

Human capital and economic growth in nigeria (1970 – 2010) an empirical analysis

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ABSTRACT: *This research study focuses on ‘the effect of human capital development in Nigeria’. The general aim of the work was to examine the relative effect of human capital development and economic growth in Nigeria and also to evaluate the effect of physical formation on economic output in Nigeria. The method of data collection used for this study is the secondary sources of data. Also, the researcher makes use of multiple regression analysis technique to compute his data collected. Numerous studies on the relationship between human capital development and economic growth have been stated and certain models were specified.*

The findings from the cointegration regression result test show that there is a strong evidence cointegration between RGDP and HDI. Also, high level of human capital development has increased the utilization of resources both human and material. Therefore, economic growth is proxied by gross domestic product while human capital development is proxied by investment in education and health sector. Finally, the researcher recommends that government should endeavour to provide enabling environment by ensuring macroeconomic stability and increased investment in human capital by individual.

Keywords: *Human capital, Inequality, Poverty and Macroeconomic stability.*

I. INTRODUCTION

Nigeria is referred to as the giant of Africa; despite this title, it has not translated into a sustainable growth which can lead to economic development. Though, the government tends to pay lip service to the funding of educational sector as each state has its primary, secondary and tertiary institution with a lot of federal government institution in virtually all the states of Nigeria. Undoubtedly, one can say that education has reached all state in one form or the other with privately owned institutions cropping up. Each year graduates are being turned out in our tertiary institutions (colleges, polytechnics and universities) as member of corps after completion of National

Youth Service Corps (NYSC) are sent to the labour market where the jobs available are relatively few in comparison with job seekers.

Most of the indices of human welfare which incorporate income on education and health show that Nigeria’s level of human development is low compared with several other countries in the African regions. Of great concern is the deterioration in the quality of education services at all levels, especially the higher education levels where persons are trained to take up leadership roles in science, technology, management and business.

For a meaningful growth to take place, human capital must be developed and efficiently utilized. Strategies and priorities towards sustained human development, efficient investment in human capital and effective manpower planning and utilization policies need to be put in place by the government. This would in its way ultimately excite growth that will allow the nation and the people to progress and achieve the required economic turnaround. This less than the optimal level of human capital formation in Nigeria has its effect on both economic growth and development; this creates a problem to be examined.

In the light of this background, the paper aims at examining the role of human capital development on economic growth in Nigeria.

The rest of this study is structured as follows: following the introduction is section two which dwells on literature review. Section three gives the stylized fact about human capital development while section four presents model estimation, result and empirical findings. The last section concludes the study and give policy implications.

II. SELECTED EXISTING LITERATURE

No country has achieved sustained economic development without substantial investment in human capital. Growth and development is the macroeconomic goal of nations –developing, emerging and developed.

Thus every nation is driving economic progress at their various capacities. Some are making tremendous economic progress while others are not. The reason for the varying outcomes can be traced to the capacity of each nation.

Capacity in this context refers to the ability to produce output and income. There are various factors that determine the extent of an economy's capacity to produce and improve her income. The major factor is capital, which refers to one of the inputs that make production possible. It can therefore be referred to as a factor of production used for creating goods and services. Because of its great potential, economics have made effort to accumulate more capital. The logic here is that the more capital is accumulated, the more income is generated, the more wealth is formed and the more growth is achieved. This leads us to the concept of capital formation. Capital formation has been the postulation of development economic theorist such as Harrod and Domar, Solow and Keynes. Harrod and Domar, in their model postulated that more savings should be advocated for the purpose of capital accumulation, which is necessary for economic growth (Todaro and Smith 2009). This work therefore looks at capital formation in the context of human capital and its impact on economic growth in Nigeria. The role of human capital in economic growth cannot be overemphasized. The development of human capital has been recognized by economists to be a key prerequisite for a country's socio-economic and political transformation.

According to Schultz (1971), Human capital refers to the stock of skills, knowledge, ideas, talent and health status of individuals which are relevant in the production process. From another point of view, human capital refers to the knowledge, skills, attitudes, physical and managerial effort required to manipulate capital, technology and land among other things, to produce goods and services for human consumption (UNECA, 1990).

Odusola (1998) stated that the concept of human capital development refers to a conscious and continuous process of acquiring and increasing the number of people with requisite knowledge, education, skill and experience that are crucial for the economic development of a country.

According to Okojie (1995) human capital development is associated with investment in man and his development as a creative and productive person. It is a continuum, a continuing process from childhood to old age, and a must for any society or enterprise that desires to survive under the complex challenges of a dynamic world. Human capital development is also a means since it enhances the skills, knowledge, productivity and inventiveness of people through a process of human capital formation broadly conceived.

It has been recognized globally as one major factor that is responsible for the wealth of nations. In the opinion of Smith (1776), it is "*the acquired and useful abilities of all the inhabitants or members of the society*". The acquisition of such talents, by the maintenance of the acquirer during his education, study or apprenticeship always cost a real expense, which is capital fixed and realized as it were, in his person. (Smith 1776).

From the foregoing, it is confirmed that the wealth of nations, as well as the economic growth and development of nations, is the result of the returns on investment in human capital. Other types of capital are relevant. However, each can still derive its existence from human capital. For instance, physical capital is the result of the ingenuity of human capital. It is the idea, innovation and skill of an individual that brings about the existence of physical capital, which is also recognized as a vital component for accelerating the process of economic growth. Human capital is therefore the capital possessing the capacity to create and develop other capitals. Human capital Development therefore is the process involved in developing that capacity. It can be referred to as the development of education and health to cultivate and develop human capital (Manning, 2003). In line with the above, Meier (1970) opines that human capital development concerns the two fold objective building skills and providing productive employment for non-utilized or under utilized manpower. Both stem from investment in man in the form of education and training which are known to be institutional mechanisms for enhancing people's knowledge, skills and capabilities.

The economic benefits of human capital development arise from making people more productive by improving their nutrition, health, education and other social indices through adequate and proper investments (Dauda, 2010).

It is the view of Burneth et al (1995), that investing in human capital development raises per capital GNP, reduces poverty and supports the expansion of knowledge. Education, it is argued, reduces inequality. Fishlow (1995) agree that inequality is negatively related to growth. In addition to the above, Stiglz (1998) states "successful development entails not only closing the gap in physical or even human capital, but also closing the gap in knowledge".

One major challenge facing the global community is how to achieve sustainable development. (IMF 2002) defined sustainable development as having three pillars. They are economic growth, social development and environmental protection. The essence of these is to maintain and enhance the capacity and capability of future generations while meeting the needs of the present generation. To accomplish this, human capital development has to be given primary consideration and must be strategically cultivated and positioned for the preservation of both the present and the future. People are assets - in fact a country's most valuable assets. It is

essential for human development that these assets be deployed sensibly. A defective incentive system can result in a waste of human resources and often too, in a higher incidence of poverty and greater inequality in the distribution of income. It is not enough to use existing resources wisely, we must also add to the existing resources through human capital development.

Developing countries need to break free from the trap of the vicious circles of poverty before. They can consider economic growth. Developed countries are pursuing hard to secure their future generation. Thus both groups need to invest in human capital development in order to generate the needed capacity to increase outputs, develop their societies and protect the environment. Hence the economic rationale for investing in human capital development is derived from the belief that human capital plays a primary role in achieving sustainable development. (Lawanson 2009)

Looking at emerging economies, such as Singapore, South Korea and India, it has been proved the human capital is the real capital. Omotor (2004) states that “Asian tigers” have been experiencing economic growth. Thus, they are gradually leaving the class of developing economics. One major reason for their speedy growth, according to him is their investment in human capital. The increase in their GDP and per capital income can be traced to their investment in human capital. This simply means that the difference among nations is differences in the endowments of human capital.

In the past three decades, the “Asian tigers” have allocated between 25-35% of their annual budget for the development of human capital (Omotor 2004). Singapore, a small country with virtually no natural resources, has become one of the most developed countries in Asia, primarily due to significant investments in developing its human capital. Thus, human capital is seen as the single most important strategic capital for Singapore (Osman-Gani, 2004).

Moreover, South Korea made investment in education a top priority for decades. It invests over 8% of GDP on education and is ranked as one of the emerging economies (Bergheim 2005). This shows that human capital development is a key to the relevance of other forms of capital.

The structure of an economy is basically categorized into the agricultural, industrial and service sectors. An economy begins the journey to development by driving the exploitation of primary products – mainly agricultural products. This is crucial for people’s need for food to be met. People’s welfare and income increase as a result of their increase in output, they pace demand for physical capital to accelerate the growth of output. Further, output and employment increase owing to the employment of more machines to facilitate enhanced productivity. This will cause increasing income for the people. As income increases, consumer demand will shift to the demand for services such as good leadership, education, health, telecommunication, advertising, financial services, transportation and insurance (World Bank, 1995).

These are reflections showing that the emergence and development of any economy involves the employment of physical capital and human capital. Physical capital is needed to accelerated increase in output and thus, income. This increase demand and ultimately production. Increase in production further stimulates the employment of more physical and human capital development. For Nigeria to experience substantial growth in her economy, she has to invest efficiently in human capital development.

According to Oluwatobi (2001), for the government to invest wisely in the growth of the Nigeria economy, priority must be given to human capital development. For instance, in this age where globalization is increasing the level of competition among nations, investment in the development of highly skilled and capable workers has become very important. In addition, increase in demand for services is increasing the demand for highly skilled workers.

The issue of human capital development as a critical factor of national development has been at the heat of post-independence policy making strategies. As borne out in the national development plans, the federal government recognized the need to accelerate human capital development as a means of supporting and indigenizing the public and private sectors of the economy. As a result of this, the immediate post-independence policies favoured huge investment spending on those social factors like education, health care, etc which speed up the national development process through human capital development.

Education like other forms of investment in human capital contributes immensely to the social and economic development of a nation. It also helps in raising the incomes of the poor in the nation, just like the investment in physical capital does. Education is an economic good because it is not easily obtainable and therefore need to be apportioned or traded. Economists regard education as both consumer and capital good, it offers utility to consumer and also serves as an input into the production of other goods and services; as capital goods, education can be used to develop the human resources necessary for economic and social transformation. Despite current trends, education remains a productive investment in human capital. It is a tool adopted by many developing countries for accelerating economic development and promoting higher standards. When properly planned and implemented, investments in education yield very great dividends especially in the poorest countries of the world, according to UNESCO’s statistics, Nigeria is one of such countries. Although several

theories of endogenous growth point towards a positive effect of human capital on growth, empirical evidence on this issue has been mixed.

Despite various efforts of the successive Nigerian governments, virtually all indices of human development especially those of health and education are embarrassingly low. In the same vein, the level of resource commitments to health and education compare very unfavourably with the situation in other developing countries. This paper examines the role of human capital on Nigeria economic growth.

Before the recent past, accumulation of physical capital was considered near-singular factor of economic growth. Improvement in technology that accounts for increase in output and services was considered as an exogenous variable (Solar, 1956). It is important to recall that the human capital revolution, which gained reasonable attention, started with the seminal papers of economic scholars in the 50's and 60s (Blang, 1976). Several studies have evolved to analyze the channels through which human capital can affect growth.

Uwatt (2002) empirically examined the impact of human capital on economic growth, using five variants of the original Solar Model linking physical capital, labour and human capital proxied by total enrolment in educational system to real Gross Domestic Product (GDP). The result showed that physical capital exerted a positive and very statistical impact on economic growth. On human capital variable, it was human capital from primary school education that was statistically very significant on economic growth of the Nigerian economy. Ndiyo (2002) on the "Paradox of education and economic growth in Nigeria" modeled for the contribution of education on economic growth. He considered Real Growth of the Gross Product (RGDP) as respondent variable and Gross Fixed Capital formation (GFCT), aggregate labour force (LAF) and real budget allocation to education (REDUB) as explanatory variables. The result was that, the estimate for the impact of growth in educational capital on the growth of real Gross Domestic Product was consistently negative.

However, Ndiyo is not alone in this position, Kyriakon (1980), Lam et al. (1991) and Dasgupta and Weale (1992), seem to agree to this argument. In essence, the contribution of human capital to economic growth certainly depends on the quality of education.

There have also been attempts to empirically relate these two concepts of economic growth and human capital development (Gustar Ranis and Frances Stewart 2001). This study focuses on the two-way relationship between economic growth and human capital development. The study views human capital development as the central objective of human activity and economic growth as potentially very important instrument for advancing it. At the same time, achievements in human capital development themselves can make a critical contribution to economic growth. In addition, human capital development helps increase national income.

In order to justify further the critical importance given to the development of human capital with its input on economic growth, lets consider other studies undertaken by scholars. Barro (1991) using school enrolment rates as proxies for human capital found that the growth rate of real per capital is positively related to initial human capital proxied by 1960 school enrolment rates. Grammy and Assana (1996), using varied forms of human capital investment such as school enrolment, human development and economic liberty index evidently pointed out that human capital development propels growth in per capital income. Its positive contribution to growth was statistically significant at 1 percent.

There are large numbers of empirical studies that confirm the strong association between health and economic growth. For instance, Blooms and Sachs (1998), as cited in Hamoudi and Sachs (1999), provided empirical evidence on the relationship between health variables and economic growth rates and found out health variables play a significant role in determining economic growth rates.

Remirez, Romis & Stewart (1997) explored two way linkages between economic growth and human development empirically with the help of cross-country statistics. The study argues that public expenditures on health and education represent especially important links in determining the strength of the relationship between economic growth and human development. The study finds that even though both human development and economic growth should be encouraged together, human development should be given first priority.

Abass (2001) analyzed the impacts of human capital on economic growth for Pakistan and Srilomka. The results of empirical analysis show that primary schooling enrolment rates has negative while secondary and higher schooling enrolment rates has positive and significant impact on economic growth for both countries in the sample.

In Nigeria, several studies have emerged in an attempt to provide quantitative evidence to the growth-human capital nexus. Akangbon (1983) and Mbanefoh (1980) determine the social and private returns to the different levels of education – primary, secondary and university, using cross-sectional data. On the basis of the positive rate of returns often computed, inference is made about the positive role of human capital on economic growth, although the relationship is weak.

The Nigerian Economic society held a conference on human capital development in Africa in Nigeria in 2002 and several interesting papers were presented. Some papers showed a positive and significant contribution of human capital to economic growth (Adarnu, 2003; Vwatt 2003; Chete and Adeoye 2003).

Adernu (2003) undertook an empirical investigation to determine the impact of human capital development on economic growth in Nigeria between 1970 and 2000, using cointegration and error – correction mechanisms. The results indicate that investment in human capital in the form of education and training can lead to economic growth because of its impact on labour productivity.

Chete and Adeoye (2003) explored the association between human capital investment and economic growth in Nigeria. A number of methodological approaches were employed to examine this link. The paper observed a mismatch between the manpower needs of the country and the skills turned out by the educational system.

Consequently, for high labour productivity, an integral part of technological progress is investment in human capital and thus is termed endogenous factor because accumulation of physical capital is enhanced by the knowledge, skills, attitudes and health status of the people who partake in such exercise. Thus, there is a strong and positive relationship between investment in human capital and output growth. From the foregoing, the evidence with respect to the positive effect of the level of human capital stock on growth rates is much stronger. But the size of this effect varies across countries.

The role of human capital in economic growth cannot be overemphasized. The development of human capital has been recognized by economists to be a key prerequisite for a country's socio-economic and political transformation. Among the generally causal factors responsible for the impressive performance of the economy of most of the developed and the newly industrializing countries is an impressive commitment to human capital development. (Adedeji, and Bamidele 2003, Worldbank 1995; Barro 1991). This has been largely achieved through increased knowledge, skills and capabilities acquired through education and training by all the people of these countries.

Nigeria is of the opinion that education can help its economic growth and if evolved some educational philosophy in that direction. Nigeria's philosophy of education is therefore based on the integration of the individual into a sound and effective citizen and equal educational opportunities for all citizens of the nation at the primary, secondary and tertiary levels. One of the national educational aims and objectives to which the philosophy is linked is: the acquisition of appropriate skills, abilities and competences both mental and physical as equipment for the individual to live in and contribute to the development of the society. Therefore it is imperative for Nigerian government to increase investment in human capital development in order to bring about economic growth.

III. STYLIZED FACT

Education, generally believed, contributes to the growth of an economy through acquisition of training and skills. For over 160 years, Nigeria had embarked on implementation of education policies affecting primary school, secondary school and tertiary institutions (Adawo, 2010). Nigerian government did not only start training people in schools, but formulated education policies in relation to primary, secondary and tertiary institutions toward making education workable in Nigeria. It is on record that, in the last two decades, Nigeria had the fastest growing educational industry in the African continent (Umo, 2007).

For instance, in 1960, Nigeria had two universities (Universities of Ibadan and Nigeria, Nsukka) with student enrolment of about 1400. Forty four years after, Nigeria had 77 universities and increase of 75 universities and percentage increase of 3750. Today the number of universities in Nigeria is 93. Primary schools as at 1960 were 15703 and increased to 50741 in 2004, an increase of 35038 or percentage increase of 233. The number of secondary schools was 833 in 1960 and increased to 10913 in 2004, an increase of 10030 or percentage increase of 1136. In terms of student intake, the two universities in 1960 had intake of about 1400 but by 2004 total intake in the entire 77 universities close in to about 1.6 million students, an increase of 1598600 or 11419% increase. Primary school intake in 1960 was about 2912618 and rose to 20037450 in 2004, on increase of 17124862 or 558% increase. For secondary schools, the intake in 1960 was 135364 and rose to 5388734 in 2004, on increase of 5253370 or percentage increase of 3881.

HDR (2001) notes "the quality and orientation of education of each level, and the link with the demand for skill, are critical for growth". However opinion converse that education requires funding for improved quality. This results from appropriately equipping the schools, hiring quality teachers and commensurately remunerating them. Adawo (2011) argues that, despite these efforts Nigeria had made toward building human capital through education, it is not exactly clear to what extent human capital has impacted on the economic growth of Nigeria.

In Nigeria, primary schools prepare candidates for secondary education and while secondary schools prepare candidates for higher education at least for those candidates who have the academic capability and the required resource to further their education.

Education affects every individual in a country; the general consensus has been that there is a high positive relationship between rise in educational expansion and economic growth (Ogujiuba and Adeniyi, 2010). The report of Dshby commission supported this assertion and in fact favoured the expansion of the educational

sector. The old 6-5-2-4 inherited from the colonial masters was replaced by the 6-3-3-4 education system in 1977. This means that pupils will spent six years to get primary education, six years in secondary school (three years of junior secondary and three years of senior secondary education) and four years of higher education.

The federal government of Nigeria is principally responsible for tertiary institutions. However several states also fund this level of education. Indeed with the approval of the eight new universities, the number of the nation's private universities has risen to 20 and they will be funded by private institutions.

Secondary education is mainly a state responsibility though there are some federal secondary schools. Primary education is a local government responsibility, but there exist also a National Primary Education Commission (NPEC) that draws up the curricula for the schools in this category. There has also been collaboration by corporate bodies, individuals, religious organizations, international agencies, Non Governmental Organisation (NGOs) and community-based organizations (CBOs) with the three tiers of government to promote education in Nigeria.

Table 1 Indicators of Educational Development in Nigeria 1970 – 2003

Year	Student Per Teacher		Literacy Rate %
	Primary	Post Primary	
1970	34	21	-
1972	34	20	-
1980	35	28	-
1981	36	30	-
1982	39	30	-
1983	40	33	-
1984	40	38	-
1985	42	27	-
1986	44	30	-
1987	37	22	-
1988	41	22	49.8
1989	37	-	50.1
1990	36	-	52.2
1991	37	-	54.0
1992	39	-	54.0
1993	41	-	55.0
1994	20	-	55.0
1995	60	40	57.0
1996	48	37	57.0
1997	52	39	57.0
1998	54	40	57.0
1999	52	38	57.0
2000	54	41	57.0
2001	56	45	57.0
2002	55	50	57.0
2003	53	43	57.0

Sources: 1. CBN Nigeria: Major Economic, Financial and Banking Indicator 1980-2003.

2. CBN annual report and statement of accounts 1990-2003.
3. Federal Ministry of Education, National University Commission, National Board for Technical Education.

Table 1 show the level of expansion in the educational system. For instance, it is observed that under education, primary school enrolment declined from 6.2% in 1998, 5.0% in year 2000 before it increased to 10% in year 2001. Enrolment in Secondary Schools however improved without adequate facilities including the recruitment of new teachers, the pupil's educational problems were intensified.

The student-teacher ratio increased from 28 in 1980 to 38 in 1984. It rose to 40 in 1995, declined to 37 in 1996. In 2003, the ratio fell to 38 compared to 40 recommended by the National Policy on education. This is a noticeable improvement, which should be sustained.

Nigeria had invested in formal education for a period not less than 167 years (1842 to 2009). The number of primary schools; post primary schools and higher institutions had grown tremendously. Nigeria's higher institutions have been turning out not less than 120,000 graduates yearly. The federal government and some corporate bodies via Educational Trust Fund (ETF) had been funding education. Comparing education funding

of some countries in sub-African region, it is observed that Nigeria had never in any year met the minimum standard prescribed by the UNESCO, which is 26% of total expenditure or annual budget of an economy. According to Adawo (2010) Education expansion in Nigeria does not seem to equally match with expansion in economic growth. For instance; between 1970 and 1980 growth in primary school was 141%. For Post Primary institutions, the percentage increase between 1970 and 1980 was 133 and 157% between 1980 and 2000, 101%. Even more astronomical is the student intake at various level of school. For Primary Schools, between 1970 and 1980 is 247% and between 1980 and 2000, was 104%. In terms of post primary institution, the growth rate of intake between 1970 and 1980 is 426% and between 1980 and 2000 is 239%. For tertiary institutions, the intake growth rate between 1970 and 1980 is 299%, between 1980 and 2000, 1689%.

Equally the growth rate of GDP (at 1984 factor cost) between 1970 and 1980 is 77.6% and 1980 and 2000, is 25%. The growth in GDP is a distant comparison with the growth in the schools intake. Unfortunately observing the growth of GDP per capital was -50.0, -7.7, -5.1 and - 4.4 measured in percentage point for the years 1981, 1984, 1990 and 1990 respectively (Ayayi 2002).

Education is generally considered to be an instrument of poverty reduction, but Nigeria’s case appears to be different. There is high level of poverty prevalent in Nigeria. For the population living below 81 a day in sub Africa for the period 1970-2001, Nigeria had the highest percentage of 70.2. Also there is high level of unemployment.

Ogujiuba and Adeniyi (2010) stated that, inspite of the expansion in the educational system in Nigeria, it was accompanied by structural defects, inefficiency and ineffectiveness which affects Nigeria’s level of human capital development and utilization. Nigeria’s educational system tends to produce graduates who lack job skills for employment than those the economy requires to remain vibrant. This inadequacy resulted in decreasing industrial capacity utilization, rising unemployment, threats of social insecurity by jobless youths. Other problems include inadequate resource input and consequent low output and overdependence on government as an employer of labour. In fact the level of literacy is low. Available statistics show that adult literacy is low. Available statistics show that adult literacy was 50.1 in 1989, rose to 55 in 1993 and 1994. It remained at 57 from 1995 to 2003. This data indicated that about 43% of Nigeria are illiterate compared to other countries.

Over the years, successive governments recognized the importance of human capital development in the development process and have embarked on various programmes and project. One of such programmes is the National Economic Empowerment Development strategy (NEEDS). It was indicated that adult literacy rate of at least 65% by 2007 would be attained. The NEEDS recognizes the centrality of human capital development in achieving economic growth. It was described as a vital transformational tool. Therefore the strategy aims at empowering the citizenry to acquire skills and knowledge that would prepare them for the world of work. The provision of high quality education and health care to all the country’s citizens is considered a key element of public policy by all levels of government.

IV. TYPE AND SOURCES OF DATA

The study utilized secondary data (1970-2010). The main sources of data for this study are mainly secondary in nature. These include the publications of National Bureau of Statistics (NBS), publication of the Central Bank of Nigeria (CBN) which includes; the statistical bulletin, annual report, statement of accounts, financial review of various years and other related items.

The variables utilized for the study that are expressed in monetary terms were deflated in order to remove any part of the variable’s change that may be attributed to price movements. The deflation was carried out using consumer price index (2005=100).

In order to achieve the specific objectives of this study, two models were specified. In the equation (1), we expressed real gross domestic product as a function of real foreign direct investment and other independent variables. In equation (2), real foreign direct investment was expressed as a function of openness, regime and other independent variables. The models are shown below:

$$Rgdp = \alpha_0 + \alpha_1 Rtexp + \alpha_2 Rexres + \alpha_3 ttenrol + \alpha_4 exrat + \alpha_4 hdi + regm + U_0 \quad (1)$$

$$Rtexp = \alpha_0 + \alpha_1 Rexres + \alpha_2 Rgdp + \alpha_3 exrat + \alpha_4 hdi + \alpha_5 Reg + U_0 \quad (2)$$

Where:

Rgdp represents real gross domestic product per year (N million)

Rtexp represents real total expenditure per year (N million)

Rexres represents the external reserve (N million)

Exrat represents the exchange rate (%)
 Ttenrol represents the total number of student (Nmillion)
 Hdi represents the human capital development (Nmillion)
 Reg represents the regime (military=0, civilian=1)
 U₀ represents the random term

Table 3.1: Variables used for Empirical Analysis

S/N	Dependent & Independent Variables	Symbo l	Description	a'priori expectation	Literature
1	Real gross domestic product	rgdp	A rising rgdp will lead to increase economic growth	Positive	Iyoha
2	Total expenditure	rtepx	The is the proxies for measuring human capital budget for health and education	Positive	
3	External reserve	Rexres	The higher the external reserve the increases in the economy growth of a country.	Positive	
4	Exchange rate	exrat	A favorable exchange rate would lead to economic growth and the country would be attractive	Negative	O
5	Total number of student entrol	Ttenro l	This is the total number of student admitted in a particular period of time	Positive	
6	Human development indices	hdi	It represents the effect of human capital on the economy	Negative	
7	Regime	reg	This is a measure of political instability in the country	Negative	

Unit root test was carried out on all the variables. The unit root test identifies variables that are non stationary, that is, variables that contain stochastic trend that leads them to wander randomly. The presence of unit root is tested using the Augmented Dickey-Fuller test. To test whether a series, Y_t , is stationary or not we model it as:

$$\Delta Y_t = \alpha + \beta Y_{t-1} + t + \sum \beta_2 \Delta Y_{t-k} + \mu_t$$

Where Y_t stands for a time series, Δ stands for a first difference, t stands for a linear trend, α stands for a constant and μ is an error term. The null hypothesis of unit root is $\beta = 0$ ($\beta = \rho = 1$). If any variable is known to be non-stationary it may be tested for stationarity at first difference. If any variable is found stationary at first difference then bivariate co-integration test will be implied to recognize the association between variables.

One of the specific objectives of the study is to determine the long-run relationship among economic growth, human capital investment and other independent variables. Engle and Granger (1987) stated that a linear combination of two or more non-stationary series may be stationary and if such a stationary linear combination exists then the non-stationary time series are said to be cointegrated. The stationary linear combination is called

$$y_t = B_o + \sum_{j=1}^p B_j y_{t-j} + \varepsilon_t$$

the cointegrating equation and may be interpreted as a long-run equilibrium relationship among the variables. Also, cointegration test is implemented through Johansen and Jeselius (1990).

The method involves estimating the following unrestricted vector autoregressive (VAR) model.

Where y_t is an $n \times 1$ vector of non-stationary I (1) variable, B_0 is a $n \times 1$ vector of constants, p is the number of lags, B_j is a $n \times n$ matrix of estimable parameters, and ε_t is $n \times 1$ vector of independent and identically distributed error terms.

4.2 DATA ANALYSIS AND PRESENTATION OF RESULT

In this section, the result of the estimation are analysed below: **Determination of long-run relationship between Economic Growth (RGDP) and Human capital development as well as other variables.**

Table 4.1: Johansen Test Result (RGDP as Dependent Variable)

Rank	Eigen Value	Trace Test	P – value	Lmax Test	P - value
0	0.72559	145.14	0.0016***	51.726	0.0084***
1	0.68277	93.414	0.0698**	45.925	0.0070***
2	0.41398	47.488	0.7416**	21.376	0.8804 ^{ns}
3	0.27595	26.113	0.8823*	12.916	0.8804 ^{ns}
4	0.16476	13.197	0.8806	10.2015	0.9359 ^{ns}
5	0.13894	5.9954	0.6991	5.9835	0.6212 ^{ns}
6	0.00029685	0.011876	0.9132	0.011876	0.9132

Source: Authors Computation (2013)

Note. *** means significant at 1%,

** means significant at 5%, * means significant at 10%, ns means not significant

The result shows that the variables can cointegrate. Two cointegrating equation can be obtained from the result ($p < 0.05$). This test is important because it helps to determine whether there is a long run relationship between dependent and independent variables or not. The confirmation of cointegration of the variables means that there is a long run relationship among human capital development, real gross domestic product, openness, exchange rate, total expenditure, human development indices and regime (civilian and military).

Table 4.2: Contegrating Regression Result (Dependent Variable is RGDP)

Variable	Coefficient	Standard Error	P - value
Constant	9.00246e+07	9.28695	2.572***
Total exp hc	30.5023	14.5670	0.0438**
Rextres	4.25032	1.31741	0.0028***
Exch_rate	0.019540	0.00653	0.0051 ^{ns}
Hdi	0.092295	0.05059	0.0769 ^{ns}
Reg	0.480085	0.25237	0.0656*

Source: Authors Computation (2013)

Note. *** means significant at 1%,

** means significant at 5%, * means significant at 10%, ns means not significant

Table 4.2 shows the cointegrating regression result. This result is obtained because the previous results confirmed that the variables can cointegrate through Johansen test (Eigen value and Trace value). The result revealed that out of the five independent variables, four variables are statistical m, significant at varying level of significant. This means that Texp, rexres, and extrat have causal relationship with hdi. All the significant variables conform with a’ prior expectations. Specifically, as the total expenditure on human capital increase economic growth increase and the real gross domestic product increases and it would increase foreign investors because would be a favorable place for investors.

Table 4.3: Augmented Dickey Fuller test (HDI as Dependent Variable)

Variables	At Level		At First Difference	
	Test Statistic	P-value	Test Statistic	p - value
RGDP	-0.645874	0.4168*	-1.72857	4.179 x 10 ⁻⁹ ***
Rtexp	-2.10635	-4.9869**	-005	4.179 x 10 ⁻⁹ ***
Hdi	-2.20794	-3.225 ^{ns}	0.01856	1.55 x 10 ⁻⁶
Rexres	-0.107968	-1.738 ^{ns}	0.4116	9.925 x 10 ⁻⁷
Ttenrol	19.5025	2.160 ^{ns}	0.9999	0.004299
Exrat	-0.878171	-5.302 ^{ns}	-8.292	0.0001

Source: Authors Computation (2013)

Note. *** means significant at 1%, ** means significant at 5%

In table 4.1 above, one of the variables is significant at level. This means that out of the six variables, only HDI ($p < 0.05$) is stationary at the level. However, all the five variables are stationary of the first difference level

Table 4.4: Result of Difference Of Means Comparing Expenditure (Naira Million) on Human Capital During Military and Civilian Regimes

<i>Parameter</i>	<i>Variable</i>	<i>Mean</i>	<i>Variance</i>	<i>Z- Stat</i>	<i>P-Value</i>	
					<i>One- Tail</i>	<i>Two- Tail</i>
Expenditure on Human Capital	Military	83411.7	5843709889	-2.54	0.0078***	0.016**
	Civilian	143359.9	5142614415			
Total School Enrolment	Military	290167.9	3.91353	-3.22	0.0028***	1.753***
	Civilian	2299185.4	6.19493			

Source: Authors Computation (2013)

Note. *** means significant at 1%

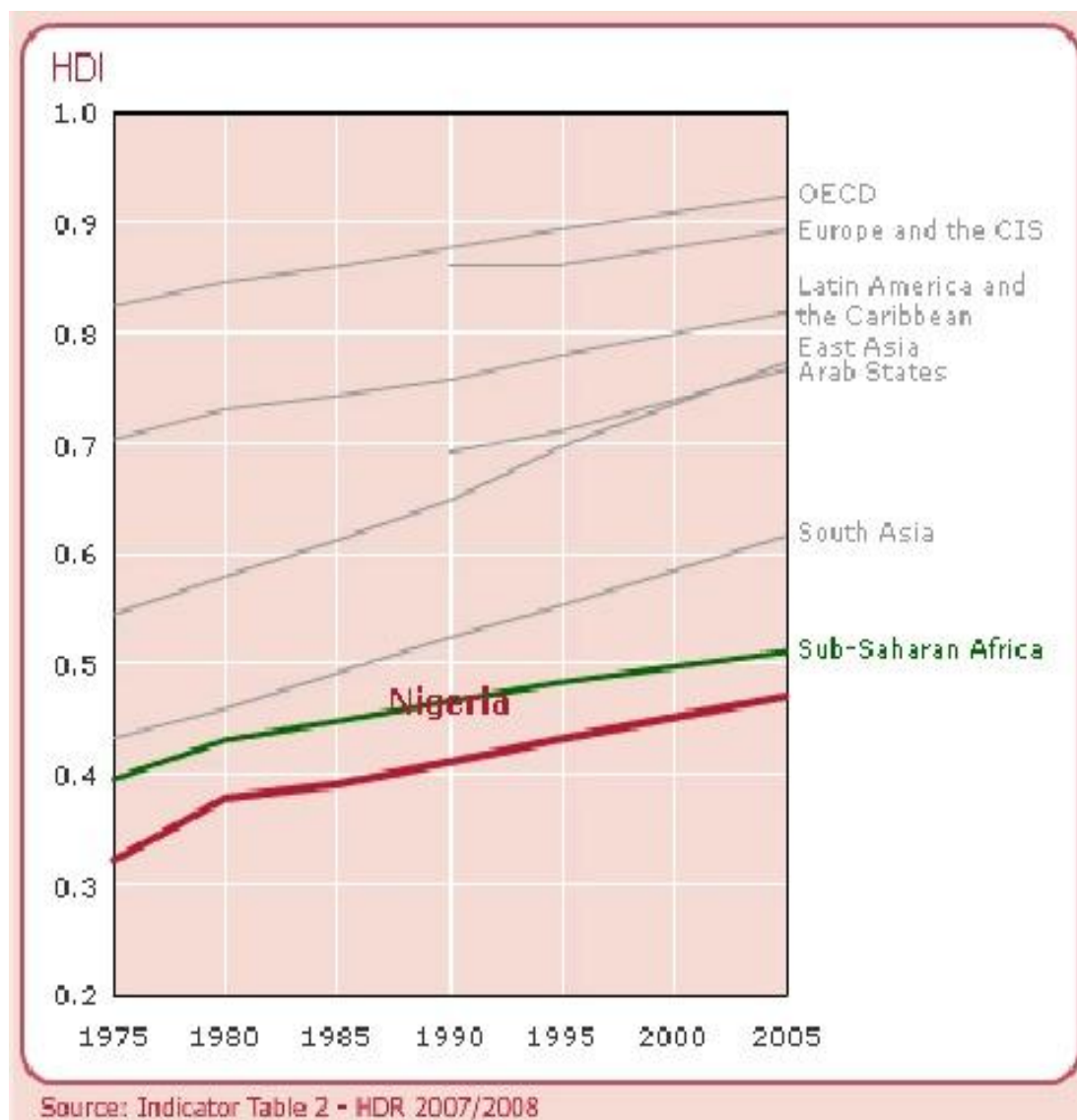
The result in table above shows that average human capital development (deflated) is significantly higher during the military regime compared to the civilian era. This may be attributed to the time value of money and not the conducive economic environment. For instance, N10,500 during the military regime is worth N50,000 of today.

However, the human capital development (nominal) for the civilian regime is significantly in terms of the educational systems, there are a lot of government owned primary and secondary schools higher than the value during military era.

There are a lot of Universities in Nigeria but the problem is the amount of resources invested in these areas is insufficient. Due to the few resources allocated to the educational sector, the quality education becomes difficult to attain. As Nigeria's population increase in a geometrical ratio, the resources allocated to education is increasing slowly or sometimes decreasing. This misallocation of resources results to a lot of pressure on existing infrastructure leading to depreciation. Huge quantities of people pass out from primary, secondary schools and the Universities with little or no knowledge and no jobs to do. The masses in Nigeria are the ones mostly deprived of quality education and health services. Due to the deprivation of quality education, there are low incomes and wages. These low incomes and wages drive away already existing persons with high human capital to foreign countries in search of a better pasture (brain drain). This brain drain leads to insufficient professionals in Nigeria causing overall productivity to fall.

This is due to a lot of factor relating to civilian rule such as corruption, political instability, democratic system of government which is expensive; all of this factor when put together would also increase the amount that would be spent on education.

A trend of Nigeria's human development growth is slow compared to other regions in the world and this also translates to slow development. This is possibly due to factors that hinder the three dimensions that the HDI captures (Life expectancy, adult literacy and enrolment at the primary, secondary and tertiary level and purchasing power parity, PPP, income). Factors may include: high level of diseases, poor health services, misallocation of resources, bad governance, poor infrastructure, and poor educational systems.



IV. SUMMARY

The aim of this study is to determine the effect of human capital development on economic growth in Nigeria. Our findings from the cointegrating regression result test suggest that there is a strong evidence of cointegration between RGDP and HDI. Also the study revealed a long-run causal relationship between RGDP and HDI. The high level of human capital development has increased the utilization of resources both human and material and as expected, there has been a multiplier effect that has led to economic growth in Nigeria. As a result, a high sense of optimism has emerged concerning the benefits of increased continuous development of human skills and abilities. The substantial increase in the investment of human capital during the civilian regime compared to military regime is an indication that as democratic culture gets better coupled with improvement in basic infrastructures; more foreign investors will be encouraged to invest in Nigeria economy.

V. CONCLUSION

This paper has explored empirically the relationship between economic growth and human capital development in Nigeria. Economic growth is proxied by gross domestic product, while, human capital development is proxied by investment in education and health sector. It was revealed that it had both positive and negative effects. Its negative side was observed to be no correlation between investment in health sector and increase in gross domestic product. The positive side was that investment in education increased.

Conclusively, Nigeria can only reposition herself as a potent force through the quality of her human capital assets in the highly competitive and globalised economy through a structured and strategic planning of her educational institutions. We therefore recommend that: Government should continue to provide enabling

environment by ensuring macroeconomic stability that will encourage increased investment in human capital by individuals and the private sector. Expand institutional capacity by strengthening the infrastructure of educational institutions to produce qualified manpower. Teachers/lecturers salaries and improved working conditions in educational institutions should be accorded high priority by the government. The effort of government on increasing primary school enrolment through the free Universal Basic Education should be sustained. This could also be complemented by involving private and religious organizations. The curricula used for educating and training should be reformed to address the needs of the economy. There is a new challenge faced by the educational system and yesterday's solution cannot solve it.

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