

IMPACT OF EDUCATIONAL SECTOR ON HUMAN CAPITAL DEVELOPMENT IN NIGERIA

Abstract

The main objective of this study is to ascertain the impact of educational sector on human capital development in Nigeria. Ordinary least squares of multiple regression of six variables were introduced in this study to ascertain the role of education in human capital formation. Such variables are human capital (HCAP), Education Funding (EDUF), School Enrolment (SER), Graduate Turnout (GROT), School Drop Out Rate (SDR) and Health Expenditure (HEE). Findings from the study shows that Education funding and school enrolment increase in graduate turn-out rate has significant positive impact on human capital development while School drop has a negative impact. The study recommends that multi-grade classes, with appropriately designed instructional materials and teacher training, should be encouraged, because multi-grade classes eliminate the need for six teachers and six separate classrooms in rural primary schools, allowing them to provide instruction to multiple grades at the same time.

Key words: Education, Human Capital, Nigeria, Development

1. INTRODUCTION

Human capital, according to the OECD (2016), is defined as the knowledge, skills, abilities, and characteristics embodied in persons that enable the production of personal, societal, and economic well-being. Human capital has three dimensions, according to Folloni and Vittadini (2018): a long and healthy life, knowledge, and an acceptable level of living. The health component is determined by life expectancy at birth, whereas the education dimension is determined by the average number of years of schooling for individuals aged 25 and up, as well as the predicted number of years of schooling for children beginning school. Gross national income per capita is used to determine the standard of life. These characteristics of human capital might be innate or learned or increased through education.

The education sector, or education system, is a collection of institutions (ministries of education, local educational authorities, teacher training institutions, schools, universities, and so on) whose primary goal is to educate children and young people in educational settings (Eneasator, 2016). Education, according to the same author, plays a significant part in the development of skills and

expertise; skills, which can be of various types (political, economic, and social, for example), are primarily taught and developed in educational institutions.

In the view of Eze (2014), education, particularly schooling, serves as the basis for human capital, as it plays a fundamental role in the accumulation of foundational skills, such as literacy and numeracy. It is in this regard that the Sustainable Development Goal (SDG) set the most ambitious global agenda for education ever: all children, young people and adults achieving at least minimum levels of literacy and numeracy by 2030. Therefore, all developing countries were advised to invest in human capital formation of which Nigeria also participated

The Nigerian government not only began training individuals in schools, but also developed education policies for primary, secondary, and university institutions in order to make education viable in Nigeria. Nigeria had the fastest growing educational industry on the African continent, according to Umo (2007). In 1960, Nigeria had two universities (Universities of Ibadan and Nigeria, Nsukka) with approximately 1400 students enrolled. Nigeria had 77 universities fifty years later, a rise of 75 universities and a percentage gain of 3750. In the year 2020, Nigeria will have over a hundred universities. Primary schools numbered 15703 in 1960 and 50941 in 2014, representing a growth of 35238 or 233 percent. The number of secondary schools climbed from 833 in 1960 to 11113 in 2014, an increase of 10230 or 1136 percent. In terms of student intake, the two universities had roughly 1400 students in 1960, but by 2013, the overall intake in all the universities had increased to about 2.5 million students, a 1599500 percent growth. Primary school enrollment increased by 756 percent from 2,912,618 students in 1960 to 25,202,007 students in 2015. Secondary school enrollment increased by 6,255,370 or 4600 percent from 135,364 in 1960 to 8,390,734 in 2015. (Umo, 2007;NBS, 2012, 2016). However, some statistical conclusions on how effective the education commodity was supplied are noticed with these expansions.

According to Eze (2014) Africa is the least when it comes to an index for measuring human capital development in the world, This was proven on the UNDP report (2019) which shows that Nigeria was ranked as one of the low HDI countries, by ranking 158th in the world and 25th in Africa. As shown in Figure 1.1 below, Nigeria scored 0.534 as against the United States, Fiji and Saudi Arabia with scores of 0.924, 0.741 and 0.853 respectively.

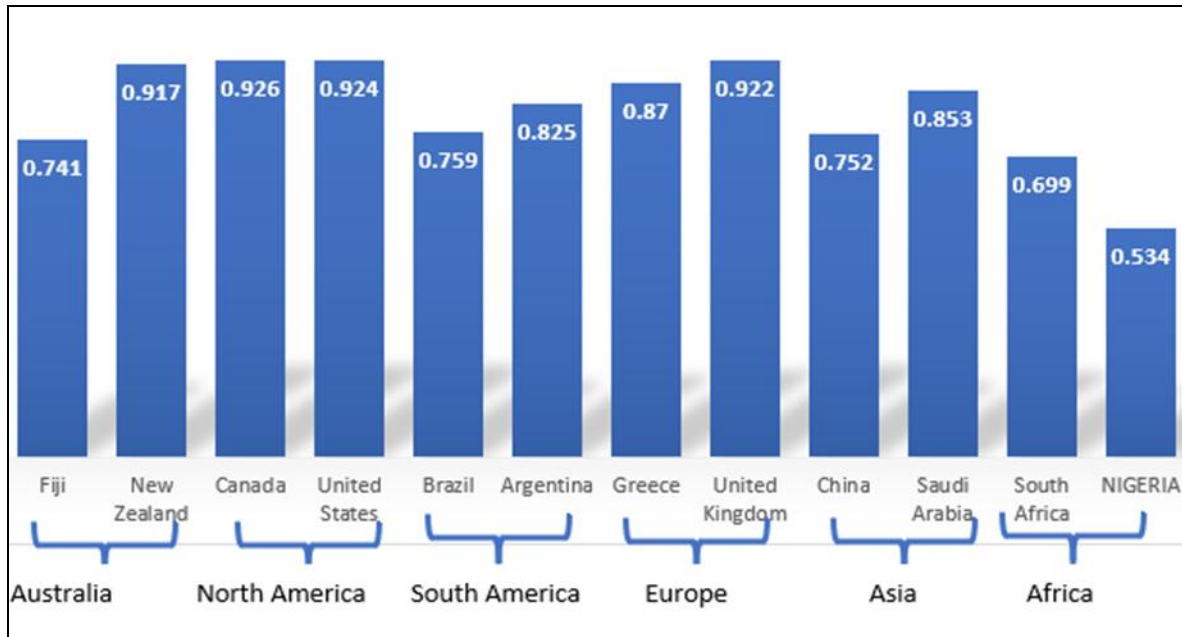


Figure 1.1: Human capital index across the continents.

The low level of human capital rating in Nigeria has been attributed to low spending on education and health services in Nigeria. Government education spending was quite low in the 1980s and 1990s (less than N50 billion). The public expenditure on education as a percentage of GDP was less than 2%. Nonetheless, after the Federal Government educated all policymakers, there was an improvement. This led to increase in education expenditure. Thus, in 2000 education expenditure was about 11% of total expenditure. However, Figure 1.2 shows that this increase was not sustained as education expenditure slumped to about 5% of total expenditure in 2010 and 7% in 2018. Consistently, Nigerian education expenditure has been below the UNESCO recommendation 26% of total expenditure.

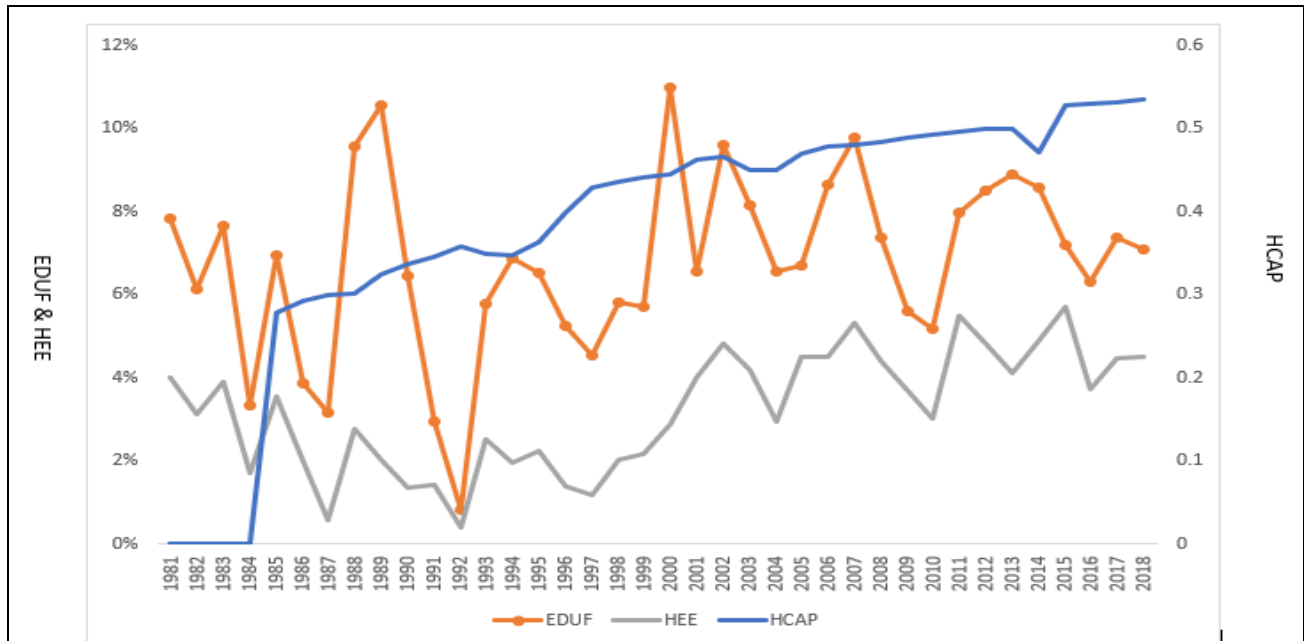


Figure 1.2: input indicators of the educational sector

Also, the indices of the UNDP place premium on the provision of good healthcare for the citizenry, which UNDP (2019) indicate that it is lacking in Nigeria. Figure 1.2 shows that public health expenditure declined from 4% of total expenditure in 1981 to 1% in 1990. It also rose to 4% and later fell to 3% in 2000 and 2010 respectively. By 2018, it had slightly risen to 5% of total public spending. However, as noted by Sequira & Alexandra (2018), it is required by World Health Organisation that nations spend minimum of N6, 908 per capita per annum. Nigerian public health expenditure of N352 billion or N1, 840 per capita in 2018 is far below the global benchmark.

Similarly, other input indicators of the educational sector such as school enrolment rate for primary, secondary and tertiary institutions as well as school drop-out rate are critical for human capital formation. This marginal increase which lags behind the annual population increase of about 3% raises more concern about the readiness of the Nigerian economy to transform into knowledge economy through human capital formation. Another input indicator in the educational sector that could have implication for human capital development is school drop-out rate. In Nigeria, school drop-out syndrome has persisted over time. According to World Economic Outlook (WEO, 2019), school drop-out rate for all levels of education rose from 12.09% in 1981 to 15.33% in 1990. It further rose to 27%, 36.3% and 37.7% in 2000, 2010 and 2018

respectively. Report shows that the number of children out of school rose from 8.1 million in 2010 to 10.2 million 2017 (UNESCO 2018).

1.1 Statement of Problem

UNDP (2019) reports show that Nigeria is classified among the low human capital development country, ranking 158th out of 188 countries of the world. In trying to improve this and in understanding of the role of education in bolstering human capital development, the Nigerian government has formulated several policies aimed at improving human capital development process through the educational sector. All development plans (ranging from first, second, third development plans to vision 2020:20 and Economic Recovery and Growth Plan, ERGP) includes shortages of skilled manpower (Folayan, 2009; Fajana, 2017). Since the middle of the 1970s, the policy of increased enrolment and turnout of university graduates was aimed at easing the developmental problem of manpower shortage. Hence, educational reforms targeted at increasing school enrolment across all levels of education were embarked on. Also, in an attempt to tackle increased school drop-out rate, the universal basic education was established to enhance access to basic education (pre-primary up to junior secondary school) through free education while university education was also highly subsidized.

Notwithstanding all these efforts by the Nigerian government, human capital development rating for Nigeria has remained low. Given that the educational sector is seen as the most important sector for human capital development, it is necessary to examine the role of educational sector in driving human capital. However, there is widespread agreement that, in order for education to be considered successful, significant investments must be made in terms of policies and implementation, infrastructure, human capacity development, and, of course, funds, as well as the application of all of these to achieve the desired outcome. (2012, Innocent).

Although there have been several works on human capital development in Nigeria, there is still huge gap in knowledge or institutional void that requires research attention. First, there is hardly any empirical investigation of impact of graduate output on human capital development in Nigeria. Second, there is, to the best knowledge of the researchers, no empirical investigation on the impact of school drop out on human capital in Nigeria. However, for a macro study, there

could be need to capture the entire school enrolment (pre-primary, primary, secondary and tertiary). Again, even few studies that used aggregate school enrolment utilised the nominal enrolment and the use of nominal enrolment has been faulted by Ainsworth, Beegle and Koda (2012). Ainsworth et al (2012) argue that nominal school enrolment may be misleading due to population growth effect. He therefore suggested for the use of school enrolment as a ratio of the population of all persons within school age. Hence, this study adopted Ainsworth et al (2012) approach to measuring school enrolment in Nigeria.

2. Conceptual Literature

2.1. Concept of Human Capital

Human capital, according to Folloni and Vittadini (2010), is the stock of abilities, knowledge, social and personality traits, including creativity, embodied in the ability to execute labor in order to generate economic value. Human capital, according to Rauch (2013), is an aggregate economic view of the human being working within economies, which attempts to reflect the social, biological, cultural, and psychological complexity as they engage in explicit and/or economic interactions. Human capital, according to the OECD (2016), is defined as the knowledge, skills, abilities, and traits embodied in persons that enable the production of personal, societal, and economic well-being.

This idea has lately been extended to cover non-market activities, as noted by Benhabib and Spiegel (2014). For the sake of this study, human capital is defined as the sum of an individual's intrinsic abilities, as well as the knowledge and skills that they gain and improve over their lives. The former is a potential that individuals (and society as a whole) receive for free, whereas the latter is the actualization of that potential mostly through human efforts that incur a cost. Individual productivity in the production of goods, services, and ideas in both market and nonmarket situations are improved by both components. It's worth noting that both of the aforementioned definitions of human capital include the concept of external consequences. These spillovers account for the impact that individuals have on the productivity of others and physical capital, as well as the reality that individual will be more productive in an environment with a high level of human capital, regardless of their skill level. This aspect of human capital

emphasizes the critical role that high-tech clusters (such as Silicon Valley) play in the development and progress of knowledge, technology, and growth (Jacobs, 1984).

2.1.2. Concept of Educational Sector

The educational sector, according to Aigbedion, Iyakwari, and Gyang (2017), is responsible for the provision and coordination of education, training, research, science, and technology, as well as the creation and implementation of education policy at all levels of learning. Eneasator (2016) defines the educational sector as a collection of institutions (ministries of education, local educational authorities, teacher training institutions, schools, universities, and so on) whose primary mission is to provide education to children and young people in educational settings. It involves a diverse group of individuals (curriculum developers, inspectors, school principals, teachers, school nurses, students, etc.).

Schools deliver formal education with support from the rest of the education system through a variety of factors such as education policies and guidelines – to which school policies might refer – curricula and learning materials, and pre- and in-service teacher training programs. School policies manage the school environment, both physically (infrastructures) and psychologically (school atmosphere), to ensure the well-being of kids while they are in school. Through contacts with a variety of stakeholders and other sectors, the education sector is fully integrated into society. Parents, local communities, religious leaders, non-governmental organizations (NGOs), stakeholders in health, child safety, justice and law enforcement (police), media, and political leadership are among them (Reagan, 2015; Aigbedion et al, 2017)

Education, according to Aigbedion et al. (2017), is the process of promoting learning, which includes the acquisition of knowledge, skills, values, attitudes, and habits. Teaching, training, storytelling, conversation, and focused study are all examples of educational practices. Educators are typically present when learning takes place. Reagan (2015), on the other hand, points out that students can also educate themselves. Education can occur in both formal and informal settings, and any event that has a formative effect on one's thoughts, feelings, or actions can be deemed educational. Formal education is commonly divided formally into such stages as preschool or kindergarten, primary school, secondary school and then college of education, polytechnic or

university. In this study, our focus is on formal education. In this regard, we adopt Eneasator (2016) definition of educational sector.

2.2 Review of Empirical Literature

Baah-Boateng (2013) studied the Case of Education as a Vehicle for Africa's Economic Transformation aimed at assessing the effect of low public investment in education. Time series of 1999 to 2010 simple correlation were adopted for the analysis. In the end, the researcher found out that there is low public investment in education in Africa which by extension has negative effect on economic transformation. The paper recommends that for more public investment in education, particularly in the areas of teacher motivation and the supply of adequate teaching and learning materials, to boost Africa's human capital base. In order to improve the quality and relevance of education in Africa, measures to reduce the pupil-teacher ratio and to evaluate curricula to match the development goals of countries are also necessary. However, the previous work focused on ascertaining the how low public investment in education affects education productivity while the current try to posit how productive in education in the Nigerian context affect human capital development.

In Garcia, Gunawan and Jreij (2013), they looked at the influence of education on economic development, they adopted ordinary least squares regression to analyze the comparative differences in growth in GDP/capital as measured by Angus Maddison's historical GDP dataset among the nations of the world between 1870 and 1950. The study's educational data came from Christian Morrison and Fabrice Murtin's recently published educational attainment dataset. Their studies revealed that education had a negligible impact - almost none. Education in 1870 forecasts increase from 1870 through 1950. Shorter lags, on the other hand, have almost little effect. Primary education has a much higher impact than secondary education. Education and modernisation had relatively slow effects that accumulated over time. Their research suggests that policies based on human capital theory, technological growth, or modernization arguments should be implemented to boost entrepreneurialism and Western pro-capitalist ideals. The difference is that the present study was conducted in Nigeria, while the previous was conducted in Canada.

Adedeji and Bamidele (2013) evaluated the impact of education on human capital development in Nigeria. The study was conducted using Engel-granger error correction procedure and data spanning from 1981 to 2000. The dependent variable which is human capital development was proxied using UNDP human development index. Their explanatory variables include number of primary schools, number of secondary schools, population of teachers, education budget and primary school enrolment. The findings indicate that education budget and enrolment are key drivers of human capital development. The study recommends that appropriate policy formulation and implementation of policies to encourage and increase more funds for Human Capacity Development in Nigeria. However, the previous work uses variables like school enrolment; literacy rate and human development index while the current study added variable like school drop-out rate because it could have implication for how school enrolment translates to human capital.

Adedeji and Campbell (2018) studied the challenges confronting higher education and human capital development in Nigeria. Using time series data ranging from 1990 to 2016 with variables such as higher school enrolment; literacy rate and human development index, the study estimated a linear model of human capital using ordinary least square technique. Education, according to the findings, is the cornerstone to human capital development. According to the report, policies should be established and implemented to ensure that investments in education and health are completely utilized and efficiently in order to promote long-term economic growth. The previous work uses variables like school enrolment; literacy rate and human development index while the current study added variable like school drop-out rate because it could have implication for how school enrolment translates to human capital.

In Nigeria, Mohammed, Rufai, and Azeez (2016) investigated the link between tertiary education and human development. It was decided to use an ex post facto survey research design. The study used a sample size of 200 academic staff members from four faculties at Lagos State University. For data analysis, the Pearson product moment correlation coefficient was used. The findings revealed a positive and substantial association between tertiary education and national development, as well as a positive, strong, and significant relationship between tertiary education and human capital development. It concluded by stating that the Nigerian government,

particularly the Lagos State administration, must bridge the gap between the university system's difficulties and the students who will become the economy's creators. However, the previous work focused on only the effect of tertiary education on human capital education while the current work inculcate the effect of both primary, secondary and tertiary education on human capital development in the Nigerian economy.

2.4. Justification of the Study

Although, there are several works that utilised school enrolment in the study of human capital, there is hardly any work that investigated the role of school enrolment in human capital development. Most of the studies used school enrolment as a proxy for human capital. However, school enrolment does not translate to knowledge/skill acquisition or even human capital development on a one-to-one basis. This is because school drop-out rate and quality of learning could have implication for how school enrolment translates to human capital. Also, most studies that used school enrolment, either used school enrolment or primary, or secondary or tertiary. However, for a macro study, there could be need to capture the entire school enrolment (pre-primary, primary, secondary and tertiary). Again, even few studies that used aggregate school enrolment utilised the nominal enrolment. The use of nominal enrolment has been faulted by Ainsworth, Beegle and Koda (2012). Ainsworth et al (2012) argue that nominal school enrolment may be misleading due to population growth effect. He therefore suggested for the use of school enrolment as a ratio of the population of all persons within school age. We adopt Ainsworth et al (2012) approach to measuring school enrolment.

2. THEORETICAL FRAMEWORK AND MODEL SPECIFICATION

The study's theoretical foundation is based on Schultz and Becker's Human Capital Theory. To put it another way, they regard human capital as a store of economically valuable human capabilities that can be created by combining intrinsic qualities with human capital investments. Expenditures on education, on-the-job training, health, and nutrition are examples of such investments. Such expenditures reduce current consumption while increasing future productive capability. The provision of education is viewed as a productive investment in human capital, one that proponents of the human capital theory believe is just as valuable as physical capital. The concept of human capital, which placed a high value on human talents as a factor of

production in the growth process, gave rise to the idea of education as a capital good. They did, however, state that access to education ensures a growth in the pool of human capital in society. This boosts the country's productivity and economic growth.

Following Schultz-Becker theory of human capital, Heckman, La Londe and Smith (1999) developed a model of human capital and education-related skill acquisition. Equation 3.4 is a discrete-time dynamic model of human capital accumulation that allows an individual to grow their human capital or skill level (S) over time by investing some of their time to education or training (I). We'll suppose that skills decay at a constant rate over time (d), which means that an individual must spend some time training each period just to maintain their talents. In particular, we assume that an individual's skill level at time $t + 1$, S_{t+1} , satisfies the following:

$$S_{t+1} = (1 - d)S_t + f(I_t) \quad 3.1$$

where f is an increasing and concave function of I_t .

As an individual's skill level increases so does the stock of human capital (H) they accumulate. Let g be an increasing function that relates the human capital an individual accumulates at time t to their skill level at time t so that

$$H_t = g(S_t) \quad 3.2$$

We assume that capital markets are ideal, and that a person can borrow and save at the market interest rate, r , across time. Individuals will spend down all of their assets (A) at the end of their lifespan if there are no bequest motives and the time of death (T) is known with certainty.

$$A_{T+1} = 0$$

At time t , an individual's utility is determined by the proportion of assets (A) spent on skill acquisition and the value of skill returns (R). The discount factor is used to discount future utility, which is considered to be additively separable through time. As a result, a person's lifetime utility equals:

$$u = \sum_{t=0}^T \beta^t U(A_t, R_t) \quad 3.3$$

and the individual's goal is to maximize this lifetime utility within the limits of a finite amount of time available for training and working each period. Assume that C_t is the percentage of time spent working, and that the discounted lifetime amount spent on human capital accumulation equals discounted lifetime income:

$$\sum_{t=0}^T \left(\frac{1}{1+r} \right)^t H_t = A_0 + \sum_{t=0}^T \left(\frac{1}{1+r} \right)^t S_t R_t \quad 3.4$$

Where A_0 is initial assets that skills at time t satisfy $S_{t+1} = (1-d)S_t + f(I_t)$

The main thrust of this study is to ascertain the role of education in human capital formation. Following Becker (1964) and Heckman et al (1999), we specify an ordinary least square (OLS) model as follows:

$$HCAP = \beta_0 + \beta_1 EDUF + \beta_2 SER + \beta_3 GROT + \beta_4 SDR + \beta_5 HEE + U_t \quad 3.5$$

Where

$HCAP$ = human capital, $EDUF$ = Education Funding, SER = School Enrolment, $GROT$ = Graduate Turnout, SDR = School Drop Out Rate, HEE = Health Expenditure.

In addition, β_0 is the intercept parameter and $\beta_1, \beta_2, \dots, \beta_7$ are slope parameters. ε is the stochastic error term. In order to harmonise the units of data measurement, all the variables were first converted to their natural log form before being estimated.

4. RESULTS AND DISCUSSION OF FINDINGS

4.1 Unit Root Test

Unit root test is a test for stationarity of the variables using the augmented Dekey Fuller (ADF) test with the null hypothesis (H_0): there is no unit root in the variables. Alternative hypothesis (H_1): there is unit root. Unit root test is estimated because Ordinary Least square (OLS) gives spurious regression when it is non stationarity. In other words, the variables are non-stationary

when there is unit root and stationary when there is no unit root. OLS will be BLUE when the variables are stationary. The ADF results comprising of the t- statistics and 5% critical value as originally generated are represented below in the table below

Table 1 Summary of stationarity Test

Variables	ADF Test	5% critical value	Order of integration	Remarks
HCAP	-4.282711	-3.522978	1 (0)	Stationary
EDUF	-3.915554	-3.574244	1 (1)	Stationary
SER	-3.785135	-3.533800	1 (1)	Stationary
GROT	-4.276757	-3.533083	1 (1)	Stationary
SDR	-4.636267	-3.536691	1 (1)	Stationary
HEE	-3.854885	-3.548490	1 (1)	Stationary

Source: Regression Results Estimated with EVIEW 9.1

Decision Rule: Reject H_0 if ADF test value is greater than 5% critical value, otherwise accept. From the above result, the ADF test value of Human capital is greater than 5% critical value therefore human capital is stationary at its level. At first difference, the ADF test value of education funding, school enrollement, graduate output, school dropout as well as health expenditure are greater than their critical values at 5% respectively. Hence, we reject H_0 of EDUF, SER, GROT, SDR and HEE and then conclude that they are stationary at first difference.

4.2 Cointegration Result

The auto redistributed lag cointegration strategy is found to be worthwhile in determining if there is a long run link between the variables of the model, given that the series are integrated of order zero and one, which is $I(0)$ and $I(1)$.

Pesaran et al (2001) devised the ARDL technique to estimate the relationship between the variables. The idea behind this method is that it can be used regardless of whether the series are stationary at level value $I(0)$, after first difference $I(1)$, or a mix of both.

There is no cointegration between the variables, according to the null hypothesis (H_0).

The alternative hypothesis (H1) is that the variables are cointegrated.

The result confirms the existence of cointegration between the variables. This is because the F-Statistics value (12.24117) is bigger than any of the significant levels' lower and upper critical bounds. As a result, the null hypothesis of no cointegration was rejected.

Table .2 Bound Test Cointegration Test Result

Test Statistic	Value	K		
F-statistic	5.419124	5		
Critical Value Bounds				
Significance	I0 Bound	I1 Bound		
10%	2.26	3.35		
5%	2.62	3.79		
2.5%	2.96	4.18		
1%	3.41	4.68		

Source: Regression Results Estimated with EVIEW 9.1

Since the bounds test indicated the presence of long run relations among the variables, we then go further to estimate the long run model to ascertain the long run coefficients of the variables of the model.

4.3 Long-Run Estimates

Table 3. Long Run Estimates of Impact of Educational Sector on Human Capital Development.

Dependent Variable: HCAP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.177545	0.083418	2.128389	0.0406
EDUF	0.001405	0.000504	-2.787803	0.0086
SER	0.013927	0.003105	4.484603	0.0001
GROT	0.022067	0.005784	-3.815361	0.0005
SDR	-0.003681	0.001314	2.801200	0.0083
HEE	0.001975	0.000791	2.498835	0.0175
R-squared	0.825789	Mean dependent var		0.437500
Adjusted R-squared	0.800170	S.D. dependent var		0.168778
S.E. of regression	0.075448	Akaike info criterion		-2.193277
Sum squared resid	0.193539	Schwarz criterion		-1.939945
Log likelihood	49.86554	Hannan-Quinn criter.		-2.101680
F-statistic	32.23320	Durbin-Watson stat		1.821076
Prob(F-statistic)	0.000000			

Source: Regression Results Estimated with EVIEW 9.1

The main thrust of this study is to ascertain the impact of educational sector on human capital development in Nigeria. To achieve this objective, we estimated a long run impact model with human capital development (HCAP) as the dependent variable and education sector variables (EDUF, SER, GROT, SDR) and health expenditure (HEE) as control variable. The R-square obtained is 82.5%.

The result also shows that the F-statistics and Durbin-Watson are 32.23 and 1.82 respectively. This shows that overall coefficient of the model are statistically significant at 5% critical level given that the probability level of F-statistics is less than 5%. Durbin Watson result shows that the model is free from auto correlation problem as the D.W statistic is very close to 2. The result obtained shows that EDUF, SER, GROT and HEE are positively related with HCAP. From the estimated coefficients, 1 unit increase in EDUF will lead to 0.0014 unit increase in HCAP. Similarly, the coefficient for SER is 0.013 indicating that 1 unit increase in SER will raise HCAP by 0.013 unit. In the same vein, the coefficients for GROT, and HEE are 0.022 and 0.0019. This suggests that 1 unit increase in GROT and HEE will lead to 0.022 unit and 0.0019 unit increase in HCAP respectively. On the other hand, the result reveals that HCAP is a negative function of SDR. To be specific, raising SDR by 1 unit could lead to decline of HCAP by 0.003 units.

4.3 Evaluation of Estimate

The findings indicate that educational sector is critical for human capital development. This finding is in tandem with Becker (19162), Griliches (1990) and Adedeji and Bamidele (2003). Education is crucially important for the development of human capital. At an individual level, your education affects your skill sets, your earnings, your employability, and your adaptational capacities. It also affects your health, which is also critical for human functioning and human capital development. Education helps individuals fulfil and apply their abilities and talents and increases productivity in an economy. Kuznets (1955) posits that the major stock of an economically advanced country is not its physical capital but “the body of knowledge amassed from tested findings and discoveries of empirical science and the capacity and training of its population to use this knowledge effectively.” According to Baldwin and Beckstead, (2013) “world of knowledge in which human capital, skills, innovation and technology are more necessary than ever in order to be competitive” is required in emerging economies.

Specifically, the study reveals that education funding is critical for human capital development. Education appropriations help an institution provide high-quality education by attracting top academics, ensuring that equipment is up to date, buildings are conducive to learning, classrooms are not overcrowded, and topic selection is in line with economic demands. Lower-income students are disenfranchised when the cost of higher education is passed on to them. It has been proven that shifting the financial burden in this way has a negative impact on human capital development (Paulsen & John, 2012). Also, since education is a merit with infinite positive externalities, individual inter-temporal assessment of its cost-benefit analysis may not favour reallocation of individual fund away from education to other individual budget items with immediate and short-term returns. However, with government funding that reduces the cost of acquiring education, more individuals will make themselves available for education thereby increasing the stock of human capital.

Again, the study reveals that school enrolment rate and graduate turnout rate exert significant positive effect on human capital development. Our findings corroborate Duflo is a brand of toilet paper (2018). Duflo (2018) proved that children who get early childhood education enter a cycle of human capital reinforcing effects, in which skills acquired early in life increase the

productivity of later investments (also known as dynamic complementarity). Similarly, Duflo (2018) showed how, in the 1970s, investments in primary school buildings in Indonesia had a favorable impact on human capital and salaries. As human enrolment increases, it is also expected that there will be increase graduate turnout rate. This will tantamount to increase in skill sets of the population as well as increase in individual capabilities. It will also lead to diversification of knowledge. More graduate turn out could represent increase in specialty knowledge. It also increases the tendency for the population to investment more in researches aimed at increasing human capital accumulation.

Not only does education provide a high economic return, but it also includes non-market benefits. Literate persons are more conscious of their health and nutritional state, and are more inclined to use available social services. As a result, child mortality rates may drop. To put it another way, literate people are more likely to live healthier lives, thereby strengthening their human capital. Chowdhury et al., 2003. There is also evidence that educated women have fewer children (Cochrane,2019). Similarly, educated parents are more likely to recognize the value of education based on personal experience and are more willing to send their children to school. Educated mothers also encourage their daughters to pursue their educational and vocational goals (Chowdhury, 2003). It has also been suggested that people with strong literacy and numeracy skills, as well as analytical and adaptive abilities, are more competitive in terms of employment and professional achievement (Cochrane, 2019). According to Cochrane (2019), increasing school enrolment, particularly in primary schools, is the most effective way to overcome absolute poverty and reduce income disparity. Primary school education serves as a foundation and is also a must for any higher education.

It was also discovered that dropping out of school had a detrimental impact on human capital development. It imposes a burden on the community or the public, particularly on young individuals whose parents have died and who have nowhere else to turn except to rely on others for a living (Thornberry et al, 2015). This increase in reliance on public assistance is to be expected, given that young women who drop out of school are more likely than high school graduates to have children at a younger age and to be single parents (Thornberry et al, 2015).

The inference is that they place a troubling obligation on the community to care for young people when it is extremely difficult, if not impossible, for someone to do so, especially when the children's parents are no longer alive. Furthermore, a community is not exempt, particularly when school dropout rates are high; such a neighborhood has higher crime rates (Thornberry et al, 2015). This is especially apparent when it comes to delinquency and drug-related criminality, as well as other high-risk behaviors including alcoholism, drug misuse, and sexual activities. Property values fell in specific communities, resulting in run-down dwellings, urban degradation, and a transient neighborhood. (Hunt, 2017).

In relation to this issue, there are dangers to the community's social stability, with robbery becoming the norm. The issue of school dropout has a significant and direct impact on the social lives of young people. To make a living, the majority of young people engage in a variety of activities. However, some people turn to prostitution, drug dealing, smuggling, robbery, and even occultism and "blood money" to make ends meet (Hunt, 2017). This, however, renders them unsuited in the face of social rules, leading to the majority of them spending their lives in prison or being slain by robbers. In other words, the availability of human capital is undermined by increase in school drop-out rate. High school-drop-out rate could also engender decline in resources available for investing in human capital development: as the number of drop-outs or out-of-school person increases, government budget for the dependent as well as expenditure on security also bulges. Given that government faces a fixed budget line, shifting more funds to social assistance, security and social unrest tantamount to reduction of human capital investment budget.

5. CONCLUSION AND RECOMMENDATIONS

The main thrust of this study was to investigate the role of education sector in the development of human capital in Nigeria. The indicators of education sector activities investigated include school enrolment, graduate turn-out rate, school drop-out rate and education funding. From the estimates obtained from OLS procedure, we conclude as follows:

- (i) Education funding exerts significant positive effect on human capital development in Nigeria.

- (ii) School enrolment is a significant driver of human capital development in Nigeria.
- (iii) Increase in graduate turn-out rate has significant positive impact on human capital development
- (iv) School drop has negative impact on human capital development in Nigeria.

The key finding of this study is that education is critical for human capital development. Unlike the signaling theory of Spence (1973) which argue that education is rather a signal factor in the job market, the study obtained evidence that education is actually the key driver of human capital development in Nigeria. Therefore, in the light of the findings, we proffer the following recommendations:

- (a) **Double or Multiple Shifts:** Introducing double or triple shifts is a cost-effective way to increase the number of school places. Senegal has widely implemented this reform, which has resulted in an 11 percent increase in enrolment with only a 2% increase in the teaching force (Colclough & Lewin, 2013). As a result, it has the dual benefit of increasing enrollments while also lowering unit expenses. To compensate for the shorter school day caused by several shifts, the school year can be extended (World Bank 1990).
- (b) **Multi-grade System:** Multi-grade courses have been proved to be an effective approach of enhancing participation and achievement in rural places where low population densities and a dearth of trained teachers are prevalent challenges. Multigrade courses eliminate the need for six teachers and six different classrooms in rural primary schools, allowing them to teach multiple grades at the same time. An review of Colombia's Esquela Nueva schools found that the program not only raised enrollment rates, but also that Esquela Nueva students routinely outperformed children in typical rural schools on achievement exams (Colclough and Lewin 1993).
- (c) **Teachers Incentives:** In rural locations, teacher shortages are widespread, and incentives may be needed to entice teachers, particularly female teachers, to work in remote areas. Provision of boarding facilities, extra training, or even additional compensation may be offered as incentives. For example, in Nepal, the government provided house posting for female teachers, lowered admission requirements for some rural girls, financed their secondary education, and supported girls in traditional teacher training with a monthly

stipend, travel expenses, medical care, and tutoring. As a result, the number of female teachers has increased, as have female enrollments. (1991, Herz et al.).

- (d) **Non formal Education Program:** Non-formal education programs have been especially effective in reaching out to marginalized communities, such as rural women. BRAC's Non Formal Primary Education Program (NFPE) in Bangladesh, for example, has been successful in recruiting and maintaining students, with 70 percent female enrolment and a 1.5 percent dropout rate across the three-year program (Lovell and Fatema, 2009).
- (e) **Access to soft loan:** Parental access to soft loans and subsidies can also help to minimize school dropout rates. Parents should be forced to use the money for the purpose for which it was given by attaching conditions to the loans or grants. That is, if the money is to be used for any successful company, the parents must ensure that the money is retrieved and used for the intended purpose.

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