The Nexus Between Human Capital Development and Economic Growth in Nigeria

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Abstract

The impact of human capital development on the evolution procedure in whichever country or state is fundamental, which is the most valuable resource for poverty alleviation. The study tried to survey the nexus amid human capital development besides economic growth in Nigeria. The methodology adopted used secondary data that span a period of 198the 0 to 2016 from CBN ta time series data. This study did an extensive review of empirical studies, which unveils the elongated affiliation between government disbursement on the health sector, educational sector, and economic growth. Ordinary least square, Trend analysis, and the Johansen cointegration were used in the analysis of data. The independent variables were proxied using fixed capital formation, both post-primary and post-secondary enrolment rates, and education expenditure and health appear with a priori expectations with statistical significance (except government expenditure on primary enrolment level and education). The discoveries in this survey pose a great great to education and health policies. Hence, urgent attention needs to change the led towards accelerating growth process and liberate Nigeria's human capital from the phase of destitution, the research, therefore, recommends that the government expressly swing into action on progressive policies that support human capital development bearing in mind these sectors of the economy.

KEYWORDS: Ordinary Least Squares, Johansen's cointegration, Human Capital Development, Economic Growth

1.0 Introduction

Human Capital Development generally captures indices such as growth in labor force, enrolment in both secondary and tertiary institutions, health, women affairs and employment, growth in these areas are said to be an advancement for a country. Investment in education and health is purposed to stir up the resource endowments that is highly productive, healthy, skilled and very knowledgeable thereby enables other natural endowments to be best exploited and utilized in the most effective and efficient manner, to bring about the much-needed transformation for a country. It is on record that for a country to make appreciable and

sustainable economic development it must make a substantial investment in its human capital consistently. Several types of research have outlined ways and manners growth in human capacity development can help stimulate economic growth of a nation, one of such is Barro and Salai-i-Martin, 1995; and Temple, 1999. Association between human and physical capital has been noted by several kinds of literature, showing how they can affect economic growth, together with human capital externalities. Economists observe that utilization and development of a human capital boost economic growth in a nation. Proliferation in productivity happens to be the key means of per capital output for developed and developing nations alike with a market-based economy and for centrally planned economies, Abramowitz, (1981). It is well known that Human beings generally have the prowess to manufacture and harness technology and apparatus, is the most vital tool for enhanced productivity and economic progress through innovations and creativity. The Nigerian nation is so blessed with human and natural resources so much that they are so unquantifiable that if the leadership of the country had been competent, there would have been significant economic prosperity achievement towards the end of the 20th century. Nigeria is primarily focused on discovering how to speed up its economic growth, thereby ending the continuing cycle of poverty, abysmally low production level, and unending stagnation. Nigeria, even with the abundant resources, has failed to attain her full development potential with sustainable development or people-oriented development currently given the highest priority in most countries of the world and many multilateral organizations like World Bank, UNESCO, and UNDP. Empowering people and mobilizing excesses in the economy into productive channels are the core issues in Nigeria. Also, it is imperative that to enhance the growth of the economy in Nigeria and tackle the obstacles faced by human capital development by either removing them or have them reduced. In the international community, Nigeria is rated as "less developed", "developing", therefore, the growth and development of the economy is a major goal. This situation seen in Nigeria can be attributed to a lack of clear policies for human capital development and utilization, as well as the inability to create a conducive atmosphere for human capacity development. Right from the time Nigeria became a nation, it has been a challenge for the nation to grow and develop because of several reasons, one of which is inadequate focus accorded to human capital development in Nigeria. This contradicts the circumstances seen in the 70s and 80s, where job opportunities were readily provided for graduates even before graduation. Other relevant issues are Political instability which usually results in recurrent fluctuations in educational policies, deliberate lack of government funding of education and health sectors, inadequate amount of budgetary allocation to enhance the development of human resources and its relevant components, improve the level of the education system, and health to achieve sound human capital development. This paper seeks to examine the influence of human capital development on economic growth using Nigeria as a case study. Specifically, this study aims to assess the causal relationship between government expenditure on education and health, and the degree to which both education and health sectors has impacted the growth of the Nigerian economy.

2.0 Literature Review

Numerous studies have investigated the influence human capital has on economic growth in Nigeria. The outcome of many of the research works clearly shows that education leads to productivity and growth, and this is irrespective of the model used. It is has been said that capital invested in human beings is the best according to Alfred Marshal's (1930) research on

'principles of economics'. He also revealed that this capital stimulates development in any nation.

It was concluded in the study by Harbison and Myer (1964) that in modern times most countries raise their expenditure on human capital, having realized that spending on human development is vital for its national transformation and development. When more investments are done in education it results in an increase in productivity and individuals' income, and also significant social rates of return (Wilson and Briscoe, 2003). They also discovered that other sectors gain from an investment in education.

Loening (2002), also assessed how human capital affects income increases, the study discovered that a properly trained workforce has a significant and positive influence through total factor accumulation resulting in economic growth and resultant total factor productivity. Using the 2-stage least square approach, Bloom (2004) discovered that economic growth was positively influenced by schooling and life expectancy.

Innovations in health lead to economic growth according to Arora (2001), who established a cointegrating relationship between health and income. Empirical evidence proving the importance of health and demographic variables in determining economic growth was obtained by Bloom and Sachs (1998). The better health system can reduce the decrease in education capital, consequently leading to an increase in the potential of education to promote growth (Barro, 1996). This specifically shows how education and health are responsible for stimulating growth. From Barro's study in 2001 examining a panel of 100 countries, it was seen that expenditures constitute a form of investment, increasing individuals' employability, and enable income and provides easy movement of labor from place to place.

The growth rate of educational expenditure, which is the main variable of interest, positively and significantly affected human capacity development in Nigeria.

A mismatch was noted between the human capacity requirement and needed skills in Nigeria, in a study carried out by Chete and Adeoye (2003) which employed a number of methodological approaches to explore the association between the variables of interest.

3.0 **Methodology**

The OLS method was adopted using secondary data spanning a period of thirty-four years (34) covering 1980-2014 to analyze the association between human capital and economic growth in Nigeria.

The model formulated is as follows:

Y= F (A, K, L) ………………equation (i)

Model specification:

Y represent the Aggregate real output
K represents capital,
L represents Labour,
A represents total factor productivity

$DY/Y =DA/A+ F_K (DK/Y) (k/k) + (F_L DL/Y) (L/L)$ ……… equation (ii)

The Gross Domestic Product (GDP) was used as a proxy for the dependent variable while the explanatory variables are proxied using Health contributions to GDP (HCG), Education contribution to GDP (ECG), Primary school enrolment rate (PER), secondary school enrolment rate (SER) and lastly is the enrolment rate into Tertiary Institutions (TER).

Where:
Y/K = growth rate of output;
K/K = growth rate of capital;
L/L = growth rate of the labor force;
F_K F_L = Social marginal product of capital and labor respectively;
DA/A = Hicks neutral rate of change of technological progress.
$$Y_t = K_t \, \alpha \, H_t \, \beta \, (A_t \, L_t)^{1-\alpha-\beta} \quad \text{......Equation (iii)}$$

I_t represents the Output
K represents the Physical capital
H also represents the human capital stock
L represents labor force and A represents the level of technology while α, β < 1, implying decreasing returns to capital. By implication, there is a strong and positive relationship between investment in human capital and output growth.
The model formulation for the study is:

$$GDP = \beta_0 + \beta_1 \, HTH + \beta_2 \, EDU + \beta_3 PER + \beta_4 SER + \beta_5 TER + \mu \quad \text{...... Equation (iv)}$$

$$InGDP = \beta_0 + \beta_1 In \, HTH + \beta_2 In \, EDU + \beta_3 InPER + \beta_4 InSER + \beta_5 InTER + \mu \quad \text{.... Equation (v)}$$

Where:
β_0 = Intercept of the equation
HTH = Health expenditure.
EDU = Education expenditure.
PER = Primary School Enrolment Rate.
SER = Secondary School Enrolment Rate.
TER = Tertiary Institutions Enrolment Rate.
LB= Labour force
μ = Stochastic error term
$\beta_1, \beta_2, \beta_3, \beta_4,$ and β_5 are estimate parameters.

4.0 Findings and Analysis of the Results

Unit Root Tests results and interpretations
The study attempted to test using ADF tests to test whether the variables had a unit root or not.

Table 1: Unit Root Test

Variables	ADF t-statistics	Critical Values			Order of Integration	Status
		99%	95%	90%		
InGDP	0.077760	-3.639407	-2.951125	-2.614300	I(0)	Nonstationary
InEDU	-1.028834	-3.670170	-2.963972	-2.621007	I(0)	Nonstationary
InGFC	-6.942748	-3.639407	-2.951125	-2.614300	I(1)	Stationary
InHTH	-0.486743	-3.670170	-2.963972	-2.621007	I(0)	Nonstationary

| InLAB | 0.307455 | -3.639407 | -2.951125 | -2.614300 | I(0) | Nonstationary |
| InTSE | -2.209131 | -3.639407 | -2.951125 | -2.614300 | I(0) | Nonstationary |

Source: Author's computation using data of the variables in Eviews 7, 2016

Table 2 Unit Root Test (ADF Test at 1st Difference)

Variables	ADF t-statistics	Critical Values			Order of Integration	Status
		1%	5%	10%		
InGDP	-4.742784	-3.646342	-2.954021	-2.615817	I(1)	Stationary
InEDU	-5.056753	-3.670170	-2.963972	-2.621007	I(1)	Stationary
InGFC	-5.511812	-3.653730	-2.957110	-2.617434	I(1)	Stationary
InHTH	-4.936471	-3.670170	-2.963972	-2.621007	I(1)	Stationary
InLAB	-5.147800	-3.646342	-2.954021	-2.615817	I(1)	Stationary
InTSE	-6.115693	-3.646342	-2.954021	-2.615817	I(1)	Stationary

Source: Author's computation using data of the variables in Eviews 7, 2016

The ADF results in the show the variables of interest are non- stationary at levels. Consequently, there exists a motivation to proceed with the variables' first differences in Table 3

Cointegration Test: Result and Analysis

Table 3: Trace Test

Hypothesized No of CE(s)	Eigenvalue	Trace statistic	0.05 Critical value	Prob **
None*	.900462	196.1695	95.75366	0.0000
At most 1*	.843810	122.3387	69.81889	0.0000
At most 2*	.603886	62. 92488	47.85613	0.0011
At most 3*	.535815	33.29121	29.79707	0.0190
At most 4*	0.238161	8.732072	15.49471	0.3908
At most 5*	0.000857	0.027447	3.841466	0.8684

Trace test indicates 4 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Table 4 Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No of CE(s)	Eigenvalue	Max-Eigen statistic	0.05 critical value	Prob **
None *	0.900462	73.83082	40.07757	0.0000
At most 1*	0.843810	59.41383	33.87687	0.0000
At most 2*	0.603886	29.63367	27.58434	0.0269
At most 3*	0.535815	24.55914	21.13162	0.0158
At most 4*	0.238161	8.704626	14.26460	0.3116
At most 5*	0.000857	0.027447	3.841466	0.8684

Max-eigenvalue test indicates 4 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Source: Author's computation using data of the variables in Eviews 7, 2016

Regression Analysis: GDP
Method: Least Squares

Table 5: White heteroskedasticity-consistent standard errors & covariance

Variable	Coef	S.E	t- statistics	Probability
INEDU	-0.329638	0.075210	-4.382916	0.0001
INGFC	0.087494	0.067334	1.299414	0.2040
INHTH	0.357548	0.077009	4.642960	0.0001
INLAB	0.148213	0.477586	0.310338	0.7585
INTSE	-0.012751	0.016599	-0.768190	0.4486
C	4.729264	2.142429	2.207431	0.0354

R-squared	0.686970	Mean dependent var	5.373151
Adjusted R-squared	0.633000	S.D dependent var	0.109566
S.E of regression	0.066375	Akaike info criterion	-2.432174
Sum squared resid	0.127765	Schwarz criterion	-2.165543
Log-likelihood	48.56304	Hannan-Quinn criteria	-2.340133
F-statistic	12.72860	Durbin-Watson stat	0.949036
Prob (F-statistic)	0.000001		

Source: Author's computation using data of the variables in Eviews 7, 2016

The OLS result reveals that the coefficient is both constant and positive meaning there are extraneous factors outside the model that is responsible for economic growth.

This will mean that a unit change in the intercept will cause a 4.729264 unit changes in the long-run on the Nigerian economy. While the coefficient of gross fixed capital formation (InGFC) is as well positive. This indicates that a unit increase in GFC will raise GDP by 0.087494 units. Correspondingly, GFC is not statistically significant as revealed by its t-statistics of 1.299414.

Moreover, the R^2 for the study showed 0.686970 and adjusted R^2 is 0.633000. This indicates that about 69% change in GDP is caused by the explanatory variables. The adjusted R-squared (0.633000) shows that the model exhibits a goodness of fit and this further demonstrates that the model employed in explaining the relationship between the explained and explanatory is quite good.

5.0 Summary, Conclusion and Recommendations

This study evidenced a positive and significant association between the variables of interest. The reason for this can be the unending issue of embezzlement and mismanagement of resources allocated for educational capital projects in Nigeria (Transparency International, 2011). Results from transparency international's report of 2010, Nigeria's performance on the scale of 10 is 2.4 which translates to a position of 134 out of 178 (Transparency International, 2010). There could be other plausible explanations for this, as the negative relationship shown runs counter to prior

expectations. For instance, this inverse relationship may be due to the fact that the government's expenditure on education is improperly utilized as they are wrongly spent on projects that do not conform to the need for improving educational standards in Nigeria, consequently leading to a persistent lack of employment for graduates in the country (Kolawole and Arikpo, 2004, NBS 2010). Ohiwerei (2009) and Igwilo (2010) confirm the common perception that Nigerian graduates are mostly unemployable, thereby supporting this claim. The educational standard has drastically fallen, leading to the production of largely incompetent graduates who do not fit employers' requirements of being competent and skilled manpower resources, making them just mere certificate holders (Dabalen, Oni, and Adekola, 2000). This correlates with the views of Olaniyan and Okemakinde (2008) that share the same views.

The study, therefore, recommends that urgent attention is given to the educational and health sectors to satisfy the yearnings of the people of the country and move the economy out of the woods. Also, the study suggests there should be an increase in budgetary allocation made to service these two all important sectors of education and health in Nigeria.

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