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Human Capital Development and Nigeria's Economic Growth (1980 - 2015)

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ABSTRACT

This study examined the impact of human capital development on the Economic Growth of Nigeria for the period of 1980 – 2015. The study adopted time series econometrics analysis and descriptive statistics to determine the impact of human capital development on Nigeria's economic growth as well as the long-run relationship between human capital development and economic growth in Nigeria. For purposes of clarity, models were specified as (RGDP) dependent variable, (HCD) and (GFCF) as independent variables. In order to achieve the objectives of the research work, diagnostic tests such as unit root, co-integration, Error Correction Model (ECM) and Ordinary Least Square (OLS) were carried out in which changes in RGDP was regressed on human capital development (HCD) and gross fixed capital formation (GFCF) using annual time series data from CBN statistical bulletin. The result of our analysis shows that human capital development significantly influences the rate of growth of the Nigerian economy. The study also found that long-run relationship exists between human capital development and economic growth in Nigeria. Based on the findings above, the study recommends that Government should channel funds to programmes that will encourage training of skills as this will help to improve human resources. The study also recommends that to increase physical capital formation in the education sector, Government should increase spending on social and economic infrastructure so as to enhance the efficiency of the labour force and enhance productivity which is economic growth.

KEYWORDS: Human Capital Development, Economic Growth, Unit Roots, Cointegration, Error Correction Mechanism.

INTRODUCTION

Nigeria's most important macroeconomic objective remains how to achieve accelerated economic growth and reduce poverty. In order to achieve this laudable

objective, certain variables which have the capacity to accelerate growth have to be identified. Of all the contributory variable or factors to economic growth and increased productivity, human capital stands out as a major catalyst. To this end, effective investment in human capital is a key component of long run economic growth and improved productivity. The United Nation Development Programme (UNDP) 1997[1] support this fact and argued that development should focus on investment in human capital which should be seen in the light of how the economy is managed and wealth is distributed for the benefit of the people.

Human capital development could therefore, be defined as the knowledge, skills, abilities and capabilities possessed by people. Solow Robert (1956)[2] define human capital as the stock of accumulated skills and experiences that make workers more productive. Schultz (1993)[3] also defined the term “human capital” as a key element in improving a firm assets and employees in order to increase productivity as well as sustain competitive advantage.

Human capital development refer to processes that relate to training, education and other professional initiatives in order to increase the levels of knowledge, skills, abilities, values, and social assets of an employee which will lead to the employee’s satisfaction and performance, and eventually on a firm performance.

Economic Growth on the other hand is an increase in real output or real per capita output of an economy (Young (1994)[4]. Similarly, Koutsoyiannis (2001)[5] also defined economic growth as a long term rise in capacity to sustain increasingly, diverse economic goods and services to its population, growing capacity based on advancing technology, institutional and ideological adjustments that it demands. The interpretation of economic growth emphasizes a “sustained” rise in the output level which is the only manifestation of economic growth.

Human capital is all embracing, it is inclusive of persons who work now, or are likely to be productively employed sooner or later. It is a continuum 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[6].

In Nigeria, the level of investment in human capital which is reflected in the expansion of educational system from 1980 to 2003 indicates that enrolment in primary school was 12.2 million in 1980, declining thereafter to 11.5 million in 1987. Since 1988, both enrolment and number of primary schools have increased progressively to 26.3 million and 52,815, respectively, in 2003. The student-teacher ratio in primary school which stood at 35 in 1980 rose to 44 in 1986, declining thereafter to 36 in 1990. From there it rose to 60 in 1995 declining afterwards to 53 in 2003[6].

Prior to the Second World War (1939-1945), academic discourse on the relationship between education and economy was insignificant. However, later studies by Schultz (1961)[3], Dauda (2010)[7] and a host other economists confirmed that the economy depended on education to foster growth.

Similarly, health is fundamental to economic growth and development and is one of the key determinants of economic performance both at the micro and macro levels. This is derived from the fact that health is both a direct component of human being and a form of human capital that increases an individual's capability (Benhabib and Spiegel, 1994)[9] Granger (1987)[10] has equally demonstrated that health is a form of human capital. Schultz (1992)[3] argued that population quality is the decisive factor of production and emphasized the merits of investing in education and health[11].

Meeting the commendable United Nation's health Millennium Development Goals (MDGs) of a reduction by two-thirds in the under-5 mortality ratio and a reduction by three-quarters in maternal mortality, and halting and beginning to reverse the spread of HIV/AIDS, malaria and other major diseases by 2015 will be completely elusive for Sub-Sahara African countries like Nigeria if sufficient attention is not paid to health expenditures. In the same vein, eradicating illiteracy as one of the objectives of the (MDGs) will be a concept if adequate attention is not given to educational expenditure by the federal government. It is against this backdrop that this paper examines the correlation between Expenditures on Education and Health Services, and Economic Growth in Nigeria. Among other objectives, the paper focuses on the impact of human capital development on the economic growth of Nigeria within the period under review with a view to ascertaining the relative commitments of the governments to develop human resources in the country.

STATEMENT OF PROBLEM

No country has ever achieved sustained economic development without huge investment in her human capital which is manifested in expenditure on education and health. All the developed economies recognized this and this account for huge investment in education. On the other hand the under-developed or developing countries have paid little attention to their human capital which is the cause will they are still referred as underdeveloped countries.

Similarly, the increase in the Gross National Product (GNP) depends on the national expenditure on education. For example, Harbison and Myers (1964) found a significant Statistical relationship between levels of human capital development and the levels of GNP. Human resources of a nation refer to the totality of population of

a country, which determines the potential labour force of a nation. Investment in the human resource determines the type, quality, availability and productivity of the nation's manpower. It involves the socio-economic development strategies [12].

The United Nation recommended that at least 26% of the annual budget of a country should be allocated to education sector in order to enhance human capital development. However, the human capital development indices in Nigeria do not reflect a substantial expenditure on education and health. For instance, an insignificant proportion of financial resources (less than 10% of local government expenditure) in 2009 were allocated to educational sector.

Poor investment in human capital development in Nigeria has led to a situation of mass unemployment in the country, low per capita income, poor standard of living which is the major concern of many policy makers and researcher all over the world. Or why should Nigeria be called underdeveloped country in the face of many natural endowment which if properly utilised can increase the country growth and consequently increase human development in general.

However, in spite of the increased academic interest in the subject under discussion, several issues relating to the human capital development and economic growth relationship remain hitherto unsettled. Chief among these issues relate to the fact that the empirical linkage between human capital development and economic growth in Nigeria is yet unclear. This is because a good number of studies that have examined the influence of human capital development on the Nigeria's economic growth have generated varying outcomes[13],[14],[15].

Furthermore, while a long run relationship has been established between human capital development and economic growth in Nigeria, the impact of a disaggregation of capital and recurrent expenditures on health and education

respectively has not been sufficiently addressed by researchers. This study is therefore carried out to fill some of these gaps. It is designed to estimate the impact of human capital development on economic growth.

RESEARCH QUESTIONS

In the course of carrying the research work, the research question to guide the researcher is given below.

1. Does human capital development has any significant impact on the economic growth of Nigeria?
2. To what extent does long-run relationship exist between human capital and economic growth in Nigeria?
3. Is there any causal relationship between human capital development and economic growth of Nigeria?

OBJECTIVES OF STUDY

This study has the central objective of exploring issues relating to how human capital can influence Nigeria's economic performance by facilitating the investment in education and health, while in specific terms, the study is set to: .

1. ascertain if human capital can contribute significantly to Nigeria's economic growth.
2. determine the extent to which long-run relationship exists between human capital and economic growth in Nigeria.
3. examine if there exist any causal relationship between human capital development and economic growth of Nigeria.

STATEMENT OF HYPOTHESES

This provides tentative answers to research questions subject to proof or otherwise by the evidence from the study. Hence the working hypotheses of the study are stated as follows:

1. H_0 : Human capital development has no significant relationship with economic growth in Nigeria.
2. H_0 : There is no long-run relationship existing between human capital and economic growth in Nigeria.
3. H_0 : There is no causal relationship between human capital development and economic growth of Nigeria.

SCOPE AND LIMITATION OF STUDY

This research aims to analyse the impact of human capital on Nigeria economy, taking a good analysis on various ways and means put by the government of Nigeria to enhance human capital since 1980-2015.

The researcher encountered a number of constraints in the course of this work to include; data sourcing or data inconsistency due to poor nature of information management in Nigeria. Other constraints are; time factor, financial constraints and host of other constraints that prevent the researcher to present a better work than this.

THEORETICAL LITERATURE

Since the introduction of human capital theory in the 1960s, a number of studies have attempted to address this and other related issues. It has become

conventional to discuss human capital in its narrower sense because expenditure on education and training is capable of measurement as compared to healthcare (Maku, (2009)[16]. Healthcare shall however be included in this study.

Jhingan (2003)[17] opines that investment in human capital means expenditure on health, education and social service in general, and in its narrower sense, it implies expenditure on education and training. The development of human capital transcends mere acquisition of intellectual ability through the education system, or the living of a healthier life through adequate health care. It seeks to improve the productivity of the individual and make him more useful to society.

Theories of Human Capital Development and Economic Growth: Contemporary discussions on human capital development and economic growth have been dominated by these theories discussed below;

HUMAN CAPITAL THEORY

Human capital theory views schooling and training as investment in skills and competences (Schultz, 1960 and 1961). It is argued that based on national expectation of return on investment, individuals make decisions on the education and training they receive as a way of augmenting their productivity. A similar strand of studies focuses on the interaction between the educational/skills levels of the workforce and measurements of technological activities (Mankiw *et al.*, 1991)[18]. According to this theory, a more educated/skilled workforce makes it easier for a firm to adopt and implement new technologies, thus reinforcing returns on education and training. Empirical studies provide evidence supporting the aggregate effects of education and training.

This theory shows how education leads to increase in productivity and efficiency of workers by increasing the level of their cognitive skills. Theodore,

Schultz, Gory Bucker and Mincer introduced the notion that people invest in education or as to increase their stock of human capabilities which can be formed by combining innate abilities with investment in human beings (Bangura, 1994)[19]. Examples of such investments include expenditure on education, on- the- job training, health, and nutrition. However, the stock of human capital increases in a period only when gross investment exceeds depreciation with the passage of time, with intense use or lack of use. The provision of education is seen as a productive investment in human capital, an investment which the proponents of human capital theory considers to be equally or even more equally worthwhile than that in physical capital.

THE MODERNIZATION THEORY

This theory focuses on how education transforms an individual's value, belief and behaviour. Exposure to modernization institutions such as schools, factories, and mass media inculcate modern values and attitudes. The attitude include openness to new idea, independences from traditional authorities, willingness to plan and calculate further exigencies and growing sense of personal and social efficacy.

According to the modernization theorists, these normative and attitudinal changes continue throughout the life cycle, permanently altering the individual's relationship with the social structure. The greater the number of people exposed to modernization institutions, the greater the level of individual modernity attained by the society. Once a critical segment of a population changes in this way, the pace of society's modernization and economic development quickens. Thus, educational expansion through its effects on individual values and benefits sets in motion the

necessary building blocks for a more productive workforce and a more sustained economic growth.

DEPENDENCE THEORY

This theory arose from Marxist conceptualizations based on the dynamic world system that structures conditions for economic transformation in both the core and periphery of the world economy. Certain features of the world polity such as state fiscal strength, degrees and regime centralization and external political integration may contribute to economic growth in the developing world.

NEOCLASSICAL GROWTH THEORY

In the traditional neoclassical growth models developed by Solow (1956) and Meier(2001)[2],[21] in the late 1950s, they showed that the output of an economy grows in response to larger inputs of capital and labour (all physical inputs). Non-economic variables such as human capital or human health variables have no function in these models. Furthermore, the economy under such a model conforms to the law of diminishing returns to scale. With these assumptions, the neoclassical growth models afford some implications to the economy; particularly, as the capital stock increases, growth of the economy slows down, and to keep the economy growing, it must capitalize from incessant infusions of technological progress. It is well known that this type of mechanism in the neoclassical growth model is neither inherent nor does it strive to explain much. In economic lexicon, this simply means that the technological progress is “exogenous” to the system. Yet the reality is quite contrary to that, particularly for the developed economies, where the economies kept growing for well over three decades.

This implies that it is not only technology which is the main driving force accountable for maintaining such high growth performance in these economies, but other factors which are outside the realm of neoclassical growth model. Addressing the above issues, in the mid-1980s, a new paradigm was developed in the literature, mostly due to the Romer (1986, 1990)[22], which is now commonly known as “endogenous growth models”.

By broadening the concept of capital to include human capital, the new endogenous growth model argues that the law of diminishing-returns to- scale phenomenon may not be true as is the case for developed economies. In simple terms, what this means is that if the firm which invests in capital also employs educated and skilled workers who are also healthy, then not only will the labour be productive but it will also be able to use the capital and technology more efficiently.

This will lead to a so called Hicks neutral|| shift in the production function and thus there can be increasing rather than decreasing returns to investments.

In summary the conventional “neoclassical” growth theory as modelled by Robert Solow (1956)[2] holds the view that economic growth is a result of the accumulation of physical capital and an expansion of the labour more productive. The exogeneity factor that increases productiveness has been questioned in the literature (e.g Lucas 1988, Romer 1987, Azaridis and Becker, 1994)., Mankiw et al 1992, UNDP 1996)[22],[23],[24][25],[18],[1]. To them, what increases the productivity is not an exogenous factor, but an endogenous one, which is assumed to be related to the knowledge and behaviour of the people responsible for the accumulation of physical capital, thus human capital becomes part of the growth process.

THE ROMAR ENDOGENOUS GROWTH THEORY

The theory was developed as a reaction to the flaws of the neoclassical (exogenous) growth theory. Romar endogenous growth theory was first presented in 1986 in which he takes knowledge as an input in the production function. The theory aimed at explaining the long run growth by endogenizing productivity growth or technical progress.

The major assumptions of the theory are:

- i. Increasing returns to scale because of positive externalities
- ii. Human capital (knowledge, skills and training of individuals) and the production of new technologies are essential for long run growth.
- iii. Private investment in Research and Development is the most important source of technological progress.
- iv. Knowledge or technical advances are non-rival good.

The theory just like the exogenous growth theory, the endogenous growth theory professes convergence of nations by diffusion of technology. That is, a situation where poor countries manage to catch up with the richer countries by gradual imitation of technology by poorer countries.

Romar states that production function of a firm in the following form:

$$Y = A(R) F(R, K, L)$$

where: A= public stock of knowledge from research and development.

(R) R = Stock of results from the stock of expenditure on research and development.

K = Capital stock of firm

L = Labour stock of firm

The R actually represents the technology prevalent at the time in firm. Any new research technology spill over quickly across the entire nation. Technological progress (advancement) implies the development of new ideas which resemble public goods because they are non-rival. When the new ideas are added as factors of production the returns to scale tend to be increasing. In this model new technology is the ultimate determinant for long run growth and it is itself determined by investment into in research technology.

EMPIRICAL LITERATURE

The research question posed in this work takes on the challenge to find empirical evidence that investment in human capital has a positive impact on intermediate as well as accounting and share value economics (bottom-line) indicators of organizational performances, both directly and indirectly. Although less empirical evidence has been documented on the link between human capital

formation and economic growth, an attempt shall be made to briefly review few in this section.

Psachropoulos (1985) examined the determinants of real GDP in 58 countries during 1960-1985 came up with a result which suggests that education strongly contributes to aggregate output. The result however differs by regions. The result of the sub-Sahara sub region however shows a negligence effect on output growth. Factors such as unfavourable local conditions lack of complementary inputs, inadequate institutional capacity and other economic obstacles could have prevented people from benefiting fully from greater skills.

Mankiw, Romer and Weil (1992)[18] augmenting the Solow's growth model empirically show, that the effects of savings and investment and population growth rates are biased upward when ever human capital formation is excluded. Their augmented model explains nearly 80 percent of the cross-country variation in per capita income, which is about 30 percent larger of the cross-country variation in per capita income, which is 30 percent larger than when human capital is excluded. For the three categories of countries (Low-income, intermediate and OECD countries) investment in human capital substantially influenced per capita income at 1 percent level of significance.

In Nigeria, there is not much literature regarding the empirical effect of human capital investment on economic growth. The few attempts includes: Psachoropoulos (1973, 1985), Akangbolu (1997, 1983), Okedara (1978)[26],[27],[6] etc. most of these used cross-sectional data to analyze the impact of education the 1966 pre-tax survey data of the former western Nigeria estimated the private returns to be 30, 14 action on income or economic activities, for instance, Psacharopulous (1973)[26], using and 34 percent for the primary, secondary and tertiary levels

accordingly. Both studies points to the fact that investment in education facilitates the growth process.

Similarly using 1974/75 data from mid-western Nigeria, Akangolu (1973)[27], calculated the crude private average rates of returns on education (for secondary and post secondary levels). The estimated crude private rates of returns were 13.4 percent for lower secondary school 11.9, 11.2 and 17.2 percent for secondary technical, upper secondary and university levels respectively. When adjustment was made for wastages and ability, the values marginally declined. He also compute the crude social average returns to be 12.3, 11.0, 10.4 and 12.7 percent for lower secondary and university level respectively. Separate returns were also computed for the adjusted wastages and ability. The general conclusion of his findings is that no matter the magnitude of monetary resources expanded on education the private and social returns are always profitable and justifiable. Thus investment on education positively affects the economy.

Anyanwu using cross sectional data from six Nigerian states: Anambra, Borno, cross River, Ogun, Plateau and Sokoto observed that good health statutes and educational attainment of Nigerian women positively influenced their income. The coefficients of primary, secondary and tertiary school attainment were statistically significant at 5 percent while that of excellent health condition was significant at 1 percent.

Also Okedara (1978)[6] study used a three-year experimental adult literacy program of the university of Ibadan to generate the private and social benefit associated with formal and informal (adult literacy program) primary education. He calculated the private rates of returns on formal primary education. These values were obtained after accounting for economic growth. By implication both formal and

informal primary educations do not only increase productivity through earning, but also through increased capacity for future earning possibilities, which invariably translate into growth.

A common feature of all these studies is that they used cross-sectional data. They all based their result on point analysis thus ignoring the possibility of changes that might have taken place overtime. This study, therefore adopts a time series analysis to estimate the likely effects of human capital investment on economic growth. His study was based on data sets pertaining to very diverse array of countries. He used a narrow flow of human capital such as school enrolment rates at the primary and secondary level.

Ogujiuba and Adeniyi (2004)[14] examined the impact of government education expenditure on economic growth. Their result showed a statistically significant positive relationship between economic growth and recurrent expenditure on education, while capital expenditure was wrongly signed and not significant in its contributions.

Lawanson (2009)[13] took this study further by including both the health and education expenditures in her model. Her objective was to examine the role of human capital investment (Proxied by total government expenditure on education and health) on economic growth in Nigeria. After regressing GDP on government expenditure on education, government expenditure on health and the enrolment rates, she found out that a clear relationship exists between human capital development and economic growth.

However, unlike the study by Ogujiuba and Adeniyi (2004)[14], the study did not disaggregate expenditure figures on health and education into the recurrent and capital components. Dauda (2010)[8] made use of an adapted endogenous growth

model developed by Mankiw, Romer, and Weil (1992)[18] 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. Babatunde and Adefabi (2005)[29] discovered a long run relationship between human capital development (Proxied by schools' enrolments in primary and tertiary institutions and average years of schooling) and economic growth measured by output per worker. Their result showed that education has a statistically significant positive relationship with economic growth. However, they did not give consideration to government health expenditure as a human capital component in the model specified and estimated. As a source of productivity, Ugal and Betiang. (2003)[30] examined openness and human capital as sources of productivity growth for MENA countries. Controlling for fixed effects as well as endogeneity in the model, they found that while human capital significantly influence growth , it has no underlying effect on productivity growth.

Park (2004) empirically investigates the growth implication of dispersion of population distribution in terms of educational attainment levels. Based on a pooled 5-year interval time-series data set of 94 developed and developing countries between 1960 and 1965, the study finds that the dispersion index as well as average index of human capital positively influences productivity growth. They conclude that education policy that creates more dispersion in the human capital will promote growth. Similarly, but in a slightly different manner, Lyakurwa (2007)[31] investigates the impact of human capital on economic growth in Guatemala through the application of an error correction methodology. He examined two different channels by which human capital is expected to influence growth.

The result from his study revealed that a better-educated labour force appears to have a positive and significant impact on economic growth both via factor accumulation as well as on the evolution of total factor productivity. This study therefore examines whether the human capital can act as a source of productivity growth and whether there is long run relationship between the level of schooling and economic growth for Nigeria.

This group of studies shows a positive and significant contribution of human capital to economic growth. Among these studies are Harbison, (1973), WHO (2001), Coli (2001), Igwilo (2010), Diawara (2009), Mankin, Romer and Weil (1992), Gboyega (1996), Dabalen *et al* (2000), Grammy and Assare (1996), and Odia and Omofonmwan (2007). Ndulu (2001)[32],[33],[34],[35],[36],[18],[37],[38],[39],[40],[41], study of 98 countries between 1960 and 1985, used school enrolment rates as proxies for human capital. His finding is that the growth rate of real per capital GDP is positively related to initial human capital proxied by 1960 school enrolment rates.

For Romer (1990)[22], human capital is the key input to the research sector which generates the new product or ideas that underlie technological progress. Thus, countries with greater initial stock of human capital experience a more rapid rate of introduction of new goods and, thereby, tend to grow faster. Mankin, Romer and Weli (1992)[18] used augmented Solow growth model with the product of secondary school enrolment ratio and the proportion of the labour force of secondary school age as a measure of flow of investment in human capital. Their results show that investment in human capital substantially and significantly influenced per capital income growth. Even when primary school enrolment was used as suggested by Romer (1995) and Kolawole and Arikpo (2004)[22],[42], the results still show that human capital term is highly significant. In their own study

of East Asia, Burneth, Yetunde Aluko, Ola Aluko, (2012)[43] indicate that massive investment in both primary and lower secondary education significantly explained the development “miracle” experienced in the region. Using varied forms of human capital investment such as school enrolment, human development index and economic liberty index,

Grammy and Assane (1996)[39] have found that human capital formation positively and significantly contributed to economic growth. In their study of African countries, Awe and Ajayi (2010)[44] found literacy rate and average year of schooling to be positively related, they found that the signs of their coefficients were either wrong or statistically insignificant. A significant departure from the cross-sectional or cross-country studies is that of IMF. (2002)[45]. Incorporating human capital variable (proxied by total enrolment in school) into the standard growth model, he found a very strong long-run relationship between human capital investment and economic growth in Zimbabwe. Some cross-country studies have shown that the influence of human capital is not uniform for all countries or group of countries. While a positive relationship exists between human capital and growth in some countries, in others the relationship is negative.

Ghani and Kharas (2010)[46] pooled data on 58 developing countries from 1960 through 1986 to estimate an aggregate production function with average educational attainment of the labour force as a proxy for human capital. Their finding is that primary education has an estimated negative effect in Africa, Middle East and North Africa, insignificant effects only in South Asia and Latin America, and positive and significant effects only in East Asia. For Africa, they found secondary education model.

This negative effect of educational growth was found by Spiegel (1994) to

be robust to the inclusion of a wide variety of ancillary variables (e.g, dummies for SSA and Latin America, etc.) and to the inclusion of samples. Using annual data on a different set of capital stocks Jovanovich, Federal Office of Statistics (FOS) (1995)[47] found negative coefficients on education for a non-OECD sample. Recent studies based on panel data to allow for country specific effects such as Gujarati (2004), Griffin and Knight (1990), and Smith (1776)[48],[49],[50] consistently found negative impact of human capital on growth when student-teacher ratios (showing quality of education) and adult literacy rates were used as proxies for human capital. These category of studies found insignificant relationship between human capital and economic growth.

Lamartina and Zaghini (2007)[51] for instance, have found that changes in adult literacy are not significantly correlated with changes in output. NBS (2010)[52] also reports the lack of a partial correlation between growth and educational expansion. In Oluwatobi and Ogunrinola (2011)[53] we find that cross-national data shows no association between increases in human capital attributable to the rising education attainment of the labour force and the rate of growth of output per worker. Specifically, he reports that the estimate of the impact of growth in educational capital on growth per worker is negative and insignificant. However, the association of educational capital growth with conventional measures of total factor productivity is large, the general finding is that it has fallen below expectations because of perverse institutional governance environment, low marginal returns to education and poor educational quality.

Furthermore Radwan and Pellegrini (2010)[54] argue that the direction of causality runs from growth to human capital, not from human capital to growth. Thus, in terms of human capital, the data does not provide strong for the

contention that its accumulation ignites faster growth in output per worker. It is clear from the foregoing that the impact of human resource (capital or education) is inconclusive and very sensitive to the measures of human resource.

OVERVIEW OF NIGERIA'S EDUCATION SECTOR

For Nigeria there has been an astronomical increase in the number of those seeking education at all levels. Government shortfall in the supply of educational services and its accompanying institutions and structures has been robustly complemented by the private sector, where most Nigerian parents prefer sending their children to for reasons of better and efficient service provisions. For instance, primary school enrolment went from 2.9 million in 1960 to about 13.0 million in 1990. Similarly secondary school education enrolment rose from 1.9 million in 1980 to about 4.5 million in 1993. This amounts to a percentage rise of about 223.6 per cent over 14 years. Contemporaneously, enrolment in federal universities alone climbed from 40,552 in 1976 to about 227,999 in 1993, an increase of about 562.2 per cent. Between 1980 and 1990, the enrolment in polytechnics grew from 42,381 to 84,948, representing a rise of about 200.4 per cent[55].

On its own part, the universities across the nation have had a generous share of this upsurge in student enrolment. From Table 1 it can be observed that there has been a steady and sometimes astronomical rise in student enrolment in tertiary institutions. Between 1986 and 1996, a period of eleven years, student enrolment increased by 553836, i.e. from 135783 to 689619. This represents a huge rise of 407 per cent. Within the same period enrolment figures skyrocketed by 251950. Again the number of tertiary institutions established rose from a 24 in 1986 to 138 in 1996. Correspondingly, the number of post-primary schools established increased from 1379 in 1970 to 8275 in 2000. Again between 1970 and 2000, the number of

student enrolment in post-primary school rose from 357027 to 6359449, representing an increase of 1681 per cent. This pervasive increase has often been attributed to increased growth in Nigeria's population and the general consciousness Nigerians have in the importance of education.

However, as Wakeel Isiola and Alani (2011)[56] have observed, monumental growth in enrolment figures may not necessarily translate to economic growth. This may be due to wrong utilization of human capital. For instance, where the economic climate stifles or stalls any meaningful entrepreneurial endeavours, human resource priorities may be totally misplaced. Second, human capital investment may be of the wrong type or of poor quality; it may be biased in favour of bureaucracies and school infrastructure to the neglect of teaching personnel and supplies.

Finally human resource investment may be unproductive when there is a mismatch between the skills acquired and the opportunities existing in the market. This observation agrees strongly with that of the World Bank (WDR, 1995). The budgetary allocation to the education sector over the years has not shown any consistent pattern of deliberate policy commitment on the part of government. Sporadic increases in enrolment figures at all levels of our educational system have not been backed up with the necessary investment needed to provide the infrastructure and conducive environment that modern education requires. Specifically, the highest that the education sector has received was in 1995 when 13 per cent of the total budget was allocated to it, the lowest being a paltry and laughable 1.17 per cent in 2009. This policy inconsistency, the relegation of education to the backburner in fiscal priorities of government, has been largely responsible for the sorry state of our education system.

According to a UNDP report (2001), developing countries, excluding China and centrally planned economies were spending an average of 11.7 per cent of their national budgets on education; by 1997, the average share reached 16.3 per cent. In 1977, advanced countries spent an average 21.3 per cent of their national budgets on education[56].

STRATEGIES OF HUMAN CAPITAL DEVELOPMENT AND ECONOMIC GROWTH IN NIGERIA

The quality of a nation's development depends on the quality of its workforce. 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 stressing Nigeria since her independence, in the early sixties, following the submission of the Ashby's report in September 1960. The government in Nigeria as explained by Ogujiuba and Adeniyi (2004)[14] primarily controls education. They summarize the breakdown of this control from the federal to the state and the local government level.

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, nongovernmental 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:

- i. Contribute to national development through high-level manpower training.
- ii. Develop and inculcate proper values for the survival of the individual and the society.
- iii. Develop individual's intellectual capacity to understand and appreciate their local and external environments.
- iv. Acquire both physical and intellectual skills, which will enable individuals to be self-reliant and useful members of the society, among others.

These set goals are expected to be achieved by tertiary institutions through teaching, research and development, sustainable staff development programmes, generation and dissemination of knowledge and a variety of modes of programmes. This could be seen in NEEDS programme as adopted by the federal government of Nigeria. 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. In order to achieve this, the strategy was designed to address the following crucial issues:

- Faithful implementation of the free, compulsory Universal Basic education, among others:
- Improve education Infrastructure.
- Expand institutional capacity to produce quality manpower.
- Expand total school enrolment.
- Review of school curricular from primary to tertiary to incorporate vocational and entrepreneurial skills.
- Re-tooling and repositioning of technical schools to be able to address the technical manpower needs of the economy.
- Establishment of more vocational centers to encourage Nigerians to embrace vocational education.

- Review of school curricular at all levels to incorporate the study of information and communication technology (ICT).
- In view of Nigeria's position in, and vision of ECOWAS sub-region, review school curricula to make study of French compulsory from primary through secondary schools.
- Expand existing special education programmes including the virtual library project, the distance learning programme and the Nomadic education programme.
- Sustain existing vocational/on-the-job training programmes of the Federal government and encourage the states to do the same.
- 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 industries (including small scale enterprises) and agricultural concerns so that the exposure will expose them to consider the possibility of post-service self-employment.

RELATIONSHIP BETWEEN ECONOMIC GROWTH AND INVESTMENT IN EDUCATION AND HEALTH

Many developing countries have made significant progress in ensuring better access to education as evidenced by improved literacy and enrolment rates and higher quality and more equitable distribution of education services. But the returns from the investment in education vary a great deal. Thomas and Wang (1996) have argued that education alone is not a guarantee for sustainable economic growth. They observed that Sri Lanka had higher per capital income than the Republic of Korea in the 1960s and its social indicators outstripped those in many low- income

countries. But its income growth rate stagnated in the 1970s and 1980s. Similarly, for some time, East Asia has scored high both in the importance people attach to basic education (the demand side) and its broad availability (the supply side). But the financial crisis of the 1990s has exposed the need for East Asian countries to restructure their economies and upgrade the supply of high - skilled labour and their regulatory capacity.

China experienced the most rapid growth of any large country in any part of the world during its period of economic reform. In less than two decades, it achieved what it took other countries to accomplish in centuries. It's per capital income doubled between 1978 and 1987 and then doubled again between 1987 and 1996(World Bank 1997, Table 3). Over 170 million of the 270 million

Chinese living in absolute poverty in 1978 were raised above the poverty threshold. China went from lack- luster growth of 3.9% before the reforms to 8 to 9.5% after the reforms. However, studies have shown that significant share of China's growth could be explained by the accumulation of human capital[55].

Can the link between education and economic growth be established in Nigeria? This is an empirical question that is addressed in the subsequent sections of the paper.

The effects of health on economic performance are usually discussed at both the micro and macro levels in the literature. Evidence of this link at the micro level has been discussed extensively elsewhere (see Schultz, 2002)[3]. Good health is a necessary condition for school attendance since a child has to be healthy to endure the rigours of schooling. Also, healthier students, in contrast to their less healthy counterparts, have lower malingering and higher cognitive functioning, and thus receive a better education for a given level of schooling which in turn guarantees

higher earning over a longer period of time. Sound health enhances workers' productivity through the spill-over effects on their physical and mental abilities. All other things being equal, it is presumed that healthy workers work harder and longer and reason more plainly than those who are less gifted with good health. Good health can also minimize the incidence of poverty through higher labour participation and reduction in cost of medical services, thus releasing income for other welfare-improving consumption. This condition holds irrespective of whether the worker is skilled or unskilled.

Besides, at the macroeconomic level, it seems that a strong link between health and economic growth has been demonstrated. For instance, several cross-country studies have shown a strong link between measures of aggregate health such as life expectancy or child mortality, and growth per capita (Oluwatobi and Ogunrinola (2011); Radwan and Pellegrini (2010); Sakamota and Powers (1995); Wakeel Isiola and Alani (2011)[53],[54],[55],[56]. Improved health increases both the magnitude and quality of the labour force, and thereby leading to economic growth.

RESEARCH DESIGN

The research design employed in this research work is ex post facto method. This method is chosen by the researcher because secondary data will be collected as no attempt is made to control or manipulate the relevant independent variables. The researcher shall adopt the multiple regression analysis based on the classical linear regression model, otherwise known as Ordinary Least Square (OLS) technique. The researcher’s choice of technique is based not only on its computational simplicity but also as a result of its optimal properties such as linearity, unbiasedness, minimum variance, zero mean value of the random terms, etc [48].

MODEL SPECIFICATION

Sakamota and Powers (1995) [55] studied the impact of human capital development on the Nigerian economy from 1981 to 2009. Therefore, a leaf will be borrowed from the model he formulated. In this study, hypothesis has been stated with the view of examining the impact of human capital development on the economic growth of Nigeria. In capturing the study, these variables are used as proxy. Thus, the model is represented in a functional form. It is shown as below;

$$RGDP = F (HCD, GFCF) \dots\dots\dots 1$$

Where

RGDP = Real Gross Domestic Product

HCD = Human Capital Development

GFCF = Gross Fixed Capital Formation

In a linear function, it is represented as follows

$$RGDP = b_0 + b_1HCD + b_2GFCF + U_t \dots\dots\dots 2$$

b_0 = Constant term

b_1 = Regression co-efficient of HCD

b_2 = regression coefficient of GFCF

U_t = Error term

ESTIMATION PROCEDURE

At this level of research, using time series data, the researcher estimates the model with ordinary least square method. This method is preferred to others as it is best linear unbiased estimator, minimum variance, zero mean value of the random terms etc. (Koutsoyiannis 2003)[5]. In the preliminary test, the following tests shall be conducted. They include:

- ✓ Unit root test
- ✓ Co-integration
- ✓ ECM
- ✓ Granger Causality Test

T-test: It will be used to test for the statistical significance of individual estimated parameters.

Decision Rule: If T-cal, T-tab, reject the null hypothesis and conclude that the regression coefficient is statistically significant. Otherwise accept the null hypothesis.

Unit Root Test: It is used to test for the stationarity of the time series data. Augmented Dickey fuller will be used in process. In considering the levels the data

could be said to be integrated of, Augmented Dickey fuller (ADF) test statistic shall be compared with the critical values of 5% level of significance. A situation whereby the ADF test statistics is greater than the critical values with consideration on the absolute values, the data at the tested order will be said to be stationary. Augmented Dickey-Fuller test relies on rejecting a null hypothesis of unit root (the series are non-stationary) in favour of the alternative hypothesis of stationarity. The tests are conducted with an without a deterministic trend (t) for each of the series. The general form of ADP test is estimated by the following regression.

$$\Delta y_t = a_0 + a_1 y_{t-1} - \sum_{i=1}^n a_i \Delta y_i + \epsilon_t \dots \dots \dots (3.3)$$

$$\Delta y_t = a_0 + a_1 y_{t-1} + \sum_{i=1}^n a_i \Delta y_i + \delta t + \epsilon_t \dots \dots \dots (3.4)$$

Where:

Y is a time series, it is a linear time trend, Δ is the first difference operator, such that $\Delta y_{t-1} = y_t - y_{t-1}$, a_0 is a constant, n is the optimum number of lags in the dependent variables and ϵ_t is the random error term.

The null hypothesis is that $a_1 = 0$. if the null hypotheses $a_1 = 1$ then we conclude that the series under consideration $\Delta(y_t)$ has a unit root and is therefore non-stationary.

If the ADF test fails to reject the test in levels but rejects the test in first difference, then the series contains one unit root and is of integrated order one I (1). If the test fails to reject the test in levels and first difference but rejects the test in second difference, then the series contains two unit roots and is of integrated order two I(2).

Co-Integration Test: It is used to test for the long run relationship between the variables. Johansen Co-integration Approach will be undertaken by the researcher in the course of the analysis. Hence, the use of Johansen Co-integrating Normalized coefficient to ascertain the nature of the long run relationship between the estimated variables. Engel and Granger (1987) pointed out that a linear combination of two or more non stationary variables may be stationary. If such a stationary combination exists, then the non-stationary time series are said to be co-integrated. The VAR based co-integration test using the methodology developed in Johansen (1991 &1995).

Johansen’s methodology takes its starting point in the vector auto regression (VAR) of order P given by

$$y_t = \mu + \Delta_1 y_{t-1} + \dots + \Delta_p y_{t-p} + \varepsilon_t$$

Where

y_t is an nx1 vector of variables that are integrated of order, commonly denoted (1) and ε_t in an nx1 vector of money supply.

This VAR can be written as

$$\Delta y_t = u + \alpha y_{t-1} + \sum \alpha_i \Delta y_{t-1} + \varepsilon_t$$

To determine the number of co-integration vectors, Johansen (1988, 1989) and Sakamoto and Powers (1995)[55] suggested two statistical test, the first one is the trace test (*lambda trace*). it tests the null hypothesis that the number of distinct co-integrating vector is less than or equal to q against a general unrestricted alternatives q = r. the test calculated as follows:

$$\lambda \text{ trace } (r) = T \sum \ln (1 - \lambda t)$$

where

T is the number of usable observations, and the $1 - \lambda r$ are the estimated eigenvalue from the matrix.

The second statistical test is the maximum eigenvalue test $\lambda \text{ max}$ that is calculated according to the following formular

$$\lambda \text{ max } (r, r + 1) = T \ln (1 - \lambda r + 1) - T \ln (1 - \lambda r + 1)$$

The test concerns a test of the null hypothesis that there is r of co-integrating vectors against the alternative r + 1 co-integrating vector.

Error Correction Mechanism (ECM): The purpose of the error correction model is to indicate the speed of adjustment from the short-run equilibrium to be long-run equilibrium state. The greater co-efficient of the parameter, the higher the speed of adjustment of the model from the short-run to the long-run equilibrium.

THE ECM (p) form is written as:

$$\Delta y_t = \delta + \rho y_{t-1} + c \Delta y_{t-1} + \varepsilon_t \dots \dots \dots (3.7)$$

Where Δ is the differencing operator, such that $\Delta y_{t-1} = y_t - y_{t-1}$

Causality test: The Granger causality test is conventionally conducted by estimating vector autoregressive (VAR) models. Based upon the Granger Representation Theorem, Granger (1986) shows that if a pair of I (1) series are cointegrated there must be a unidirectional causation in either way. If the series are not I (1), or are integrated of different orders, no test for a long run relationship is usually carried

out. However, given that unit root and cointegration tests have low power against the alternative, these tests can be inappropriate and can suffer from Pre-testing bias. If the data are integrated but not cointegrated, then causality tests can be conducted by using the first differenced data to achieve stationarity. Granger non-causality test in an unrestricted VAR model can be simply conducted by testing whether some parameters are jointly zero, usually by a standard Wald statistic (or F-statistic). Phillips and Toda (1993) show that the asymptotic distribution of the test in the unrestricted case involves nuisance parameters and nonstandard distributions. An alternative procedure to the estimation of an unrestricted VAR consists of transforming an estimated error correction model (ECM) into levels VAR form and then applying the Wald type test for linear restrictions. Sakamoto and Powers (1995)[55] propose an interesting yet simple procedure requiring the estimation of an augmented VAR which guarantees the asymptotic distribution of the Wald statistic (an asymptotic χ^2 -distribution), since the testing procedure is robust to the integration and cointegration properties of the process.

DATA DISCUSSION

The data set for this study comprises of Human Capital Development (HCD), Gross Fixed Capital Formation (GFCF) and Real Gross Domestic Product (RGDP).

1. Gross domestic product (GDP):

It is defined as the total value of all the goods and services produced in a country usually a year. It is all the goods and services produced in country in a year. RGDP will be proxied by nominal gross domestic product deflated with the GDP deflator to control for inflationary trend.

2. Human Capital Development

Human capital development is the total government expenditure on education

and total government expenditure on health in Nigeria. This is expected to increase growth in Nigeria within the period of study.

3. Gross Fixed Capital Formation (GFCF)

It is defined as an addition to stock of capital assets set of capital assets set aside for future productive endeavours in the real sector which will lead to more growth in the physical capital assets of the country. Capital formation derives from the saving accumulation. It has a positive impact on private saving accumulation in the sense that increase in capital formation will leads to more saving. When savings accumulates it will lead to an increase in gross domestic investment (GDI) and income generated as a result of the investment projects made will, in turn, lead to GDP growth[54].

DATA SOURCES

Data Used for this Study were secondary data. They are annual time series data on real gross domestic product, human capital development and gross fixed capital formation for the period between 1980 and 2012. All data used for the empirical analysis of the impact of human capital development is sourced from Central Bank (CBN) statistical bulletin for various years.

PRESENTATION AND ANALYSIS OF RESULTS

To empirically examine the impact of human capital development on the economic growth in Nigeria, the researcher subjected the data collected to Unit Root, Cointegration, and Error Correction test. The ADF test is used to test whether the variables are non stationary (unit root). If the results indicate that all series are stationary in the first difference or all series are generated by 1(1) process, condition of stationarity is established or confirmed (Gujarati, 2004)[48]. The results and their discussions are presented hereunder[56].

UNIT ROOT TEST

The Augmented Dickey-Fuller (ADF) formula was employed to test for stationarity or the existence of unit roots in the data. The test results are as presented below:

AUGMENTED DICKEY FULLER UNIT ROOT TEST

Trend and Intercept

Series	ADF Test Statistic	5% critical values	10% critical values	Order	Remarks
RGDP	-11.91327	-3.574244	-3.221728	1(1)	Stationary
HCD	-6.388553	-3.574244	-3.221728	1(1)	Stationary
GFCF	-4.473517	-3.574244	-3.221728	1(1)	Stationary

Sources: Researcher's compilation from E-view (version 7.1)

The above empirical test shows that RGDP, HCD and GFCF are integrated of order one. They are integrated of the same order; 1(1). From the above tables, it was found that ADF Test with trend and intercept indicated that time series are integrated of the same order. The linear combination of series integrated of the same order are said to be co-integrated. The level of their integrations indicates the number of time series have to be differenced before their stationarity is induced. Considering the ADF test statistics at 5% and 10% critical values, it is observed that test statistics are greater than the critical values. Thus, the series are said to be stationary at that level.

CO-INTEGRATION TEST

TESTING OF HYPOTHESIS 1:

The Johansen Cointegration Test was conducted to find out if there exist long run relationship between human capital development and economic growth in Nigeria. The summary of the Johansen Co-integration test is shown in the table below. The model with lag 1 was chosen with the linear deterministic test assumption.

Johansen cointegration test for the series; RGDP, HCD & GFCF

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistics	0.05 Critical values	Prob.**
None *	0.673438	56.14673	29.79707	0.0000
At most 1 *	0.558003	23.69182	15.49471	0.0023
At most 2	0.000506	0.014682	3.841466	0.9034

Trace test indicates 2 co-integrating equation(s) at 5% significance.

Under the Johansen Co-integration Test, there are two co-integrated vectors. In Johansen's Method, the eigenvalue statistic is used to determine whether co-integrated variables exist. From the trace statistics, all the absolute values of these variables apart from GFCF are greater than 5% critical values (i.e. RGDP [56.145 > 29.79], HCD [23.69 > 15.49] while GFCF [0.015 < 3.84]. However, looking at their eigenvalues [0.673438], [0.558003] and [0.000506] respectively, the trace test indicates 2 co-integrating equation at 5% level of significance. In other words, the null hypothesis of no co-integration among the variables is rejected since at least two equations at 5% were statistically significant. The test result shows the existence of a long-run equilibrium relationship among the variables. The normalized co-integrating adjusted coefficients for one co-integrating equation given by the long-run relationship is $RGDP = 0.067 HCD + 8929570 GFCF$

Where RGDP is the dependent variable, 0.067 is the coefficient of HCD and 8929570 is the coefficient of GFCF. The signs borne by the adjusted coefficient estimates of HCD and GFCF are positive. The negative outcome cannot be doubted since the Nigerian economy is bedevilled by corruption. This implies that both variables namely Human Capital Development (HCD) and Gross Fixed Capital Formation (GFCF) impact positively on RGDP.

ERROR CORRECTION MECHANISM (ECM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7792.646	3915.028	1.990444	0.0586
D(HCD)	-0.079424	0.149361	-0.531757	0.6000
D(GFCF)	1.65E-08	3.98E-09	4.141622	0.0004
ECM(-1)	-0.100799	0.110421	-0.912861	0.3708

$R^2 = 0.561349$, F-Statistics = 9.81 and Durbin-Watson Statistics = 1.64

From the table ECM (-1) was consistent by assuming a negative values. It suggests that the ECM could correct any deviations from long-run equilibrium relationship between RGDP and the explanatory variables. The co-efficient indicates a speedy adjustment of 10.1% per annum. This implies that following short-run disequilibrium, 10.1% of the adjustment to the long-run takes places within one year. The above result shows that the R^2 is 0.561349, which shows that the model explains about 56.14% of the total variations in RGDP are explained by the independent variables during the period of the study. The f - statistic of 9.81 with a corresponding zero probability [0.000234] measures the overall statistical influence of the explanatory variables in explaining the dependent variable.

It was found to be statistically significant at 5% level. This indicates that the variables included in the model explain approximately 56.14% of the total variations caused on economic growth in Nigeria. At 1.64; the Durbin Watson

statistics suggest evidence of no auto-correlation. This is an indication that the dependent variable; RGDP is well explained by the independent variables namely HCD and GFCF. In the case of Human Capital Development (HCD) specified in the model, exerts a negative sign. The sign could be attributed to the bureaucratic corruption found in government expenditure on education sector and health sector. The allocated fund to enhance human capital are diverted to private purse thereby affecting the Real Gross Domestic Product (RGDP) are negatively. On the other hand, GFCF indicated a positive co-efficient as expected, which implies that it is positively related to economic growth. More so, its coefficient is statistically significant because the p -value [0.0004] is less than the 5percent level.

HYPOTHESES II

H_0 : There is no causal relationship between economic growth and human capital development in Nigeria

Null Hypothesis:	Obs	F-Statistic	Prob.
HCD does not Granger Cause RGDP	32	17.7360	0.0003
RGDP does not Granger Cause HCD		4.70244	0.0391
GFCF does not Granger Cause RGDP	32	19.0694	0.0002
RGDP does not Granger Cause GFCF		5.87300	0.0224
GFCF does not Granger Cause HCD	32	7.6040	0.010

	3	3
HCD does not Granger Cause GFCF	0.7595	0.391
	8	1

From the above table the granger causality test running from HCD to RGDP [0.0003] and RGDP to HCD [0.0391] shows that all the P-values are less than 5% level of significance. More so, table the granger causality test running from GFCF to RGDP [0.0002] and RGDP to GFCF [0.0224] shows that all the P-values are less than 5% level of significance. Hence, there exist two-way causation between RGDP and the explanatory variables.

SUMMARY OF FINDINGS

This work examines the relationship between Human Capital Development and Economic Growth in Nigeria from 1980 to 2012. In the study, the variables captured are Real Gross Domestic Product, (dependent variable) and the explanatory variables; Human Capital Development (HCD) which was proxied by the summation of Government Expenditure Education and Government Expenditure Health and Gross Fixed Capital Formation (GFCF). On the application of advanced econometric techniques (Augmented Dickey Fuller Unit Roots, Johansen Cointegration Test, and Error Correction Mechanism), the following information surfaced;

- ✓ None of the variables was stationary at zero level. This means they all have unit roots problem;
- ✓ All the variables became stationary at first difference by ADF application implying that stationarity of the time series data were induced when they were differenced once.

- ✓ In the Johansen Cointegration test, the trace statistics indicated 2 (two) cointegrating equations, implying that there exist a long-run equilibrium relationship between RGDP and explanatory variables; HCD and GFCF.
- ✓ The co-efficient of ECM indicated a speedy adjustment of 10.1% per annum. This implies that following short-run disequilibrium, 10.1% of the adjustment to the long-run takes places within one year. The above result shows that the R^2 is 0.561349, which shows that the model explains about 56.44% of the total variations in RGDP are explained by the independent variables during the period of the study.
- ✓ The f - statistic of 9.81 with a corresponding zero probability [0.000234] showed that the entire regression plane is statistically significant at 5% level.
- ✓ The granger causality test running from HCD to RGDP [0.0003] and RGDP to HCD [0.0391] shows that all the P-values are less than 5% level of significance. Hence, there exist two-way causation between RGDP and the explanatory variables.

CONCLUSION

The research work has examined empirically the impact of human capital development and economic growth in Nigeria, using a time- series data of 1980 to 2015, co-integration and error correction techniques for drawing an inference. It reveals that investment in human capital, in the form of health and education expenditure and number of school enrolments impact positively on economic growth.

A number of theoretical approaches to incorporating human capital development in literatures of economic growth have been presented, ranging from

the reviewed works by Becker (1981). He stated that the development of human capital does not only reduce poverty in a country; it also promotes growth and efficiency. However, the findings are not in conformity with Becker's assertion as the coefficient of Human Capital Development (HCD) is negatively signed. The result shows that Human Capital Development (HCD) exerts a negative sign. The sign could be attributed to the bureaucratic corruption found in government expenditure on education sector and health sector. The allocated funds to enhance human capital are diverted to private purse thereby affecting economic growth (RGDP) negatively.

POLICY RECOMMENDATIONS

In the light of the findings, the annual budget by the federal government should be considered with utmost care so as to enhance the adequate funding of the education and health sector.

- ❖ Having seen that the coefficient of human capital development exerted a negative sign perhaps owing to corrupt practices, government should ensure that the fund appropriated for public expenditure on health and education are properly utilized for their designed purpose.
- ❖ There is need to understand the endemic problems endangering human capital development. This will help to ascertain the pragmatic step in proffering solution to it.
- ❖ Government should channel funds to programmes that will encourage training of skills as this will help to improve human resources.
- ❖ To increase physical capital formation in the education sector, Government should increase spending on social and economic

infrastructure so as to enhance the efficiency of the labour force and enhance productivity which is economic growth.

- ❖ Education must be of high quality and also meet the skill-demand needs of the economy so as to benefit the enrolment of pupils and students in the institution of learning.

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