

Impact of Human Capital Development on Economic Growth in Nigeria

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Abstract: The crucial role of education in the overall development of a nation cannot be overemphasized. It is not only seen as a key to poverty reduction and vehicle for promoting equity, fairness and social justice but also helps to supply the essential human capital which is a paramount condition for sustained economic growth. Thus, enhancing effective investment on education and health has been a tenet of growth and development strategies for most countries. The basic objective of this paper investigated the relationship between human capital (through education and effective health care services) and economic growth in Nigeria, using annual time series data from 1980 to 2012. The paper employs OLS methodology. The result shows that considering the magnitude, 1% increase in GDP is brought about by 22% increase in human capital. This postulates that an increase in allocation to education and health will lead to increase in GDP. The estimated value of R^2 (goodness of fit) of 0.80 or 80% and it show that the independent variables explain about 80% of the variation in the dependent variable. The findings have a strong implication on educational and health policy in Nigeria. The study seems to suggest that a concerted effort should be made by policymakers to enhance educational and health investment in order to accelerate growth which would engender economic growth.

Keywords: Human Capital, Economic growth, Education, Health.

1. INTRODUCTION

Human capital refers to the acquired and useful abilities of all the inhabitants or members of the society and Human capital has been recognized globally as one major factor that is responsible for the wealth of nations (Folloni and Vittadini, 2010). The definition of a nation's wealth has widened to accommodate not only physical capital but also human capital as an independent factor of production required to achieve high and sustainable economic growth rates. In recognition of this relationship, however, developing nations have, in varying degrees, attempted to stimulate the accumulation of human capital through public education expenditure as well as government spending on health and related social services (Adebiyi, 2006).

In human capital development, education is essential. Education is concerned with the cultivation of the whole person including intellectual, character and psychomotor development. It is the human resources of any nation, rather than its physical capital and material resources, which ultimately determine the character and pace of its economic and social development. Human capital is an all-embracing concept, that is, it is a continuum, a continuing process from childhood to old age, and a must for any society that wishes to survive under the complex challenges of a dynamic world.

The concept of human capital has shifted the focus of economic development theorists to generally agree that the quality of human capital has a significant impact on economic development and growth. This body of thinking is of the opinion that the quality and quantity of labour determine the production by virtue of it being a major factor of production. Moreover, improving the quality of the labour force yields implicit, non-economic outputs related to the generation of ideas and decisions which have a significantly positive impact on investment, innovation and other growth opportunities (Roux, 1994: Adebiyi, 2006).

The major source of per capita output in any country; whether developing or developed, with a market economy or centrally planned is an increase in productivity. Per capita output growth is however an important component of economic welfare, (Adelakun, 2011; Abramowitz, 1981).

Despite the importance of educational institutions, Nigeria spends an almost insignificant proportion of her financial resources on education. In Nigeria, education expenditure as a proportion of gross domestic product (GDP) averaged 5.64 per cent between 1986 and 1990, compared to 5.84 per cent between 1999 and 2003. The United Nations recommends that 26 per cent of the total expenditure be devoted to education. Seychelles had committed 10.2 per cent of its gross national product (GNP) to total education in 1985-87 and 8 per cent in 1995-97. Ghana allocates an average of 20 per cent of its total expenditure to education yearly. Between 1986 and 1992, Botswana spent 21 per cent of her expenditure on education; Malaysia, 19 per cent; Kenya, 20 per cent; Uganda, 15 per cent; and Nigeria, 5.23 per cent (Olaniyi and Adam, 2003). Human capital is so important that in the Khartoum Declaration of 1988, it was asserted that:

“The human dimension is the sine qua non of economic recovery .no SAP or economic recovery programme should be formulated or can be implemented without having at its heart detailed social and human priorities. There can be no real structural adjustment or economic recovery in the absence of the human imperative.” (Adedeji, et al., 1990)

The notion of investment in human capital is of recent origin. Jhingan (2005) points out that in the process of economic growth, it is customary to attach more importance to the accumulation of physical capital than human capital. The new endogenous growth theories are thus significant in the introduction of the active role of human capital in the growth of economies. Human capital is the term economists often use for education, health, and other human capacities that can raise productivity when increased (Todaro and Smith 2003). Health and education are two closely related human capital components that work together to make the individual more productive.

Taking one component as more important than the other is unrealistic as a more educated individual, who is ill, is as inefficient as an illiterate, but healthy individual. Both components are thus related together because of their close relationship. Appleton and Teal (1998), describe health and education as components of human capital that are contributors to human welfare. They describe these components as different from other types of goods produced in societies. While high incomes may be conducive to health it cannot be directly purchased like material goods and services. Health and education are often subsidized by the state and in some countries, education is compulsory for certain minimum length of time. Nigeria, which was one of the richest 50 countries in the early 1970s, has retrogressed to become one of the 25 poorest counties at threshold of the twenty-first century. The belief in human capital as a necessity for growth started in Nigeria during the implementation of the 1955-60 development plan and today, with the importance of knowledge in the economy, human capital has increasingly attracted both academic and public interest.

In Nigeria, the rate of illiteracy is very high. Most of the workers are unskilled and they make use of outmoded capital, equipment and methods of production. By implication, their marginal productivity is extremely low and this leads to low real income, low savings, low investment and consequently low rate of capital formation. It was indicated on the document that adult literacy rate of at least 65% would be attained by 2008. Therefore the strategy aimed at empowering the citizenry to acquire the skills and knowledge that would prepare them for the vast challenges. Overtime, the following issues relating to the concept have remained unresolved: Uneven distribution of skilled manpower, Misemployment of human capital in Nigeria, Poor reward system retarding the acquisition and development of human capital.

The study of this nature is prompted by the slow rate of Nigeria’s economic growth despite the huge contribution of the government. Researches on this topic being carried out over the years have not really achieved its prior objective. This study shall further contribute empirically to the available literature on the impact of human capital on the Nigerian economic growth path by attempting to show the relationship between human capital development and economic growth.

The government and its agencies shall find this work resourceful in formulating policy, directives and regulation on education and health policy to aid economic growth. It shall also be a resourceful material for private individual, firm and multi-national company that are looking forward to invest in Nigeria, putting into consideration the available skilled and healthy manpower that shall absorb/handle the physical capital or equipment that shall be made available by these firm and organization.

Considering studies that have been carry out on the role of human capital on economic growth, which most papers have either focused on one aspect of human capital, for example Adedokun(2011) who work on “human capital development and economic growth in Nigeria” concluded that human capital is one of the greatest catalysts of improvement of the standard of living of the population. However, this study shall look at both the impact of human capital and health on economic growth in Nigeria.

This study shall specifically focus on education and health as elements of human capital. The study covers the period 1980 - 2012.

2. HUMAN CAPITAL DEVELOPMENT IN NIGERIA

The importance of investing in education and health is well appreciated and understood in economies that wish to attain sustainable growth. Nigeria is rated by international standards as ‘less developed’ and thus has economic growth as a major goal. Indeed, the importance of a prime sector such as education has been stressed in Nigeria since the early sixties following the submission of the Ashby report in September 1960. The government in Nigeria as explained by Ogujiuba and Adeniyi (2005) primarily controls education. In Nigeria, the federal government is primarily responsible for the tertiary institutions although some states and private individuals also fund and run this level of education. Secondary education is mainly a state responsibility although there are some federal secondary schools. Primary education is a local government responsibility but there also exists a National Primary Education Commission (NPEC) that draws up the curricular for corporate bodies, individuals, religious organizations, international agencies, non-governmental agencies and community based organizations with the three tiers of government. Importance of higher education in national development in Nigeria is reflected in the goals for tertiary education as enunciated in the National Policy on education (NPE, 1988), which are to:

1. Contribute to national development through high-level manpower training.
2. Develop and inculcate proper values for the survival of the individual and the society.
3. Develop individual’s intellectual capacity to understand and appreciate their local and external environments.
4. Acquire both physical and intellectual skills, which will enable individuals to be self-reliant and useful members of the society.
5. Promote and encourage scholarship and community service.
6. Forge and cement national unity.
7. Promote national and international understanding and interaction.

These set goals are expected to be achieved by tertiary institutions through teaching, research and development, sustainable staff development programs, generation and dissemination of knowledge and a variety of modes of programs. Aigbokhan et al (2007) note that a cursory look at the magnitude and trend of increases in allocation might be misleading in passing judgment on the budgetary performance until they are placed side by side with their percentage allocations. The characteristic pattern of the government’s allocation to education and health in Nigeria as a percentage of the total budget revealed inconsistency. That is, health and education expenditure were not considered as policy targets in the overall budgeting, or else, they would have maintained an increasing proportion of the yearly budget of the nation.

The National Economic Empowerment and Development Strategy (NEEDS), which is presently Nigeria’s development plan and poverty Reduction Strategy Paper, stipulates a goal of increasing government’s budgetary allocation to health and education from 8% to 10% between 2004 and 2007. While listing selected targets, education and health are rightfully noted as worthy of closer attention. Under its specific sectorial strategies, the government and the private sector are identified as key players in tackling issues that are critical for effective economic growth. One of such listed issues is inadequate human capital development. Going ahead to discuss these specific sectorial strategies, the first sector discussed is education.

Under NEEDS, education is considered the key bridge to the future. In this regard, the strategy aims at the empowerment of the citizenry to acquire skills and knowledge that would prepare them for the world of work. In order to achieve this, NEEDS is to address the following crucial issues:

- i) Faithful implementation of the free, compulsory Universal Basic Education (UBE) law to, among others:
 - Improve education infrastructure.
 - Expand institutional capacity to produce quality manpower.
 - Expand total school enrolment.
- ii) Review of school curricular from primary to tertiary to incorporate vocational and entrepreneurial skills.
- iii) Re-tooling and repositioning of technical schools to be able to address the technical manpower needs of the economy.
- iv) Establishment of more vocational centers to encourage Nigerians to embrace vocational education.
- v) Review of school curricular at all levels to incorporate the study of information and communication technology (ICT).
- vi) In view of Nigeria's position, and vision of ECOWAS sub-region, review school curricula to make study of French compulsory from primary through secondary schools.
- vii) Expand existing special education programs including the virtual library project, the distance learning program and the Nomadic education program.
- viii) Sustain existing vocational/on-the-job training programs of the Federal government and encourage the states to do the same.
- ix) The National Youths Service Corps will be reviewed with a view to using a good part of the service year to develop entrepreneurial and basic business skills in corps members.

The orientation period will be extended to include a one-month period for formal training on entrepreneurship. Following the training, corps members will be posted mainly to industrial (including small scale enterprises) and agricultural concerns so that the exposure will expose them to consider the possibility of post-service self-employment.

The health sector is next for which specific sectorial strategies are listed. Major strategies of NEEDS to improve the service delivery of this key sector are as follows:

- i) Redefinition of the roles and responsibilities of the federal Ministry of Health (FMOH) and other Federal public health structures and institutions in the provision and financing of quality services to Nigerians.
- ii) Reorganization and restructuring within the context of the redefined roles and responsibilities.
- iii) Review of existing health policies and strategies as well as health legislations culminating in the publication of a new National Health policy and the enactment of health system and the health functions of each of the three levels of government.
- iv) Strengthening the capacity of FMOH in policy formulation and implementation.
- v) Improving the existing and/or setting up of new mechanisms to generate and use evidence and information for health policy/ program/plan development and implementation.
- vi) Increase in antenatal, postnatal, and family planning services and outlets to reduce maternal and infant mortality from the present 704/100,000 and 77/1000 respectively.
- vii) Intensification for the campaign of the eradication of harmful traditional practices such as female genital mutilation and child marriage.

In a January 2008 publication of the Guardian Newspaper, an article by Sanyaolu describes human capital as the bedrock upon which productivity in Nigeria rests. The contributions of prominent individuals to the topic were documented and presented as advice to the President of the country as key points worthy of note. The National President, Senior Staff Association of Nigerian Universities, Mr. Promise Adewusi, the former Director, Institute of Education, Lagos State University, Prof. Ademola Onifade, and the Registrar and Chief Executive, Certified Institute of Cost Management of Nigeria, Mr. Victor Omoregie were among the contributors. Their contributions can be streamlined to consist of the

following issues: Better funding of educational Institutions, tackling unemployment, provision of infrastructural facilities, and research and development.

A later publication of February 2008 included an article describing a contribution to human capital development by a joint project of Chevron Nigeria Limited, Coca-Cola Nigeria, and Discovery Channel Global Education Partnership. The project involves eight new learning centers and teacher training programs to enable teachers from eight primary schools in Lekki and Ikoyi areas to use educational media technology and programming to complement classroom learning for more than five thousand (5000) students. This would also reach an additional fifteen thousand (15,000) community members. The implementation of this project is founded on the belief that human capital and economic performance will be positively affected.

3. TREND OF GOVERNMENT EXPENDITURE ON HUMAN CAPITAL

The table below shows government's commitment to health and education, these sectors through the percentage of each sector's expenditure in the total government expenditure. An observation of the table suggests that government showed little commitment to the health sector. For instance, in 2000, only 2.7% of government expenditure was expended on the health sector. However, it rose to 5.6% in 2006 which was the highest ever attained within the period under study. This is far below what is required given the nature of the Nigerian economy, its rising population, prevalence of diseases, and low level of health facilities.

4. CONCEPTUAL REVIEW

Human capital development has been described as an end or objective of development. It is a way to fulfill the potentials of people by enlarging their capabilities, and this necessarily implies empowerment of people, enabling them to participate actively in their own development. Human capital development enhances the skills, knowledge, productivity, creativity and inventiveness of people. Thus, human capital development is people and not goods or production centered strategy of development. Essentially, it is the empowerment of people to identify their own priorities and to implement programmes and projects of direct benefit to them. This in turn implies the active participation of people in the development process and the consequent need to establish institutions that permit and indeed encourage that participation.

The concept of human capital refers to the abilities and skill of human resources of a country (Adamu, 2000), while human capital formation refers to the process of acquiring and increasing the number of persons who have the skills, education and experience that are crucial for the economic growth and political development of a country (Okojie, 1995). Human capital formation is thus associated with investment in man and his development as a creative and productive resource (Erhuraa, 2007).

In human capital development, education and health are essential. Education is concerned with the cultivation of "the whole person" including intellectual, character and psychomotor development. It is the human resources of any nation, rather than its physical capital and material resources, which ultimately determines the character and pace of its economic and social development. According to Harbison:

"Human resources constitute the ultimate basis for the wealth of nations. Capital and natural resources are passive factors of production; human beings are the active agents who accumulate capital, exploit natural resources, build a social, economic and political organization, and carry forward national development. Clearly, a country which is unable to develop the skills and knowledge of its people and utilize them effectively in the national economy will be unable to develop anything else" (Harbison, 1973).

Human resources is all embracing, that is, it is inclusive of persons who works now, or are likely to be productively employed sooner or later. It is a continuum, a continuing process from childhood to old age, and a must for any society or enterprise that wishes to survive under the complex challenges of a dynamic world. Yesufu (2000), in agreement with this view, opines that "the essence of human resources development becomes one ensuring that the workforce is continuously adapted for, and upgraded to meet, the new challenges of its total environment". This implies that those already on the job require retraining, reorientation or adaptation to meet the new challenges. This special human capacity can be acquired and developed through education, training, health promotion, as well as investment in all social services that influence man's productive capacities (Adamu, 2003).

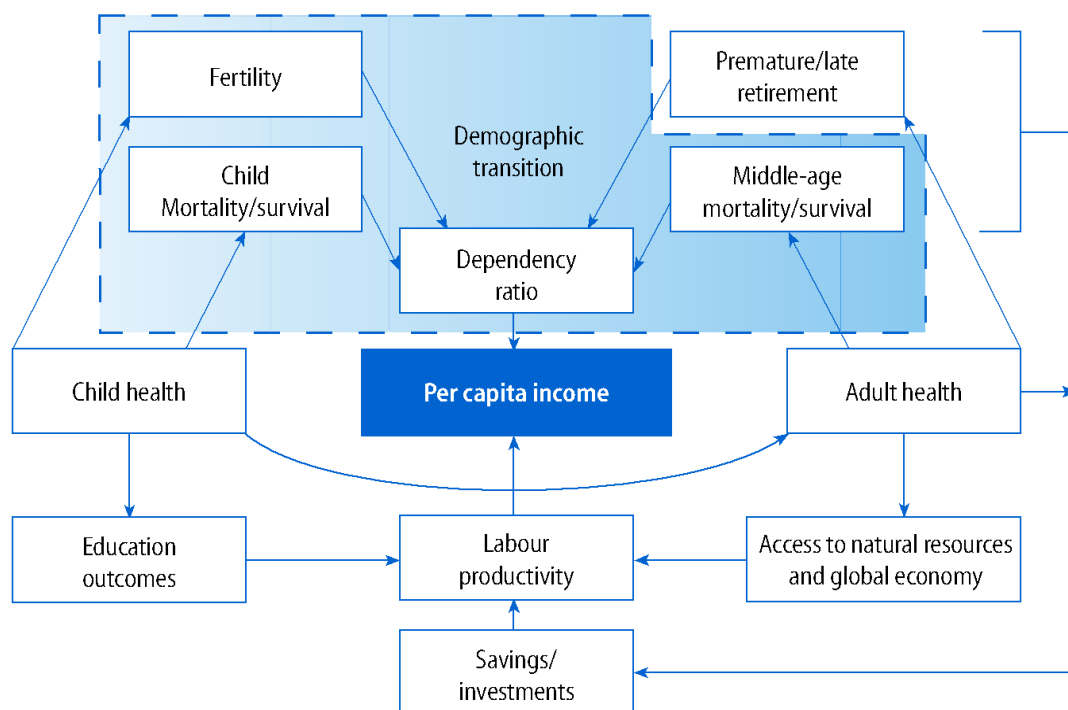


Figure 3-1: The Relationship between Health Outcomes and Economic Growth

Source: WHO: *The World Health Report, 1999, p 11*

Evidence abounds today about the potential symbiotic relationship between health and economic growth. The paths through which health improvements can influence the economy, as identified in the literature, include its effects on child health, labour market participation, worker productivity, savings, investments in human capital, education outcomes, fertility, dependency ratio, and population age structure (Bloom and Canning 2000; World Health Organisation, 1998).

5. EMPIRICAL REVIEW

Oluwatobi and Ogunrinola(2011)work on “Government Expenditure on Human Capital Development: Implications for Economic Growth in Nigeria” Their study examines the relationship between human capital development efforts of the Government and economic growth in Nigeria and they explore the impact of government recurrent and capital expenditures on education and health in Nigeria and their effect on economic growth. Data used for the study are from secondary sources while the augmented Solow model was also adopted. The dependent variable in the model is the level of real output while the explanatory variables are government capital and recurrent expenditures on education and health, gross fixed capital formation and the labour force. The result shows that there exists a positive relationship between government recurrent expenditure on human capital development and the level of real output, while capital expenditure is negatively related to the level of real output. The study recommends appropriate channeling of the nation’s capital expenditure on education and health to promote economic growth.

Fadiya (2010) carries out a research on the “Determinants of Educational Outcomes in Nigeria (1975 – 2008)” and his study was conducted with view to identifying those factors that can promote educational outcome in Nigeria. In order to achieve the objective of the study, he use an econometric model to measure formulated and literacy rate, educational outcome, was regressed on income, government expenditure on education, life expectancy, urban population, and primary, secondary and tertiary enrolment. These variables were included in our econometric model based on review of past studies. In the study, error correction mechanism to estimate the determinants of educational outcomes after conducting stationarity and cointegration test.

Their results show that income; life expectancy; primary and secondary school enrolment are significant determinants of educational outcome in Nigeria. It is, therefore, recommended that there is, therefore, the need for increase in government spending on education at all level of education and in health and nutrition.

The general lesson that emerges from the study is that government policy and implementation capacity is important, especially for determining the provision of schools and equity of access.

Although private schools spring up under many circumstances and make an important contribution, equitable access to quality education depends crucially upon good government policy and implementation.

Dauda (2010) made use of an adapted endogenous growth model developed by Mankiw, Romer, and Weil (1992) in the study of human capital and economic growth relationship in Nigeria. However, the study did not include government spending as one of the human capital variables used in the model.

Most studies on the education/health-economic outcomes nexus, both at the micro and macro levels, have generally examined two types of education/health indicators. According to Jafaroy and Gunnarsson (2008) quoting Verhoeven et al. (2007), performance indicators are divided into desired outcome and intermediate output indicators. Desired outcomes correspond to the underlying objectives sought by policy makers. Intermediate outputs are thought to be related to desired outcomes but can be more closely associated with current spending. For health care, the intermediate output indicators are the density of physicians, pharmacists, and health care workers, the number of hospital beds, and the number of immunization vaccines.

The key outcome variables include infant, child and maternal mortality rates; the standardized death rate from all causes per 1,000 people as defined by the World Health Organisation (WHO); incidence of tuberculosis and average life expectancy (as defined by WHO). For education, the key intermediate output indicators are primary school pupil/teacher ratio, enrolment rate, rates of progression to secondary education and graduation. The main outcome indicator is the average score on an international standardized test (Programme for International Student Assessment, 2006) in mathematics (secondary) education. It must be noted at this point that the intermediate output indicators are highly influenced by government policies in developing countries through fiscal budgetary expenditure.

In explaining the performance of health and education sectors in some selected countries, United Nations Development Programme (2008) admitted that in the last quarter of the century, many countries made remarkable advances in education and health. For instance, all 80 countries for which data were available for both 1980 and 2006 have registered progress in education. For most, there have been fairly stable progress over time, although, there was a notable handful of countries which had setbacks during this period. For instance, there were five countries (out of 110 with data) for which education attainment levels were no better than what they were in 1990: Armenia, the Maldives, the Federation of Russia, Tajikistan, and Trinidad and Tobago. The picture of health was rather worse. There were about 30 countries (out of 180 with data) for which life expectancy were no better today than what they were in 1990. Most of these countries are in sub-Saharan Africa, but many transition countries in Eastern and Central Europe were also in this group as well as Jamaica, and Trinidad and Tobago in the Caribbean.

Bakare (2006) investigated the growth implications of human capital investment in Nigeria by using vector auto regression and Error corrections model. Findings from the study revealed that there is a significant functional and institutional relationship between the investments in human capital and economic growth in Nigeria such that 1% fall in human capital investment led to a 48.1% fall in the rate of growth in gross domestic output between 1970-2000 that was examined.

Babatunde and Afolabi (2005) measured the long run relationship between education and economic growth in Nigeria between 1970 and 2003 by applying Johansen Cointegration method correction model and vector error model. The findings reveal that there is a long run relationship between education and economic growth there by laying emphasis that a well-educated labour force appears to significantly influence economic growth both as a factor in the production function and through total factor productivity.

UNR (1996) expressed categorically that education is fundamental in enhancing the quality of life and ensuring social and economic progress. This is because education tends to play a key role in the ability of a developing country to absorb modern technology and to develop the capacity for self-sustaining growth and development. Lee (1989) opined that the main problem that is associated with the belief that education is good for economic growth could be tied with how to maintain an equilibrium position. This equilibrium is in terms of balancing a scenario where there will be no shortage of

the supply of educated people because such shortage may mar or limit growth while on the other hand excessive supply of it might create unemployment and thus limiting economic growth.

Griffin and Mckinley (1992) are of the opinion that human capital development is targeted at growth and development strategy intended to improve the wellbeing of people within a short time possible. To them, the implementation of strategy will require a change in the composition of government spending and that the percentage of the budget earmarked for activities which do not contribute to development should be reduced to the minimal that is, activities such as military defense among others. On the contrary, Ayara (2003) provided evidence on the linkage between the paradox of education and economic growth in Nigeria using the standard growth accounting model. The results revealed that education has not had the expected positive growth impact on economic growth.

Put together, the finding from the array of literatures surveyed supports the notion that education matters for growth and development in both developed and developing countries. Also literature have proved overtime that there is the possibility that the relationship that existed in the theory may not be replicated in real economy activities given the presence of some factors, which may not be clearly identified in the theory Ajisafe et al. (2006).

The World Bank (2010) specifies that Nigeria has found it difficult to grow her economy in her quest to become a knowledge-based economy because of the challenges faced in the national educational system. According to the report, some major challenges limiting the advancement of Nigeria's education system are low tertiary enrolment level, teaching with obsolete methods, strikes and administrative hiccups, corrupt teachers asking bribes to pass students, frequent absence of teachers during teaching periods, lack of ICT infrastructure and other teaching methods, and poor funding. The organization categorized these problems into poor access to education, poor quality of education and poor funding of education.

Prior to the study undertaken by the World Bank's (2010), Odia and Omofonmwan's (2007) had reported that the Nigerian education system was constrained by several challenges, which included poor funding, poor educational infrastructure, inadequate classrooms, lack of teaching aids (such as projectors, computers, laboratories and libraries), dearth of quality teachers and non-conducive learning environment. Moreover, they pointed that many social vices, such as examination malpractice, cultism, hooliganism, and corruption, have emerged from the school system. These in addition, compound the problems that impede the nation's ability to cultivate the kinds of people that can serve as tools to facilitate economic improvements.

One of the major concerns in the Nigerian education system, according to COLI (2001), is the challenge of integrating new knowledge into academic courses and programmes. The system operates on obsolete knowledge thus finding it difficult to embrace new knowledge and discoveries. This leads to production of graduates who finds it difficult to fit into the world of work, since their acquired knowledge and skills are rarely relevant to the needs of employers of labour services. This problem is the result of lack of connection between the academia and the business work environment (World Bank, 2010), which has impeded the nation's capacity to build the critical mass of human capital required to facilitate growth.

Another challenge confronting knowledge and skill development in Nigeria is lack of funding. And in the case where there is funding, it is not efficiently allocated. Research and Development (R & D), which facilitates the creation of knowledge to drive economic growth, is poorly funded by the government. The World Bank (2010) is of the view that government funding for university research is too low to attract partners in the economic and business work environment into R & D agreements. This is unlike the case in Singapore, Korea and other advanced knowledge economies. Losing out on this partnership is constraining Nigeria's potential in breaking into a lucrative and job-creating economy (World Bank, 2010).

Ndulu (2010) examined the negative impact of human capital flight on economic growth in Nigeria. The study reported that the challenge of human capital in Africa is not limited only to low level of education and training, but it also includes the current inability of the country to retain a large proportion of its skilled and professional personnel. Thus, Nigeria has been losing a significant proportion of her skilled and professional manpower to other national market and increasingly depending on expatriate for many crucial functions. Several other mitigating factors relating to human capital development emanate from the health sector. For instance, the Federal Ministry of Health (2005) reported that communicable diseases account for 72% of deaths while non-communicable diseases account for 21%. It further reported

that 38% of children are stunted, 29% are underweight, infant mortality rate is 100 deaths per 1000, while under-5 mortality rate is 201 per 1000. These reports are reflections that the health care system in Nigeria is currently weak, thus, limiting the chances of the people and impeding their capability to be part of contributing to the growth of the economy.

According to WHO (2001), the preponderance of health-related problems could be attributed to the observed shortage of skilled medical workers at the level of primary health care. The study reported that only 41.9% of primary health care facilities provide antenatal and delivery services and 57.73% of this health facilities work without any midwife. Besides, 18.03% of such facilities operate without midwives or senior community health extension workers (SCHEWs). This calls for the need to support the health system with adequately trained workers in order to improve the provision of health services.

6. THEORETICAL FRAMEWORK AND METHODOLOGY

This chapter covers model specification and estimation technique employed in the study. In addition, data requirement and sources of data are presented in this section.

6.1 THEORETICAL FRAMEWORK:

In section 3.2 this study reviews relevant theories which have been used by previous researcher including , for this study, the choice is the reason for this selection is the theory explain that

6.2 METHODOLOGY:

6.2.1 Model Specification:

Following the review of other empirical works, the basic macroeconomic variables of concern derived from the earlier review are: oil export (OIL), real gross domestic product growth rate (RGDPG), real gross fixed capital formation (RGFCF), recurrent expenditure on education (REE), capital expenditure on education (CEE), recurrent expenditure on health (REH), capital expenditure on health (CEH), Primary school enrolment (PSE), secondary school enrolment (SSE), tertiary enrolment (TERE).

Given the foregoing discussion, the following model is specified in order to determine the impact of human capital formation on economic growth in Nigeria.

In functional form,

$$RGDPG = f(OIL, RGFCF, REE, CEE, REH, CEH, PSE, SSE, TERE) \text{----- (1)}$$

Taking the natural logarithmic of both sides of equation (1) and assuming linearity among the variables gives:

$$LRGDPG = a_0 + a_1 OIL + a_2 RGFCF + a_3 REE + a_4 CEE + a_5 REH + a_6 CEH + a_7 PSE + a_8 SSE + a_9 TERE + U \text{--(2)}$$

The a's are coefficients to be estimated and their a-priori signs indicate that all the coefficients are positively related to RGDPG. While U is the random error, with mean zero and constant variance.

6.2.2 Estimation Procedure:

The method of Ordinary Least Squares (OLS) is used in the model parameter estimation. The parameter estimate obtained by OLS have some optimal properties like best, linear and unbiasedness (BLUE) and the method has been used in a wide range of economic relationships with fairly satisfactory results. In addition, OLS is an essential component of most other econometric techniques. A software package known as E-view-7 is used in running the regression.

The 'a prior' expectation concerns the magnitude and signs of the parameter estimates, whether they are positively or negatively related to gross domestic products. This evaluation is guided by economic theory. The expected signs are positive for all parameters.

This study makes use of different procedure to ensure that the results of the regression results are reliable. Durbin Watson *d* test and Breusch-Godfray tests are used to detect fitness of model. Durbin-Watson *d* test is simply the ratio of sum of the squared difference in successive residuals to the RSS. This test is used to find problem of autocorrelation in the model. To avoid some of the drawbacks of the Durbin Watson *d* test of the autocorrelation, Breusch and Godfray have

constructed a test of autocorrelation that allows for: non stochastic regressors, such as the lagged values of the regressands; and higher order auto regressive schemes such as AR1, AR2. (Gujrati, 2004).

Jarque - Bera test for the normality in residuals and White's test are used for heteroscedasticity. The Jarque-Bera test is used to detect normality of model. This test first finds the skewness and kurtosis of the OLS residuals. For normal distribution of variable, Skewness=0 and Kurtosis= 3, therefore the JB test of normality is a test of joint hypothesis. The white test can be a test of pure heteroscedasticity or specification error or both. It has been argued that if no cross product terms are present in the white test procedure, then it is a test of pure heteroscedasticity. If cross-product terms are present, then it is a test of both heteroscedasticity and specification bias (Guajarati, 2004).

Coefficient of determination, R^2 , shows the degree of variation in the dependent variable due to the variation in the explanatory variables. Adjusted R^2 adjust for the degree of freedoms associated with the sum of squares. As the number of explanatory variables increases, adjusted R^2 increases less than unadjusted R^2 . Adjusted R^2 can be negative. In this case when it is negative, it is considered zero.) (Guajarati, 2004).

6.2.3 Data Requirement and Sources:

This study makes use of data between 1980 and 2012. The data are compiled from various issues of the Central Bank of Nigeria (CBN) Annual Reports; CBN Statistical Bulletin; and National bureau of statistics' Economic and Statistics Review (various issues).

7. DATA ANALYSIS AND DISCUSSION OF FINDINGS

This chapter deal with the analysis, presentation, and interpretation of data collected from different publications of the Central Bank of Nigeria (CBN) Annual Reports; CBN Statistical Bulletin; and National bureau of statistics, and implication of the Results.

Analysis of Regression Results:

Time series data were used for the analysis. E-view7 package was used to process the data obtained and this result was obtain from it.

Dependent Variable: RGDPG
Method: Least Squares
Date: 11/16/14 Time: 11:32
Sample: 1980 2012
Included observations: 33
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.28168	3.70415	-0.615922	0.5433
OIL	9.56987	3.59347	2.662957	0.0131
RGFCF	4.30944	2.95383	1.459194	0.0699
REE	-3.92027	3.30429	-1.186198	0.0837
CEE	8.17907	3.69386	2.214389	0.0019
REH	10.76994	3.39038	3.176224	0.0415
CEH	3.18404	3.08303	1.032674	0.0878
R-squared	0.805852	Mean dependent var		17.77242
Adjusted R-squared	0.768074	S.D. dependent var		13.26759
S.E. of regression	11.34561	Akaike info criterion		7.881371
Sum squared resid	3346.797	Schwarz criterion		8.198812
Log likelihood	-123.0426	Hannan-Quinn criter.		7.988180
F-statistic	2.960018	Durbin-Watson stat		1.824305
Prob(F-statistic)	0.024451			

Source: Author's computation

The result presented above was obtained from the regression analysis and the result shows that all the variables conform to A-prior Expectation and the intercept in the model though negatively related to RGDP [Economic growth] is insignificant. This is because the probability is more than 0.10 [$P > 0.10$] indicating that the intercept is insignificant which shows that it is not possible to have economic growth without any physical and human capital investment.

When all other explanatory variables are held constant, the economic growth will be declining at the rate of -2.28168, indicating that if the government does not invest in education as well as physical and human capital which is a determinant of economic growth, the Gross domestic product of Nigeria will fall at the rate of 2.28168 annually.

Oil Export [OIL] which is one of the important variables in the model shows a positive and significant relationship to economic growth. The result shows that a 1 percent increase in oil export will lead to about 9.6% rise in economic growth in the economy. From the t-statistics, the result shows 2.6629 as a value, with probability value being 0.013. This result shows that probability is less than 0.05. Hence, it shows that oil export is a significant factor (at 5%) that led to increases in economic growth. The result however is not surprising from the A-prior expectation and the theoretical framework.

Real Gross Fixed Capital Formation (RGFCF) is also an important variable in the model, this variable shows a positive relationship with GDP and it is significant at 10% with p-value of 0.07, from the result it shows that a 1 percent increase in real gross fixed capital formation (RGFCF) a measure of investment, will lead to 4.3% rise in growth which is significant impact. This explains that when the government starts investing in fixed infrastructure such as plants and machinery, factory's land and buildings, road networks, computing and communication infrastructure would result in significant economic growth. Gross fixed capital formation has shown a good and positive relationship with Economic growth in Nigeria which if invested in would help improve the real gross domestic products of Nigeria.

For the recurrent expenditure on education (REE) the coefficient is negative and it is significant at 10%, this is because the probability though not less than 0.05 [$P > 0.05$], is less than 0.1 [$P > 0.1$]. From the probability result the p-value stood as 0.0837 which shows that the REE is a significant factor that determines the RGDP [Economic growth].

Capital expenditure on education on like recurrent expenditure on education is positive and it is statistically significant to the model, from the result it shows that a 1 percent increase in capital expenditure on education (CEE) will lead to 81% rise in RGDP which is referred to as an astronomical increase or rise in RGDP [Economic growth].

Recurrent expenditure on health show a positive it is positively to RGDP (Economic growth) and is a significant factor that determines economic growth in Nigeria since it is less than 5 percent ($P < 0.05$), i.e. significant at 5% level of significance. This implies that a 1 percent rise or increase on recurrent expenditure on health will surely lead to about 107% increase in RGDP (Economic growth) in the Nigerian Economy which shows an astronomical rise. When the Nigerian government invests in the manpower in the health sector it will in a way improving the technical know-how of medical personnel available in Nigeria and this will also reduce what Nigerian spend abroad on medical bills.

Recurrent expenditure on health show that the coefficient is positive and it is insignificant, this is because the probability is not less than 0.05 [$P > 0.05$] indicating that the intercept is an insignificant factor. From the probability result the p-value stood as 0.0878 which shows that the intercept is an insignificant factor that determines the RGDP [Economic growth].

The R-squared shows a value of approximately 0.81 showing that the independent variables jointly explain about 81% of the variation in growth of GDP. This suggests that the regression model explain the determinant of economic growth very well.

The F-statistic shows a value of approximately 2.96 which indicates that the overall model is significant to model is significant and it show that the probability value being $P = 0.0244$ which indicates a significance at 2 percent

The Durbin-Watson statistics shows a value of approximately 1.82 which shows that there is no autocorrelation.

The Akaike information criterion and Schwarz criterion shows about 7.88 and 8.19 respectively which indicates that the model selection is good.

The Hannah-Quinn criterion also shows about 7.9881 consequently the conformity with the expected sign indicates that there is a direct relationship between each of the variables and Economic growth.

8. SUMMARY, CONCLUSION AND RECOMMENDATIONS.

8.1 SUMMARY OF FINDINGS:

This paper has provided evidence on the impact of human capital development on economics growth in Nigeria between 1980 to 2012, using the best linear unbiased estimator (BLUE). The study found that allocation to education in Nigeria fall below 18% for past decades (CBN, 2012) which is quite low and fall below the recommendations of the United Nations. Nevertheless, it is found that allocation to education does not only contribute positively to economic growth in Nigeria, but the impact is strong and statistically significant which explains 98% variation on Nigeria economic growth. Also, the results showed that if GDP must increase by 1%, allocation to education must increase by 44%.

The results of this research work is in line with Bakare (2006) who investigated the growth implications of human capital investment in Nigeria using vector autoregressive error corrections mechanism. He revealed that there is a significant functional and institutional relationship between the investments in human capital and economic growth in Nigeria and that 1% fall in human capital investment led to a 48.1% fall in the rate of growth in gross domestic output between 1970 and 2000. This ascertain the work of Beeker, Bowman and Harbison who all agree that increases in the value of aggregate output in relation to the increase in the existing factors of production is due to investment in human capital. The implication is that making investments in human beings as capital will in the long-run lead to improve production and a more rapid economic growth Cited by (Adeagbo, 2010). Also, Babatunde and Adefabi (2005) investigated the long run relationship between education and economic growth in Nigeria between 1970 and 2003 through the application of Johansen cointegration technique and vector error correction methodology. Their findings revealed a long run relationship exist between education and economic growth in Nigeria. A well-educated labour force appears to significantly influence economic growth both as a factor in the production function and through total productivity.

8.2 CONCLUSION:

Therefore based on the findings we conclude that level of human capital of Nigeria can be develop if the standard of education and health are not just maintain but improve on to meet the modern economy of the world which are at their present height due to improve level of human capital and research. Allocation to education and health has to meet with the standard recommendation of the united nation (UN), by implication, it will aid Nigeria economic growth rate.

8.3 RECOMMENDATION:

The study therefore recommends that there is need to increase budgetary allocation to Human Capital i.e. the educational sector and the Health sector, because despite the allocated to these sectors they still perform below average or what is expected of them. Government should as a matter of priority implement the minimum United Nations recommendation of 26 percent budgetary allocation on education and a 20 percent allocation on Health. The donor agencies like the World Bank, UNDP, UNESCO, etc. should also be encouraged to inject funds into this sector especially, the tertiary and research institutions which will foster quick growth in the economy and later development. The government and the private sector must join hands by mobilizing resources to furnish hospitals and educational institute in equipping them with facilities, libraries, laboratory equipment, computers and modern instructional materials in order to improve the quality of education and enhance human capital development, labour productivity and ensure sustainable growth and development.

Incessant closure of tertiary institution due to strikes, and excesses of student unions should addressed by relevant authorizes. Teachers' lecturers' salaries and improved working conditions in educational institutions should be accorded high priority by the government.

The Nigerian educational system has been known to be exposed to large scale corruption, and gross inefficiencies. There is need to give more autonomy in financial management in public educational institutions. The autonomy will improve their financial situation by improving the efficiency and effectiveness of resource use and cutting costs.

Besides, public educational institutions should be encouraged to develop resource mobilization strategies, in order to generate revenue by themselves. For this purpose, educational foundations can be set up in order to mobilize financial support from private donations.

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