Vol. 3, No. 5 August 2014 ISSN 2307-2466
International Journal of Economics, Finance and Management

http://www.ejournalofbusiness.org

Panel Investigation of States Social Spending and Social Outcome: Perspective of Education in Nigeria

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ABSTRACT

This study is the empirical investigation of states social spending and social outcomes with specific emphasis on education in Nigeria. The study employed panel data from 36 states of the federation. The panel data spanned from 2009 through 2013. The study applied fixed effects and random effects models. Each of the education outcomes: total primary enrolment, total secondary enrolment, total tertiary enrolment and adult literacy enrolment were modeled against states spending on education and controlled for states spending on health and states per capita expenditure. Panel results show that states spending 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 significant using only fixed effect on total tertiary enrolment in Nigeria. Therefore, it is recommended that there is the need for increase in state governments' spending on education at all level.

Keywords: *Panel, Investigation, States, Social spending, Social outcome, Education.*

1. INTRODUCTION

In Nigeria, the rate of illiteracy is very high. Most of the workers are unskilled and they make use of outdated equipment and methods of production. By implication, their marginal productivity is extremely low and this leads to low real income, low savings, low investment and consequently low rate of capital formation [1]. States spending in social services like education care has been generally considered as the main redistributive policy instrument especially for the developing countries [2]. Moreover, assessing the actual level and allocation of public expenditure is the key to understanding any government's true expenditure priorities.

The philosophy of education in Nigeria is derived from the broad national objectives, which are articulated in the National Policy on Education (NPE) which was adopted in 1981 and revised 1995 and 1998. It is based on integration of the individual into a sound and effective citizen and the provision of equal educational opportunities for all citizens of the nation at the primary, secondary and tertiary levels both inside and outside of formal school systems. The structure of the formal education consists of six years primary education, three years of junior secondary, three years of senior secondary education and four years at the tertiary school. This structure is referred to as the 6-3-3-4 system of education. The policy also describes the approach to the language of instruction, examinations, continuous assessment, guidance and counseling services [3]

Table 1.1: Adult literacy and rates of ever attended school, selected states 2001/2002 (percent).

Zone/State	Adult literacy(15+ yrs)			Ever attended school		
	Male	Female	Poor	Male	Female	Poor
North West						
Jigawa	51	22	26	32	17	25
Kebbi	32	11	15	26	11	15
North East						
Yobe	26	9	12	28	15	20
North Central						
Kogi	74	48	66	82	65	80
South East						
Abia	87	73	73	93	83	86
Enugu	80	66	64	87	76	77
South South						
Cross River	79	60	57	89	77	76
South West						
Ekiti	78	63	69	83	71	77

Note: poor refers to members of the poorest one-fifth of households
Source: [3]

In table 1.1, the states are categorized into their current geopolitical zones. The literacy rate of these states is lower than recorded in the 1991 population census. These data again corroborate the variations across the country.

Male literacy rates are between 74 to 87 percent in each of the states in the southern zones and in North Central respectively, while in the North West and North East they are much lower at 32 percent of Kebbi and 26 percent of Yobe. For females, rates are 60 percent and above in the south compared with 11 percent in Kebbi and 9 percent in Yobe. In the south, the overall rates for the poor are similar to those for females as a whole. In the north, they are higher than for all females, indicating the particularly low rates for women. The overall higher set of rates for ever enrolled than for literacy (except in Jigawa) demonstrates either the higher level of access to schooling for the younger age group or that some enrollees never attained literacy. The variations across states/zones are again stark—less than one-third of men and less than one-fifth of women in the North East and North West states have attended school compared with 80 and 70 percent respectively in most of the other states.

Table 1.2: Education sector budget by the Federal Government Between 2003-2012.

Year	LGA (N)	State (N)	FG (N)	Total (N)
2003	10,653,980,787.00	2,938,722,580.00	2,938,722,580.00	15,056,357,329.00
2004	16,127,202,205.33	1,816,650,629.33	901,504,248.00	18,845,357,182.66
2005	13,766,154,751.02	1,953,511,127.99	In edu. budget	15,719,665,879.01
2006	14,846,484,699.64	2,051,624,088.65	In edu. budget	16,898,308,788.29
2007	46,956,023,103.91	2,844,470,589.38	22,284,441,062.00	72,800,493,693.29
2008	82,877,120,404.71	6,173,669,047.37	27,025,696,581.00	116,257,486,032.00
2009	126,116,471,422.6	10,884,037,950.18	32,664,783,440.00	169,946,294,123.00
2010	7,256,710,449.00	20,000,000,000.00	59,847,657,800.00	89,104,368,229.00
2011	5,251,475,000.00	10,080,000,000.00	58,893,388,589.00	74,104,943,589.00
2012	1,678,850,058.00	20,000,000,000.00	78,141,044,134.00	99,819,894,192.00

Source: [4]

Table 1.2, reveals the education budget proposal by the local, state and federal governments. It shows a gradual increase from 1995 to 1998. From 1999 to 2001 the budget proposal increased rapidly, and was decreased afterwards. The local government had the largest proposal (54.6 percent) followed by federal government (34.0 percent) and then the state government (11.4 percent). Education total budget was least in 1995 (2.52 percent) and was highest recorded in 2001 (28.5 percent) during the period under review.

Education in Nigeria is currently in crisis. Education sectors complain about under-funding while the government accuses the sector of inefficient utilization of available resources [5]. Education expenditure as a proportion of Gross Domestic Product (GDP) averaged 0.72 percent between 1995 to 1999, compared to 1 percent between 1986 to 1990. This performance fell below those of other developing countries average, which in 1970 and 1987, were spending an average of 11.7 and 16.3 percent of their total expenditure on education respectively. The United Nations recommends that 26 percent of the government budget be devoted to education. Ghana allocates an average of 20 percent of its total expenditure to education yearly. Between 1986 to 1992, Botswana spent 21 percent of her expenditure on education; Malaysia, 19 percent; Kenya, 20 percent; Uganda, 15 percent; and Nigeria, 3 percent [6].

Table 1.3: Federal Government expenditure on Education as percentage of Total Federal Government Expenditure 2007-2012.

Expenditure	2007	2008	2009	2010	2011	2012
Area	%	%	%	%	%	%
Recurrent	12.3	12.0	11.7	9.4	9.5	9.1
Capital	6.1	7.5	5.0	8.5	6.0	6.0
Total	18.4	19.5	16.7	17.9	15.5	15.1

Source: [7]

It is even worth mentioning here that the bulk of this meagre expenditure shown on table 1.3 even goes to recurrent activities. This issue of under-funding of education is so endemic that it has now encompassed series of other problems of shortages of human and material resources [8] To provide greater detail, the unit costs of different levels of education have been disaggregated. The unit cost estimate of public primary school is put at #1,600. For public secondary schooling, the average unit cost is ^3,080. Unit costs in post secondary institutions are more diverse in Nigeria. Across all the federal universities the average is ^23,414 [5]. The ratios of public unit cost for primary, secondary and university are roughly 1:2:15. The immediate reaction to this set of ratios is that compared to primary schooling, the costs of secondary schooling are being held down but that university education continues to be relatively expensive.

According to [7], poor financial investment has been the bane of Nigeria education system to the extent that the budgetary allocation to education has been very low compared to other sectors. Furthermore, the federal government allocation to education has declined steadily

since 1999. This is particularly important in view of huge increase in the number of intakes at all levels of education primary, secondary and tertiary. Though successive governments have accorded education high budgetary priority, funding increases have not kept pace with students' expansion, resulting in a sharp decline in quality. Poor maintenance has worsened the problem, and many public education institutions lack basic facilities, including textbooks and libraries, and the size of classes is growing. Many schools are housed in dilapidated buildings, lacking water and electricity [9]

Hence, series of disparities now exist in our educational system [10]. Such disparities include disparity between urban and rural schools, between schools owned and controlled by the federal government and those owned and controlled by the states and private agencies, gaps between the male and female enrolments and between admission figures and available teaching resources [4], [11] therefore posited that after two decades of operating the National Policy on Education (NPE), 'the educational system in Nigeria can only be said to be in crisis'.

In recent years, a growing number of children have dropped out to work to boost meagre family incomes or to survive on their own. Urban streets are full of children doing all sorts of odd jobs, from hawking food to working in sweat-shops [12] Scholars attributed the failure of the Nigerian's educational system to promote economic growth to the poor state of the system (see, [13, 14,15]. With all these, one cannot but wonder what actually determine education outcomes in Nigeria and the magnitude of impact of education expenditure on education outcomes.

Although, expectations of Nigerians have not been completely met in terms of providing quality education, it may not be conclusive saying that government expenditure has not translated to meaningful outcomes. This is particularly worrisome as several questions have been raised on this situation. Against this background, this study would seek to answer the following research questions: What is the impact of states social spending on education outcomes?

2. LITERATURE REVIEW

2.1 Theoretical Evidence

2.1.1 Wagner's Law of Increasing State Activities

Adolph Wagner (1835-1917) was a German economist who based his law of increasing state activities on historical facts, primarily of Germany. According to Wagner, there are inherent tendencies for the activities of different levels of a government (such as central and state government) to increase both intensively and extensively. There was a functional relationship between the growth of an economy and the growth of the government activities so that the governmental sector grows faster than the economy. In the original version, it is not clear whether Wagner was referring to an increase in (a) absolute level of public expenditure (b) the ratio of government expenditure to GNP, or (c) proportion of public sector in the total economy. [16] Interpretation is that Wagner was thinking of (c) above. [17] Not only supported Wagner's thesis but also concluded with empirical evidence that it was equally applicable to several other governments which differed widely from each other. All kinds of government, irrespective of their levels, intentions and size had exhibited the same of increasing public expenditure as a result of the understated points.

Foremost as the traditional functions of the state were expanding, defense was becoming more expensive than ever before. Within the country, administrative set up was increasing both in coverage and intensity. The government machinery had to be manned by experts in the field. Administration of justice and so on was becoming more extensive and cumbersome as the society progressed. An additional force pushing up public expenditure here is the fact that various complexities of social and economic nature develop which made an efficient administration also more complex and expensive.

Secondly, the state activities were increasing in their coverage. Traditionally, the state was limited to only defense, justice, and order maintenance of the state and social overheads. But with the growing awareness of its responsibility to the society, the government was expanding its activities in the field of various welfare measures. These include the measures to enrich the cultural life of the society and the people. State activities were also increasing on account of its effort in redistributing income and wealth.

Thirdly, the need to provide and expand the sphere of public goods was being increasingly recognized. The state was trying to shift the composition of national product in favor of public goods and this necessitated the expansion of the investment activities of the government. Wagner's law was based on historical facts. It did not show the inner compulsions under which a government has to increase its activities and public expenditure as time passes. His law was applicable to modern progressive governments only; in which the state was interested in expanding the public sector of the economy and undertakes other activities for the general benefit. This general tendency of expanding state activities has a definite long term trend, though in the short run, financial difficulties could come in the way. "But in the long run, the desire for development of progressive people will always overcome these financial difficulties" [18].

2.1.2 Wiseman-Peacock Hypothesis

The second thesis dealing with the growth of public expenditure was put forth by [19] in their study of public expenditure for the UK for the period 1890 to 1955. The main thesis of the authors is that public expenditure does not increase in a smooth and continuous manner, but in jerks or

step-like fashion. At times, some social or other disturbances take place, creating a need for increased public expenditure which the existing public revenue cannot meet. While earlier, due to insufficient pressure for public expenditure, the revenue constraint was dominating and restraining an expansion in public expenditure, now under changed requirements such a restraint gives away. The public expenditure increases and makes the inadequacy of the present revenue quite clear to everyone. The movement from the older level of expenditure and taxation to a new and higher level is the displacement effect. The inadequacy of the revenue as compared with the required public expenditure creates an inspection effect. The government and the people review the revenue position and the need to find a solution of the important problems that have come up and agree to the required adjustment to finance the increased expenditure. They attain a new level of tax tolerance. They are now ready to tolerate a greater burden of taxation and as a result the general level of expenditure and revenue goes up. In this way, the public expenditure and revenue gets stabilized at a new level till another disturbance occurs to cause a displacement effect. Thus each major disturbance leads to the government assuming a larger proportion of the total national economic activity. In other words there is a concentration effect. The concentration effect also refers to the apparent tendency for central government economic activity to grow faster than that of the state and local governments. British data are consistent with this hypothesis, but its application to other countries needs verification. Moreover, this aspect of concentration effect is also closely connected with the political set up of the country [20].

2.2 Empirical Evidence

2.2.1 Expenditure and Outcomes of Education

Despite the inter-linkages between social spending and social outcomes, most empirical studies have employed reduced-form equations that do not capture feedback effects. The literature often focuses on only one segment of the social spending-social outcomes-growth nexus. That is, it either analyzes the growth effects of improving education or health indicators, or the impact of public spending on these outcomes. Furthermore, research on the first stream has concentrated essentially on education capital, and has often focused on the impact of the initial stock of education capital on outcomes. Among these studies, [21, 22, 23, 24, 25] find a positive relationship between enrollment and/or schooling and education expenditure. Also, using a more refined measure on skills, [26] find that a country with literacy scores 1 percent higher than the average experiences and an increase in per capita GDP growth of 1.5 percentage points. [27 and 28] however, find that some macroeconomic evidence conflicts with the findings at the microeconomic level on the returns to education and conclude that the positive link from education attainment to social spending is, at best, weak.

2.2.2 Expenditure and Outcomes of Education: Nigerian Studies

Nigerian studies examine the relationship between government expenditure and education outcomes, [29]), [30], for South Africa, Algeria, Nigeria and Egypt (SANE), [31], [32]. Their results show that government expenditure on education has a positive and significant direct impact on primary and secondary education enrolment rates. Among the SANE, Nigeria has the greatest positive influence on increasing both primary and secondary education enrolment rates.

3. METHODOLOGY AND DATA

3.1 Methodological Framework

Modeling dynamic regression for public expenditure has become increasingly popular in a wide variety of research areas over the past few decades. These models are specifically adapted for the statistical analysis that have serial processes structure which allows for individual heterogeneity to control for time-invariant characteristics [33, 34] and dynamic feedback to make it easier for researchers to examine state dependence [35, 36]. A great deal of attention has been devoted to the problems created by these features with a particular focus on properties of different modeling strategies for the analysis of panel data.

The classical approach in the panel data literature is the use of fixed effects that simply ignores the component nature of residual heterogeneity [34, 37]. The random effects model has been implemented to overcome the problem and consequently allows control of the unobserved effects by partitioning residual heterogeneity according to the within-and-between individual variations that exist in the data.

Random and Fixed Effects

The basic unobserved effects model (UEM) can be written, for a randomly drawn cross section observation *i*, as:

$$Y_{it} = X_{it}\beta + \alpha_i + \mu_{it} \quad t = 1,2,\ldots,T$$

where X_{it} *is 1 x K* and can contain observable variables that change across t but not *i*, variables that change across *i* but not t, and variables that change across i and t. In addition to unobserved effect, there are many other names given to α_i in applications: unobserved component, latent variable, and unobserved heterogeneity are common. If i indexes individuals, then α_i is sometimes called an individual effect or individual heterogeneity; analogous terms apply to families, firms, cities, states and other cross-sectional units. The μ_{it} are called the idiosyncratic errors or idiosyncratic disturbances because these change across t as well as across *i*. Especially in methodological works, but also in applications, one often sees a discussion about whether α_i

will be treated as a random effect or a fixed effect. Originally, such discussions centered on whether α_i is properly viewed as a random variable or as a parameter to be estimated. In the traditional approach to panel data models, α_i is called a ''random effect'' when it is treated as a random variable and a ''fixed effect'' when it is treated as a parameter to be estimated for each cross section observation *i*. With a large number of random draws from the cross section, it almost always makes sense to treat the unobserved effects, α_i, as random draws from the population, along with y_{it} and x_{it}. This approach is certainly appropriate from an omitted variables or neglected heterogeneity perspective. The key issue involving α_i is whether or not it is uncorrelated with the observed explanatory variables x_{it}, $t = 1,2,....,T$.

In modern econometric parlance, ''random effect'' is synonymous with zero correlation between the observed explanatory variables and the unobserved effect: $Cov(x_{it}, \alpha_i) = 0, \ t = 1, 2,.....,T$. In applied papers, when α_i is referred to as, say, an ''individual random effect,'' then α_i is probably being assumed to be uncorrelated with the x_{it}.

In micro econometric applications, the term ''fixed effect'' does not usually mean that α_i is being treated as nonrandom; rather, it means that one is allowing for arbitrary correlation between the unobserved effect α_i and the observed explanatory variables x_{it}. So, if α_i is called an ''individual fixed effect'' or a ''firm fixed effect,'' then, for practical purposes, this terminology means that α_i is allowed to be correlated with x_{it}. This work referred to α_i as unobserved heterogeneity. Nevertheless, the study labelled two different estimation methods random effects estimation and fixed effects estimation.

From the foregoing, the study adopted econometric approach using panel models as the baseline specification and provide results from fixed effects estimation technique though random effects estimation technique was compared to control for measurement error.

3.2 Specification of the Model

The work of [38] is an improvement over [39] work. This study adopted and improved on [38] model. This work introduced new variables (crude birth rate, crude death rate and adult enrolment rate) in the building of the model. It also dropped urban population for the model to suit our objectives and to avoid spurious correlations.

However, variables included in the model are: TPE = total primary enrolment, TSE = total secondary enrolment, TTE = total tertiary enrolment; ALE = adult literacy enrolment, SSE = states spending on education; SSH = states spending on health, SPE = states per capita expenditure, β, Π, Ω, ψ, γ, α= parametric coefficients, t = indexes time component, i = indexes 36 states of the federal republic of Nigeria.

3.2.2 The Fixed Effects Model

The notion of fixed effects is due to the fact that, although the intercept of the model may differ across individuals (here the 36 states of the federation), each individual's intercept does not vary over time; that is, it is time invariant.

The model is specified as;

$$TPE_{it} = \alpha + \beta SSE_{it} + \Pi SPE_{it} + \Omega SSH_{it} + \psi_i + \gamma_{it} - \mu_i \ldots (3.1)$$
$$TSE_{it} = \alpha + \beta SSE_{it} + \Pi SPE_{it} + \Omega SSH_{it} + \psi_i + \gamma_{it} - \mu_i \ldots . (3.2)$$
$$TTE_{it} = \alpha + \beta SSE_{it} + \Pi SPE_{it} + \Omega SSH_{it} + \psi_i + \gamma_{it} - \mu_i \ldots . (3.3)$$
$$ALE_{it} = \alpha + \beta SSE_{it} + \Pi SPE_{it} + \Omega SSH_{it} + \psi_i + \gamma_{it} - \mu_i \ldots . (3.4)$$

SPE and SSH are sets of control variables for the education equation commonly used in literature to avoid omitted variable bias.

The term $\mu_i \geq 0$ measures state-specific expenditure inefficiency. It is constrained to be always non-negative. The above model can be re-written as:

$$TPE_{it} = \alpha_i + \beta SSE_{it} + \Pi SPE_{it} + \Omega SSH_{it} + \psi_i + \gamma_{it} \ldots \ldots . (3.5)$$
$$TSE_{it} = \alpha_i + \beta SSE_{it} + \Pi SPE_{it} + \Omega SSH_{it} + \psi_i + \gamma_{it} \ldots \ldots . (3.6)$$
$$TTE_{it} = \alpha_i + \beta SSE_{it} + \Pi SPE_{it} + \Omega SSH_{it} + \psi_i + \gamma_{it} \ldots \ldots . (3.7)$$
$$ALE_{it} = \alpha_i + \beta SSE_{it} + \Pi SPE_{it} + \Omega SSH_{it} + \psi_i + \gamma_{it} \ldots \ldots . (3.8)$$

where the new intercept $\alpha_i = (\alpha - \mu_i)$ is now state-specific and ψ_i is the unobserved states heterogeneity that may affect outcomes.

3.2.3 The Random Effects Model

The random effects model simply suggests that the unobserved states heterogeneity ψ_i be expressed in the idiosyncratic disturbances.

$$TPE_{it} = \alpha_i + \beta SSE_{it} + \Pi SPE_{it} + \Omega SSH_{it} + \mu 2_{it} \ldots \ldots \ldots . (3.9)$$
$$TSE_{it} = \alpha_i + \beta SSE_{it} + \Pi SPE_{it} + \Omega SSH_{it} + \mu 2_{it} \ldots \ldots \ldots . (3.10)$$

$$TTE_{it} = \alpha_i + \beta SSE_{it} + \Pi SPE_{it} + \Omega SSH_{it} + \mu 2_{it} \ldots \ldots \ldots . (3.11)$$
$$ALE_{it} = \alpha_i + \beta SSE_{it} + \Pi SPE_{it} + \Omega SSH_{it} + \mu 2_{it} \ldots \ldots \ldots . (3.12)$$

A random effects model puts ψ_i into the idiosyncratic disturbances because it changes across 't' as well as across 'i'.

The **fixed effects** model can be transformed into a vector as;

$$Z_{it} = \alpha_i + \beta SSE_{it} + \Pi SPE_{it} + \Omega SSH_{it} + \psi_i + \mu_{it} \ldots \ldots . (3.13)$$

where Z_{it} is a vector of education outcome such that $Z_{it} = (TPE_{it}, TSE_{it}, TTE_{it}, ALE_{it})$.

The **random effects** model can equally be transformed into a vector as;

$$Y_{it} = \alpha_i + \beta SSE_{it} + \Pi SPE_{it} + \Omega SSH_{it} + \mu 2_{it} \ldots \ldots \ldots . (3.14)$$

where Y_{it} is a vector of education outcome such that $Y_{it} = (TPE_{it}, TSE_{it}, TTE_{it}, ALE_{it})$.

where, $\mu_{it} \sim N(0,\sigma^2_u)$ = cross-section error component
$\nu_t \sim N(0,\sigma^2_v)$ = time-series error component
$\mu_{it} \sim N(0,\sigma^2_w)$ = combined error component

the study assumes that individual error components are uncorrelated with each other and are not autocorrelated (across both cross-section and time-series units).

Adopting a conventional random effects approach, the usual assumptions are that the individual random effects $\alpha_i \sim$ i.i.d.$(0, \sigma^2\alpha)$; the unobserved time-varying errors $\varepsilon_{it} \sim$ i.i.d.$(0, \sigma^2\varepsilon)$; the α_i and the ε_{it} are independent for all i and t , and the stochastic variables $\mathbf{X}_{it}$ are strictly exogenous with respect to α_i and ε_{it}: cov$(\alpha_i, \mathbf{X}_{it}) = \mathbf{0}$, cov$(\varepsilon_{it}, \mathbf{X}_{jt}) = \mathbf{0}$ for all i, j and t .

where, $\mathbf{X}_{it} = \beta_i, , \Pi_i, \Omega_i, \psi_i, \gamma_i$.

The STATA econometric software package was adopted for this analysis.

A major hurdle to analytical work on social policy in Nigeria is the scarcity of meaningful and consistent data on social outcomes. With this caveat in mind, a pragmatic effort was made to build a secondary data set for this study. The secondary data consist of panel data spanning 2009 through 2013 across the 36 states in Nigeria. The variables of interest on education are: states spending on education, states spending on health and states per capita expenditure, total primary enrolment, total secondary enrolment, total tertiary enrolment and adult literacy enrolment while variables of interest on health care are: states spending on health, states spending on education and states per capita expenditure, crude birth rate, crude death rate, percentage of assisted delivery by health professional and percentage of children less than one year not immunized. These data were sourced from annual abstract of statistics from National Bureau of Statistics (NBS), social statistics from (NBS) 2013 publications and states budget account.

4. RESULTS AND DISUSSION

The results of the panel data regression are presented below.

Table 4.1: Impact of States Expenditure on Total Primary Enrolment in Nigeria

	FE	RE	PA	OLS
log_sse	0.0727**	0.0703**	0.0703**	0.0444
	(0.002)	(0.002)	(0.002)	(0.251)
log_ssh	-0.00892	-0.00630	-0.00626	0.0199
	(0.786)	(0.844)	(0.842)	(0.657)
log_spe	-0.0362	-0.0517	-0.0519	-0.122*
	(0.455)	(0.251)	(0.240)	(0.026)
Constant	12.77***	12.90***	12.90***	13.49***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	177	177	177	177
R^2	0.111			0.051
F	5.733			2.845

p-values in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The result of this study supports the hypothesis of a positive relationship between states expenditure on education and total primary enrolment. The coefficients are statistically significant for panel estimators but insignificant for OLS estimator. This implies that a 1% increase in states expenditure on education would increase total primary enrolment by 7.27% with fixed effects estimation and 7.03% both for random effects and population average estimations. This conforms to the studies by, [21, 22, 23, 24]. From the panel result, the positive relationship between states spending on education and total primary enrolment is expected because national policy on education (1977) revised in 1980 and 1990 focused on increased access and quality of primary education. Other education policies aimed at improving total primary enrolment are: the re-lunch of universal basic education scheme in 1999 and the implementation of "education for all by the year 2000," adopted at the "World Declaration on Education for All" at the Jomtien (Thailand) World Conference in 1990. However, OLS is biased downward as 1% increase in states expenditure on education increases total primary enrolment by 4.44% though it is not significant.

The coefficient of states per capita expenditure did not conform to "a priori" expectation both for panel estimators and OLS estimator. The research findings, though not significant also, imply that an increase in states per capita expenditure by 1% would reduce total primary enrolment by 3.62% with fixed effects estimation, 5.17% with random effects estimation and 5.19% with population average estimator. From the panel result, the negative relationship between states per capita expenditure and total primary enrolment could be an indication for poor management of public resources. In recent time most state governors have been indicted against embezzlement of public fund that could have been used to better the lot of primary education. However, OLS is significantly biased downward as 1% increase in states per capita expenditure reduces total primary enrolment by about 12.2%. This could be as a result of inefficient expenditure pattern across states.

Table 4.2: Impact of States Expenditure on Total Secondary Enrolment in Nigeria

	RE	FE	PA	OLS
log_sse	0.0991**	0.0931**	0.0979**	0.168**
	(0.002)	(0.004)	(0.002)	(0.002)
log_ssh	0.114*	0.132**	0.118**	-0.0540
	(0.013)	(0.004)	(0.008)	(0.459)

log_spe	0.148*	0.209**	0.158*	-0.121
	(0.020)	(0.002)	(0.011)	(0.102)
Constant	7.984***	7.325***	7.867***	11.52***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	176	176	176	176
R^2		0.346		0.090
F		24.20		5.669

p-values in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The result of this study supports the hypothesis of a positive relationship between states expenditure on education and total secondary enrolment. The variable coefficients are statistically significant both for panel and OLS estimators. This implies that 1% increase in states expenditure on education would increase total secondary enrolment by 9.91% with random effects estimation, 9.31% with fixed effects estimation and 9.79% with population average estimation. The positive relationship between states spending on education and total secondary enrolment as suggested by the panel result is expected because in recent years most states have been running free tuition on their secondary schools. Also, the increased demand for places in the secondary schools could be the outcome of the introduction of the universal primary education scheme. This result conforms to the findings of [26]. However, OLS is biased upward as 1% increase in states expenditure on education increases total secondary enrolment by 16.8%.

The coefficient of states per capita expenditure conforms to "a priori" expectation for panel estimators but did not conform to "a priori" expectation for OLS estimator. The coefficients of the result are statistically significant for panel estimators but insignificant for OLS estimator. The research findings imply that an increase in states per capita expenditure by 1% would increase total secondary enrolment by 14.8% with random effects estimation, 20.9% with fixed effects estimation and 15.8% with population average estimation. The panel result which suggests positive relationship may not be unconnected with increased states expenditure in the last decade. However, OLS is significantly biased downward as 1% increase in states per capita expenditure reduces total secondary enrolment by about 12.1%. This could also be as a result of inefficient expenditure pattern across states.

Table 4.3: Impact of States Expenditure on Total Tertiary Enrolment in Nigeria

	RE	FE	PA	OLS
log_sse	-0.0883	-0.0991*	-0.0855	0.161
	(0.058)	(0.034)	(0.097)	(0.130)
log_ssh	0.330***	0.354***	0.323***	-0.111
	(0.000)	(0.000)	(0.000)	(0.428)
log_spe	0.289**	0.267**	0.294**	0.485***
	(0.002)	(0.007)	(0.005)	(0.001)
Constant	1.731	1.789	1.730	2.474
	(0.074)	(0.065)	(0.102)	(0.124)
Observations	177	177	177	177
R^2		0.244		0.083
F		14.85		5.202

p-values in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The result of this study on this variable did not support the hypothesis of a positive relationship between states expenditure on education and total tertiary enrolment both for panel and OLS estimators. The coefficients are not statistically significant for random effects and population average estimators but significant for fixed effects estimator which ignores the component nature of residual heterogeneity. The variable coefficient is also insignificant for OLS estimator. The result shows that 1% increase in states expenditure on education would reduce total tertiary enrolment by 8.83% with random effects estimation, 9.91% for fixed effects and 8.55% with population average estimators. This conforms to the studies by [27, 28]. The negative relationship suggested by the panel result could be that state governments are not primarily saddled with funding of tertiary institutions. It could also be as result of the sector's inefficient utilization of available resources. However, OLS is biased downward as 1% increase in states expenditure on education reduces total tertiary enrolment by 16.1%.

The coefficients of states per capita expenditure conform to "a priori" expectation both for panel estimators and OLS estimator. The variable coefficients are statistically significant both for panel and OLS estimators. The research findings imply that an increase in states per capita expenditure by 1% would increase total tertiary enrolment by 28.9% with random effects estimation, 26.7% with fixed effects estimation and 29.4% with population average estimation. From the panel result the positive relationship between states per capita spending and total tertiary enrolment could be because of increased states spending in the last few years. However, OLS is significantly biased upward as 1% increase in states per capita expenditure increases total tertiary enrolment by 48.5%.

Table 4.4: Impact of States Expenditure on Adult Literacy Enrolment in Nigeria

	RE	FE	PA	OLS
log_sse	-0.255*	-0.267*	-0.258*	-0.214
	(0.019)	(0.014)	(0.014)	(0.112)
log_ssh	-0.114	-0.202	-0.133	0.0465
	(0.454)	(0.188)	(0.367)	(0.794)
log_spe	0.890***	1.413***	0.997***	0.115
	(0.000)	(0.000)	(0.000)	(0.520)
Constant	8.210***	4.914*	7.556***	12.40***
	(0.000)	(0.026)	(0.000)	(0.000)
Observations	170	170	170	170
R^2		0.303		0.029

F	18.99	1.635

p-values in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The result of this study on states spending on education did not support the hypothesis of a positive relationship between states expenditure on education and adult literacy enrolment both for panel and OLS estimators. The coefficients of the variable are statistically significant for panel estimators but statistically insignificant for OLS estimator. The result shows that 1% increase in states expenditure on education would reduce adult literacy enrolment by 25.5% with random effects estimation, 26.7% for fixed effects and 25.8% with population average estimators. From the panel result, the negative relationship between states spending on education and adult literacy enrolment could be because states spending on education are not targeted at enhancing adult literacy. Another reason could be that private investment on adult literacy dominates public spending. This also conforms to the studies by, [27, 28]. However, OLS is biased upward as 1% increase in states expenditure on education reduces adult literacy enrolment by 21.4%.

The coefficients of states per capita expenditure conform to "a priori" expectation both for panel and OLS estimators. The variable coefficients are statistically significant for panel estimators but statistically insignificant for OLS estimator. The research findings imply that an increase in states per capita expenditure by 1% would increase adult literacy enrolment by 89% with random effects estimation, 101.4% with fixed effects estimation and about 100% with population average estimation. From the panel result, increased states spending in the past few years could possibly be a factor to stimulate adult literacy enrolment. This finding is in tandem with the findings of [14]. However, OLS is significantly biased downward as 1% increase in states per capita expenditure increases adult literacy enrolment by 11.5%.

Table 4.5: Panel Summary Statistics

Var		Mean	Std. Dev.	Min	Max	Obs
tpe	overall	616910.2	308926.2	188295	1766285	N = 180
	between		283519	325747.2	1493820	n = 36
	within		129802.3	141683.6	1323515	T = 5
tse	overall	169219.9	112228.7	13251	693571	N = 179
	between		101390.1	48223.2	581152.2	n = 36
	within		50505.31	-38587.25	580598.3	T = 4.972
tte	overall	2483.739	2684.311	44	15503	N = 180
	between		2437.1	160	11247	n = 36
	within		1182.707	-2365.261	6739.739	T = 5
ale	overall	190472.7	300972.5	196	2303610	N = 173
	between		223114.2	4377	1320304	n = 36
	within		201995.2	-1109976	1173779	T= 4.806
sse	overall	293969.5	221233.4	60	933805	N = 177
	between		100359.8	15484.6	493251	n = 36
	within		197600.7	-94099.46	880891.3	T = 4.917
spe	overall	6991.229	8032.87	1476.805	70106.36	N = 180
	between		6880.527	2810.756	41578.44	n = 36
	within		4271.214	-15311.59	35519.15	T = 5

From table 4.9, the overall effect of total primary enrolment is 616910.2 and there is significant variability in the overall effect to the tune of 308926.2 due to states heterogeneity. The variations between states and within states for total primary enrolment are 283519 and 129802.3 respectively. Total secondary enrolment overall effect is 169219.2 while the overall variation due to states heterogeneity is 112228.7. The variations between states and within states for total secondary enrolment are 101390.1 and 50505.31 respectively. The overall effect of total tertiary enrolment and adult literacy enrolment due to states heterogeneity are 2483.739 and 190472.7. Their overall variations are 2684.311 and 300972.5. The variations between states and within states for total tertiary enrolment are 2437.1 and 1182.707 respectively while the variations between states and within states for adult literacy enrolment are 223114.2 and 201995.2 respectively.

The overall effects of states spending on education

and states per capita expenditure are 293969.5 and 6991.229 respectively and their overall variations due to states heterogeneity are 221233.4 and 8032.87 respectively. The between and within variations for states spending on education are 100359.8 and 197600.7 respectively while the between and within variations for states per capita expenditure are 6880.527 and 4271.214 respectively.

5. CONCLUSION

The failure of any educational system to fulfill the objectives for which it was established is often the precondition that calls for its reform. In order for people to feel at any particular moment in time the need to change its educational system, it is necessary that new ideas and needs have emerged in which the former system is no longer adequate. Such new ideas and needs can be internally induced, arising from within the educational system or they can be induced by external forces including economic, political and cultural factors within the large societies. The study examined the impact of states spending on education and health care on selected educational and health care outcomes in Nigeria. From our findings, the general lesson that emerges from this study is that government expenditure policy and implementation capacity are important, especially for determining educational outcomes. Based on the findings of this study, the following recommendations are suggested:

- In Nigeria, there have been indications that there is a serious under investment in basic educational sector even though, rates of return at these education levels have long been known to be very high and now the non-market returns and the indirect feedback effects on economic development can be seen even larger. Therefore, there is the need for increase in state governments' spending on education at all level of education. Budgetary allocation to education should be increased, as prescribed 26% by the UNESCO.
- The allocations from the Federation Account to state governments could be increased, to allow them to increase expenditures on education and health care. The required additional funds could be made in the form of 'first charge' on the Federation Account, before allocations to the different tiers of government and specific purpose grants could be made by the Federal Government to state governments.
- There is increasing empirical evidence that education matters, not only for the personal development, health status, social inclusion and labor market prospects of individual learners but also for the broader economic performance of countries. As the world has entered the age of the knowledge, economy and state governments should spend more on education and health care as education and health of the populace generally play a critical role in driving economic growth in both the world's most advanced economies and the emerging economies (including Nigeria) that are currently experiencing profound transformations and periods of rapid growth and development.

Lastly, government should increase its funding of anti-graft or anti-corruption agencies like the Economic and Financial Crime Commission (EFCC), and the Independent Corrupt Practices Commission (ICPC) in order to arrest and penalize those who divert and embezzle public funds.

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