direct investment., k/k= growth of private capital stock, L/L = growth of labour force, A coefficient is significant only if its p-value is equal to or less than 5% critical value while

the decision rule regarding the t-statistic for each coefficient is to deem each explanatory variable as affecting economic growth only if the p-value of its coefficient is equal to or less than the 0.05 critical significance level. The OLS Estimation Method is employed in estimating all the models.

Evaluation of Diagnostic Test Results for the Estimates

As depicted in Table 3, the R^2 values for Models 1 to 4 are 0.657, 0,646, 0.657 and 0.652 respectively, indicating the respective percentage of variations in each dependent variable that has been explained by the explanatory variables. The F statistics for the 4 models are 5.765, 5.487, 4.060 and 3.961 respectively, with a corresponding p-value of 0.00 in each case. These indicate that the R^2 values are statistically significant in all cases and that the models have good fits.

Concerning the presence or absence of multicollinearity, the VIF test was conducted and the results of the cantered VIF show values that are less than 10 in all four models, with the values being 2.446,2.67, 4.660 and 4.399. Therefore, since there is no VIF value for any of the models that are up or even close to 10, it is concluded that the models are free from a severe multicollinearity problem.

Regarding the serial correlation problem, it is the Breuch-Pagan Godfrey LM test that is carried out to test the existence of the autocorrelation problem. The decision rule is that if the F- statistics' p-value is less than the 5% cut-off adopted in this study, then the null hypothesis of no serial correlation is to be rejected and it is to be concluded that serial correlation is present while the reverse holds if the p-value equals or exceeds 0,05. As reported in Table 3, the F-statistics for the four models are 1.885, 0.518, 1.886 and 0.776, with p-values of 0.179, 0.063, 0.182 and 0.475 respectively. This implies that none of the models suffers from the problem of serial correlation since their F- statistics' p-values are all greater than 5%.

Regarding heteroscedasticity, it is the Breuch-Pagan methodology that is applied to test the existence of heteroscedasticity. The decision rule is that if the p-value of the Chi-square generated by the test is less than the 5% cut-off adopted in this study, the null hypothesis of no heteroscedasticity is to be rejected and it is to be concluded that there is no heteroscedasticity while the converse will be the case if the p-value equals or exceeds 0.05. As can be seen from Table 3, the F-statistics for the four models are 0.134, 1.105, 0.435 and 0,256, with their p-values of 0.990, 0.997, 0.898 and 0.979 respectively. This implies that none of the models suffers from the problem of heteroscedasticity since the p-values of their calculated chi-square statistics are all greater than 5%.

Finally, concerning the non-normality in the distribution of residuals, it is the Jarque-Bera test that is employed. The decision rule is that if the p-value of the computed Jarque-Bera (or JB) test statistic is less than or equal to the chosen cut-off significant level (which is taken to be 0.05 in this study), it means that the null hypothesis of the existence of normality will be rejected and it will be concluded that the error term is not normally distributed. The reverse will be the case if the p-value of the computed Jarque-

Bera JB test statistic exceeds the chosen 0.05 cut-off. The generated JB statistics for the four models are 0.539, 0.225, 1.4860 and 1.409, with p-values of 0.763, 0.893, 0.475 and 0.194 respectively. This implies that none of the models has a problem of non-normality in the distribution of the residuals

4.4 Discussion of the Results and Implication of Findings

The performances of the explanatory variables in the estimated equations reported in Table 3 are now discussed below:

Federal Government Expenditure and Sub-National Expenditure (FGEXP & SUBEXP): As it can be seen from the Model 1 estimates reported in Table 3, the coefficients of federal government expenditure and sub-national government expenditure about GDP (viz: FGEXP and SUBEXP respectively) are -0.320 and 1.245 respectively, with corresponding p-values of 0.206 and 0.000. This implies that FGEXP does not affect economic growth while SUBEXP has a positive effect on economic growth. Going by this evidence, the conclusion is that government expenditure decentralisation promotes economic growth because a given Naira spent by the government would have a more positive economic growth effect if spent by the sub-national government than if spent by the federal government, so that, by decentralising more of a given size of combined government expenditure, economic growth would increase.

Total Government Expenditure and Federal Government Expenditure Share (TGEXP & FGTE): The estimates of Model 2, as reported in Table 3, show that the coefficients of total expenditure about GDP (TGEXP) and federal expenditure about total expenditure (FGTE) are 0.145 and -0.244, with p-values of 0.519 and 0.000. This evidence means that the coefficient of FGTE is negative and statistically significant while that of TGEXP is insignificant so the conclusion is that, while total or combined government expenditure on GDP has no economic growth effect, an increase in the share of the federal government in the total government expenditure has a negative effect on economic growth. In other words, a given Naira spent by the government would retard economic growth if it is the federal government that spends it vis-à-vis if it is the sub-national government that undertakes the spending. This is the same conclusion reached based on Model 1 estimates that have just been evaluated in the preceding paragraph, the robustness of which is now being attested to by the Model 2 estimates under discussion in this paragraph, in the same manner, that the Model 1 estimates to attest to the robustness of the present Model 2 estimates – both of which come out in support of government expenditure decentralisation. This evidence is in line with what is posited in Section 3 that the effects of federal government and sub-national government expenditures as well as total government expenditure and federal government expenditure about total expenditures are left open for empirical determination. Meanwhile, it is to be noted that this finding is in line with what has been reported by several previous studies like Hung and Thanh (2022), Stungwa and Mosikari (2023), and Alves et al. (2023), amongst others.

Federal Government Revenue versus Sub-National Revenue (FGR&SUBR) and Federal Government Deficit versus Sub-National Deficit (FGD&SUBD): As can be seen from the Model 3 estimates reported in Table 3, the coefficients of federal government revenue and sub-national government revenue about GDP (viz: FGR and SUBR respectively) are -0.468 and 1.192 respectively, with corresponding p-values of 0.329 and 0.001. This implies that FGR does not affect economic growth while SUBR has a positive effect on economic growth. Going by this evidence, the conclusion is that government revenue decentralisation promotes economic growth because a given Naira collected by the government would have a more positive economic growth effect if collected by the sub-national government than if collected by the federal government, so that, by decentralising more of a given size of combined government revenue, economic growth would increase.

Concerning fiscal deficit decentralisation, the coefficients of federal government deficit and sub-national government deficit about GDP (viz: FGD and SUBD respectively) are -0.218 and 1.617 respectively, with p-values of 0.592 and 0.837. This implies that both FGD and SUBD do not affect economic growth. Going by this evidence, the conclusion is that fiscal deficit decentralisation has nil effect on economic growth because a given Naira incurred by the government would have no economic growth effect, irrespective of whether it is incurred by the sub-national government or by the federal government, so that, by decentralising more of a given size of combined government fiscal deficits, economic growth would not be affected.

Total Government Revenue versus Federal Government Revenue Share (TGR & FGRr) and Total Government Deficit versus Federal Government Deficit Share (TGD & FGDd): The estimates of Model 4, as reported in Table 3, show that the coefficients of total government revenue about GDP (TGR) and federal government revenue about total revenue (FGRr) are 0.86 and -0.217, with p-values of 0.297 and 0.006. This evidence implies that the observed nil economic growth effect of the combined government revenue must have been due to the negative effect being exerted by only the federal component while the sub-national component must have had a positive component. In other words, a given Naira collected by the government would retard economic growth if it is the federal government that collects it vis-à-vis if it is the sub-national government that undertakes the collection. This is the same conclusion reached based on Model 3 estimates that have just been evaluated in the preceding paragraph, the robustness of which is now being attested to by the Model 4 estimates under discussion in this paragraph, in the same manner, that the Model 3 estimates to attest to the robustness of the present Model 4 estimates – both of which come out in support of increased government revenue decentralisation as a way of promoting economic growth. This evidence is in line with what is posited in Section 3 that the effects of total government revenue and federal government revenue on total revenue are left open for empirical determination. Meanwhile, it is to be noted that this finding is in line with what has been reported by several previous studies Hanif et al. (2020), and Hung and Thanh (2022**),** amongst others.

Regarding the coefficients of total government deficit about GDP (TGD) and federal government deficit about the total deficit (FGDd), these are -0.402 and 0.013 respectively, with corresponding p-values of 0.344 and 0.669. This evidence means that the coefficient of TGD is negative and statistically insignificant while that of FGDd is also insignificant so the conclusion is that, while the combined government fiscal deficit about GDP has no economic growth effect, an increase in the share of the federal government in the total government fiscal deficit does not affect economic growth either. In other words, a given Naira incurred by the government would not affect economic growth, irrespective of whether it is the federal government that incurs the fiscal deficit or it is incurred by the sub-national government. This is the same conclusion reached based on Model 3 estimates that have just been evaluated in the preceding paragraph, the robustness of which is now being attested to by the Model 4 estimates under discussion in this paragraph, in the same manner, that the Model 3 estimates too attest to the robustness of the present Model 4 estimates – both of which come out in support of lack of fiscal deficit decentralisation effect on economic growth.

5.0 Conclusion and Recommendations

This study examined the effect of fiscal decentralisation on economic growth in Nigeria from 1993 to 2021. The study employed the OLS regression method in deriving the regression estimates, using the annual data sourced from the CBN database, International Monetary Fund (IMF) and World Bank (2022) World Development Indicators. The study estimated four models.

Following the application of the aforementioned methodology, the study found that sub-national expenditure exerts a positive economic growth effect while the federal government component has no economic growth effect. Also, it is found that sub-national revenue exerts a positive effect on economic growth while federal government revenue has a nil effect on economic growth. Regarding, total government expenditure, TGEXP, is found to not affect economic growth while expenditure that is undertaken by only the federal government about the combined or general government expenditure, FGTE, has a negative economic growth effect. It is revealed that none of the federal government deficit, FGD, and sub-national government deficit, SUBD, has an economic growth effect, just as none of the five conditioning variables too affects economic growth. Concerning TGR and FGRr, it is found that a given Naira collected by the government would retard economic growth if it is the federal government that collects it vis-à-vis if it is the sub-national government that undertakes the collection. Regarding TGD and FGDd, it is found that the combined government fiscal deficit about GDP has no economic growth effect, an increase in the share of the federal government in the total government fiscal deficit does not affect economic growth either. Thus, it can be concluded that sub-national government expenditure and revenue exhibit greater pro-growth than the federal government expenditure and revenue and, hence, the case for increased fiscal decentralisation is supported.

Thus, it can be concluded that sub-national government expenditure and revenue are more pro-growth than the federal government expenditure and revenue and, hence, the case for increased fiscal decentralisation is supported.

The study proffers the following recommendations, based on the findings and conclusions highlighted above.

(a) Based on the evidence that sub-national government expenditure (SUBEXP) has a positive economic growth effect while the federal government expenditure has no economic growth effect, it is recommended that government expenditure decentralisation should be promoted.

(b) Also, given the evidence that the sub-national revenue (SUBR) has a positive economic growth effect while the federal government revenue has no economic growth effect, it is recommended that policymakers should promote government revenue decentralisation to enhance economic growth.

(c) Given the evidence that the observed nil economic growth effect of the combined government revenue must have been due to the negative effect being exerted by only the federal component while the sub-national component had a positive component, it is recommended that policymakers should promote government revenue decentralisation to enhance economic growth.

(d) Based on the evidence that the combined government fiscal deficit about GDP has no economic growth effect, it is recommended that policymakers should not bother about fiscal deficit decentralisation.

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