

Revenue allocation to States, Expenditure and Economic Development in Nigeria

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ABSTRACT: *The continuous quest for the upward review of revenue allocation to the three tiers of government in Nigeria and the high incidence of poverty, low literacy level and rise in death of children under 5 years created the need to investigate how revenue allocated to states in Nigeria have affected development in the 36 states in Nigeria. Using panel and partial efficiency frontier (PEF) analyses to examine data sourced from the National Bureau of Statistics and the Federal Ministry of Finance, the results indicated that: the impact of revenue allocated on economic development in Nigeria differs across the states. Specifically, the study revealed that, expenditure of the states from the federation account was negatively related to basic school enrolment and poverty rate but positively linked to infant mortality rate but was significant in explaining basic school enrolment, poverty level and infant mortality rate (development) in the states. Expenditure of states via external borrowing bears a positive sign with basic school enrolment, poverty level but has negative coefficient with infant mortality rate. external debt was significantly related to poverty level but not significant to basic school enrolment and infant mortality rate. Expenditure by state from the Value Added Tax (VAT), has positive coefficient with basic school enrolment, but negative sign with poverty level and infant mortality rate. VAT was also significant in explaining development in Nigeria. Price level was significant in explaining changes in basic school enrolment but was not in changes in poverty and infant mortality levels. The study further revealed that the impact of government expenditure on development vary significantly amongst states of the federation. This implies that some states performed better than others in utilizing revenue from the federation account in achieving development. Based on these findings, the study recommends: an enthronement of fiscal federalism in Nigeria, review of modalities for external borrowing by states government, stable macroeconomic environment and the eradication of corruption as possible ways of enhancing development in Nigeria.*

KEY WORDS: *Economic development, public expenditure, poverty reduction, infant mortality and school enrolment*

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I. INTRODUCTION

The UNDP in 1990 provided a holistic explanation of economic development by reconstructing its informative Human Development Index (HDI) where longevity, knowledge and standard of living measured in per capita income (purchasing power parity) are used as measures of economic development (Todaro and Smith 2011). In this scenario, countries with low HDI are term less developed and those with high HDI index are termed developed. The above definition of development emphasizes the critical role of healthcare, education and income level which are basic ingredients for poverty alleviation and wellbeing of the people.

The less developed countries and Nigeria in particular are saddled with the problem of underdevelopment due to high infant mortality about 528 deaths per day, low life expectancy (50 years), high level of illiteracy and out-of-school children and high level of poverty incidence (69%) (see NBS 2016 and UNDP 2016). In order to solve these problems of underdevelopment, Nigerian governments at all levels over the years have routinely rolled out annual budgets, some of which proposed multi-billion naira expenditures to achieve economic development. To be specific, large sums have been allocated for expenditure on poverty alleviation programmes and services, universal basic education and improvement in health care. In recent times, especially within the framework of the Millennium Development Goals (MDGs), government and development agencies are becoming more interested in poverty reduction and human capital development and are accordingly channelling spending into these areas which directly have positive reward for low income groups (NISER 2005).

Evidence from the CBN (2013) revealed that total government spending continued to increase from 1999 to date. The CBN reported that total public expenditure rose from N701.69 billion or 15.3 percent of GDP in 2000 to N4,194.22 billion in 2010 with recurrent spending accounting for an average of 67.8 percent total expenditure during the period. Also, 48.8 percent of the average recurrent expenditure was accounted for by

transfers, while administration accounted for 34.9 percent of total expenditure. The federal Ministry of Finance also reports that the federal government, 36 states of the federation and 774 local governments shared about N989.2billion between July-August 2011. It increased to N1.104trillion in 2012 by December 2016, a total of 171.3billion was shared by the three tiers of government (FMF, 2016)

The rise in public sector spending is also a consequence of underdeveloped private sector and the critical role of government spending in fast-tracking economic growth and development as argued by scholars' like: Al-Yousif, (2000); Abdullah, (2000) and Cooray, (2009) and Abu & Abdullahi, (2010). Though there are some scholars who sees public spending as wasteful and as a bulwark to rapid and sustainable development (see Khan and Henrekson, 2001; Ghura, 1995; and Barro, 1991). In spite of these contrary views, public sector spending remains a veritable tool for economic transformation, human capital development and poverty alleviation in less developed countries. This study therefore seeks to examine how the increasing public expenditure of the government especially, the states governments have helped in reducing poverty, infant mortality and increasing school enrolment in Nigeria over the period 2011 – 2016. We continued our discussion by reviewing relevant literature on the relationship between public spending and economic development.

II. LITERATURE REVIEW

According to Peacock and Wiseman (1961), the growth in public expenditure is influenced by the growth in revenue. The hypothesis is built on the principle of tolerable taxation level, which states that maximum amount of tax revenue accruable to government is based on citizen's perception of what is the fair equitable amount of tax. Basically, the public are reluctant to paying higher taxes, but in times of war they become more tolerant of tax increases. Henry and Olekains (2000) in their view further explain that "after a period of exposure to the new tax regime, the maximum tolerable taxation level is raised as voter's become increasingly familiar with the new policies of government. The government is then able to maintain the expenditure at high level even though the period of emergency has elapsed. This scenario is referred to as displacement effect. This is created when the earlier lower tax and expenditure levels are displaced by new and higher budgetary levels.

As government revenue increases, it tends to provide those goods that can be consumed by an additional consumer at no additional cost. For public goods, the market mechanism is not available for their provision because they are characterized by one or both of non-rivalry and non-excludability for instance roads and national defense (Arrow, 1971)

From the discussion on the theories above, it is evident that outside, war, and military spending, government also spend more on funds on: poverty alleviation programmes, immunization to prevent child death, building of schools and feeding of school pupils in order to reduced illiteracy and social security services amongst others as its revenue increases. These theories appeared to explain the realities in developing countries like Nigeria. Government expenditures is mostly influenced by tax revenue, need to provide social goods (public infrastructure) for the less privileged, maximizing benefits from public defined in terms of returns on such expenditure in terms of tax yield and improvement in citizens' welfare.

The discussions above also show that revenue does not transcends to achieving economic outcomes or development except such revenue is channelled into expenditure that will yield economic outcomes. On this note we reviewed some past studies on the nexus between expenditure and economic development. Niloy et al. (2003) adopted a disaggregated approach in their investigation on the impact of government expenditure on economic growth for 30 developing countries using a panel analysis. Their findings revealed that government capital spending has a direct and significant relationship with economic growth, however, percentage of government recurrent expenditure in GDP was shown to be insignificant in explaining economic growth while at the sectoral level, government investment and expenditure on education were found to have significant implication on economic growth, especially when budget constraint and omitted variables are included in the investigation.

In another study on public expenditure and economic performance by Nurudeen and Usman (2010), they found that total capital expenditure, total recurrent expenditure, and government expenditure on education have inverse implications on economic growth. While government expenditure on transport and communication, and health, have positive implication on economic performance.

Dang (2013) adopted expenditure disaggregation among the tiers of government to investigate the contributions of federal government revenue allocation to the three tiers of government on Nigeria's economic development. using the error correction mechanism and Granger causality test, he finds that revenue allocations to federal government has significant impact on economic development while revenue allocation to states has indirect and serious implication on economic development in Nigeria. The study also shows evidence of Unidirectional causation between revenue allocations and economic growth in Nigeria. Just like Dang, in a study on the relationship between level of decentralization and economic performance in Nigeria, Jimoh (2003) applied the Error Correction Mechanism and Granger causality test. The study revealed that increase in the

number of local governments and states and subsequent improvement in revenue allocations to them have significant implications on economic development in Nigeria.

Zhang and Zou (1998) in their study on liberalization of public expenditure and economic growth in 28 Chinese provinces over the period 1987 - 1993 find a negative and significant relationship between fiscal decentralization and economic growth in China. In a similar study, Jin et al. (1999) however, report a direct and significant relationship between decentralization of expenditure and economic growth in same sample size in Chinese provinces. The results were the same despite the inclusion of a dummy variable by Jin et al which was not included by the earlier authors.

In Germany, Berthold et al. (2001) using panel data from 1991 - 1998, investigate the impact of equal fiscal allocations among states and additional federal grants on economic development of the 16 Lander (states). Their findings show that, increase grants in amongst states and increase fiscal allocations among the tiers of government have serious negative effect on nominal economic growth per capita of the Lander (states). However, in a similar study, Behnisch et al. (2002) find a positive relationship between increase in federal fiscal activities and economic performance in Germany in a study carried out using time series data from 1950 – 1990

Castro-Lead et, al, (1999) investigated the effectiveness of social spending of government on education and health care in several African countries and discovered that the programmes did not favour the poor, but those who are better off. The investigation concludes that this concentration problem cannot be resolved simply by adjusting the subsidy programme. They however, maintained that the problems that prevent the poor from taking advantages of these services must also be addressed, if the public expenditures social services are to be effective.

Dehn, et, al (2003) however, posit that public expenditure may fail to translate into desired and expected services for several factors: (i) possibility that the expenditure may be directed at the wrong goods or the wrong people. But even when governments spend on the right goods or the right people, the money may fail to reach the frontline service provider as evidence from expenditure on primary schools in Uganda in the mid-1990s, and (ii) even when the resources reaches the frontline facility, the incentives to provide the service may be weak – a trait mostly feature of public services that are concerned with inputs rather than outputs.

Blankenau et al (2007) study government spending and economic in Brazil and find that public expenditure on education stimulates economic growth while revenue from taxes retard economic growth, resulting in an unpredictable net effect. The authors argue that the complexity of the result may be due to the manner in which government funds educational expenditure – imposing tax on income. An increase in educational taxes may hamper growth by reducing aggregate investment. However, increase in educational funding increases quality of education and improves human capital spending and economic growth.

In a related study, Basu and Bhattacharai (2009) discover a relatively weak relationship government spending on education and economic growth implying a non-linear U-shaped nexus between government expenditure and economic growth. Usually public expenditure on education spurs a positive effect on economic growth in more developed economies, whereas in less developed economies, public expenditure on education may retard long-term economic growth and development. This implies that countries which have less investment in education and human capital, will experience a crowding out effect of public expenditure on private sector expenditure in education which may outweigh the joint impact, cumulating into low growth of the economy.

Filmer and Pritchett (1997) study provided a proof which shows that public spending on health is not the major determinant of infant mortality outcomes. According to the authors, the level of income, inequality level, female education, and the degree of ethnolinguistic fractionalization determines to a greater extent the variation in infant mortality across countries. Given this result, the study suggested policies that encourage economic growth, reduce poverty and income inequality, and increase female education in order to reduce the mortality among children.

In another investigation, Ude and Ekesiobi (2014), expenditure panel analysis to study the impact of state government expenditure on social outcomes with greater emphasis on education in the 36 states across Nigeria. Their findings indicated that state spending on education had a significant impact on basic school enrolment rates, secondary enrolment rates and adult literacy in the states that make up Nigeria.

Using a cross-country data, Blejer and Khan (1984), to study public spending and social outcomes, the authors discovered that public spending, infrastructure, urbanization, demographic structure, income inequality, and per capita income had a significant relationship with enrolment rates, poverty reduction and infant mortality reduction.

Gupta et. al., (1999) carried out a study on 50 transitionaland developing countries,using the Ordinary Least Squares approach, their results indicated that higher public spending on primary and secondary education had a positive implication on educational performance. The result of the study also revealed that per capita income, urbanization, environment, and sanitation also have serious implication on basic school enrolment rates and performance of the education sector.

Ogbu and Gallagher (1991), Anyanwu and Erhijakpor (2007), conducted a study on public expenditure and education performance in African countries using the panel analysis. The result of their study revealed a positive relationship exists between public spending on education and enrolment rates.

In a related study but with different methodology, Ernest (2014) investigated how Nigeria's policy on government expenditure affects education and poverty reduction in the country using the integrated sequential dynamic computable general equilibrium (CGE) model. The outcome of the study indicated that it will be extremely difficult for Nigeria to eradicate poverty and achieved 100 percent literacy level by the year 2015. The study concluded that increase in investment in human capital will help the country to meet SDGs targets and reduce poverty level and improve literacy in the further.

Using panel analysis, Talukdar (2012) investigated the effect of inflation on poverty in 115 less developed countries over the period 1981-2008. In order to achieve the objective of the study, income level, external debt, educational attainment, quality of governance and inflation were expenditure as explanatory variables. The result of his study revealed that inflation is positively correlated with poverty while income, educational attainment, and quality of governance show negative correlation with poverty. The author also examined the effect of price level on poverty in developed and less developed countries and discovered that though inflation exhibits a positive and statistically significant relationship with poverty, however, in the case of low income countries, the relationship between inflation and poverty is negative and statistically insignificant using different model estimation.

Ahmed and Mortaza (2011) examined the relationship between price level and poverty in Bangladesh for the period spanning from 1980 - 2009. They discovered that low and sustainable price level spur economic development of a country, hence economic growth and poverty reduction. To the authors, low price level supplements return to savers, enhances investment, and therefore, increases economic growth and development of the country.

In another study by Khan and Senhadji (2001) on the issue of the presence of threshold effects in the relationship between inflation, unemployment and poverty, using SVAR econometric techniques for 140 developed and developing countries covering 1960-1998. They estimated a threshold level of inflation above which inflation and unemployment significantly increases poverty rate at 1-3 percent for developed countries and 11-12 percent for developing countries. Their result revealed a positive and significant relationship between inflation, unemployment and poverty. The reviews above show that a lot of studies have been done on the impact of public expenditure on economic development however, none of these studies investigated how the states as a tier of government in Nigeria have utilized revenue to reduced poverty, child mortality and improve literacy/school enrolment.

III. METHOD OF STUDY

This study is situated on the displacement effect hypothesis by Peacock and Wiseman (1961), which argued that the growth in public expenditure is influenced by the growth in revenue and the public goods theory by Arrow (1971) who posited that as government revenue increases, it tends to provide those goods that can be consumed by an additional consumer at no additional cost. Public expenditure is therefore viewed as a function of improvement in tax revenue and the need to provide goods for the low income earners and the poor in order to reduce poverty, child mortality and improve literacy. Recall that revenue is without any substance except it is transformed into expenditure. Also in the Nigerian federation, the central government collects major revenues like: petroleum profit tax, revenue from direct sales of oil and value added tax (VAT) and disbursed the revenues to the three tiers of governments (central, state and local). However, in this study, we are concerned with investigating revenue allocation to states governments and the development of the country.

Consequent upon this analogy, we specified a functional relationship between revenue allocated to the 36 states of the federation (independent variable) and economic development (dependent variable) thus:

$$POVR_{it} = f(FRAS_{it}, SEDT_{it}, VAT_{it}, INF_{it}) \quad 1$$

$$SSER_{it} = f(FRAS_{it}, SEDT_{it}, VAT_{it}, INF_{it}) \quad 2$$

$$IFMR_{it} = f(FRAS_{it}, SEDT_{it}, VAT_{it}, INF_{it}) \quad 3$$

Equations (1 - 3) above could be expressed in non-linear form thus:

$$POVR_{it} = \alpha_0 (FRAS_{it})^{\alpha_1} (SEDT_{it})^{\alpha_2} (VAT_{it})^{\alpha_3} (INF_{it})^{\alpha_4} e^{u_{it}} \quad 4$$

$$SSER_{it} = \beta_0 (FRAS_{it})^{\beta_1} (SEDT_{it})^{\beta_2} (VAT_{it})^{\beta_3} (INF_{it})^{\beta_4} e^{u_{it}} \quad 5$$

$$IFMR_{it} = \delta_0 (FRAS_{it})^{\delta_1} (SEDT_{it})^{\delta_2} (VAT_{it})^{\delta_3} (INF_{it})^{\delta_4} e^{u_{it}} \quad 6$$

In the estimation process some parameters are introduced and a disturbance term "U" to take care of variables that affect economic development but not included in the models. Also in order to estimate the above

models using economic technique of panel analysis (cross sectional and time series data) equation (3 -6) were transformed into a log -linear form by taking the natural log of the variables as follows:

$$\ln SSER_{it} = \beta_0 + \beta_1 \ln FRAS_{it} + \beta_2 \ln SEDT_{it} + \beta_3 \ln VAT_{it} + \beta_4 \ln INF_{it} + u_{it} \quad 7$$

$$\ln POVR_{it} = \alpha_0 + \alpha_1 \ln FRAS_{it} + \alpha_2 \ln SEDT_{it} + \alpha_3 \ln VAT_{it} + \alpha_4 \ln INF_{it} + u_{it} \quad 8$$

$$\ln IFMR_{it} = \delta_0 + \delta_1 \ln FRAS_{it} + \delta_2 \ln SEDT_{it} + \delta_3 \ln VAT_{it} + \delta_4 \ln INF_{it} + u_{it} \quad 9$$

Where: Ln = natural logarithms, I = number of states in Nigeria (cross section); t= sample size/number of years (216); α_0 , β_0 & δ_0 = autonomous components of economic development indicators; $POVR_{it}$ = poverty level in 36 states of Nigeria; $SSER_{it}$ = Basic school enrolment in 36 states of Nigeria; $IFMR_{it}$ = infant mortality rate in 36 states of Nigeria; $FRAS_{it}$ = Statutory government revenue allocation to 36 states of the federation; $SEDT_{it}$ = External debt incurred by the 36 states in Nigeria; VAT_{it} = Proceed of Value added tax shared to the 36 states of the federation; INF_{it} = Inflation rate / price level of goods and services in Nigeria; U_{it} = stochastic term

a priori theoretical expectations are that: $\beta_1 > 0$; $\beta_2 < 0$; $\beta_3 > 0$ and $\beta_4 < 0$; $\alpha_1 < 0$; $\alpha_2 > 0$; $\alpha_3 < 0$ and $\alpha_4 > 0$; $\delta_1 < 0$; $\delta_2 > 0$; $\delta_3 < 0$ and $\delta_4 > 0$. This implies that statutory revenue allocated to states, value added tax, external debts are expected to be positively related to school enrolment but negatively related to poverty level and child mortality rate. External debt and price level are expected to be negatively related to school enrolment but positively related to poverty and infant mortality levels.

Data analysis procedure: Data on the variables mentioned above were sourced from the National Bureau of Statistics (NBS) and Federal Ministry of Finance, Abuja and analysed using the panel and Partial efficiency frontier (PEF) analyses after examining the behaviour and trend of the data using the descriptive statistics and graphs. Specifically, data on poverty level, school enrolment, infant mortality rate, statutory revenue allocation to states, VAT revenue shared to the states, funds borrowed from external source to finance development by the states and price level in the 36 states of the Nigeria’s federation were pooled together and estimated for their impact/relationship, fixed effect (FE) and random effect (RE). Random effect assumes that the impact of the independent variables on the dependent variable is the same across the section (constant intercept). However, the fixed effect controls for factors that may vary over the cross-sectional unit (States), yet are invariant after some time or change gradually after some time (Islam 1995; Baltagi 2001). Hence FE assumes a none constant intercept.

The Partial Efficiency Frontier (PEF) analysis was used is a non-parametric analysis. Unlike the panel analysis, the PEF was employed to rank the efficiency of various revenues accruable to the 36 states vis-à-vis development indicators (school enrolment, poverty reduction and infant mortality reduction). Since the panel result shows that FE was significant (effect of revenue/expenditure on development differ across the states), it was necessary we assess each state achieved development using revenue/expenditure.

IV. RESULTS

4.1. Trend Analysis

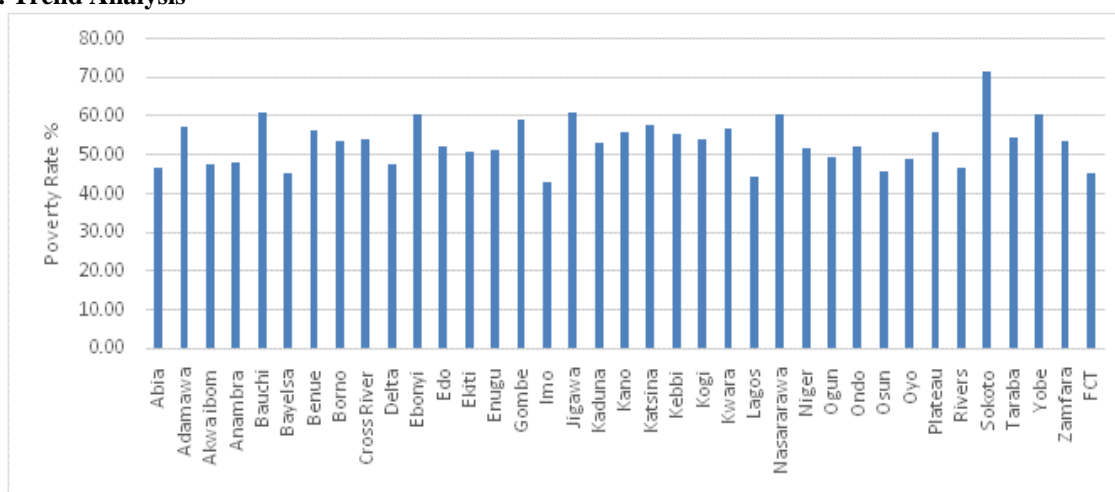


Figure 1: Average Poverty rate in Nigeria by States 2011 - 2016

Statistics in Figure 1 show high level of poverty in Nigeria which varies across the states. As evidence in the figure above, poverty was more prevalent in the states in the northern region than the southern states of Nigeria.

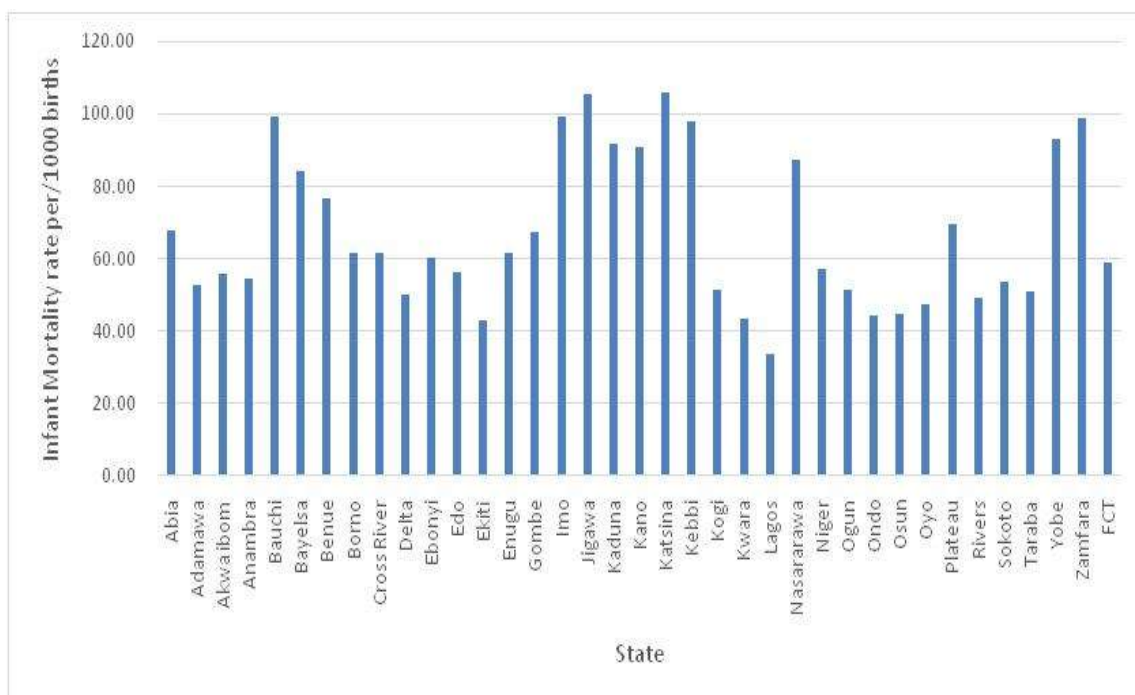


Figure 2: Average Infant Mortality rate in Nigeria by States 2011 - 2016

Information in Figure 2 unveils that infant mortality rate differs amongst the 36 states. However, the northern states still harbour the highest infant mortality rate compared to the southern states.

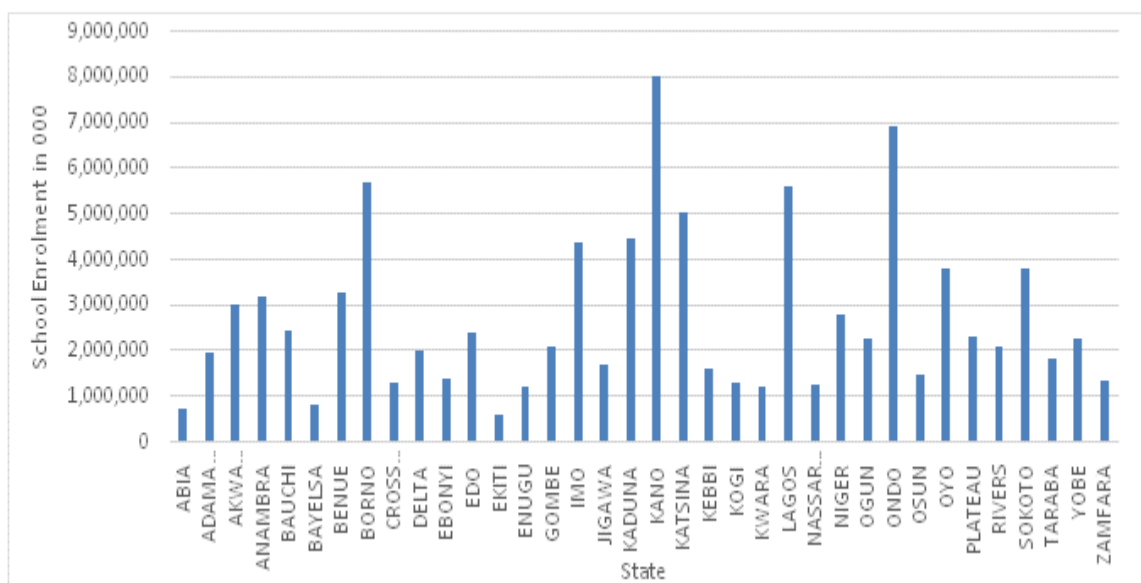


Figure 3: Total Primary School Enrolment in Nigeria by States

The basic school enrolment statistics as reported in Figure 3 discloses that it varies across the states of the federation just like poverty and infant mortality rates. Notwithstanding, the northern states have the highest school enrolment likely due to their population. School enrolment was low in most southern states. Revenue allocation to the states as shown in Figure 4 revealed that the oil bearing states of the Southern region enjoyed huge revenue allocation from the federation account compared to other states of the federation. It is important to note that crude oil still remains the major revenue source of Nigeria.

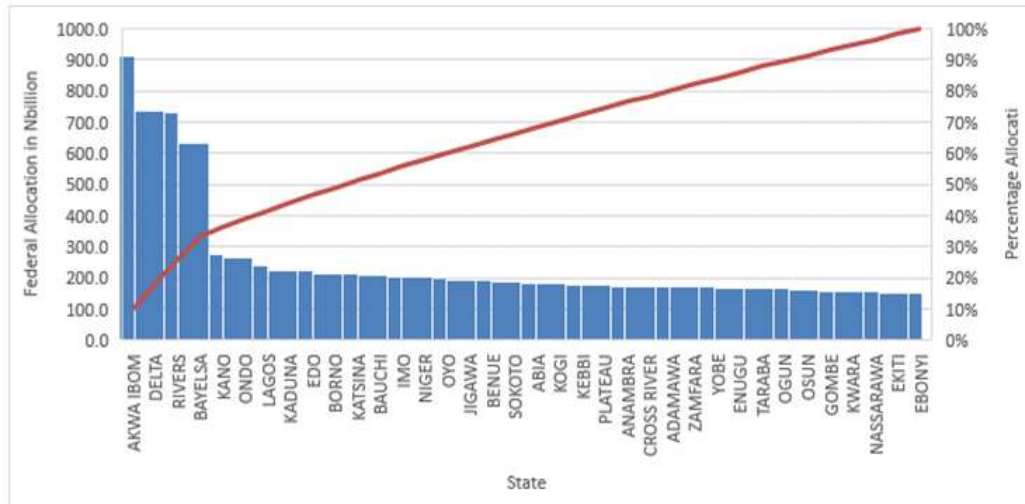


Figure 4: Total Federal Revenue Allocation to States in Nigeria 2011 - 2016

As reported in Figure 5, the external debt profile Lagos state was the highest, accompanied by Cross Rivers, Kaduna and Akwalbom states. The states with very low external debt profile are Taraba, Bornu and Benue States with external debt below N1 billion.

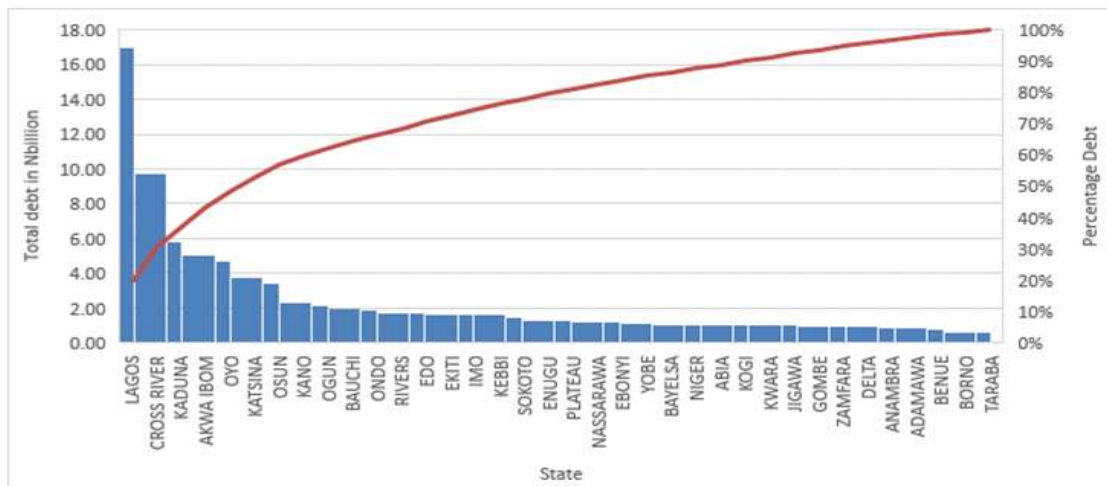
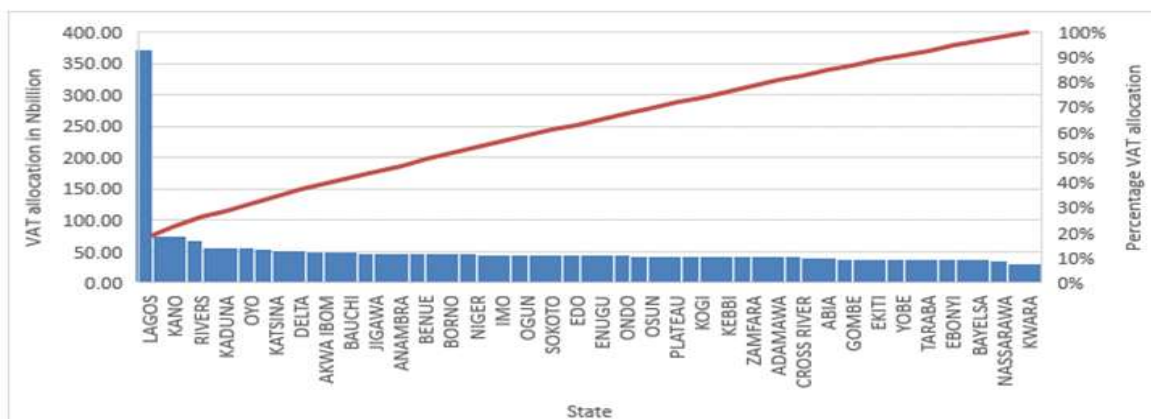


Figure 5: External Debt Incurred by States in Nigeria 2011 - 2016

As shown in Figure 6, Lagos state had the highest VATs allocation next are Kano and Rivers. Kwara, Nasarawa and Bayelsa states had the lowest VATs allocation.



6: VAT Allocation to States in Nigeria 2011 – 2016

Table 1. Descriptive Statistics

Variable	Observation	Mean	Std. Deviation	Minimum	Maximum
IFMR	216	67.21	29.90	15	163
POVR	216	53.62	16.25	25.5	89.5
SSER	216	456737.7	442594.2	18280	2474923
VATS	216	9.18	9.59	2.05	73.56
SEDТ	216	0.41	0.61	0.03	6.26
FRAS	216	42.10	35.31	15.76	220.74
INF	216	10.65	2.53	8.06	15.3

The result in *table 1* revealed significant variation in the mean, minimum and maximum values of all the variables under investigation. These wide disparities in the development, revenue and macroeconomic statistics unveiled the unsustainable nature of the Nigeria’s revenue and economic development indicators.

The result in *table 2* revealed that statutory revenue allocation to states bears a negative sign and has a significant relationship with basic school enrolment in the linear regression, random and fixed effect models. This implies that revenue allocated to the 36 states of the federation has not improve knowledge/literacy level in Nigeria. This result is not in tandem with economic theory/apriori theoretical expectation. This result however, conformed with the studies by Okeke (2014) and Ernest (2014). They found a negative relationship between public expenditure and school enrolment in Nigeria. Nigeria yearly budget to the education sector has consistently fell below the UNDP/UNESCO requirement of earmarking at least 25 percent of total yearly budget to the educational sector. Nigeria still has one of the highest out of school children in Africa according to the UNDP statistics (2016). This result and statistics all point to the fact that government role of eradicating illiteracy had suffered serious setback due to poor funding in the educational sector.

Expenditure by states via external borrowing is positively related to economic development (basic school enrolment) in the linear regression, random and fixed effects models. This connotes that external debt improves school enrolment and economic development in Nigeria. This outcome is in tandem with theoretical expectation. The result however shows that only the random effect model was significant at 5 per cent level. This result is in conformity with the study by Okwu et al (2016). They found a positive relationship between public debt and economic development (social outcomes). Ndikumana and Boyce (2004) had found and argued that public debt is like a double-edged sword which can affect development positively or negatively depending on the application of such funds. To the authors, debts channelled towards human capital development and the production of goods for the poor tend to improve development than those earmarked for the day-to-day running of government businesses.

Table 4.3 Result of Basic School Enrolment Model

Variable	Linear Regression	Random Effect (RE)	Fixed Effect (FE)
Log(FRAS)	-0.29 (0.04)	-0.66 (0.00)	-1.72 (0.00)
Log(SEDТ)	0.17 (0.08)	0.30 (0.01)	0.26 (0.14)
Log(VATS)	0.69 (0.00)	0.76 (0.00)	1.41 (0.00)
Log (INF)	-0.16 (0.64)	-0.57 (0.07)	-1.42 (0.00)
Constant	12.75 (0.00)	15.06 (0.00)	19.57 (0.00)
R ²	0.15	0.14	0.10
Breusch-Pagan/Cook-Weisberg test for heteroscedasticity	Chi2(1) = 0.03; Prob = 0.86; H ₀ : Constant variance		
Ramsey RESET test	F(3,208) = 5.34; Prob = 0.002; H ₀ : model has no omitted variable		
Hausman Test for Fixed Effect (FE)	Chi2(4) = 25.09; Prob = 0.00; H ₀ : difference in coefficients not systematic		

Value Added Tax (VAT) proceeds to the 36 states of the federation has a positive coefficient with basic school enrolment and was significant at 5 per cent level in the linear regression, random and fixed effects models. This entails that VAT positively and significantly energizes economic development measured by basic school enrolment. This result agrees with the apriori theoretical expectation. It is also in tandem with earlier studies by Okwu (2011), Success et al (2012) and Ofoegbu et al (2016). These authors in their studies found VAT to be positively related to school enrolment. VAT provides revenue to the three tiers of government, hence such fund if channelled into the educational sector will improve the performance of the sector.

Price level has a negative coefficient with school enrolment in the linear regression, random and fixed effect models. This connotes that increase in prices level slow down school enrolment. This outcome is in consonance with the theoretical expectation however, only the fixed effect model was significant at 5 per cent level. It also agrees with the studies by Krener and Miguel (2007) and Evans, Kremer and Ngatia (2008). An

increase in price level raises cost of living especially, food, clothing and books. This may reduce school enrolment and impact negatively on economic development of a country.

The diagnostic test carried out shows evidence of constant variance as contained in the Breusch-Pagan/Cook-Weisberg test for heteroscedasticity while the Ramsey RESET test shows variable omission. The test for fixed effect conducted using the Hausman procedure indicates that difference in coefficients was systematic. This connotes that the consequence of revenue allocation to state, external debt owes by the states, VATs and price level on economic development (school enrolment) differ amongst the 36 states of the federation.

The result of the poverty rate model reported in *table 3* demonstrates that revenue allocation to states from the federation account has negative and substantial relationship with poverty level in the linear regression, random and fixed effects models. This displays that funds allocated to the 36 states of Nigeria substantially diminished poverty level in the states. This result conforms to economic theory/apriori expectation. It is also in consonance with the earlier study by Berthold et al (2001), Jimoh (2003) and Dang (2013). They found a negative relationship between government revenue allocation, expenditure and poverty in their studies. Government spending could exert significant impact on reducing poverty and enhance economic development if such funds are channelled to human capital development (knowledge and skills development) and the provision of soft loans to the poor to start-up businesses in order to expand the sources of income of the poor and low income earners.

States expenditure via external borrowing by the 36 states has positive coefficient with poverty rate in the linear regression, random and fixed effects models. This indicates that increase in debts raised poverty level and strangulated economic development. External debt from the result was significant at 5 per cent level in the linear regression and random effect models. However, the variable was not substantial in the fixed effect model. This result is in consonance with the apriori theoretical expectation. It also conforms with the finding of Behnisch et al (2002) and the work of Ndikumana and Boyce (2004). They found that public debts could increase poverty and hamper development if such funds are channelled into unproductive ventures.

Table 3. Result of Poverty Rate Model

Variable	Linear Regression	Random Effect (RE)	Fixed Effect (FE)
Log(FRAS)	-0.17 (0.00)	-0.17 (0.00)	-0.71 (0.00)
Log(SED)	0.58 (0.05)	0.58 (0.05)	0.06 (0.32)
Log(VATS)	-0.14 (0.01)	-0.14 (0.01)	0.08 (0.53)
Log (INF)	0.05 (0.66)	0.05 (0.66)	-0.43 (0.00)
Constant	4.78 (0.00)	4.78 (0.00)	7.40 (0.00)
R ²	0.16	0.16	0.10
Breusch-Pagan/Cook-Weisberg test for heteroscedasticity	Chi2(1) = 0.67; Prob = 0.42; H ₀ : Constant variance		
Ramsey RESET test	F(3,208) = 5.63; Prob = 0.00; H ₀ : model has no omitted variable		
Hausman Test for Fixed Effect (FE)	Chi2(4) = 36.73; Prob = 0.00; H ₀ : difference in coefficients not systematic		

VATs conforms to the apriori theoretical expectation and was substantial and negatively linked to poverty level in the linear regression and random effect models. This entails that VATs significantly diminished poverty incidence in Nigeria hence it promotes economic prosperity in the country. This result is in agreement with the studies by Stephen (2013); Adereti, Adesina and Sanni (2011), and Umeora (2013). They found that VAT impact positively on economic growth and therefore reduce poverty through their direct effect on recurrent expenditure of government and indirect effect through capital expenditure.

Price level has a positive coefficient with poverty but not significant in explaining changes in poverty level in the linear regression and random effect model. This outcome conforms with the apriori theoretical expectation that increase in price level fuels poverty and retards economic development in Nigeria. This result is in agreement with the studies of Khan and Senhadji (2001) Talukdar (2012), and Ahmed and Mortaza (2011). Their studies provided evidences of positive nexus between price level and poverty. Study by Talukdar (2012) however indicated that inflation had a positive relationship with poverty in developed and medium income countries but found a negative nexus between price level and poverty in less developed countries.

The diagnostic test carried out shows evidence of constant variance as contained in the Breusch-Pagan/Cook-Weisberg test for heteroscedasticity while the Ramsey RESET test shows variable omission. The test for fixed effect carried out using the Hausman procedure indicates that difference in coefficients was systematic. This entails that the consequence of revenue allocation to state, external debt owes by the states, VATs and price level on economic development (poverty rate) differ amongst the 36 states of the federation.

Table 4. Result of Infant Mortality Rate Model

Variable	Linear Regression	Random Effect (RE)	Fixed Effect (FE)
Log(FRAS)	0.13 (0.03)	0.58 (0.00)	0.98 (0.00)
Log(SEDt)	-0.02 (0.63)	-0.04 (0.38)	0.03 (0.53)
Log(VATS)	-0.30 (0.00)	-0.61 (0.00)	-0.93 (0.00)
Log (INF)	0.64 (0.00)	1.01 (0.00)	1.28 (0.00)
Constant	2.73 (0.00)	0.90 (0.04)	7.40 (0.00)
R ²	0.18	0.13	0.10
Breusch-Pagan/Cook-Weisberg test for heteroscedasticity	Chi2(1) = 0.42; Prob = 0.52; H ₀ : Constant variance		
Ramsey RESET test	F(3,208) = 2.24; Prob = 0.09; H ₀ : model has no omitted variable		
Hausman Test for Fixed Effect (FE)	Chi2(4) = 83.30; Prob = 0.00; H ₀ : difference in coefficients not systematic		

The result of public spending and economic development (proxy by infant mortality rate) shows that revenue allocated to states of the federation (expenditure) has substantial positive implication on infant mortality rate in the linear regression, random and fixed effects model. This result deviates from the apriori theoretical expectation and entails that increase in revenue allocation (expenditure) to states in Nigeria seriously spurred infant mortality level in Nigeria. It is also in agreement with studies by Or, (2000a,b); Baldacci et al., (2002); Berger and Messer, (2002) who also found a positive relationship between spending on health and health outcomes (infant and maternal mortality rates). Most states of the federation still have very poor health indices like infant and maternal mortality in spite of huge revenue from the federation account. Statistics from the NBS (2016) indicates that Katsina, Jigawa states have the worst health indicator (infant mortality rate) with 100 deaths per 1000 births while Lagos, Ekiti, Ondo and Osun states have the best health indicator (infant mortality level) in Nigeria over the period 2011 – 2016.

External debt stock of states government in Nigeria bears negative sign in the linear regression and random effect model. This deviates from the apriori theoretical expectation and connotes that increase in foreign debt reduced infant mortality hence promote economic prosperity in Nigeria. However, the positive sign of the coefficient of debt in the fixed effect model shows that rising debt increase infant mortality level and retarded economic prosperity in Nigeria. This later result agrees to our apriori theoretical expectation and aligned with the findings of Gupta, Verhoeven and Tiongson (1999) who found that health expenditure reduces childhood mortality rates. However, investigation by Musgrove (1996) reported no proof that public expenditure on health has no impact on infant mortality but identified infant mortality to the level of education by mothers, cultural factors among others.

Value Added Tax (VAT) relationship with infant mortality rate is negative and substantial in explaining changes in infant mortality level in the linear regression, random and fixed effects models. This result is in tandem with the apriori theoretical expectation and entails that increase in VAT allocation to the 36 states of the federation reduced infant mortality rate seriously in Nigeria. This result is in tandem with the findings of Bhejer and Khan (1984) and Okeke (2014). They found a negative relationship between government spending and infant mortality rate. Also Robalino et al (2002) found that higher fiscal decentralization led to improved health outcomes (lower mortality rates), particularly in environments with strong political rights and high levels of ethno-linguistic fractionalization. An increase in revenue allocation to the various tiers of government and their expenditure could improve medical care through the training of more medical personnel, construction of more bed space and procurement of additional medical facilities and drugs for both the pregnant mothers, the infants and the general public.

Inflation rate also conforms to the apriori theoretical expectation by bearing a positive coefficient in the linear regression, random and fixed effect models. This connotes that increase in price level substantially worsen infant mortality hence reduce economic prosperity in 36 states in Nigeria.

The diagnostic test carried out shows a proof of constant variance in the data utilized as evidence in the Breusch-Pagan/Cook-Weisberg test for heteroscedasticity while the Ramsey RESET test display evidence of no variable omission in the infant mortality model. The test for fixed effect carried out using the Hausman procedure indicates that difference in coefficients was substantial. This entails that the consequence of revenue allocation to state, external debt owes by the states, VATs and price level on economic prosperity (infant mortality rate) differ amongst the 36 states of the federation.

In order to capture the diverse effect of revenue allocation/expenditure from the federation account on economic development (primary school enrolment, poverty level and infant mortality rate) as evidenced in the fixed effect result, we conducted the partial efficiency frontier analysis to find out states that utilized available funds to achieved development. The result of the analysis is presented in *table 5*.

The partial efficiency frontier analysis result was used to examine the efficiency of inputs (statutory revenue allocated to states, external debt incurred by states, VAT and price level) in determining development outcomes (poverty reduction, improve basic school enrolment and reduce infant mortality rate). The results indicate that Borno state has the highest efficiency score of 1.0 in primary school enrolment over the period under investigation. This was followed by Anambra, Ekiti, Gombe, Kwara, Nassarawa, Niger, Plateau and Taraba states with efficiency score of 0.98. This implies that Borno state and the later states have utilized revenues from the federation account to achieved very high primary school enrolment compared to other states of the federation. Rivers state has the lowest efficiency score in primary school enrolment with a score of 0.85. This implies that Rivers did not use her revenue from the federation account to achieved less school enrolment.

The result also revealed that: Adamawa, Ebonyi, Ekiti, Gombe, Kwara, Nasarawa, and Plateau states have the highest score (0.98) in poverty level. This implies that these states were unable to reduced poverty level with revenue from the federation account. Rivers, Lagos, Akwalbom, Kano and Delta states have lower score in poverty rating with 0.84, 0.86, 0.88 and 0.89 respectively. This implies that these state were more efficient in using financial resources from the federation account to eradicate poverty in their states.

Table 5: Partial Efficiency Frontier Analysis Result

S/N	State	Efficiency Score for SSER	Efficiency Score for POVR	Efficiency Score for IFMR
1	Abia	0.95	0.95	0.95
2	Adamawa	0.98	0.98	0.96
3	Akwalbom	0.89	0.88	0.88
4	Anambra	0.98	0.96	0.96
5	Bauchi	0.96	0.96	0.93
6	Bayelsa	0.92	0.91	0.93
7	Benue	0.97	0.98	0.94
8	Bornu	1.00	0.93	0.93
9	Cross River	0.95	0.94	0.95
10	Delta	0.89	0.89	0.88
11	Ebonyi	0.98	0.98	0.97
12	Edo	0.96	0.92	0.93
13	Ekiti	0.98	0.98	0.97
14	Enugu	0.96	0.95	0.95
15	Gombe	0.98	0.98	0.96
16	Imo	0.96	0.92	0.94
17	Jigawa	0.95	0.95	0.96
18	Kaduna	0.95	0.90	0.92
19	Kano	0.93	0.87	0.90
20	Katsina	0.95	0.93	0.93
21	Kebbi	0.96	0.96	0.96
22	Kogi	0.97	0.94	0.94
23	Kwara	0.98	0.98	0.97
24	Lagos	0.93	0.86	0.86
25	Nassarawa	0.98	0.98	0.98
26	Niger	0.98	0.94	0.94
27	Ogun	0.96	0.95	0.96
28	Ondo	0.96	0.90	0.91
29	Osun	0.96	0.95	0.96
30	Oyo	0.95	0.91	0.91
31	Plateau	0.98	0.98	0.94
32	Rivers	0.85	0.84	0.85
33	Sokoto	0.97	0.96	0.94
34	Taraba	0.98	0.96	0.96
35	Yobe	0.97	0.97	0.96
36	Zamfara	0.97	0.95	0.97

Source: Researcher's Computation (Stata 13)

The efficiency score for infant mortality rate indicates that Nasarawa has the worst utilization of revenue to reduce infant mortality rate with an efficiency score of 0.98. This is followed by Ebonyi, Ekiti, Kwara and Zamfara States with efficiency score of 0.97. Rivers, Lagos and Delta states were more efficient in the use of revenue to reduce the incidence of infant mortality in their state with efficiency scores of 0.85, 0.86 and 0.88 respectively.

V. CONCLUSION AND RECOMMENDATIONS

The results of our study demonstrate that the impact of revenue/expenditure on economic development in Nigeria differs across the states of the federation. This implies that the states have diverse capacities in

resources management and utilization for achieving economic development. This result could be traceable to the differences in revenue generation and earnings capacities of the 36 states in Nigeria. In specific terms, the result further revealed that statutory revenue allocation and VAT revenue disbursed to the 36 states of the federation were significant in explaining changes in school enrolment, poverty alleviation and infant mortality level. While external debt was only significant in explaining poverty in the 36 states of the federation. Based on this results, the study concludes as follows: revenue generation and earning capacity of the states is a serious factor in explaining the development status and capability of the states of the federation. This is because states with higher revenue generation and earnings capacity from the federation account and higher VAT allocation achieved more development than those with low revenue allocation and tax revenue generation capacity. Also states with low revenue but with strong human capacity achieved higher development (Anambra, Ondo and Osun) than those with less human capacity like Sokoto and Zamfara. Based on these results and findings, the study recommends: an upward review of revenue allocation to states by widening the productive capacity of the states, entronement of a true fiscal federalism where states are allowed by law to extract her resources, utilize them and pay tax to the central government, prudent management and allocation of funds and a stable macroeconomic environment as possible ways of enhancing development in Nigeria.

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