

Human Capital and Educational Investment in Nigeria: Problems and Opportunities

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Abstract: *Investment in education helps in human capital development in an effort to increase human knowledge and enhance skills for increasing productivity and income of individual and the nation. Investment in Education is not only seen as a key to poverty reduction but also helps to supply the essential human capital. It is therefore, both individual and social investment. The shortage of academic human resource (human capital) in Nigerian education system and high poverty rate called for this study. This paper examines determinants, sources, problems and opportunities of investment in education in Nigeria. It as well examines the relationship between investment in education and human capital in Nigeria, using annual time series data from NUC and NBS. The study adopts a survey of Nigerian education system in the south west to examine the effect of family socio economic status on investment in education using purposive random sampling. The relationship between human capital and investment in education is determined using granger causality test. The study identifies the problems of investment in education as low level of investment in education by the federal government at a level (below 10%) far below 26% of annual budget recommended by UNESCO, limited educational opportunities for Nigerian youths below 20% up to 2009 and shortage of human and physical resources. The study reveals that human capital influences investments in education. The findings have a strong implication on educational policy in Nigeria and the study suggests increased investment in education by policy makers as a poverty alleviation policy and improvement in the nation's human capital development.*

Keywords: *Education, Investment, Human Capital, Income, Productivity*

I. INTRODUCTION

Human capital is a widely used concept with varying definitions. Human capital is sometimes taken to include only schooling (i.e. acquired formal education) at other times, it is defined as wide set of investment that influence well-being and productivity of people, firms and nations (Mincer, 1996).The investments could be such investments in health and nutrition, as well as vocational training (Mincer, 1996). Education could be referred to as investment or consumption item. When education is sought by people not as an end in itself but because it is useful for raising earning power in later life it is referred to as investment but not consumption item. When education is sought because it increases individual income it is personal investment but when it is sought to better the lot of the society, it becomes social investment. Education is seen as a major investment in human capital thus, an educated man was likened to an expensive machine about 237 years ago by Adam Smith (1776)(Prais, 1995; Teixeira, 2002).

Investment in Education being an important component of human capital stock leads to human capital development to produce skills and values embodied in individuals for stimulating resourcefulness and increasing productivity in individuals (Dauda, 2010). Developing human capital means sustaining economic growth by reducing poverty and improving productivity. In the word of Erhuraa (2007), human capital development necessitates investments in education. So, investment in Education is not only seen as a key to poverty reduction but also helps to supply the essential human capital. An investment in education therefore, has both direct and indirect positive effects on individuals and the society. It has direct effects on improving productivity, earnings and indirect effects on people by stirring up positive changes in people's attitudes towards work and society. Education indirectly encourages people to learn new skills throughout their lives, and facilitate participation in modern economies and societies (Michaelowa, 2000, Yesufu, 2000). There is high level of interaction between education and better health because it influences the level of hygiene which prevents diseases and increase life expectancy. It as well, affects level of fertility and population growth as educated parents will have healthier children (Dahlin 2005). The identification of the importance of education in improving the well-being of the society has made investment in education very important worldwide and also contributed to its control by the international organization, the World Bank.

There have been various studies on importance and process of human capital development. This study however, examines the education opportunities and the problems of investment in education in Nigeria. There is need to examine the investment in education in Nigeria considering the wide spread of poverty and income inequality with about 71 million Nigerians living below \$1 a day (Dauda, 2010). Also, there is shortage of academic staff which is part of human capital. This shortage was confirmed by Okogie (2009) declaration of Nigerian Universities Commission (NUC) plan to recruit 200 professors and academics from university system abroad to teach on part-time. Since investment in education increases human capital considering the shortage of human capital in Nigeria's education system and university system in particular, there is therefore need for this study to critically examine the relationship between investment in education and human capital, with a view to reveal the policy implications for finding solutions to basic problems in Nigerian society.

Thus, this study provides answers to such questions as: first, what are the sources, determinants and problems of investment in education? Second, how is this investment in education affecting educational opportunities available for Nigerian youth? Finally, what is the relationship between investment in education and human capital? The objectives of this study are therefore to: first examine the problems and opportunities of investment in education in Nigeria; secondly, identify the determinants of investment in education and finally, analyse the relationship between human capital and investment in education with a view to reveal the implication for policy makers. The survey is however restricted to south western region because of the security problem in the country. The paper is divided into five sections. Section one provides the introduction showing the reasons for the study, and the scope, while Section two presents a review of theoretical literature, and methodology. Section three examines the determinants, opportunities and problems of investments in education in Nigeria from 1990 to 2010, Section four determines the relationship between investment in education and human capital while, the summary, policy recommendations and conclusion are contained in section five.

II. Review of Theoretical Literature

The Classics defined human capital as, the productive skills and knowledge embodied in the labour force (human resources) which have economic value. That is, it is a measure of the economic worth of people's knowledge, skills, abilities, attitudes and experiences. Thus, any qualities and abilities acquired that will make such individuals economically productive can be referred to as individual human capital (Olga and Gary, 2011). Human capital is the skill, knowledge or abilities acquired by labour or a stock of assets in a country which allows an individual to receive a flow of income, which could be likened to interest earned in physical capital (Yunus, 2007; Yesufu, 2000). Income of individual is a function of human capital possessed by the workforce (Yesufu, 2000). From the view point of job performance, there may be substitution or complementary relationship between experience and training or education (Teixeira, 2002).

According to World Bank (2004), human capital referred to people's innate abilities and talents combined with the knowledge, skills and experience which make them economically productive. Human capital can be increased by investing in health care, education, and job training. Human capital is connected with human resources defined as the total quantity and quality of human effort (physical and mental) available to produce goods and services. The human resources consist of raw labour; determined mostly by the number of people in a country's labour force combined with human capital (World Bank, 2004). The modern human capital theory is mainly based on level of education acquired, and therefore used education as proxy for human capital (Baier, Dwyer and Tamura, 2006, Globerman and Shapiro, 2002). Some other researchers have confirmed that human capital does not only include education, but include other qualities like: qualities of character in the nation's population, and family background prevailing in the country (Heckman 2000, Heckman, Stixrud, & Urzua 2006)

The human capital theory is based on the notion that education affects or increases workers' productivity, which then accelerates the growth of the national income (GNP). The impact of formal education on earnings has been found positive by researchers and equally, education has been distinguished empirically as a filter and screening device for sorting out people with higher productivity (Blaug, 1987, DeMeulemeester & Rochat, 1996). Human capital theorists take into account the impact of education upon workers skills and productivity. It implies an obvious means by which society can, if it so desires, lessen income inequality. Investment in human capital enhances the workers' knowledge and skills as well as future earnings. Treating expenditures on education and training fruitfully as investment in human capital in a simple sense means, the costs individuals incurred to acquire more education constitute an investment in their future earning capacity. It is therefore no accident that educated people tend to earn more than those who lack education it is likened to ordinary profits of an equally valuable capital (Blaug 1980). It is the consequences of education in the sense of skills embodied in people that may be viewed as human capital which is not to say that people themselves are being treated as capital.

There are numerous empirical studies like Dauda (2010) which suggest that schooling has contributed significantly to economic growth. Human capital theorists take into account the impact of education upon

worker skills and productivity. If a growing economy requires an increase in supply of highly educated labour force, the state might encourage students to stay on as a way of investing in the future capacity of the population.

III. Methodology and Sources of Data

This study used both primary and secondary data. The secondary data on funding and academic staff were obtained from National Universities Commission (NUC); National Bureau of Statistics (NBS) and Federal Ministry of Education. The information on effect of family socio-economic background was collected from a total of 195 students at sixty-five students per institution from a survey of 3 institutions of learning in south west Nigeria. The survey is however restricted to south western region because of the security problem in the country. The three institutions were selected using purposive random sampling to cover three different states and types of education system from South-west Nigeria. The institutions are Osun State University, Osogbo, Oluyole Extension High School, junior secondary school 2, Ibadan and Ondo Boys High School, Ondo senior secondary school.

To capture the relationship between investment in education and human capital, this study uses academic staff in Nigerian Universities as proxy for human capital (as L_t) and university funding as proxy for investment in education (as K_t). Data from Nigerian Universities is used because of inadequate data from other education system (Jamila, 2010). The data covers the period from 1990 to 2009. All the variables are taken on annual basis from various issues of the NUC University statistics and NBS.

Estimation Technique: The study adopts descriptive and quantitative technique. The quantitative technique uses statistical tools of percentages and tables as well as econometric tool of Vector Autoregression (VAR) to analyse the time series data. The order of integration of the variables under consideration is determined by the unit root test through Eviews using Augmented Dickey-Fuller (ADF) and the Phillip-Perron with intercept. The long run relationship among the variables is determined using the Johansen co integration test. After testing the Co integration relationship, there is test for causality between investment in education and human capital in Nigeria using Granger-causality test. This is to determine the direction of relationship between the two variables in the following vicariate auto regression:

$$K_t = \alpha_0 + \sum_{i=1}^n \alpha_{1t} K_{t-i} + \sum_{i=1}^m \alpha_{2t} L_{t-i} + \varepsilon_t \quad \text{-----} \quad (1)$$

$$L_t = \beta_0 + \sum_{i=1}^{nm} \beta_{1t} K_{t-i} + \sum_{i=1} \beta_{2t} L_{t-i} + \sum_{i=1} \alpha_{2t} + \varepsilon_t \quad \text{-----} \quad (2)$$

Where:

K_t is Investment in Education proxy by university funding

L_t is the Academic Staff in Nigerian Universities used as proxy for Human Capital;

Rejecting null hypothesis; suggests that investment in education do Granger cause human capital. On the other hand, accepting suggests that investment in education do not granger cause human capital do not Granger Cause (have an effect) on Investment in Education. This test reveals the relationship between investment in education and human capital.

IV. Determinants of Investment in Education

Educational Investment cannot be adequately assessed unless estimates of future demand for education and students number are taken into account. Students' enrolment for education is determined by variety of economic and non-economic factors. The government policy on the supply of places and the allocation of funds for education has important influence on demand, since it determines levels of fees and financial support for students. The investment in education decision is determined by such factors as parents who want more education for their children, and expected return. Students' enrolment in university system is the result of series of private investment decisions (social demand). O.E.C.D. (2001) reveals that the social demand criterion accepted for educational investment decisions in developed countries is accepted by policies for Higher Education for use in developing countries as well. This implies that courses of higher education should be available for those qualified to pursue them and who wish to do so (Coleman, 1994, Satope & Oladeji, 2012). Its underlying rationale is that social investment should aim to satisfy private demand.

Looking at the cost of education, public expenditure or investment on tertiary education depends on costs of instruction and direct aid to students inform of students' loan or scholarship. Blaug (1987) declares that the level of public spending on students' aid can influence private demand for tertiary education. From Olga and Gary (2011) the most important determinant of the amount invested in human capital is its profitability or rate of return. Economists have long believed that the expansion and improvement in physical resources is motivated

by the rate of return expected. An investment approach to education indicates that people invest in something that will bring the highest return. So, when people demand for more of a particular thing, they consider that such will bring high return. This means that people in a country invest their resources in developing those with return. It therefore becomes obvious that the common point is that the choice to enrol for education (that is, decision to invest in education) by a rational individual will be determined by: expected earnings, comparing cost with lifetime benefits and other socio-cultural factors (Demeulemeester&Rochat, 1996)

People often develop human capital factors which have a bigger market demand (Olga and Gary, 2011). So, specialization in a particular activity would be discouraged if it has limited market; thus people are always motivated to invest in oneself with increase in the extent of the market but would be discouraged if the extent of the market is limited. Since education is self-amplified, more investment in education will create more market for the output and would further increase the investment in education. So, a large market induces greater investment in certain skills.

Another important factor in educational investment is the family socio-economic status. This involves occupation, income, family size and location, and level of parents' education (Ezewu, 2003). It is measured by the ability of the parents to make financial, time and emotional investments into their children which is determined by the family background. One major function of the family is building of human capital of children based on the family resources. The family is said to transmit, unconsciously some values including the social values to members.

The social class or status in this study is based on the sociologists' grouping into: upper class comprising the owners of the major part of the economic resources of a society; working or middle class mainly the industrial wage earners, including the most white collar workers and most members of the liberal professions. The third class is the peasantry call the lower class (Bottomore, 1999). The socio-economic class will influence investment in education in such areas as provision of books and other materials, early attendance at school, payment of school fees in fees paying schools, development of interest in school. In all, the upper class seems to respond more positively to educational investment than the low social class especially in higher institutions or fees paying schools (Table 1). The families with limited number of children are able to invest more in the education of their children while families with more children could mostly send their children to free education schools. This will limit the opportunities available to such children.

Table I: Frequency Distribution of Students Across Socio-Economic Status and Family Size

	University		Senior Secondary		Junior Secondary	
	Value	%	Value	%	Value	%
High Socio-Economic Status	35	53.8	19	29.2	25	38.5
Middle Socio-Economic Status	20	30.8	20	30.8	9	13.8
Low Socio-Economic Status	10	15.4	26	40.0	31	47.7
	65	100	65	100	65	100
Family Size						
1-4 children	59	90.8	40	61.5	35	53.8
More than 4 children	6	9.2	25	38.5	30	46.2
Total	65	100	65	100	65	100

Source: Compiled by the Author from Primary Data

Furthermore, national governance and institutional indicators could affect investment (Olga and Gary, 2011). This is because a lot of big proportion of economic and social activities in a country are governed and shaped by the organizations that regulate the habits of people. The institutions such as the institution of governance, education, healthcare, and media forces people in the country to develop a particular character qualities. The policy of developing peculiar national quality is similar to developing particular abilities and attitudes as family members (Hofstede, 2001). Thus, the introduction of universal basic education (UBE) in 1999 led to expansion of primary and secondary education.

The National identity also plays a very prominent role in investment in education. A set of common understandings and aspirations, sentiments and ideas, norms and values bind the population together. This is concerned with government decisions to improve the welfare of the nation, budget allocations, and high levels of literacy. The market demand for education like all demand are determined by, the current incomes and taste of household and particularly, the spread of personal borrowing and lending rates. From sociological finding, something like intergeneration ratchet effect tends, to increase the demand for education constantly as succeeding generations achieve ever-higher terminal education ages. The increase in demand will create excess demand due to limited institutions available.

V. Sources of Investment in Education in Nigeria

Investment is defined by World Bank (2004) as the outlays made by individuals, firms, or government to add to their capital. The enrolment in education system implies the demand for education. This can be explained as a logical sub-product of the theory of investment in human capital (Becker, 1993). According to Campbell and Stanley (1996) any activity which increases the quality of labour may be considered an investment in human capital. Thus, expenditures/investment on education and training could be treated as investment in human capital.

The investors in the education sector are the proprietors which include Federal and State Governments, and Private corporate organizations in Nigeria (UVAH, 2008). Others are students who invest in themselves through the payment of school fees, and other cost of education which include the costs of books, stationeries and other equipments, uniforms, admission fees, registration and examination fees, building levies and maintenance fund, construction fees, transportation, mid-day meals, Parents/Teachers Association (PTA) fees, sports fees, library fees and extra tuition fees. At the primary and secondary levels there is free education in government schools, fees are paid only in private schools. However, at higher education level, school fees are paid in state and private schools. Thus there are lot of opportunities available at primary and secondary levels. Even at the secondary level some state governments pay the WAEC fees of their students like it is done in states like Osun, Oyo, Ekiti, Ogun, Lagos, Bayelsa, Abia and others.

The Federal government is the major source of finance to Federal Universities while fund for state universities are made available by the state governments (up to 95%), the federal universities receive their grants through the NUC. The government of the country at federal level maintains a policy of no tuition fees whereas fees are charged at the state and private institutions though it may not be as high in state level as in private institutions. An order forbidding the charging of tuition fees in federal universities was issued in May, 2002 (UVAH, 2008).

Problems of Investment in Education and the effects on education Opportunities

The investment in education by the federal government is most worrisome. Over the years, funding has not kept pace with the exponential expansion of the system. Nigeria has not abided by the United Nations Educational Scientific and Cultural Organization (UNESCO) recommendation that developing countries should invest a minimum of 26% of the annual budget on education. The Federal government investment on education falls far below United Nations recommended minimum threshold of 26%. For example, the Federal Government invested an insignificant proportion of financial resources in educational sector by allocating less than 10.0% of annual budget between 2000 and 2010 instead of 26.0% recommended by the UNESCO to be spent on education. The allocation to education as percentage of annual budget in Nigeria for the periods 1990-2010 is presented in Table 2. The Education sector is very poorly funded in Nigeria. So, there has always been a significant shortfall in educational investment necessary for the realization of sustainable growth and development in the country at the national level.

Thus the major problem facing the management of university system in Nigeria is inadequate investment in education. Although there was an increase in the proportion of total expenditure devoted to education in certain cases, this had been considered to be rather grossly inadequate considering the phenomenon increase in student enrolment and increasing cost. Besides, the Nigerian government over the years had not been meeting the UNESCO recommendation of 26% of the total annual budget allocation to education sector. Nigeria's percentage of GDP spending on education was about the lowest in Africa compared with other countries like: Botswana spending 19.0 %; Swaziland, 24.6%; Lesotho, 17.0%; South Africa, 25.8%; Cote d'Ivoire, 30.0%; Burkina Faso, 16.8%; Ghana, 31%; Kenya, 23.0%; Uganda, 27.0%; Tunisia, 17.0%; and, Morocco, 17.7% (Noel UNESCO Abuja, 2000).

The Education Rights Campaign (ERC) rejected the 2010 appropriation bill passed by both houses of the National Assembly and Senate because it failed to address funding of vital social services most especially education. Although, by the breakdown of the budget, the sum of ₦295.3 billion representing about 6.4% of the budget allocated to education is slightly higher than initial proposal, which was ₦249 billion (6%), the budget was totally unacceptable to Nigerian students. According to ERC, this was because on the following reasons: One, the 2010 budget was increased by about ₦529 billion above the original amount sent for approval by the President. Every progressive minded Nigerian would have assumed that this large sum added to the budget would go into funding vital social services like education and health, but unfortunately it was not reflected in allocation to the education sector and other vital sectors. Instead, there have been increases in allocation to non-productive sectors and white elephant projects like the constituency projects of National Assembly members and others.

Secondly, the sum allocated to the education sector fall short of the UNESCO recommendation of 26% as well as the funding requirements contained in the agreement signed between the federal government and staff unions (ASUU, SSANU, NASU and NAAT) on October 22, 2009. According to the agreement, the Federal

government is mandated to allocate a total sum of ~~N~~497.5 billion to the education sector as a step towards meeting the UNESCO recommendation of 26%. Also, the amount is not enough to confront the challenges of development in the education sector. Fourthly, this budget will lay the basis for increment in fees in tertiary institutions thus pricing education out of the reach of poor Nigerians. The budget passed will be a device for most authorities of public institutions to impose fee hike on students. The increase will also encourage private institutions to further increase their fees. The members of National Assembly, in particular, are condemn for being insensitive to the plight of Nigerian students and poor parents who are struggling to make ends meet and cannot afford the rising cost of tuition fees occasioned by government under-funding of education. This underfunding has been the major sources of disagreement between ASUU and the Federal government. The commitment of western government to education policies of economic growth through human capital development is increasingly funded through students' loans. However, in developing countries like Nigeria, there is nothing like student loan, students' aid comes in form of free education for all in government schools or scholarship for few with specific abilities. The population being higher than the existing government institutions leads to introduction of private institutions where fees are paid.

Table II: Education as a Percentage of Federal Annual Budget:1990 to 2010

YEAR	Allocation to Education as % of Total Budget
1990	5.5
1991	4.6
1992	6.3
1993	7.3
1994	14.9
1995	13.0
1996	10.8
1997	11.6
1998	10.3
1999	11.1
2000	8.4
2001	7.0
2002	5.9
2003	4.7
2004	4.5
2005	6.3
2006	8.7
2007	8.2
2008	5.7
2009	7.0
2010	6.4

Source: Prepared by the Author from National Bureau of Statistics and NUC data

Another problem is the problem of access in Nigerian higher institutions or educational opportunities available to students. The perennial acute shortage of placements in the higher institutions for the large proportion of youths seeking admission has been a major problem in tertiary education in Nigeria. The increasing population causing increasing demand for education means equal striking increase in number of applicants to JAMB. More will equally be admitted as a result of the pressure for admission causing most institutions to admit beyond their carrying capacity (based on available facilities). Despite this, there is still increase in excess demand. Thus, the demand for education has been in excess of supply at the tertiary level as presented in Table 3. The percentage admitted over years is small; there was never a time when the percentage was more than 20% up to 2009 (Table 3) showing that many applicants were not admitted. This expresses the inadequacy of the University system and the need for the expansion of the system (Table 3). It is in the JAMB verbal announcement that out of 1.5 million seeking admission for 2012/2013 session that the tertiary institutions will be admitting 500,000 about 33.3% for the first time.

TABLE III: Demand for and Supply of University Education in Nigeria

Year	No of Applicants	No Admitted	% Admitted	Excess Demand	Excess Demand%
1990	195,758	49,168	25.12	146,590	74.88
1991	373,016	61,212	16.41	311,804	83.59
1992	282,904	42,838	15.14	240,066	84.86
1993	246,265	54,359	22.07	191,906	77.93
1994	256,780	54,359	21.17	202,421	78.83
1995	276,440	87,049	31.49	189,391	68.51
1996	376,374	54,359	14.44	322,015	85.56
1997	318,491	60,915	19.13	257,576	80.87
1998	330,550	62,851	19.01	267,699	80.99
1999	418,928	64,358	15.36	354,570	84.64
2000	416,691	45,766	10.98	370,925	89.02
2001	749,727	90,769	12.11	658,958	87.89
2002	994,381	51,845	5.21	942,536	94.79
2003	1,046,103	104,991	10.04	941,112	89.96
2004	841,878	74,361	8.83	767,517	91.17
2005	916,371	76,984	8.40	850,762	91.6
2006	803,472	123,626	15.39	679,846	84.61
2007	911,653	119,195	13.07	792,458	86.93
2008/2009	1,054,060	200,000	18.9	926,978	81.1

Source: Prepared by the Author from data collected from NBS

Thus, students would offer to pay higher fees to limited educational institutions, thereby lowering the private rate of return on educational investment. At equilibrium prices where rates of return on social investment in voluntary education are equal to the target rate of return there will be no excess demand but demand may be a little higher (Satope and Oladeji, 2012). From private point of view, the demand for extra education at disequilibrium price is not being satisfied because of the existence of student grants in higher education which reduced the cost of education. An attempt to satisfy excess demand would make education socially unprofitable. Excess demand for places could always be eliminated by cutting grants and thus raising the private costs of education. This leads to introduction of private universities in Nigeria and other countries worldwide. However, despite the privatization of University education in Nigeria, there is still excess demand as in Table 3. This implies limited opportunities despite the increase in cost of education. This is because there is increase in number of universities but Nigeria has not been able to derive economies of scale from the expansion. Blaug (1987) confirms that there is no shortage of high-school places to accommodate students who want to remain in school in America and United Kingdom. But this is not the situation in Nigeria. The major problem in Nigeria is how to meet the social demand for university education. That is, ability to provide education opportunities for those who are qualified and wish to do so.

Furthermore, inadequate human and material resources are another notable phenomenon in Nigeria tertiary education systems in particular and even the entire education system in general. This is in conjunction with low staff retention and high level of staff turnover in Nigerian education as confirmed by Nwadiani and Akpotu (2002). The problems emanated from under-funding or low level of investment in education and subsequent reduction of expenditure on a variety of educational inputs. This resulted to the problem of poor infrastructures and lack of teaching and learning materials. A huge number of primary, secondary and tertiary school buildings and facilities are dilapidated and unfriendly to pupils.

The shortage of academic staff was confirmed by Okogie (2009) declaration of NUC plan to recruit 200 professors and academics from university system abroad to teach on part-time basis in Nigerian universities having recruited 20 of such in 2008 (Okogie, 2009). There are academic staff shortages across all tertiary institutions as presented by the director of tertiary education at the UNESCO workshop in 2010 (Table 4). Many studies supported by the World Bank and the Needs Assessment Survey of the NUC in 2004, also confirmed that the problem in Nigerian universities was worsened by the exodus of academic staff from the universities, popularly referred to as “brain drain” in search of better working conditions. This was as a result of low level of investment in education by the federal government. The state of university education in Nigeria could be described as one of massive explosion in student enrolment; increasing number of prospective new entrants in the face of inadequate and obsolete infrastructure and educational inputs. The apparent shortage of fund available to the university system has been responsible for declining facilities in Nigerian Universities in recent years as confirmed from the survey of Nigerian Universities (Satope, 2012). All the resources required for education production process are in short supply.

This has established the fact that investment in education has not been able to meet the needed human capital in Nigeria. These have implications on the quality of teaching and learning.

Table Iv: Faculty Staff in Tertiary Institutions in 2007

System	Academic Staff		
	Required	Current	Shortfall
Universities	50,000	30,452	19,548 (39.1%)
Poly and Monotechnics	30,016	12,938	17,078 (56.9%)
Colleges of Education	26,114	11,256	16,856 (56.9%)
National Teachers Institutes	7,000	6,526	474 (06.8%)

Source: Dr. Jamila Shu'ara (2010) Higher Education Statistics
(From federal Ministry of Education) Presented at UNESCO Workshop

Relationship between Human Capital and Investment in Education:

Unit Root Test: Both the Augmented Dickey Fuller (ADF) and Phillips – Perron (PP) are used to test for the stationarity of the individual variables used. There is presence of unit root in the variables at levels indicating that all the variables are not stationary at level. The results of both the ADF and PP tests are reported in Table 5. Although K_t is not stationary at first difference under ADF but it is stationary at first difference under PP. So, all the variables are stationary at first difference of the test statistics at 1%, and 5% level of significance. This implies that the variables are integrated of order one, i.e. $I(1)$.

Cointegration test result: The result of the cointegration test shows that the variables cointegrate that is, there is existence of a long-run relationship among the variables as presented in Table 6 at the 5% level of significance.

Granger Causality Test Analysis: The results informed the use of Vector Error Correction Model and the log values of the variables. Causality does not necessarily suggest exogeneity in the sense that the result gotten may not explain whether the relationship is positive or negative (Table 7).

TABLE V: Time Series Properties of the Variables Used
Augmented Dickey Fuller (ADF) Unit Root Test and Phillips-Perron Unit Root Test (with intercept)

Variables	Augmented Dickey Fuller		Phillips-Perron		Order of Integration
	Level lag1	First Difference	Level	First Difference	
Funding (K_t)	1.4567	-1.9355	1.5861	-3.8249	I (1)
Academic Staff (L_t)	-0.0535	-3.2630	0.0691	-5.4416	I (1)
Critical Value					
1%	-3.8572	-3.8877	-3.8304	-3.8572	
5%	-3.400	-3.0521	-3.0294	-3.400	
10%	-2.6605	-2.6672	-2.6552	-2.6605	

Source: Author's Computation

*MacKinnon critical values for rejection of hypothesis of a unit root. It shows the t-statistics from a specification that includes constant, without time trend. The Null Hypothesis of non stationarity is accepted at level and indicates all variables are stationary at 1% critical values.

A: Table VI: Johansen Cointegration Test on Variables

Date: 08/28/12 Time: 00:21				
Sample: 1990 2009				
Included observations: 18				
Test assumption: Linear deterministic trend in the data				
Series: LOGK _t LOGL _t				
Lags interval: 1 to 2				
	Likelihood	5 Percent	1 Percent	Hypothesized
Eigenvalue	Ratio	Critical Value	Critical Value	No. of CE(s)
0.921803	58.71359	15.41	20.04	None **
0.509997	12.84018	3.76	6.65	At most 1 **

Source: Author's Computation

*** denotes rejection of the hypothesis at 5%(1%) significance level
L.R. test indicates 2 cointegrating equation(s) at 5% significance level

B:

Date: 08/27/12 Time: 16:08
 Sample(adjusted): 1993 2009
 Included observations: 17 after adjusting endpoints
 Standard errors & t-statistics in parentheses

CointegratingEq:	CointEq1
LOGK _t (-1)	1.000000
LOGL _t (-1)	-4.219056 (0.45950) (-9.18192)
C	31.97181

Source: Author's Computation

Table VII: CAUSALITY TEST

Pairwise Granger Causality Tests			
Date: 08/28/12 Time: 01:24			
Sample: 1990 2009			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Probability
LOGL _t does not Granger Cause LOGK _t	18	4.42	0.03
LOGK _t does not Granger Cause LOGL _t		1.15	0.35

Source: Computed by the Author

Following the result in Table 7, the null hypothesis that LogL_t does not Granger Cause LogK_t is rejected because the computed F-statistics 4.42 > 4.41 which is the critical value. It is to conclude that Unidirectional causality run from human capital to investment in education at lags two (2). From the result shown in Table 7, the null hypothesis that logK_t does not Granger cause logL_t is also accepted, further confirming a unidirectional causality from human capital to investment in education at lag 2. Interestingly, we are able to identify one co-integrating relationship between investment in education and human capital which indicates that a long-term relationship exists between these two variables. Estimation of the Vector Error Correction Model (VECM) (Table 6 B) also supports the causality result because the same human capital is statistically significant (t=9.18, p=0.05).

This shows that human capital has an effect on the funding of education. Whenever there is an increase in academic staff (human capital) there will be a need for more funds to finance the increase. If the government then refuses to give more funds, the institutions will either stop employment of the needed staff or forget about improvement in the condition of service of the available staff which may lead to brain drain. In both cases, the quantity of academic staff available will be reduced and will affect admission into the institutions, thereby leading to excess demand or limited opportunities for the youth seeking admission. The number of graduating students may also be reduced, and this will further reduce human capital available in the education system because education is self-amplifying (that is, education provides its own workers). Thus, despite the increase in the number of universities in Nigeria, the country has not been able to derive economies of scale.

Investment in education will call for investments in other forms of capital. Accumulation of physical capital will help to provide employment opportunities for people and improve their income and quality of life. So, the human capital development will equip the people with the skills and abilities needed in various employment opportunities provided by an increase in physical capital. It therefore indicates that investing in human capital will only be sufficient when there is investment in education and physical capital. They must all move together to better the lot of the society.

VI. Conclusion and Policy Implications

There have been a lot of studies on human capital in relation to productivity and economic growth, but this study concentrates on problems of investment in education in relation to opportunities of education available and the shortage of academic human resource (human capital) in the Nigerian education system and the universities in particular. The study reveals to the education policy makers the major problems caused by government investment in education and the possible ways out of the problems.

Education is seen as a major investment in human capital; investment in education being an important component of human capital stock, contributes directly to improvement in people's welfare, and productive

capacity of individual and the nation. Investors in education are identified as federal and state governments, private corporate organisations and students. Based on the family, Nigerians are ready to invest more on education of their children haven't realize the importance of education as key to better job and better life. This is evidenced from the recorded excess demand in Table 3. The study identified the problems of educational investment as low level of investment in education by the federal government at a level far below the UNESCO requirement, limited educational opportunities for Nigerian youths below 20% up to 2009, and shortage of human and physical resources. The determinants of investment in education were identified as expected rate of return, family socio-economic status, and government policy. Finally, the study revealed a uni-directional line of causality from human capital to investment in education. The study concluded that there is relationship between human capital and investment in education. If the major problem in Nigeria will be solved, there is need for development of Human Capital which calls for investment in Education and other resources needed in Nigerian education system.

The federal government must therefore be ready to invest more on education as a poverty alleviation policy and to increase human capital. There should be introduction of students' loans by government, as in developed countries, to increase the educational opportunities for the students from poor families. It should be noted that formally scrapping fees as done in 2002 in Nigeria, without a major increase in public financing can have a disastrous impact on quality of education received. It is therefore necessary that whenever fees are abolished, there should be revenue and budget reforms and the need to train and employ more teachers, build new classrooms and provide more facilities to meet the increased enrolment.

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- 07033775517 March 2010. Press Statement We Reject 2010 Budget, we Demand 26% Budgetary Allocation Date Published: 03/29/10 Pointblanknews.com To Education Hassan Taiwo Soweto (National Coordinator, 07033697259) ChineduBosah (National Secretary, 07033775517) Pointblanknews.com
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