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Tertiary Enrolment and Economic Growth in Nigeria

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Abstract
Over the years, tertiary enrolment of school-aged children has been quite distorting in spite of government efforts at stimulating school enrolment in Nigeria. It is equally discovered that while tertiary enrolment is nominally increasing, in real terms, it is abysmally nose-diving. Therefore, this paper examined the impact of tertiary enrolment on economic growth in Nigeria between 1980 and 2010. The study utilized the Ordinary Least Square estimation techniques to analyze the empirical model of the study. The findings of the empirical investigation confirm that tertiary enrolment is veritable tools through which appreciable economic growth can be enhanced in Nigeria. The study equally observed that tertiary enrolment exhibit a strong predictive power in explaining variation in economic growth in Nigeria. The paper therefore recommends that there is need for government to adequately and conscientiously fund the education sector in the light of weak and sluggish trend of tertiary enrolment in Nigeria. Effective collaboration between the government and private sector is also considered indispensible for the development of education sector in Nigeria.
KEYWORDS: Tertiary enrolment, Economic Growth

1.0 Introduction

The relationship between education and development is well established such that education is a key index to development and that the development of nations in the 21st century depends on the quality and quantum of their educated citizens (World Bank, 2008). It has been documented that schooling improves productivity, health and reduce negative features of life such as child labour as well as bringing about empowerment. From a global perspective, economic and social developments are increasingly driven by the advancement and application of knowledge. Education in general and higher education in particular, are fundamental to the construction of a knowledge-based economy and society in all nations (World Bank, 2008). Besides acting as an important vehicle of achieving equitable income distribution, human resource development is also a potent means of addressing the problem of poverty. Thus, education is very vital to the pace of social, political and economic development of any nation. Corroborating this increased global awareness regarding the significance of education, the United Nations (UN) dedicated a goal (Goal 2) in the Millennium Development Goals (MDGs) to achieving Universal Primary Education (UPE) among the member nations by 2015. Specifically, the most obvious direct benefit of education is that educated workers will receive higher income apparently due to increased productivity than those who are less educated. Thus, the direct benefit of education to any individual is higher lifetime earnings (Glick and Sahn, 2000: Lincove, 2009).

Enrollment rates and years of schooling have risen in most countries of the world and this can be attributed to successive generations of parental investment in children's education within the confine of a stable household structure. Overtime, these investments have narrowed the differences in schooling across and within countries, and between and within genders. In 1960, the average schooling of men aged 25 and over in advanced countries were 5.8 times that of men in developing countries. In 2000, this ratio fell to 2.4. During the same period, women's average schooling level as a ratio of men's increased from 0.5 to 0.7 in developing countries. While increasing incomes, shifts in demand for more skilled labour, and government investment of considerable resources on building and equipping schools (through various policy interventions), have all contributed to this global convergence in enrollment rates and completed years of schooling, nevertheless, substantial education gaps persist between the rich and the poor countries, and between males and females in many developing countries (Orazem and King, 2008).

In Nigeria, available evidence has shown that tertiary enrolment growth rates are quite inconsistent and sluggish. The profile of tertiary enrolment in Nigeria reveals that tertiary enrolment has relatively been increasing over the years with the highest growth rate of 219.64 percent in 1997 and the lowest growth rate in 2004. However, 1995 and 2004 recorded major distortions in the tertiary enrolment in Nigeria. This is essentially due to the political crisis and industrial dispute witnessed during these periods. It should be noted that in spite of various policy interventions initiated by the government over the years to stimulate schooling at all levels of education, enrolment rates of school-aged children still remain abysmally poor. Apart from this, documentary evidence of the impact of education, generally, on economic growth is legion but the impact of tertiary enrolment specifically is still very nascent. Therefore, the main objective of this paper is to examine the impact of tertiary enrolment on economic growth in Nigeria. The rest of this paper is organized as follows: Section 2

presents the review of related literature on the impact of education on growth. Section 3 provides a performance analysis of tertiary education in Nigeria between 1980 and 2010. Section 4 houses the theoretical framework and the methodology adopted for the study as well as the discussion of the empirical result while section 5 concludes the study.

2.0 Review of related Literature

The fact that education is very vital to the pace of social, political and economic development of any nation is well acknowledged in the literature. According to Aliu (2001), nation's growth and development is determined by its human resources. And the provision of the much-needed manpower to accelerate the growth and development of the economy has been said to be the main relevance of education in Nigeria (Schultz, 2002). This belief in the efficacy of education as a powerful instrument of development has led many nations to commit a colossal amount of their wealth to the establishment of educational institutions at various levels – Primary, Secondary and Tertiary levels. According to Ajayi and Ekundayo (2007), the funds allocated to education should not be considered as mere expenses but as a long-term investment, which brings about immense benefit to the society as a whole.

The vast majority of the literature on determinants of schooling established a positive correlation between family income and schooling attainment (Cameron and Heckman (2001). The most popular interpretation of this finding is educational financing constraints which teenagers face when making their schooling decision. Another possible explanation for positive correlation between parental income and educational attainment stresses long-term effects of family income. Several studies have found positive correlation between family income and other family background measures and achievement in the test performance in elementary and secondary school. This evidence is suggestive of parental income working in the same way as parental education as long as shaping children's cognitive ability and taste for education are concerned. Carneiro and Heckman (2002) point out that the importance of family income and other family factors has been confirmed in many different environments including those with free tuition and no restrictions on entry.

However, of all the household determinants, many studies have emphasized household income (Behrman and Knowles, 1999; Glick and Sahn, 2000; Orazen and King, 2008). There are controversies on the limitation of household income in estimation and such limitations include measurement errors associated with using current annual income. It has equally been noted in the literature that household income is less truly revealed in surveys than expenditure is. In order to correct for this error, certain studies have used household expenditure as a proxy for income (Tansel, 1997, 2002). Beyond this, the relationship between household income and schooling is usually argued to be positive (Glick and Sahn, 2000; Orazen and King 2008; Lincove 2009). This is because poor households may be unable to afford the direct and indirect costs of schooling and may equally be constrained in their ability to borrow to cover the costs. Generally, a household would not send its children to school if it falls into poverty. Indeed, low level of incomes of parents has been argued as one of the main reasons why many children withdraw from schools and engage in child labour activities (Basu and Van, 1998; Ray 2000). While some studies argued that child labour parents children from benefitting fully from school via increasing opportunity cost leading to a reduction in child schooling (Ray 2000; Lincove 2009); Patrinos and Psacharopulos (1997) find that in Peru working actually makes it possible for children to attend school, especially when parents do not have enough funds to keep their children in enrolment.

Furthermore, the direct costs faced by a household in sending a child to school include expenditures for tuition, required books and educational materials, transportation, uniform, examination and admission fees required to gain access to the school. These costs usually vary by type of school. Private schools typically charge more than government schools, but there may be cost variation across private schools and across government schools as well. And as such average school price elasticity tends to vary across different types of school. The magnitude of price elasticity is larger for private schools than for government schools. Poorer households are more responsive to price than richer households (Alderman, Orazem and Paterno, 2001; Brown and Park, 2002; Glick and Sahn, 2000).

In Nigeria, there have been considerable attempts to empirically validate the effects of educational investment on growth. Few of these attempts include Akangbou (1983), Mbanefoh (1980), Anyanwu (1996), among others. Using 1974/75 data from the former Mid-western Nigeria, Akangbou (1983) calculated the crude private average rates of investment return on education for secondary and post secondary levels. The estimated crude private rates of returns were 13.4 percent for lower secondary school level, 11.9, 11.2 and 17.2 percent for secondary technical, upper secondary and university levels respectively. He also computed the crude social average returns to be 12.3, 11.0, 10.4 and 12.7 percent for lower secondary school, secondary technical, upper secondary school and university levels respectively. The general conclusion of his findings is that no matter the

magnitude of monetary resources expended on education, the private and social returns are always profitable and justifiable. Thus, investment on education positively affects the economy. Okedara (1985) employ a three-year experimental adult literacy programme of the University of Ibadan to generate the private and social benefits associated with formal and informal (adult literacy programme) primary education. He calculated the private rates of return on formal primary education. These values were obtained after accounting for economic growth. By implication, both formal and informal primary education does not only increase productivity through earnings, but also through increased capacity for future earning possibilities; which invariably translate into growth. Mbanefoh (1980) also carried out the cost-benefit analysis of university education in Nigeria. His conclusion was that investment in university education is always profitable when any discount rate between one and ten is used. Thus, the demand for education in many developing countries has undoubtedly been helped by public perception of returns from pursuing such education.

3.0 Performance of Tertiary Education in Nigeria

The profile of tertiary enrolment and government expenditure on education in Nigeria between 1980 and 2010 is presented in table 3.1 below. The trend analysis reveals that tertiary enrolment has relatively been increasing over the years with the highest growth rate of 219.64 percent in 1997 and the lowest growth rate in 2004. However, 1995 and 2004 recorded major distortions in the tertiary enrolment in Nigeria. This is essentially due to the political crisis and industrial dispute witnessed during these periods. With the exception of 1996 and 2004, the growth rates revealed positive trends over the years under consideration even though they followed an inconsistent pattern.

It is however disheartening to observe that since the return of the country to civil rule, the growth rates of tertiary enrolment is less than 15 percent despite the colossal amount of money expended on the sector. This is grossly inadequate for a country aspiring to be among the 20 leading developed economies of the world by the year 2020. This largely depicts lack of genuine commitment on the part of governments to develop the educational sector in Nigeria. In addition, stringent admission process and financial incapability on the part of the parents to meet up with rising costs of education are some of the reasons why tertiary enrolment has been nose-diving over the years.

Table 3.1 Profile of the Student Enrolment in Tretairy School and Economic Growth in Nigeria between 1980-2010

Years	Tertiary Enrolment	Growth Rate of TE	RGDP
1980	57742	NA	49632.30
1981	77791	34.72169	50456.10
1982	90751	16.66002	51653.40
1983	104774	15.45217	56312.90
1984	116822	11.49904	62474.20
1985	126285	9.100358	70633.20
1986	125783	7.521083	71859.00
1987	151967	11.91902	108183.00
1988	160767	5.790731	142618.00
1989	174133	8.313895	220200.00
1990	179494	3.078681	271908.00
1991	200774	11.85555	316670.00
1992	232282	15.69327	536305.10
1993	255730	10.09463	688136.00
1994	281303	10	904004.70
1995	309433	9.999893	1934831.00
1996	269687	-12.84478	2703809.00
Years	**Tertiary Enrolment**	**Growth Rate of TE**	**RGDP**
1997	862023	219.6383	2801973.00
1998	941329	9.199987	2721178.00
1999	983689	4.500021	3313563.00

2000	1032873	4.999954	4727523.00
2001	1136160	9.999971	5374335.00
2002	124776	10	6232244.00
2003	1272772	2.000038	6061700.00
2004	417281	-67.26622	11411067.00
2005	1540021	2.69	14610881.00
2006	1562010	1.42	14820552.01
2007	1567550	0.3	149312.25.20
2008	1602441	2.2	15031435.00
2009	1680112	4.8	16924841.00
2010	1701123	1.2	214220040

Sources: (1) Federal Ministry of Education, Lagos
(2) CBN – Annual Report and Statement of account, 1980 – 2010

4.0 Methodology and Analysis of Data

4.1 Theoretical Constructs

The standard methodology of growth studies begins with the neoclassical (Solow) production function of the form.

$Y_t = A_t\ f(K_t,\ L_t)$…….. (1)

Where Y is aggregate real output, K is the capital stock, L is labour, A is the efficiency factor and t is the time dimension. However, the capital stock K takes account of the energy consumed in the economy. Expressed in growth form, equation (1) becomes

$G_y = G_A + \beta_k + G_k + B_L\ G_L$..... (2)

Within the growth accounting framework and given the fact that capital stock data is generally not available (unless computed using inventory method), equation (2) is usually estimated in the form:

$G_y = G_a + \beta k\ (I/Y) + B_L\ G_L$..... (3)

Where *I/Y* is the investment aggregate output (income) ratio.

The emergence of endogenous growth theory and models (e.g., Romer 1986 and Barro (1991) suggests that other endogenous factors such as government policies as well as political stability, market distortions, human capital development and school enrolment and so on largely influence economic growth. In other words, it is impossible for economic growth to occur without exogenous factors such as changes in technology or population. Accordingly, several studies (see those reviewed by Renelt 1991) have attempted to integrate exogenous forces with endogenous factors in explaining economic growth across countries. In these studies, the augmented Solow neoclassical production function was used.

In particular, the formulation adopted by Mankiw et al (1992) and Grammy and Assane (1996) can be modified and expressed as:

$Y_t = A_{(t)}\ K_{a1}\ L_{a2}\ H_{a3}\ E_{a4}$ $\quad a_1 > 0,\ a_2 > 0\ ,\ a_3 > 0, a_4 > 0$…….. (4)

Where H is human capital, E is the total energy consumed and $a_1 + a_2 + a_3 + a_4 = 1$ (assuming constant returns to scale); other variable are as defined earlier. Taking the natural logarithm of both sides of the equation produces a linear equation in levels of the form.

$LnY = a + a_1\ 1n\ K + a_2 InL + a_3\ In\ H + a_4\ In\ E$ …… (5)

The linear in log levels specification can also be expressed in rates of growth thus.

$y = a + a_1\ k + a_2 l + a_3 h + a_4 e$ …… (6)

Where *y, k, I, h* and e are the percentage growth rates of real output, physical capital, labour, and human capital respectively. In this formulation, 'a' is the growth rate of growth accounting residual.

In summary, endogenous growth model proponents believe that improvement in productivity can be linked to foster the pace of innovation and extra investment in human capital as well as a vibrant energy sector. Thus, the theory predicts positive externalities and spill-over effects from development of a high value-added energy economy which is able to develop and maintain a competitive advantage in growth industries in the global economy. In addition, the theory emphasizes that private investment in Research and development (R and D) is the central source of technical progress.

4.2 Model Specification

The model for this study is mainly from the theoretical framework. Since this study seeks to examine the impact of tertiary enrolment on economic growth in Nigeria, the econometric model will be formulated

through the use of regression analysis to obtain the relationship between the dependent and explanatory variables.

$$RGDP = \beta_O + \beta_1 SCHENR + \mu \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(11)$$

Where:
SCHENR = Tertiary Enrolment
RGDP = Economic Growth
μ= Error Term.

4.3 Discussion of Empirical Results

The empirical model was estimated using the conventional Ordinary Least Square (OLS) estimation technique to investigate the effects of tertiary enrolment on economic growth in Nigeria. The choice of OLS lies in the fact that it produces reliable estimates for regression coefficients. Having carried out this analysis with the use of E-Views statistical package, the empirical results is presented below:

Table 4.1: The Impact of Primary School Enrolment on Economic Growth in Nigeria
Dependent Variable: RGDP

Variables	Coefficient	Std. Error	t-Statistics	Prob.
C	-874276.1	817141.0	-1.069921	0.2938
SCHENR	8.926419	0.989647	9.019799	0.0000

R-squared	0.743957
Adjusted R-squared	0.734813
F-statistic	81.35678
Prob (F-Statistics)	0.000000
Durbin-Watson Stat	1.758707

The empirical results in table 4.1 indicates that the coefficients of the explanatory variables are correctly signed thereby conforming to the 'a-priori' expectations. This implies that tertiary enrolment is positively related to economic growth in Nigeria. Besides, the value of the co-efficient of determination (r^2) of 0.743957 shows that about 74 percent of the variation in the dependent variable (RGDP) is explained by changes in SCHENR between years 1980 to 2010. The F-statistics of 81.35678 shows that forecasting strength of the model is very high which implies that the model is adequate and sufficient in explaining the relationship between dependent and explanatory variables. The F-statistics also indicates that the model has a good fit indicative of the probability value of the 0.00000 even at one per cent level of significance. The Durbin-Watson statistics of 1.758707 suggest that the problem of serial correlation is less severe. This result is however consistent with the works of Cameron and Heckman (2001) as well as Lincove (2009).

5.1 Conclusion and Recommendation

It is evident from the above analysis that tertiary enrolment is a veritable tool for enhanced economic growth in Nigeria. The result, in addition, established that without human capital development sustainable economic growth may not be achieved as this is reflected in the coefficient value of tertiary enrolment (8.926419). Again, the study has also confirmed the UNESCO's position of improved government investment in education as this can exert significant impact on primary school enrolment and by extension generate economic growth for the country. Therefore, it is very imperative on the part of government to commit more resources into the educational sector so that the UNESCO's recommendation of 26 percent of annual budget can be achieved. In conclusion, unless conscious and aggressive funding is bestowed on the education sector in the country, the declining trend of school enrolment will continue unabated couple with its consequential effect on economic growth.

In the light of the findings of this study, a blend of these policy options could contribute immensely to the revival of educational sector in Nigeria:

- There is need for government to adequately and conscientiously fund the education sector in the light of weak and sluggish contribution of the sector to development in the country.
- There should be effective and functional regulatory framework saddled with the responsibility of monitoring the public funds committed into the educational sector in order to guide against wastages.

- The provision of adequate infrastructural facilities in the educational institutions should be of priority to the government in order to enhance the quality of teaching in the education sector.
- The funding of education should not be left in the hands of the government alone and as such there should be effective collaboration between the government and private sector within the framework of public-private partnership.
- There should be periodic review of minimum wages for employees across the various sectors of the economy.

REFERENCES

Alderman, H., Orazem, P.F., Paterno, E.M. (2001). School quality, school cost and the public/private school choices of low-income households in Pakistan. *Journal of Human Resources* 36 pp. 304-326.

Aliu, S. (2001). *The Competitive Drive, New Technologies and Employment: The Human Capital Link* A Paper Presented at the Second Tripartite Conference of Manpower Planners. Chelsea Hotel, Abuja.

Akangbou, Stephen D. (1983): Cost Benefit Analysis of Education Investment in Nigeria. *Journal of Nigeria Education Research Association Vol. 3, No. 2.* Pp 29-38.

Anyanwu, J.C. (1996): Empirical Evidence on the relationship between Human Capital and the Income of Nigerian Women. *Journal of Economic Management Vol. 3, No. 1*

Basu, K and P.H Van (1998). The Economics of child Labour. *American Economic Review,* 88 (3) pp: 412 – 27..

Behrman, J.R and J.C. Knowles (1999). Household Income and child Schooling in Vietnam. *The World Bank Economic Review,* Vol.13(2) pp.211-256.

Brown. P. H and A. Park (2002). Education and poverty in rural China. *Economics of Education Review* 21 (6). Pp. 523-41.

Cameron, S.V. & J.J. Heckman (2001). The Dynamics of Educational Attainment for Black, Hispanic, and White Males, *Journal of Political Economy* 109, 455-499.

Carneiro, P., & J. Heckman (2002). The Evidence on Credit Constraints in Post-secondary Schooling, *Economic Journal* 112 (482), 705-34.

Ekundayo, Haastrup T. and I.A. Ajayi (2007): Towards effective Management of University Education in Nigeria. *International NGO Journal Vol. 4, No. 8*. Pp. 342-347.

Gertler P. and P. Glewwe (1992). The Willingness to pay for Education for Daughters in contrast to Sons: Evidence from Rural Peru. *The World Bank Economic Review.* 6 (1) PP: 171 –188.

Glick, P and D.E Sahn (2000). Schooling of girls and boys in a West African Country: The Effects of parental Education. Income and Household Structure. *Economics of Education Review* 19: 63 – 87.

Lincove, J.A (2009). Determinants of Schooling for Boys and Girls in Nigeria under a Policy of Free Primary Education. Economics of Education Review. 28 pp: 474-484.

Mbanefoh, G.F. (1980): Sharing the Costs and Benefits of University Education in Nigeria. A suggested approach. *The Nigerian Journal of Economics and Social Studies Vol. 22, No. 1*. Pp. 67-84.

Okedara, J.T. (1985): Cost-Benefits Analysis of Education Investment in Nigeria. *The Nigerian Journal of Economics and Social Studies Vol. 38, No. 3*. Pp. 219-234.

Orazen, P.F and E.M. King (2008). Schooling in Developing Countries: the Roles of Supply, Demand and Government Policy. *Handbook of Development Economics* Vol.4 3476-3559.

Patrinos, H. A and G. Psacharopoulos. (1997). Educational Performance and Child Labour in Paraguay *International Journal of Educational Development* 15(1); 47-60.

Ray, R. (2000). Child labour, Child Schooling and their Interaction with Adult Labour: Empirical evidence for Peru and Pakiskan.*World Bank Economic Review,* 14(2):347-67.

Schultz, T. P. (2002). "Why Governments Should Invest More to Educate Girls" *World Development,* 30(2) pp. 207-255.

Tansel, A. (1997). School Attainment, Parental education and Gender in Cote D'Ivoire and Ghana. *Economic Development and Cultural Change* 45(4): 825-56.

Tansel, A. (2002). "Determinants of School attainment of Boys and Girls in Turkey: Individuals, Households and Community Factors" *Economics of Education Review*, 21: 455-70.

World Bank (2008). *Financing Education in Developing Countries: An Exploration of Policy Options*, Washington D.C.

APPENDIX

Dependent Variable: RGDP
Method: Least Squares
Date: 03/06/14 Time: 14:42
Sample: 1980 2010
Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-874276.1	817141.0	-1.069921	0.2938
SCHENR	8.926419	0.989647	9.019799	0.0000

R-squared	0.743957	Mean dependent var	4413773.
Adjusted R-squared	0.734813	S.D. dependent var	6054254.
S.E. of regression	3117718.	Akaike info criterion	32.80744
Sum squared resid	2.72E+14	Schwarz criterion	32.90085
Log likelihood	-490.1116	Hannan-Quinn criter.	32.83732
F-statistic	81.35678	Durbin-Watson stat	1.758707
Prob(F-statistic)	0.000000		