Human Capital Development (Expenditures) and National Development in Nigeria
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Abstract
For decades, Nigeria’s illiteracy rate has been unduly very high; and most workers are found to be unskilled as they still 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 for national development. The study thus examined the impact of human capital development on national development in Nigeria between 1984 and 2015, using Ordinary least square regression method. Findings from the study revealed that investment in human capital through government recurrent expenditure, in the form of education and capacity building through training and orientation impacts positively on the national development in the long-run. However, Government capital expenditure on education was found an insignificant impact on national development. More so, Government expenditure on ICT has no significant relation with Nigeria’s Human development Index and this had over time resulted in Nigeria losing a significant proportion of her skilled and professional manpower to other national market and increasingly depending on expatriate for many crucial functions. The study thus recommends that there is the need for the government to encourage individual, private sector and non-governmental organization to increase investment in human capital and economic empowerment to compliment government effort in the country. Government should also increase its spending on socio-economic infrastructure such as internet facilities to enhance efficiency of labour and increase productivity.

I. Introduction
As the global economy shifts towards more knowledge-based sectors, skills and human capital development become a central issue for policy makers and practitioners engaged in economic development both at national or regional level. Human development refers to the process of acquiring and increasing the number of persons who have the skill, education, experience which are critical for the economic and political development of a country. Human capital development is thus associated with investment in man and his development as a creative and productive resource (Jhingan 2012). Schultz (1961) categorized and developed human resources into six ways: (i) Heath facilities and services: - this involves all expenditure that affects the life expectancy, strength and stamina, and vigour and vitality of the people, (ii) On – the job training which includes old type apprenticeship organized by firms, (iii) Formally organized education at elementary, secondary school and higher level, (iv) Study programmes for adults that are not in agriculture, (v) It involves migration of individual and families to adjust changing job opportunity (factor mobility), (vi) Finally, transfer or importation of technical assistance, expertise and consultants. Onakoya (2013) described human capital as an important factor used in converting all resources to benefit mankind. Human capital development is strategic to the Scio-economic development of a nation and includes education, health, labour, employment and woman affairs. Investing in human capital development is therefore critical as it is targeted of ensuring that the nation’s human resources endowment is knowledgeable, skilled, productive and healthy to enable the
optimal exploitation of other resources to produce growth and development. In a nutshell, investment in human capital development means expenditure on health, education, and social services in general but in a narrow sense, it is capable of measuring all expenditure on social services.

Human capital development is thus one of the most important requirements, to ensure the sustenance and improvement of an economy, whether at micro or macro levels. Human resources or capital development 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. For the individual it should be a lifelong process, because of the continuously changing environment to which one must also continuously adapt. Such development enables the persons involved to move vertically or laterally in the economic and social environment.

Human capital development also facilitates lateral movement and redeployment of a country’s labour force. Through relevant training and associated experience, an accountant in the private sector can be redeploying to a public sector equally as an accountant or as director of finance with higher responsibilities. A computer operator retiring from the civil service may wish to go into rural farming, but he would be most productive thereat normally with requisite pre-training and adaptation. This therefore implies that, no one is expected to be so adequately prepared in terms of knowledge, skill, and experience at the entry point of a job, to enable him be continuously effective for ever either at the higher levels of that job, or for efficiency and success on other jobs. In the same vein, for a national or state economy, no country or state can be adequate both in quantity and quality-wise, in the skills and expertise that will sustain the economy efficiency and indefinitely, or to cope with the exponential growing consequences of new technology, service demands, population growth and national security. In order to survive in this modern world such a nation must devote a high proportion of its resources to developing its human resources in terms of number, quality and mix for the optimum overall economic and social development (Yesufu, 2000).

In Nigeria however, 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, and Poor reward system retarding the acquisition and development of human capital.

**Research Questions**

i. What impact does expenditure on education (GREE) has human development index (HDI)?

ii. What effect does capital expenditure (GCE) has on education on HDI?

iii. To what extent has ICT development impacted on HDI?

**Research Hypotheses**

In order to prelude analytical solutions to the research questions, the following propositions are made. The result of the test hypothesis will provide scientific answers to the questions.

**H01:** GREE has no significant impact on HDI in Nigeria.

**H02:** GCEE has no significant effect on National development.
II. Literature Review

2.1 Concept of Human Capital Development

Human capital development has become a core element in the development efforts of developing countries, in the knowledge society of the 21st century. This is because, "comparative advantage among nations derive less and less from natural resources and cheap labour endowment and increasingly from technical innovations and the competitive use of knowledge" (World Bank 2002). In the new environment, the learning paradigm has changed. The new paradigm is lifelong learning, in which there is less emphasis on remembering facts and basic data, and more emphasis on process, analytical knowledge, skills, and competences. The emphasis is, "learning to learn; learning to transform information into new knowledge; and learning to translate new knowledge into applications" (World Bank, 2012). In this new paradigm, cooperative education is central. Periods of institution-based learning produce the foundation of knowledge, and the acquisition of work-related skills, competences, and practices in relevant workplaces build on this foundation.

The general understanding has been that technological development is a slow and cumulative process that involves the movement of knowledge from one part of the world to another in a distinctive step-by-step approach. This linear view of technological development was accompanied by the mechanistic and static outlook of much of economic theory. The outcome of the combined views of technology and economic theory gave rise to policy approaches that failed to recognise the dynamical aspects of technological development. Either technology was equated with the supply of machinery or was reduced to monetary units. The fact that technological development is part of a wider process of socio-cultural evolution was recognised only by a small sector of those interested in development. Often socioeconomic factors were invoked to explain failed development projects, but not in the planning of new ones. Socio-cultural factors are still viewed as potential obstacles to technological development even though they themselves embody a set of technological solutions to local problems.

The application of these ideas to the developing countries took a number of different forms, including the mistaken belief that the mere transfer of technology defined in a narrow sense would enable developing countries to leap across the centuries and repeat the industrial revolution. It was with this false hope that the United Nations Conference on the Application of Science and Technology for the Benefit of Less Developed Areas was held in Geneva in 1963. It was believed then that the developing countries could benefit from the experiences of the industrialised countries and that there were no vested interests to undermine the success of such in assimilating imported technology. It was also against this background that interest grew in technical assistance programmes supported through official development assistance.

Indeed, there was a seeming relationship between technological advancement in the industrialised countries and the absence of extreme forms of poverty. Much hope was therefore placed on using technology as embodied in development projects to reduce poverty in the poorer countries. What was missed, however, was the simple fact that the reconstruction of Europe built on a well-established human capital base which could not only assimilate any imported technology, but was still at the frontier of technological innovation. Furthermore, most of the technological options available to Europe at the time were originally part of western culture and therefore were easily re-introduced in the region. The war also helped to eliminate obsolete technological vintages and create new opportunities for the use of more efficient technologies, which raise the per capita
productivity of workers.

Much policy-making on development assistance was driven by compassion for the suffering and social justice but was not accompanied by a detailed understanding of the sources of economic growth. Rather attention was given to the symptoms of low levels of economic productivity in the poorer countries.

2.2 Conceptualizing Human Capital Development and Economic Empowerment

The role of human capital development cannot be emphasized. The development of human capital has been recognised by development economists to be an important prerequisite and an invaluable asset for a country’s socio-economic development. This can only be achieved through increases knowledge, skills and capabilities acquired through education and training by all the people in the country. The concept of human capital refers to the abilities and skills of the human resources of a country, 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 (NES, 2002).

Yesufu (2000) is of the views that the essence of human resources development becomes one of ensuring that the workforce is continuously adapted for, and upgraded to meet, the new challenge of its total environment. This is because the economy is a dynamic entity, which is constantly changing in response to various stimuli such as introduction and discoveries of new products or techniques of production. Therefore, those already on the job require retraining, reorientation or adaptation to meet the new challenges. This special human capacity can be acquired and developed in different ways, namely; education, training, health promotion as well as investment in all social services that influence man’s productive capacities, including telecommunications, transport and housing. He concluded that, education and training are generally indicated as the most important direct means of upgrading the human intellect and skills for productive employment.

In recognition of the importance of human capital development, the United Nations Development Programme (UNDP, 2013) has described human resources as the knowledge, skills, attitudes, physical and managerial effort required to manipulate capital, technology, land and material to produce goods and services for human consumption. In the same vein, Mahroum (2007) suggested that at the macro-level, human capital management is about three key capacities namely; the capacity to develop talent, the capacity to deploy talent, and the capacity to draw talent from elsewhere. Collectively, these three capacities formed the backbone of any country’s human capital competitiveness. In a collaborative view, Simkovic (2013) sees human capital as the most important element of success in business today. So developing human capital requires creating and cultivating environment in which human beings can rapidly learn and apply new ideas, competencies, skills, behaviours and attitudes. It could therefore, be deduced that human capital represents the stock of competencies, knowledge, habits, social and personality attributes, including creativity, cognitive abilities, embodied in the ability to perform labour so as to produce economic value.

On the other hand, the term empowerment is derived from the word power. Thus to empower means to give power to, to give authority to, to enable a person or group of persons gain power, to uplift their lives, especially their socio-economic lives. Economic empowerment therefore entails programs aim directly at raising people’s incomes, such as education, agriculture – focused interventions (training, improved irrigation for farmers), micro-finance, support for small and medium enterprise, and distribution of goods and services with the ultimate goal of developing people potentials not only to contribute and benefit from socio-economic development and structural change but also
on improving the potential for the mass of the population through education and workplaces conditions, whether through public and/or private channels.

2.3 Empirical Literature

Several studies have attempted to investigate the relationship between human capital and economic growth and these studies have shown mixed results. Oluwatobi and Oggunrinola (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 explored 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 channelling 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 Jafarooy 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 (2012) 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 (2009) 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 (2013) 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 Omofonmwans’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 Coji (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 jobcreating 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 noncommunicable 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.

### 2.3 Theories of Human Capital Development and Economic Growth

Contemporary discussions on human capital development and economic growth have been dominated by three theories below:

#### 2.3.1 Human Capital Theory

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 Jacob 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 (Babalola, 2000). 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. Human capital theorists have established that basic literacy enhances the productivity of workers low skill occupations. They further state instruction that demands logical and analytical reasoning that provides technical and specialized knowledge increases the marginal productivity of workers in high skill or profession and positions. Moreover, the greater the provision of schooling in society, consequently, the greater the increase in national productivity and economic growth.

### III. Methodology

The research design adopted for this work is the time series non-experimental research design. The reason is that time series non-experimental research design combines the theoretical consideration with empirical observation. The research data to be employed in analyzing the effect of human capital development on national development in Nigeria shall be secondary data from CBN statistical bulletin. For the purpose of this research, the ordinary least square (OLS) multiple regression model shall be used to estimate the variables. The first step is to test the stationarity of the series or their order of integration.
to avoid spurious regression results. The estimation shall be conducted using the econometric computer software package, E-Views version 7.0. The model specifications here are formulated to tests the three hypotheses and they are as follows:

\[ HDI = f(GCE) \]
\[ HDI = f(ICT) \]
\[ HDI = f(GREE) \]

Thus, linearizing equation (1, 2 and 3), we obtain:

1. \[ HDI = \beta_0 + \beta_1 GCE + \mu \]
2. \[ HDI = \beta_0 + \beta_2 ICT + \mu \]
3. \[ HDI = \beta_0 + \beta_3 GREE + \mu \]

Where;

\[ \beta_0 \] = The intercept or autonomous parameter estimate
\[ \beta_1 \] to \[ \beta_3 \] = are the slope of the coefficients of the independent variables to be determined

HDI = Human Development Index
GCE = Government capital expenditure
ICT = Expenditure in ICT development
GREE = Government recurrent expenditure in education
\[ \mu \] = Error term (or stochastic term).

We then differentiate partially with respect to of each variable to obtain apriori sign expectation of equation (4, 5 and 6);
IV. Results and Analysis

4.1 Unit Root Test

Time series data are generally characterized by stochastic trend which can be removed by differencing. Unit root test therefore is a test of stationarity or non-stationarity of series data used in the model. This is to find out if the relationship between economic variables is spurious or nonsensical. Therefore, to examine the existence of stochastic nonstationarity in the series, the research establishes the order of integration of individual time series through the unit root tests. The test of the stationarity of the variables adopted was the Augmented Dickey Fuller (ADF) test. The variables tested are: HDI, GCE, GREE and ICT are presented in Table 2.

**Table 2: Summary of Unit Root Test Results**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Order of Integration</th>
<th>ADF Test Statistics</th>
<th>Critical ADF Test Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDI</td>
<td>I(1)</td>
<td>-4.676868 (-4.388929)*</td>
<td></td>
</tr>
<tr>
<td>GCE</td>
<td>I(1)</td>
<td>-7.427762 (-3.511133)**</td>
<td></td>
</tr>
<tr>
<td>GREE</td>
<td>I(1)</td>
<td>-4.899722 (-3.666734)**</td>
<td></td>
</tr>
<tr>
<td>ICT</td>
<td>I(1)</td>
<td>-6.889224 (-4.288739)**</td>
<td></td>
</tr>
</tbody>
</table>

Source: Authors Computation, 2016 (Eview-9.0): Note: MacKinnon critical values for the rejection of hypothesis of unit root are in parenthesis in Columns 1 and 2 and the tests include intercept with trend; * significant at 1%; ** significant at 5%; *** significant at 10; MacKinnon critical

From Table 3, it could be observed that all the variables were found stationary at first difference form, and are integrated at order one (that is I(1)). At this order of integration, their ADF test staticsts are greater than their critical values. These stationary variables were then used for the linear regression analysis. Since all the variables were found to stationary at first difference (that is at order 1(I)), it was safe for us to employ and proceed with Johansen co-integration test.

4.2 Co-integration Estimate

If two or more-time series are not stationary, it is important to test whether there is a linear combination of them that is stationary. Economically, variables are cointegrated if they have a long term, or equilibrium relationship between them. It is a pretest to avoid spurious regression situations. More so, Gujarati (2004) argued that where there are more than two variables in a model, there is a possibility that the emerging cointegrating vectors governing the joint evolution of all the series will be more than one. The Engel and granger Cointegration approach was adopted in this study. The cointegration results showed that long-run relationship exist in our model as at two variables HDI and GEICT were found to be statistically significant at 5%.

**Table 3: Engel and Granger Cointegration Results**

Date: 12/22/16 Time: 13:34
Series: HDI GREE ICT GCE
Sample: 1984 2015
Included observations: 32
Null hypothesis: Series are not cointegrated
Cointegrating equation deterministics: C
Automatic lags specification based on Schwarz criterion (maxlag=7)
4.3 Model Evaluation and Test of Hypothesis

The three hypotheses formulated in this study were tested using student t-statistics. The level of significance for the study is 5%, for a two tailed test. The decision rule is that we shall accept the null hypothesis if the critical/t-value (±1.96) is greater than the calculated value, otherwise reject the null hypothesis.

4.3.1 Hypotheses One: \( H_0: \text{GREE has no significant impact on HDI in Nigeria} \)

Model one: \( HDI = \beta_0 + \beta_1 \text{GREE} + \mu \) (10)

Table 4: Regression Result on HDI and GREE

<table>
<thead>
<tr>
<th>Dependent</th>
<th>tau-statistic</th>
<th>Prob.*</th>
<th>z-statistic</th>
<th>Prob.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDI</td>
<td>-4.554529</td>
<td>0.0426</td>
<td>-25.38990</td>
<td>0.0349</td>
</tr>
<tr>
<td>GREE</td>
<td>-2.253726</td>
<td>0.7891</td>
<td>-14.79211</td>
<td>0.4043</td>
</tr>
<tr>
<td>ICT</td>
<td>-5.916634</td>
<td>0.0026</td>
<td>-78.29762</td>
<td>0.0000</td>
</tr>
<tr>
<td>GCE</td>
<td>-2.541454</td>
<td>0.6693</td>
<td>-11.45136</td>
<td>0.6336</td>
</tr>
</tbody>
</table>


Source: Authors Computation, 2016 (Eview-9.0)

Kaduna Journal of Sociology (KJS) Vol. 5 No. 5 July, 2017
Test of Hypotheses One: H₀₁
From the regression result in table 4, the calculated t-value for GREE is 3.03 is greater than the critical value of 1.96. It falls in the rejection region and hence, we may reject the first null hypothesis (H₀₁). The conclusion here is that GREE has a significant impact on National development in Nigeria.

The ANOVA F-statistic
The F-statistics which is used to examine the overall significance of regression model equally showed that the result is significant, as indicated by a high value of the F-statistic, 29.04 and it is significant at the 5.0 per cent level. That is, the F-statistic value of 0.04444 is less than 0.05.

The R² (R-square)
The coefficient of determination (R-square), used to measure the goodness of fit of the estimated model, indicates that the model is reasonably fit in prediction, that is, 60.45 percent change in HDI was due to GREE, while 39.55 percent unaccounted variations was captured by the white noise error term. It showed that GREE had strong significant impact on the HDI within the period under review.

4.3.2 Hypotheses Two: H₀₂: GCEE has no significant effect on National development

Model two: GCEE + β HDI + μ

Table 5: Regression Result on GCEE and HDI

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Beta</th>
<th>t-value</th>
<th>Pearson Correlation(r)</th>
<th>Probability value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCEE</td>
<td>0.67</td>
<td>-1.78</td>
<td>0.48779</td>
<td>0.8849</td>
</tr>
</tbody>
</table>

Source: Authors Computation, 2016 (Eview-9.0)

HDI = 5.54 - 0.67GCEE
SEE = 18.92 1.03

Test of Hypotheses Two: H₀₂
From table 5, the calculated t-value for GCEE is -1.78 and the tabulated value is given as ±1.96, under 95% confidence levels. Since the calculated t-value is less than the tabulated value (-1.78 < 1.96), we therefore accept the null hypothesis (H₀₂). We conclude that GCEE has no significant effect on national development in Nigeria.

The F-statistic
Examining the overall fit and significance of the model, it could be observed that the model also has a better fit. That is, the probability F-statistic value of 0.00025 is less than
0.05.

**The $R^2$ (R-square)**
The coefficient of determination (R-square) also indicates that the model is reasonably fit in prediction, as about 41.31 percent change in HDI was due to GCEE, while 58.69 percent unaccounted variations was captured by the white noise error term. It showed also that GCEE had a poor impact on HDI

### 4.3.3 Hypotheses Three: $H_03$: ICT development has no significant impact on national development in Nigeria

**Model Three:** $\beta_3 (14) : HDI = \beta + \beta_1 ICT + \mu$

**Table 6: Regression result on ICT and the HDI**

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Beta</th>
<th>t-value</th>
<th>Pearson Correlation</th>
<th>Probability Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT</td>
<td>0.65</td>
<td>1.25</td>
<td>0.44492</td>
<td>0.9221</td>
</tr>
</tbody>
</table>

*Source: Authors Computation, 2016 (Eview-9.0)*

**HDI** = 20.41 + 0.65ICT (15)

$SEE = 0.42 \ 1.444$

$t^* = 8.69 \ 1.25$

$F^* = 33.96; \ Prob(F\text{-statistic})=0.0098844$

$R^2 = 0.4860; \ R^2 = 0.4589$

$DW = =$

**Test of Hypotheses Three: $H_03$**
From table 6, the calculated t-value for ICT is 1.25 and the tabulated value is given as ±1.96, under 95% confidence levels. Since the calculated t-value is less than the tabulated value (1.25 < 1.96), we therefore, accept the third null hypothesis ($H_03$). We conclude that ICT development has no significant impact on National development in Nigeria.

**The ANOVA F-statistic**
Also, by examining the overall fit and significance of the HDI model, it can be observed that the model does really have relevance, as indicated by the relatively high value of the $F$-statistic, 17.96 and it is significant at the 5.0 per cent level. That is, the $F$-statistic value of 0.0009884 is less than 0.05 probability levels.

**The $R^2$ (R-square)**
The coefficient of determination (R-square) indicates that the model is reasonably fit in prediction, that is, 48.60 percent change in HDI was due to ICT, while 51.40 percent unaccounted variations was captured by the white noise error term. It showed that ICT development has had a poor impact on national development in Nigeria.

### 4.4 Discussion of Findings
It reveals that investment in human capital through government recurrent expenditure, in the form of education and capacity building through training and orientation impacts positively on the economic growth in the long-run; this confirmed the study by Adenuga and Otu (economic growth and human capital development: a case of Nigeria, 2006).
high level of human capital development increased the utilization of resources both human and material and as expected, there has been a multiplier effect that has led to economic growth in Nigeria. As a result, a high sense of optimism has emerged concerning the benefits of increased continuous development of human skills and abilities. This eventually spilled over into socio-economic and development policies, as many analysts and policy makers now believe that human capital development can offer great gains to developing countries of which Nigeria is a dominant member. Government capital expenditure on education was found an insignificant impact on national development. This is in agreement with Ndulu (2010) whose result showed that 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. 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.

Government expenditure on ICT has no significant relation with Nigeria’s Human development Index. 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.

V. Conclusion and Recommendation

Human capital development is an indispensable component of the development process. It includes better education at all levels, generous on-the-job training and appropriation of new technologies and ideas. Acquiring better knowledge and skills through education and training benefits both individuals and the economy as a whole. Individuals benefit in the form of higher earnings and enhanced employment, while the economy benefits in the form of higher productivity which ultimately enhances socio-economic development. So for in Nigeria to be adequate in the quantity and quality of skills and expertise required to enhance economic growth, or to cope with the exponentially growing consequences of new technology and changing consumer services, demand a more trained and sophisticated population. This can only be achieved where the right kind of education and training is given to the human resources of the state, and should be fully utilized in order to increase the production capacity of the economy for socio-economic growth.

The study shows that Government expenditure on education has a decreasing effect on education performance hence policies that relate to educational improvement should be revisited. The formulation of these policies should take proper consideration on improving on the budgetary allocation to the education sector.

Other specific recommendation:

i. More incentives should be provided to the teachers and trainers involved in human capital development in the education sector. This will help to encourage, promote self-dedication, commitment and service delivery. In addition improve on the quality of educational output in Nigeria in terms of quality of human capital and capacity building leading to improvement on the performance of the education sector of Nigeria as it relates to efficiency in government expenditure and effective learning process.

ii. The government should make sure that funding to its education sector should be
above the UNESCO minimum benchmark. The government should encourage individual, private sector and non-governmental organisation to increase investment in human capital and economic empowerment to compliment government effort in the country.

iii. The government should increase its spending on socio-economic infrastructure to enhance efficiency of labour and increase productivity

References


Kaduna Journal of Sociology (KJS) Vol. 5 No. 5 July, 2017