

Primary Enrolment and Economic Growth in Nigeria

OKUNEYE, Babatunde A. and Olukayode Maku
Department of Economics, Olabisi Onabanjo University,
Ago - Iwoye, Ogun State, Nigeria.
okuneyebabatunde@gmail.com

ABSTRACT

Over the years, enrolment rates of school-aged children have significantly been declining in spite of government efforts at stimulating school enrolment in Nigeria. It is equally discovered that while primary enrolment is nominally increasing, in real terms, it is abysmally nose-diving. Therefore, this paper examined the impact of primary school 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 primary enrolment is veritable tools through which appreciable economic growth can be enhanced in Nigeria. The study equally observed that primary 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 primary enrolment in Nigeria. Effective collaboration between the government and private sector is also considered indispensable for the development of education sector in Nigeria.

Keywords: Government expenditure on education, Minimum wage rate, Students-Teacher ratio and Primary enrolment

1.0 Introduction

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), and relatively stable household structure, 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 enrolment growth rates are quite insignificant and inconsistent. Specifically, the profile of primary education in Nigeria between 1980 and 2010 presents a gloomy picture as the growth in primary school enrolment has followed an inconsistent and haphazard pattern. The growth rate of primary school enrolment was 5.04 percent in 1983, when the enrolment figure was 15,308,384 pupils, reduced to -10.64 percent in 1987 when enrolment was 11,540,178 pupils and later increased to 7.47 percent in 1992. Highest growth rate was registered in 1996 with 14.31 percent followed by 1997 and 2002 when it was both 10.00 percent and subsequently fell to -16.98 percent in 2004. It slightly increased to almost 13 percent in 2009 before later declining to 8.334 percent in 2010. It is however disheartening to observe that between 1980 and 2010, the growth rates of primary school enrolment is less than 15 percent. 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. Hence, there is urgent need to investigate the various factors that are militating against primary school enrolment in Nigeria considering the crucial role it plays in the educational development of a child. Apart from this, there is ample documentary evidence on the impact of education, generally, on economic growth but the impact of primary enrolment is still very nascent. Therefore, the main objective of this paper is to examine the impact of primary enrolment on economic growth in Nigeria. The rest of this paper is organized as follows: Section 2 presents the review of related literature on primary education. Section 3 provides a performance analysis of primary enrolment 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 Psacharopoulos (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 Primary Education in Nigeria

Analysis of primary education in Nigeria has been made in terms of school enrolment, number of schools and growth rates. The enrolment values are indicators of the public behaviour to education and the number of schools provides information on government commitment to enhancing education quality and performance.

The profile of primary education in Nigeria between 1980 and 2010 is presented in table 3.1. It can be seen in the table that growth in primary school enrolment has followed an unsteady pattern. It was 5.04 percent in 1983, when the enrolment figure was 15,308,384 pupils, reduced to -10.64 percent in 1987 when enrolment was 11,540,178 pupils and later increased to 7.47 percent in 1992. Highest growth rate was registered in 1996 with 14.31 percent followed by 1997 and 2002 when it was both 10.00 percent and subsequently fell to -16.98 percent in 2004. There was a slight improvement in the enrolment rates when it increased to almost 13 percent in 2009 before later declining to 8.334 percent in 2010. It is however disheartening to observe that between 1980 and 2010, the growth rates of primary school enrolment is less than 15 percent. 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, the number of primary school established by the government increased from 36,688 schools in 1980 to 60,189 schools in 2005 beyond which it declined to 56,238 schools in 2010. This clearly shows that the growth in the number of primary schools and the growth in the primary school enrolment are homogenous.

Table 2.1 Profile of the Student Enrolment in Primary School and Economic

Growth in Nigeria between 1980-2010

Years	No of Primary School	Primary Enrolment	Growth rate of Enrolment	RGDP
1980	36,688	19,589,875	-	49632.30
1981	37,611	14,285,437	-27.0775	50456.10
1982	37,888	14,574,523	2.0236	51653.40
1983	38,211	15,308,384	5.0352	56312.90
1984	35,017	14,383,487	-6.0418	62474.20
1985	35,433	13,025,287	-9.4428	70633.20
1986	35,433	12,914,870	-0.8477	71859.00
1987	36,023	11,540,178	-10.6443	108183.00
1988	33,796	12,690,798	9.9706	142618.00
1989	34,904	12,721,087	0.2387	220200.00
Years	No of Primary School	Total Enrolment	Growth rate of Enrolment	RGDP
1990	35,433	13,607,249	6.9661	271908.00
1991	35,446	13,776,854	1.2464	316670.00
1992	36,610	14,805,937	7.4677	536305.10
1993	38,254	15,870,280	7.1887	688136.00
1994	38,649	16,190,947	2.0206	904004.70
1995	41,531	15,741,678	-2.7748	1934831.00
1996	41,660	17,994,620	14.3120	2703809.00
1997	43,951	19,794,082	10.0000	2801973.00
1998	45,621	21,161,852	6.9099	2721178.00
1999	47,902	22,473,886	6.1999	3313563.00
2000	48,860	23,709,949	5.4999	4727523.00
2001	49,343	24,895,446	4.9999	5374335.00
2002	51,870	27,384,991	10.0000	6232244.00
2003	59,131	25,772,044	-5.8899	6061700.00
2004	60,189	21,395,510	-16.9817	11411067.00
2005	60,189	22,115,432	3.3648	14610881.00
2006	54,434	23,017,124	4.0772	14820552.01
2007	54,434	21,632,070	-6.0175	149312.25.20
2008	54,434	21,294,517	-1.5604	15031435.00
2009	55020	24,059,234	12.983	16924841.00
2010	56238	26,064,512	8.334	20142200.00

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.

$$Y_t = A_t f(K_t, L_t) \dots \dots \dots (1)$$

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

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

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:

$$G_y = G_a + \beta_k (I/Y) + B_L G_L \dots \dots \dots (3)$$

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:

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

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.

$$\ln Y = a + a_1 \ln K + a_2 \ln L + a_3 \ln H + a_4 \ln E \dots \dots \dots (5)$$

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

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

Where y, k, l, h and e are the percentage growth rates of real output, physical capital, labour, human capital and total energy consumed 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 primary 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.

Model I

$$RGDP = \beta_0 + \beta_1 PRYENR + \mu \dots\dots\dots(11)$$

Model II

$$RGDP = \beta_0 + \beta_1 PRYENR + \beta_2 PRYENR(-1) + \beta_3 RGDP(-1) + \mu \dots\dots\dots(12)$$

Where:

RGDP = Real Gross Domestic product

PRYENR = Primary School Enrolment

RGDP(-1) = Real Gross Domestic product lagged by one year

PRYENR(-1) = Primary School Enrolment lagged by one year

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 primary school 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

Model I

Dependent Variable: RGDP

Variables	Coefficient	Std. Error	t-Statistics	Prob.
C	-12266784	3093520.	-3.965316	0.0005
PRYENR	0.906289	0.162720	5.569621	0.0000

R-squared	0.525590
Adjusted R-squared	0.508647
F-statistic	31.02068
Prob(F-statistic)	0.000006
Durbin-Watson stat	0.283710

**Table 4.2: The Impact of Primary School Enrolment on Economic Growth in Nigeria
 (With lag values of the variables included)**

Model II

Dependent Variable: RGDP

Variables	Coefficient	Std. Error	t-Statistics	Prob.
C	-508665.3	974621.6	-0.521911	0.6065
PRYENR	-0.189420	0.117066	-1.618058	0.1187
PRYENR(-1)	0.233101	0.112368	2.074447	0.0489
RGDP(-1)	1.140601	0.058738	19.41845	0.0000

R-squared	0.973670
Adjusted R-squared	0.970378
F-statistic	295.8310
Prob(F-statistic)	0.000000
Durbin-Watson stat	2.178578

Two versions of the model were estimated. In model 1, 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 primary school enrolment is positively related to economic growth in Nigeria. Besides, the value of the co-efficient of determination (r^2) of 0.525590 shows that about 53 percent of the variation in the dependent variable (RGDP) is explained by changes in PRYENR between years 1980 to 2010. The F-statistics of 31.02068 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 (31.02068) also indicates that the model has a good fit indicative of the probability value of the 0.00006 even at one per cent level of significance. However, the value of Durbin-Watson statistics of 0.283710 suggests that there is a serious problem of serial correlation. One of the ways to solve this problem is to regress the regressors and the regressand on their lagged values. This is demonstrated in Table 4.2.

The empirical result of model II clearly shows that the changes in rgdp are largely explained by its lagged value and the lagged value of primary enrolment and both are significant at 1 percent and 5 percent respectively. In addition, the value of the co-efficient of determination (r^2) of 0.973670 shows that about 97 percent of the variation in the dependent variable (RGDP) is explained by changes in PRYENR between years 1980 to 2010. Even, the F-statistics (295.8310) also indicates that the model has a very good fit indicative of the joint significance of the variable used in the model with the p-value of the 0.00000. More importantly, the problem of serial correlation is less severe in model. 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 primary 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 value of constant (-874276.1). 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.

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APPENDIX

Dependent Variable: RGDP

Method: Least Squares

Date: 03/10/14 Time: 23:14

Sample: 1980 2010

Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-12266784	3093520.	-3.965316	0.0005
PRYENR	0.906289	0.162720	5.569621	0.0000

R-squared	0.525590	Mean dependent var	4413773.
Adjusted R-squared	0.508647	S.D. dependent var	6054254.
S.E. of regression	4243826.	Akaike info criterion	33.42417
Sum squared resid	5.04E+14	Schwarz criterion	33.51758
Log likelihood	-499.3625	Hannan-Quinn criter.	33.45405
F-statistic	31.02068	Durbin-Watson stat	0.283710
Prob(F-statistic)	0.000006		

Dependent Variable: RGDP
 Method: Least Squares
 Date: 03/10/14 Time: 23:33
 Sample (adjusted): 1981 2010
 Included observations: 28 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-508665.3	974621.6	-0.521911	0.6065
PRYENR	-0.189420	0.117066	-1.618058	0.1187
PRYENR(-1)	0.233101	0.112368	2.074447	0.0489
RGDP(-1)	1.140601	0.058738	19.41845	0.0000
R-squared	0.973670	Mean dependent var		4190433.
Adjusted R-squared	0.970378	S.D. dependent var		5868272.
S.E. of regression	1009986.	Akaike info criterion		30.62034
Sum squared resid	2.45E+13	Schwarz criterion		30.81065
Log likelihood	-424.6847	Hannan-Quinn criter.		30.67852
F-statistic	295.8310	Durbin-Watson stat		2.178578
Prob(F-statistic)	0.000000			