Fiscal Autonomy and Educational Attainment of the Federating States in Nigeria

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Abstract This study investigates the impact of fiscal autonomy on educational attainment of the states in Nigeria. The focus is on the 36 states in Nigeria. The capability of a state to internally generate revenue is a basic requirement in the provision of social infrastructure. In the context of this research, fiscal autonomy was measured as a ratio of internally generated revenue to federal allocation. To investigate the relationship involving fiscal autonomy and educational attainment in Nigeria, instrumental variable three stage least squares (3SLS) panel estimation framework was adopted by this study. The Hausman’s test was used to determine the most robust estimates and the Hansen-sargan test was also used to determine if the instrument used was identified between the two-stage and three-stage least squares. The result from the rigorous estimation technique of 3SLS does not seem to give support to the hypothesis that increase in fiscal autonomy can significantly drive increase in literacy rate vis-a-vis educational attainment across the states and hence economic development in Nigeria. The study therefore strongly advocates that states should tow the middle path of not being completely fiscal autonomous in striving for fiscal autonomy as fiscal autonomy itself does not necessarily guarantee high educational attainment of states in Nigeria.

Keywords Fiscal, Autonomy, Secondary, School and Educational

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1. Introduction

Fiscal autonomy (FA) is the process where different tiers of government enjoy separate independence and existence from the control of the central government. With fiscal autonomy, the components units within a federation possess the authority to raise revenue from their own sources for the delivery of shared goods and services. More so, fiscal autonomy requires not only physical and legal existence of government apparatus (governors, Court, legislative assemblies, among others) but that each level of government should put in place not as an appendage of another but as an independent body exercising its own power and is free from the control of the central government [11].

Nigeria as a federation consists of 3 tiers of governments: the federal, the state (36 states) and the local (774 local government areas) governments. The very essence of these three tiers of government is to stimulate speedy economic development through adequate delivery of social and economic infrastructures for the citizens. In spite of the constitutional provisions for the existence of these tiers of governments and their fiscal powers, resource allocation and management among these tiers of governments have remained contentious concerns in Nigeria’s fiscal federalism [2]. More so, these contentious issues arise because most states that make up the federation get a large chunk of their revenues in the form of statutory allocations from the federation account to fund their programmes. Though, a certain fraction of the federation revenue is by the revenue allocation law allocated to state governments, these allocated funds are not enough to meet the spending
requirements of the federating states. This is specifically attributed to the fact that about 80 percent of the revenue to the federation account is from oil which is not stable and certain due to high fluctuation in the price and output of oil [5]. Though state governments as the second tier of government in Nigeria have the powers to mobilize its revenue internally from various sources (other than revenue allocation from federal government) these mobilization had been inadequate. Internally generated revenue (IGR) is a veritable source of revenue that state governments generate within the areas of their jurisdiction. These sources of revenue are by no means uniform across the states. It is worrisome that most states are extremely poor in internally generated revenue and are overly dependent on federal allocation. This implies a poor or no fiscal autonomy for most states in Nigeria since the issue of fiscal autonomy relates to internally generated revenue to transfers/allocation from federal government. For instance, the share of states from federation account was approximately 58.0 percent of the total income/revenue in 2002 and rose to 66.02 percent in 2016, while the aggregate internally made revenue by states fell from 14 percent in 2002 to 8.02 percent in 2016. The percentage mean of internally generated revenues relative to the federal revenue allocation was between 5 to 9 percent for most years between 2002 and 2016 [1].

It is widely agreed from the received literature on state creation that the capability of the state government to generate revenue internally is a fundamental consideration for the creation of additional states. States are expected to provide basic socio-economic infrastructure such as provision of public schools, public health, water and sanitation to her citizenry. Although the provision of these infrastructures like education requires huge government spending, it also determines, to a greater extent, the capability of the states to generate huge revenue over time. Therefore, the need for revenue sufficiency at all tiers of government has become imperative. State governments currently face enormous tasks and trials in terms of struggling to be less dependent on the federal government for financial assistance and or resources with which to reduce poverty, generate employment, drive economic growth, create wealth and provide health and educational infrastructure. Interestingly, a lot has been documented about the need for increased allocation to states and local governments from the federation account as well as how to boost the internally generated revenue of the other two tiers of governments (that is states and local governments) in Nigeria. [5,15]. Much attention has not been given to the relationship between the source of state revenue (which defines fiscal autonomy) and the socioeconomic development of states especially in the context of educational attainment of Nigerian states. Scholars like Hammed and Tunde [5], Wheeler [15] (to mention but a few) have buttressed this fact of paucity of studies in determining the link between fiscal autonomy and socioeconomic development, with emphasis on educational attainment. Undoubtedly, fiscal autonomy and socioeconomic development of states depend on many factors, among which include but not limited to her industrial, economic, agricultural, commercial, technological, security and above all, infrastructural advancement (both soft core and hardcore infrastructure) of the state. This study, therefore, examines the relationship between fiscal autonomy and educational attainment (a socioeconomic development variable) of the federating states in Nigeria. In view of the comparative nature of this analysis and the paucity of statistics, this research covered a period of 10 years (2008 – 2018). This research is of great appeal to researchers and policy makers because it would provide specific quantitative effects of fiscal autonomy on educational attainment of the 36 States in Nigeria.

2. Conceptual Issues and Literature Review

Fiscal autonomy is the process where each tier of government possesses a distinct existence and autonomy of revenue generation and expenditure from the control of the Central governments [11]. This implies that state and local governments have the leverage to generate her revenue and spend such revenue in the provision of socioeconomic infrastructure of the regions without the control of the Central government. This may make it possible for state/local governments to be controlled by their voters indirectly and this may further create room for efficient use of funds by these governments [8].

2.1. Measures of Fiscal Autonomy

Given the context of this study, fiscal autonomy was measured by the ratio of internally generated revenue to federal allocation across the states. Again, according to Hammed et al. [5], the two measure of fiscal autonomy include: revenue generation and expenditure approaches. Revenue devolution or decentralization is the ratio of sub-national revenue to consolidated government revenue while expenditure decentralization is the ratio of sub-national expenditure to central government expenditure. For the purpose of this study, in line with the study by Hammed et al [5], revenue decentralization is used because it measures the performance of socioeconomic variables in the provision of basic needs of the masses. Mathematically; FA = IGR/FAAC. Where FA is Fiscal Autonomy, IGR is internally generated revenue by the states and FAAC is federal allocation from the federation account.

3. Structure of the Nigerian Fiscal Autonomy

The Structure of the Nigeria’s fiscal profile involves the
sharing of revenue between or among the different tiers of government in Nigeria. The sharing is based on the use of several principles and a given formula. These principles as well as the components and formula for the revenue sharing in Nigeria as identified by Lukpata [8] include: Principles of revenue sharing formula which includes minimum material standard, basic needs, balanced development, derivation, equality of access to development opportunities, independent revenue and tax effort, adsorptive capacity, equality of states, minimum obligation of government, population, landmass and terrain, social development efforts and internal revenue generation efforts. It should be noted that Vertical Allocation Formula (VAF) and Horizontal Allocation Formula (HAF) are the components of revenue allocation in Nigeria.

**Table 1.** Vertical allocation formula

| Beneficiary allocation                  | (%) Federation account |
|----------------------------------------|------------------------|
| Federal government                     | 56                     |
| State governments                      | 24                     |
| Local governments area councils        | 20                     |
| **Total**                              | **100.00**             |

Source: Nigerian Law Intellectual Property (NLIP), (2019)

**Table 2.** Horizontal allocation formula

| Principle/factor allocation            | (%)          |
|---------------------------------------|--------------|
| Equality                             | 40           |
| Population                           | 30           |
| Internal revenue generation effort    | 10           |
| Landmass and terrain                  | 10           |
| Education                            | 4            |
| Health                                | 3            |
| Water                                 | 3            |
| **Total**                             | **100**      |

Source: Nigerian Law Intellectual Property (NLIP), 2019.

Table 1 shows the Vertical Allocation Formula (VAF) of the components of revenue distribution among the three tiers of government. Table 1 reveals that distribution of revenue to Federal government is 56 per cent, while State has 24 percent and Local government has 20 per cent, giving a total of 100 percent revenue share from the federation account. On the other hand, the Horizontal allocation formula (HAF) on table 2, shows that the principle and factor revenue allocation is 40 percent to equity, 30 percent population, 10 percent domestic revenue generation effort, 10 percent landmass and terrain, 4 percent education, 3 percent health and 3 percent water giving a total of 100 percent revenue allocation based on principle/factor allocation.

According to NBS [9], states performance in terms of internally generated revenue (IGR) stood at N931.23bn in 2017, which is greater by N100.04bn than the amount generated in 2016, specifically, 12.03 percent increase. At the end of second quarter of 2017, total revenue generated by states stood at N432.65bn, a figure higher than that generated in first quarter of the year 2017, which was N409.09bn. According to NBS [10] information, a breakdown of the statistics indicated that five states recorded a decline in internally generated revenue when compared to 2016, the states include: Akwa Ibom, Osun, Anambra, Taraba and Bauchi, while 31 states chronicled an increase in their IGR. More so, the report indicates that Federation Account Allocation Committee (FAAC) net allocation in the year 2017 was N1.73 trillion while the aggregate revenue available to the states was put at N2.67 trillion. At the end of 2017, domestic debt rose to N3.35 trillion while Nigeria’s foreign debt stood at N19.9bn. This implies that the country borrowed domestically, foreign or from external reserve to finance allocations. More so, available statistics from NBS [9] showed that Lagos State accounted for the highest IGR of N333.96bn in the year 2017 as against N302.42bn in 2016. This was followed by Rivers and Ogun states with IGR of N89.48bn and N74.83bn respectively in 2017 as against N85.27bn and N72.98bn in the 2016 fiscal period respectively. Delta trailed with IGR of N51.88bn in 2017 as against N44.05bn in 2016 while Kano had N42.41bn in 2017 as against N30.95bn in 2016. On the other hand, the report revealed that Yobe with the total amount of N3.59bn accounted for the lowest IGR in 2017 as against N3.24bn in 2016. This was trailed by Bauchi, Kebbi, Ekiti and Borno with N4.36bn, N4.39bn, N4.96bn and N4.98bn in 2017 respectively.

Table 2 shows the correlation between the socioeconomic performances are weak pointing out the multidimensionality of fiscal autonomy and the diversity of states and fiscal institutions in Nigeria. Some of these non-correlations are as a result of fiscal policies as against the practical point of view since the states characteristics differ. More so, the autonomy of the states have gone a long way to improve the socioeconomic wellbeing of the masses by increasing the net enrollment of primary school, net secondary school enrollment, reduce the rate of unemployment, increased the number of registered child.

4. Fiscal Autonomy and Educational Sector in Nigeria

Fiscal autonomy as a multi-faceted and as enshrined constitutionally, gives the states the autonomy to generate income and spends such income to promote the socioeconomic wellbeing of the citizens. In a bid to assess the extent to which the sub-central government (SCG) performs the correlation between the socioeconomic performances are weak pointing out the multidimensionality of fiscal autonomy and the diversity of states and fiscal institutions in Nigeria. Some of these non-correlations are as a result of fiscal policies as against the practical point of view since the states characteristics differ. More so, the autonomy of the states have gone a long way to improve the socioeconomic wellbeing of the masses by increasing the net enrollment of primary school, net secondary school enrollment, reduce the rate of unemployment, increased the number of registered child.
birth and reducing maternal mortality, increased in internally generated revenue (IGR), increased in economic growth (GDP) and growth in the rate of fiscal autonomy as a ratio of IGR to allocation from the federation account.

Education is one of the most vital aspects of human development. Education outcomes are a real indication of well-being. The SDG goal of achieving universal primary education has a target of ensuring that children everywhere, irrespective of gender (whether males or females alike), will be able to accomplish a full course of primary and secondary school. The verifiable indicators for checking progress under this target are the net enrolment ratio in primary and secondary education. Net enrollment in primary and secondary schooling in Nigeria is uppermost in the south-east and bottommost in the north-west. In terms of regional differences, the South-West and South-East lead the pack, with 70.6 percent and 72 percent respectively. The North-West (37.2 per cent) and North-East (39.2 per cent) have the lowest enrolments. Male enrolments exceed female enrolments in all the six geographical regions or zones with the exception of the south-west, where they are at par. The sub-national government in conjunction with the central government can drastically improve the general primary enrolment ratio by making collaborative efforts in the North Eastern and North Western states. This is because these two regions/zones of the country have by far, the smallest primary and secondary enrolment rates as seen in Fig. 1.

In contrast, education as the key to human development and the future of the states and country is an important indicator of economic development in Nigeria. Fig. 1 shows the 10 top net secondary school enrolment with Imo having 0.5 million, followed by Lagos, Akwa-Ibom and Benue with 0.3 m, Ogun, Oyo, and Kanu with 0.2 m, Katsina had 0.1 m, Zamfara 0.09 m and Nasarawa with 0.08 m secondary school enrolment, while the 10 least net secondary enrolment is seen in Bayelsa, Abia, and Taraba with 0.04 m, Ekiti had 0.05 m, FCT (0.06), Gombe, Kebbi and Kogi with 0.07 m net enrolment. The 10 highest net primary school enrolment was noticed in Kano with 2.6 m followed by Katsina with 1.4 b, Ondo (1.7 m), Kaduna (1.4 m), Oyo (1.4 b), Imo (1.1 m), Akwa-ibom (1.0 m), Bauchi (0.9 m), Lagos (0.9) and Benue with 0.8 m while the 10 least states net primary school enrolments are; Ekiti with 0.1 m followed by Abia with 0.2 m, Kwara, Rivers Enugu and FCT with 0.3 m each, Osun, Edo and Nasarawa with 0.4 m while Zamfara had 0.5 m net enrolment.

Source: NBS, 2019

Figure 1. Secondary school enrolment in the 36 federating States
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In addition, the performance of fiscal autonomy From Fig. 2 shows that, the first 10 states with the highest autonomy is Lagos state with 38billion followed by Ogun (24.6b), Adamawa (15.4b), Rivers (7.2b), cross Rivers (6.4b), Edo (5.6b), Kano (6.2b), kwara (5.6b), Enugu (5.4b) and Kaduna (4.9b), while the 10 least states are: Yobe state with 0.9b, followed by Bauchi (1.0b), Borno (1.0b), Kebbi (1.0b), Bayelsa (1.2b), Akwa-Ibom (1.2b), Katsina (1.3b), Ebonyi (1.4b), Jigawa (1.4b) and Gombe state with 1.6b.

5. Fiscal Autonomy Average Growth Rate by States

Table 3 brings out salient differences across the states over time in terms of fiscal autonomy of the various states. Fiscal Autonomy is measured as the ratio of internally generated revenue to federal allocation. It should be noted that any ratio that is equal to or greater than one (1.0) has greater fiscal autonomy. Otherwise, the fiscal autonomy is low. On average, states with the ratio 1.0 and above are seen to have greater fiscal autonomy because they generate more revenue internally compared to federal allocation. This therefore implies that such states socioeconomic performance would improve depending on federal allocation. While states with less than 1.0 ratio are seen to have low fiscal autonomy and such states depend majorly on federal allocation and bailout funds in the provision of public goods and services. In contrast, only four federating states have high and sustainable fiscal autonomy. These states include Adamawa state which has the ratio of 79.27 between 2016 and 2017, while Rivers state has the ratio of 0.913 between 2016 and 2017. Also, Ogun state has the ratio of 2.973 between 2016 - 2017 while Lagos state has the ratio of 8.776 between 2016 and 2017. While the other 32 states have low unsustainable fiscal autonomy. This therefore implies that only these four states (Adamawa, Lagos, Ogun and Rivers) have the capacity and the ability to provide socioeconomic services (educational services, perhaps) and hence drive development process in these states. This also implies that a rise in federal allocation will lead to an increase in the delivery of public goods and services, socioeconomic performance and economic development at large.
### Table 3. Fiscal autonomy of the states in Nigeria using 2 years average

| State       | 2008-2009 | 2010-2011 | 2012-2013 | 2014-2015 | 2016-2017 |
|-------------|-----------|-----------|-----------|-----------|-----------|
| Abia        | 0.177227  | 0.412878  | 0.391626  | 0.354395  | 0.477238  |
| Adamawa     | 0.313337  | 0.152187  | 0.121562  | 0.086928  | 0.223428  |
| Akwa-Ibom   | 0.079523  | 0.08899   | 0.071452  | 0.089328  | 0.174823  |
| Anambra     | 0.230496  | 0.25589   | 0.222835  | 0.399982  | 0.801043  |
| Bauchi      | 0.071374  | 0.136292  | 0.105391  | 0.132825  | 0.225452  |
| Bayelsa     | 0.06397   | 0.058225  | 0.05336   | 0.083267  | 0.108380  |
| Benue       | 0.103033  | 0.324912  | 0.214576  | 0.217068  | 0.352741  |
| Borno       | 0.036364  | 0.069581  | 0.053156  | 0.07945   | 0.104984  |
| Cross River | 0.266297  | 0.380814  | 0.348823  | 0.44122   | 0.594365  |
| Delta       | 0.094147  | 0.318796  | 0.297523  | 0.29527   | 0.475171  |
| Ebonyi      | 0.11065   | 0.235288  | 0.306836  | 0.380436  | 0.138218  |
| Edo         | 0.127199  | 0.533821  | 0.407166  | 0.421407  | 0.743419  |
| Ekiti       | 0.123848  | 0.117631  | 0.102311  | 0.116116  | 0.154283  |
| Enugu       | 0.104223  | 0.430259  | 0.464784  | 0.569402  | 0.632046  |
| Gombe       | 0.237734  | 0.144076  | 0.117537  | 0.162255  | 0.149250  |
| Imo         | 0.130486  | 0.189988  | 0.16797   | 0.170828  | 0.199989  |
| Jigawa      | 0.199165  | 0.135248  | 0.218739  | 0.153528  | 0.154902  |
| Kaduna      | 0.281155  | 0.296846  | 0.245899  | 0.28344   | 0.694015  |
| Kano        | 0.179525  | 0.217259  | 0.243251  | 0.264107  | 0.826212  |
| Katsina     | 0.080797  | 0.146758  | 0.135094  | 0.149482  | 0.174476  |
| Kebbi       | 0.193462  | 0.154691  | 0.126896  | 0.107779  | 0.126721  |
| Kogi        | 0.178449  | 0.131205  | 0.110504  | 0.186933  | 0.345111  |
| Kwara       | 0.375977  | 0.401207  | 0.378969  | 0.324848  | 0.761976  |
| Lagos       | 4.118741  | 5.438289  | 4.420368  | 6.205615  | 8.776313  |
| Nassarawa   | 0.042254  | 0.169144  | 0.130835  | 0.140451  | 0.177356  |
| Niger       | 0.222444  | 0.106352  | 0.047414  | 0.152475  | 0.193270  |
| Ogun        | 0.676163  | 0.448223  | 0.371051  | 0.901585  | 2.973351  |
| Ondo        | 0.229514  | 0.200411  | 0.184669  | 0.220767  | 0.236152  |
| Osun        | 0.206968  | 0.273907  | 0.181681  | 0.277967  | 0.331273  |
| Oyo         | 0.346217  | 0.35224   | 0.353882  | 0.435506  | 0.672934  |
| Plateau     | 0.147125  | 0.178842  | 0.11449   | 0.221564  | 0.350106  |
| Rivers      | 0.237915  | 0.451292  | 0.452643  | 0.685015  | 0.913263  |
| Sokoto      | 0.320461  | 0.155333  | 0.128621  | 0.166893  | 0.207599  |
| Taraba      | 0.072493  | 0.112302  | 0.094874  | 0.127529  | 0.227921  |
| Yobe        | 0.022334  | 0.089747  | 0.067307  | 0.080464  | 0.127131  |
| Zamfara     | 0.15253   | 0.079984  | 0.07872   | 0.090026  | 0.196414  |

Source: computed by the author from NBS, 2018

### 6. Public Expenditure and the Educational Attainment

Ebejer and Ulrike [3] measured the efficiency of public spending in Malta by applying two alternative non-parametric techniques, namely; The full disposal hull and the data envelopment analysis. Using a cross-country analysis of EU member states, they estimated the efficiency scores of output indicators each for expenditure on education and health. The findings show that whereas public expenditure in Malta appears relatively efficient in enhancing primary and secondary levels of schooling outcomes and enrolments, it is less so at the tertiary level. Obi et al. [12] examined government education spending...
levels of education in Nigeria. Interestingly, Nigeria, despite being a member of UNESCO, allocates persistently less than 6 percent of her budget to education since the implementation of the UNESCO Declaration in 1990. Accordingly, the study below showed that government expenditure on education have a significant impact on total primary enrolment, total secondary enrolment and adult literacy enrolment in Nigeria using fixed and random effects but only significant using only fixed effect on total tertiary enrolment in Nigeria.

Ebi and Ubi [4] examined Education Expenditure and Access to Education: Case Study of United Nations Educational, Scientific and Cultural Organization Declaration in Nigeria using parametric statistical techniques of multiple regressions. This is in view of the fact that United Nations Educational, Scientific and Cultural Organization (UNESCO) declared a benchmark of at least 26 percent of total public expenditure should be allocated to education. The results revealed some key issues. First, there is a significant and positive relationship between education expenditure and access to all levels of education in Nigeria. Second, if Nigeria had spent 26 percent expenditure on education as prescribed by UNESCO, it would have had 19-times impact on access to primary school enrolment, more than 2-times impact on secondary school enrolment and 9-times impact on access to tertiary education, and on average 10-times impact on all education. Thus, the study advocated the need for increased government funding of education in Nigeria in line with UNESCO declaration of 1990.

7. Methodology

The design for this study is based on the “correlation analysis and three-stage least squares (3SLS)” Panel analysis. The study relied heavily on secondary data as major source of information. The study measures the impact of fiscal autonomy on educational attainment over time in the 36 States that make up Nigeria. The choice of these socioeconomic indicators draws largely from the fact that they are the basic needs fulfillment indicators to drive the delivery of public goods and services across the states. To achieve this goal, the model was estimated using three-stage least squares (3SLS)” Panel research design that enables us to capture different impact on each of the 36 states. Basically, states level data were sourced from: National Bureau of Statistics (Federal allocation, unemployment and total registered live birth), Joint tax board (JTB) and state boards of internal revenue (SBIR) for the period 2008 - 2018 bearing in mind the flow of revenue generation and expenditure activities in the 36 States of the federation.

The model for the study is anchored on the augmented neo-classical growth theory, which flows from the Basic needs fulfillment and economic growth theory by Wheeler [15]. It had been argued that additional resources from output growth will generate widespread improvements in the physical quality of life for the poor even when money (incomes) remains unequally distributed [15]. It also implies that investment vis-à-vis economic growth will lead to the availability of goods and services in the states.

In modeling the production process according to Wheeler, it is necessary to give attention to the labor-augmenting role of welfare inputs and the role of capital and labor in determining output contribution. The model is specified using the augmented neo-classical growth theory as:

\[ Y_t = A_t K_t^a L_t^\beta \]  

Where: \( Y_t \) = Output and in this study, output is measured by educational attainment (EA) proxied by secondary school enrolment, \( A = \) Total factor productivity or efficiency parameter, \( K = \) Stock of capital, \( L = \) Labour force, \( a = \) output elasticity of capital and \( \beta = \) output elasticity of labour. Endogenizing the model using efficiency parameter ‘A’ given that it accounts for other factors that affect output and allows the economic variables to come into the model. Thus the model becomes:

\[ A_t = A(F_t)^{\phi} \]  

Where: \( F_t = \) Fiscal autonomy proxied by the ratio of IGR to Federal allocation.

Empirically testing the effect of fiscal autonomy variables on output (educational attainment), according to Wheeler (1980), production is assumed to exhibit unitary elasticity of labour thus:

\[ Y_t = EA = F_t^{\phi} K_t^a L_t^\beta \]  

Equation (3) is consistent with Wheeler [15] unitary
elasticity of labour.

Where: $\alpha$ and $\beta$ can be interpreted as the output elasticities of capital and labour, while the $\Theta$’s are the labour-augmenting elasticities of fiscal autonomy. Partially differentiated to get the educational attainment equation, thus:

$$E_{At} = \beta_1 + \beta_1 f_i + \beta_2 \Theta_1 k_i + \beta_3 \Theta_2 e_i + \varepsilon_i$$  \hspace{1cm} (4)

Where: $E_{At} = \left( \frac{dE_{At}}{dt} \right) / E_{At}$ in each case. Equation (4) is linear in percent changes and the marginal productivity of output growth rate. The interactive growth model of welfare equations will be;

$$E_{Ai} = \beta_{30} + [\beta_{31} + \beta_{32} \ln E_{it0}] (q_i - p_i) + [\beta_{33} + \beta_{34} \ln E_{it0}] f_i + [\beta_{35} + \beta_{36} \ln E_{it0}] k_i + \varepsilon_{3i}$$  \hspace{1cm} (5)

7.1. Description and Measurement of Variables

$k_i = $ capital expenditure by states, $f_i = $ fiscal autonomy measured as a share of internally generated revenue to federal allocation, $E_{Ai} = $ Educational attainment proxied by secondary school enrollment, $p_i = $ Population growth rate of states, $i = 1, 2, 3, 4, 5, 6, 7, 8, 9, \ldots, 36$ states and $E_{o}, = 2008$ levels of welfare availability and educational attainment respectively while $\varepsilon_{1i}, \ldots, \varepsilon_{4i} = $ Stochastic error terms.

Apriori: $\beta_1, \beta_2, \text{ and } \beta_3 > 0$.

The analysis is carried out within the 3SLS Panel estimation framework. The preference of this estimation method is not only because it enables a cross-sectional time series analysis which usually makes provision for broader set of data points, but also because of its ability to control for heterogeneity and endogeneity issues. Hence panel data estimation allows for the control of individual-specific effects usually unobservable which may be correlated with other explanatory variables included in the specification of the relationship between dependent and explanatory variables. Hausman and Taylor [6]. The basic framework for panel data regression takes the form:

$$Y_{it} = \beta X'_{it} + \alpha Z'_{it} + \varepsilon_{it}$$  \hspace{1cm} (6)

In equation (6), the heterogeneity or individual effect is $Z'_{it}$ which may represent a constant term and a set of observable and unobservable variables. When the individual effect $Z'_{it}$ contains only a constant term, OLS estimation provides a consistent and efficient estimates of the underlying parameters [7]; but if $Z'_{it}$ is un-observable and correlated with $X_{it}$, then emerges the need to use other estimation method because OLS will give rise to biased and inconsistent estimates.

8. Results Presentation and Discussion

The result in table 4 shows the mean average of key socio-economic variables across the states. The result indicates that only Lagos, Adamawa and Ogun have above 1.0 in the share of IGR to FAAC. This implies that Lagos, Adamawa and Ogun have fiscal Autonomy. This implies that these states may not necessarily depend on the government for federal allocation from federation account but can also generate and spend her revenue on key socio-economic sectors that can increase the citizens’ standard of living and thereby drive economic development process. The states with less 1.0 mean deviation entails that they depend solely on revenue from the federation account for the provision of infrastructures and quality education.
Table 4. Mean of Fiscal Autonomy and Key Social Economic Performance Across states in Nigeria

| States     | GDP per capital growth rate (%) | Secondary School enrollment | Primary school enrollment | Capital expenditure | Share of IGR to FAAC |
|------------|---------------------------------|-----------------------------|---------------------------|--------------------|----------------------|
| Abia       | 13.0                            | 52.4                        | 234.8                     | 220743.4           | 0.4                  |
| Adamawa    | 11.1                            | 100.4                       | 483.2                     | 33907.3            | 1.6                  |
| Akwa- Ibom | 12.8                            | 259.2                       | 921.2                     | 152576.2           | 0.1                  |
| Anambra    | 12.4                            | 93.1                        | 646.3                     | 43568.4            | 0.4                  |
| Bauchi     | 12.2                            | 125.4                       | 886.4                     | 35825.9            | 0.2                  |
| Bayelsa    | 11.9                            | 45.4                        | 246.0                     | 38629.2            | 0.1                  |
| Benue      | 12.9                            | 199.0                       | 779.5                     | 32778.9            | 0.2                  |
| Borno      | 11.2                            | 175.5                       | 733.1                     | 23588.8            | 0.1                  |
| Cross River| 13.3                            | 89.8                        | 348.4                     | 30165.3            | 0.4                  |
| Delta      | 13.3                            | 159.5                       | 448.9                     | 56792.0            | 0.3                  |
| Ebonyi     | 12.0                            | 117.4                       | 396.4                     | 34763.4            | 0.2                  |
| Edo        | 12.8                            | 169.5                       | 340.4                     | 25582.3            | 0.5                  |
| Ekiti      | 11.6                            | 61.6                        | 154.3                     | 24934.9            | 0.1                  |
| Enugu      | 12.6                            | 140.8                       | 319.6                     | 19230.0            | 0.4                  |
| FCT        | 13.6                            | 78.3                        | 372.9                     | 30905.6            | 0.0                  |
| Gombe      | 11.9                            | 82.2                        | 314.5                     | 26634.6            | 0.2                  |
| Imo        | 12.9                            | 410.7                       | 602.6                     | 12524.2            | 0.2                  |
| Jigawa     | 11.3                            | 138.7                       | 887.0                     | 57721.5            | 0.2                  |
| Kaduna     | 12.7                            | 143.0                       | 709.2                     | 34152.3            | 0.4                  |
| Kano       | 13.8                            | 200.1                       | 1465.6                    | 22413.2            | 0.4                  |
| Katsina    | 12.2                            | 182.9                       | 2160.2                    | 33038.5            | 0.1                  |
| Kebbi      | 11.3                            | 169.1                       | 1164.7                    | 32846.2            | 0.1                  |
| Kogi       | 12.5                            | 81.2                        | 618.7                     | 23185.5            | 0.2                  |
| Kwara      | 11.9                            | 101.8                       | 706.5                     | 25127.3            | 0.5                  |
| Lagos      | 15.3                            | 371.0                       | 334.1                     | 174907.8           | 5.8                  |
| Nassarawa  | 11.8                            | 185.5                       | 731.8                     | 32277.6            | 0.1                  |
| Niger      | 11.9                            | 162.7                       | 459.8                     | 26661.9            | 0.2                  |
| Ogun       | 13.1                            | 257.1                       | 669.5                     | 12959.9            | 1.1                  |
| Ondo       | 13.1                            | 176.9                       | 730.4                     | 19296.6            | 0.2                  |
| Osun       | 12.6                            | 170.7                       | 1320.2                    | 25416.8            | 0.3                  |
| Oyo        | 13.1                            | 257.3                       | 528.4                     | 30566.1            | 0.4                  |
| Plateau    | 11.7                            | 123.2                       | 1145.0                    | 23025.8            | 0.2                  |
| Rivers     | 13.7                            | 148.0                       | 557.4                     | 229155.6           | 0.5                  |
| Sokoto     | 12.2                            | 95.6                        | 393.5                     | 44125.2            | 0.2                  |
| Taraba     | 11.8                            | 69.3                        | 635.6                     | 31159.6            | 0.1                  |
| Yobe       | 11.4                            | 72.1                        | 581.7                     | 18316.3            | 0.1                  |
| Zamfara    | 11.9                            | 92.8                        | 582.2                     | 17176.5            | 0.1                  |
| Total      | 12.4                            | 150.2                       | 665.1                     | 47477.8            | 0.8                  |

Source: Computed by the Author from CBN report, 2017 using STATA Software, 2019.
The simultaneous regression results were estimated using the Ordinary Least Squares (OLS), two-stage least squares (2SLS) and three-stage least squares (3SLS) estimation techniques. The Hausman’s test was used to select the most robust estimates between the two-stage least squares and the three-stage least squares. On the basis of the Hausman’s test result, 3SLS regression estimate was selected and interpreted. Also, the Hansen-Sargan test was used to examine if the instruments used in the 3SLS are well identified. The Hansen-Sargan test shows that the model is well identified. This implies that the 3SLS estimate is robust, thus we interpret the coefficients of the 3SLS panel regression estimates.

However, the negative sign of secondary school enrollment (-0.96) indicates that fiscal autonomy has a negative impact on educational attainment in Nigeria. This is contrary to theoretical expectation. Economic theory predicts a positive relationship between fiscal autonomy and school enrollment. It therefore means that a percentage increase in fiscal autonomy will lead to 0.96 decreases in secondary school enrollment rate in Nigeria. This suggests that if states become fiscally autonomous, educational attainment in terms of secondary school enrolment in Nigeria may decrease, all things being equal. This may not be unconnected with the fact that states are likely to be fiscally reckless without providing the basic socioeconomic infrastructure that are necessary for the enhancement of educational attainment in Nigeria. In a nutshell, all the negative coefficients of fiscal autonomy is an indication of the fact that there is inadequate investment in education as one of the key sectors and as such, citizens do not have unhindered access to educational facilities in the country. The negative sign of capital expenditure, K (-0.04) is at variance with theoretical expectation. Economic theory states that a positive relationship exists between school enrollment and capital expenditure. This implies that K impacts negatively on school enrollment. The negative value of the coefficient implies that an increase in capital expenditure ratio by 1 percent will lead to a decrease in school enrollment by 0.04 percent. By implication, this suggests that capital expenditure cannot spur school enrollment in Nigeria. This could be as a result of loss of confidence in public schools. The probability value of 0.04 indicates that K is statistically significant at 5 percent level. This simply means that K (capital expenditure) negatively but significantly impact on educational attainment in Nigeria. Again, the positive sign of GDP per capita growth rate of 1.01 is in line with theoretical expectation. The result shows that GDP per capita growth rate has a significant impact on school enrollment. In line with our a priori expectation, the positive value of the coefficient implies that an increase in GDP per capita growth ratio by 1 percent will lead to an increase in school enrollment by 1.01 percent. This suggests that increase in economic development can significantly spur school enrollment in Nigeria. The probability value of 0.21 indicates that GDP per capita is statistically significant at 5 per cent. This simply means that economic development impacts significantly on educational attainment and this could significantly spur school enrollment in Nigeria.

9. Conclusions

The study investigated the impact of fiscal autonomy on educational attainment of states in Nigeria from 2008 - 2019 using three-stage least squares panel estimation technique. The result from the descriptive analysis therefore reveals that only Lagos, Adamawa and Ogun have above 1.0 in the share of IGR to FAAC. This implies that Lagos, Adamawa and Ogun have fiscal Autonomy. Therefore, these states may not necessarily depend on government for federal allocation from federation account but can also generate and spend her revenue on key socio-economic sectors that can increase the citizens’ standard of living and thereby drive economic development process. The result from the rigorous estimation technique of 3SLS does not seem to give support to the hypothesis that increase in fiscal autonomy can significantly drive increase in literacy rate vis à-vis educational attainment across the states and hence economic development in Nigeria. The study therefore strongly advocates that states should tow the middle path.
of not being absolutely fiscally autonomous in striving for fiscal autonomy as fiscal autonomy itself does not necessarily guarantee high educational attainment of states in Nigeria.

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