

# Human Capital Development and Economic Growth in Nigeria

Ifeoma C. Mba<sup>1\*</sup>; Emmanuel I. Mba<sup>2</sup>; Jonathan E. Ogbuabor<sup>1</sup> and Chizoba H. Ikpegbu<sup>1</sup>

1. Department of Economics, University of Nigeria, Nsukka

2. Department of Statistics, University of Nigeria, Nsukka

\*Email/Phone of Corresponding Author: [mibaify@gmail.com](mailto:mibaify@gmail.com); [ifeoma.mba@unn.edu.ng](mailto:ifeoma.mba@unn.edu.ng)

## Abstract

Human Capital is an integral part of any country's development and economic growth has human capital as an important factor. This study evaluates the relevance of human capital development on the growth of the economy pin pointing the relationship that exists between them. In this study, the ordinary least square (OLS) technique was adopted. The GDP was used as a proxy for economic growth; Per Capital Real Gross Domestic Product, primary school enrolment, public expenditure on education and health, life expectancy, stock of physical capital as proxy for human capital. From the analysis, it was deduced that there is a strong positive relationship between human capital development and economic growth. The recommendations drawn from the study centered on revisiting the man-power needs of the various sectors of the economy. Also, while workable policies should be put in place to bring about an overall economic growth, expenditures on health and public education should be utilized effectively and efficiently so that the country would experience quality health care services and quality educational system.

**Key words:** Human Capital, GDP, Economic growth, Ordinary Least Squares, Nigeria

## 1.1 Introduction

Human capital as defined by Schutz (1993) is the key element in improving firms' asset and employees in order to improve productivity as well as sustain competitive advantage. Human capital becomes a tool for competitive advantage since it involves the process of training, knowledge acquisition (education), initiatives and so on, all these are geared towards skill acquisition. Human capital development is human centered because its major concern is on human empowerment which would lead to active participation. According to OECD (2001), human capital is concerned with knowledge, skills competitiveness and attributes embedded in an individual that facilitates the creation of personal, social and economic wellbeing. In order to achieve positive economic growth in Nigeria, human capital development should be considered as an integral and important factor for economic growth. A major challenge facing the global community and Nigeria at large is how to achieve sustainable development. The three pillars of sustainable development cannot be achieved if human capital development doesn't come to play as an integral part. In Nigeria, the annual federal government budget to educational sector (in percentages) is nothing to talk about, statistics show that the percentages over the years are not in line with the United Nations Educational Scientific and Cultural Organization's (UNESCO) recommendation of 26.0% it was discovered that from 2005-2007, the percentage was 6.3%, 7.8%, 8.7% respectively. A poor country is a country, which never invested sufficiently in its human capital development and the citizens who are supposed to be at the centre of the economic growth would be poverty stricken.

### 1.1.1 Objectives of the study

This paper aims at evaluating human capital development and economic growth in Nigeria trying to describe what kind of relationship exists between the two in the long run.

## 1.2 Literature Review

Human capital refers to the stock of competencies, skills, knowledge and personalities attribute embodies in individuals which facilitate their ability to perform labour for the creation of personal, economic and social vale (OECD, 2001), labour is one of the factors of production and can also be referred to as workforce. One of the major investments on human capital is education and that is why Schultz(1961) and many other American economists in the early 60s found that investment on education is one of the significant factors responsible for the swift growth of the American economy, they pointed that a dollar investment on education brings greater increase in their country's GDP relative to a dollar expenditure on physical capital like dams, road, street light etc. Galbraith (1996) emphasized that the larger part of their country's industrial growth is from investment in men and improvement brought about by improved men not from more capital investment. One can invest on human capital via education, training, medical treatment, and one's output depends partly on the rate of return on human capital one owns. Thus human capital is a means of production into which additional investment yields addition output. Human capital is sustainable, but not transferable like land and other fixed capital. An effort to promote investment in human capital will be seen to result in rapid economic growth for society (Olanian and Okemakinde, 2008). Adebayo(2009) observed that it is the human resources of any nation, rather than its physical, capital and material resources, which ultimately determine the character and pace of its economic and social development. Human capital is similar to "physical means of production" e.g factories

and machines.

According to (Babalola, 2003) the rationale behind investment in human capital is based on the following arguments; that the new generation must be given appropriate part of knowledge which has already been accumulated by previous generation, that the new generation should be taught how existing knowledge which has already been accumulated by previous generation, that the new generation should be taught how existing knowledge should be used to develop new product to introduce new process and production methods and social services, the people must be encouraged to develop entirely new idea, product processes and methods through creative approaches. Human capital theory suggests that education or training raises productivity of workers by imparting useful knowledge and skills, hence raising workers future income by increasing their lifetime earnings (Becker, 1994) and Mills (1978) opined that “the worth of the state in the long run, is the worth of individuals composing it”.

Ojo and Oshikoya (1995) in their study found that literacy rate is positively related to per capita output growth, using other indices such as school enrolment, they found out that the sign of the coefficients were statistically significant in the Zimbabwean economy, the incorporated human capital variables such as school enrolments into the standard growth model and found a very strong long run relationship between human capital investment and economic growth. Garba(2002) showed that there are positive correlation between educational attainment and economic growth and development carrying out a cross-country analysis using regressions. Loening(2002) investigated the impact of human capital on economic growth through the application of error correlation methodology. He examined two different channels by which human capital is expected to influence growth. The result revealed that a better educated labor force appeared to have positive and significant impact on economic growth via factor accumulation as well as on evaluation of total factor productivity. Adamu (2003) undertook an empirical investigation to determine the impact of human capital formation on economic growth in Nigeria between 1970 and 2000, using cointegration and error-correlation mechanisms. The result indicated that investment in human capital in form of education and training can lead to economic growth because of its impact on labour productivity. Lawanson(2009) in his work used an ordinary least square model to estimate the role of education and health in human capital investment and economic growth in Nigeria. He found that on the average, human capital actually enhances economic growth in Nigeria although, the government expenditure on health and primary education enrollment have negative coefficient which are inconsistent with a prior expectation.

Dauda(2010), in his study on human capital formation and economic growth in Nigeria used the endogenous growth model in his investigation into their relationship, he employed enrolment in the different levels of education, primary, secondary and tertiary as proxies for human capital and found long-run positive relationship between human capital formation and economic growth in Nigeria with a feedback mechanism. Arora (2001) in his study discovered that there is a cointegrated relationship between health and income; innovations in health according to him lead to economic growth and not vice versa. Bloom and Sachs (1998) have obtained empirical evidence that health and demographic variables play an important role in determining economic growth rates. Taniguchi (2003) in his work showed that both education and health cause each other and thus contribute to economic growth. Agiomirgianakis et al (2002) conducted panel study consisting of 93 countries on impact of education on economic growth, their results showed a significant positive long run impact of education (primary, secondary and tertiary) on economic growth. Bloom et al (2004) tried to investigate the impact of human capital on economic growth by utilizing 2 stage least square approach, it was discovered that schooling and life expectancy both positively contribute to economic growth. Seebens and Wosbst (2003), Moser and Eliot (2005) both have asserted that in the long run education increases substantially household income as well as economic growth while Bils and Klenew (2000), Easterly and Levine (2001), Temple (2001), Bosworth and Collins(2003) have failed to establish positive association between human capital (years of schooling) and economic growth. Khan (2005) tries to analyze the relationship between human capital and economic growth in 72 developing countries for the period 1980-2002. The study concludes that which invested significantly in human capital have achieved higher returns in terms of economic growth. Khan and Rehman (2012) used analytical techniques, which are OLS and Johansen cointegration to investigate the impact of human capital in economic growth of Pakistan. The result support significant positive association between secondary education and economic growth.

### 1.3 Methodology and Sources of Data

A multiple linear regression model would be used to capture the objective of the study and the model would be specified as:

$$RGDP = \alpha_1 + \alpha_2 PEE + \alpha_3 PEH + \alpha_4 PSE + \alpha_5 LE + \alpha_6 K + \mu_t \text{ --- (1.3.1)}$$

Equation (1.3.1) would be transformed into equation (1.3.2) in order to linearize the non-linear variables, thus;

$$\text{LogRGDP} = \alpha_0 + \alpha_{\log} (PEE) + \alpha_2 \log(PEH) + \alpha_3 \log(PSE) + \alpha_4 (LE) + \alpha_5 \log(K) + \mu_t \text{ ----- (1.3.2)}$$

Where

- $\mu_{1t}$  = Disturbance term
- RGDP = Per capital Real Gross Domestic Product
- PSE = Primary School Enrolment
- PEE = Public Expenditure on education
- PEH = Public expenditure on health
- LE = Life expectancy
- K = Stock of physical capital

The Data for this study are time series in nature covering the period from 1977-2011 making a 35 years experiment. The data are secondary, sourced from the Central Bank of Nigeria Statistical Bulletin and National Bureau of statistics. The Ordinary Least Square OLS method will be used as the estimation technique for this study and a lot of econometric Second Order Test would also be employed The a priori expectations of the variables in the model are all positive

#### 1.4 Analysis and Interpretation of Results

The table 1.4.1 below shows the results of the unit root test

**Table 1.4.1 Unit Roots Test (Augmented Dickey Fuller – Test)**

Variable	ADF	Critical value			Trend & Intercept	Order of Integration
		1%	5%	10%		
RGDP	-5.1564	-3.6463	-2.9540	-2.6158	Trend only	I ~ I(1)
PSE	-7.8414	-3.6463	-2.9540	-2.6153	NO	I ~ I(1)
PEE	-7.9058	-4.3560	-3.5950	-3.2334	YES	I ~ I(2)
PEH	-3.7281	-3.7378	-2.9918	-2.6355	NO	I ~ I(1)
LE	-2.6064	-4.4165	-3.6220	-3.2485	YES	I ~ I(2)
K	-2.5491	-3.6998	-2.9762	-2.6274	NO	I ~ I(1)

The unit root result presented in table 1.4.1 above shows that real gross domestic product (RGDP), primary school enrolment, public expenditure on health and physical capital formation have the same order of integration. This implies that these variables are integrated of order one, thus a long-run linear combination is suspected amongst them. Therefore a co-integration test is conducted to ascertain if there exist long-run relationships.

#### 1.5 Co integration test

The result obtained for the co-integration test is presented below in table 1.5.1

**Table 1.5.1 co integration result**

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.528921	0.0012
Test critical values:		
	1% level	-3.679322
	5% level	-2.967767
	10% level	-2.622989

\*MacKinnon (1996) one-sided p-values.

From the table above we observed that the values of t-augmented dickey fuller is higher than the critical values (1%, 5% and 10%), and this therefore, shows the presence of co integration. This is because the residual obtained from the linear combination of the variable in question was stationary, implying the existence of a stable long run relationship between the variables. The implication of the above result is that we can estimate our initial model, without necessarily resorting to conducting an Error Correction Model. Table 1.6.1 below shows the estimated long run model:

**Table 1.6.1: Modelling Log of RGDP by OLS**  
**Dependent Variable: LOG(RGDP)**

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.239344	17.27863	0.071727	0.9433
LOG(PSE)	2.536410	0.517743	4.898979	0.0000
LOG(PEE)	-0.703792	0.278927	-2.523209	0.0174
LOG(PEH)	0.156090	0.279863	0.557738	0.5813
LOG(LE)	0.618406	0.125025	4.946244	0.0000
LOG(K)	-8.594045	4.660308	-1.844094	0.0754
R-squared	0.895132	Mean dependent var		12.43245
Adjusted R-squared	0.877051	S.D. dependent var		0.870734
S.E. of regression	0.305315	Akaike info criterion		0.619857
Sum squared resid	2.703293	Schwarz criterion		0.886488
Log likelihood	-4.847496	F-statistic		49.50755
Durbin-Watson stat	1.706953	Prob(F-statistic)		0.000000

From the above result the coefficient showed by the constant is positive, proving that there are other factors outside this model which contributes positively to the economy growth. In other words, a unit change in the intercept will result to 1.239344 unit changes in the long-run on the Nigeria economy. The coefficient of primary school enrolment is also positive. This implies that an increase in the primary school enrolment will bring about a serious positive effect on real gross domestic product, it simply implies that a unit increase in primary school enrolment will increase RGDP by 2.536410 units, thus it shows that PSE is statistically significant since the t-value of 4.898979 is greater than 2 in absolute value at 5% level of significance. This result suggests that the variation in primary school enrolment appeared to have a meaningful impact on the growth in Nigeria economy. It is also seen that the public education expenditure coefficient is negative, which is contrary to the a priori expectation. Thus, the coefficient value of this variable is -0.703792, we can deduce that a unit increase in the public education expenditure, on contrary, impacts negatively to economic growth. In other words, public education expenditure has not effectively impacted significantly to economic growth. This is because this variable, apart from the low value of the coefficient, though it is statistically significant because the t-value in absolute value is greater than 2 also. The positive coefficient of the Public expenditure on health showed positive influence on real gross domestic product, so a unit increase in the public expenditure on health will lead to 0.156090 units increase in the real gross domestic product variable, thus public expenditure on health is not statistically significant judging from the t-value of 0.557738, which is less than 2 in absolute value at 5% level of significance. The variation exhibited by the coefficient of Life Expectancy (LE) has a robust positive coefficient. This implies that the variation in life expectancy has a serious effect on the growth of real gross domestic product in the economy. In other words, it shows that a unit increase in life expectancy variable will positively impact to increase by 0.618406 units, which is approximately 62 percent increase, The responds of this variable is further confirmed by its t-value of 4.946244 which is greater than 2 in absolute terms at 5% level of significance, so it is statistically significant. The variation shown by the coefficient of stock of physical capital (K) is negative; this negative value of -8.594045 displays by variable implies that a unit increase in stock of physical capital will reduce real gross domestic product, in contrary, by -8.594045 units. In other words, higher stock of physical capital is a disincentive to growth, which cannot be true. It implies that the stock of physical capital variable has not recorded any significant impact to economic growth in Nigeria. We can also see that the t-value of -1.844094 is less than 2 in absolute terms, so it is not statistically significant. From the model,  $R^2 = 0.895132$ , which implies that approximately 90% of the variation in the dependent variable (RGDP) is explained by the explanatory variables included in the model and the F value of 49.50755 shows that the model has a good fit

### 1.7 Conclusion and Recommendation

From the result of this study, it has being proven beyond reasonable doubt that human capital development is crucial for sustainable economic development, that is there is actually a positive relationship between the human capital development and economic growth. Our findings show that the key to the nation's economic development lies on the human capital development. It is important to note that although the primary school enrolments, life expectancy, total government expenditure on health and on education was significantly related to economic growth in Nigeria, yet our economic growth is not stable and sure so the educational and health sectors should be looked into, and urgent attention should be accorded to these sectors. The human capital development also acts as a catalyst for the improvement of the standard of living of the population.

Finally, In this study the human capital development and economic growth has been discussed from the theoretical perspective clearly but In further studies, more pronounced results could be obtained in the area of

efficient utilization of public funds allocated to the different sub-sectors ( health and education) that constitute human capital development and ways of enhancing human capital contributions to capacity building in Nigeria.

## References

- Adamu P. A., (2003), "The Impact of Human Capital Formation on Economic Development in Nigeria: An Error Correction Approach" . Human Resource Development in Africa. Selected Papers for 2002 Annual Conference, Nigerian Economic Society, Ibadan pp53-78
- Agiomirgianakis, G., Asteriom, D., & Monstiriotis, V. (2002), " Human capital and economic growth revisited: A dynamic panel data study", *IAER (International Atlantic Economic Conference)*, 8(3).
- Arora, S., (2001), "Health Human Productivity and Long-Term Economic Growth", *Journal of Economic History*, 61(3), pp. 699-749.
- Babalola, H. (2003), "Economic growth and human development" Nsukka, University Press
- Becker. G. (1994), "Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education" Chicago The University of Chicago Press.
- Bloom, D. E and Sachs, J. D., (1998), "Geography, Demography and Economic Growth in Africa", *Brookings Papers on Economic Activity*, 2, pp. 207-95.
- Bils, Mark, & Klenow, Peter J. (2000), " Does schooling cause growth?" *American Economic Review*, 90(5) December, 1160-1183.
- Bosworth, Barry P., & Collins, Susan M. (2003), "The empirics of growth: An update", *Brookings Papers on Economic Activity*, 2.2 (September), 113-206.
- Dauda Risikat O. S., (2010), "Role of Human Capital in Economic Development: An Empirical Study of Nigerian Case". rdauada@unilag.edu.ng
- Easterly, William, & Levine, Ross. (2001), "What have we learned from a decade of empirical research on growth? It's not factor accumulation: Stylized facts and growth models", *World Bank Economic Review*, 15:2, 177-219.<http://dx.doi.org/10.1093/wber/15.2.177>
- Galbraith, I. K. (1996), "The new industrial state", Penguin, Harmondsworth.
- Garba, P.K (2002), "Human Capital Formation, Utilization and the Development of Nigeria." Selected Papers for the 2002 Annual Conference of the Nigeria Economic Society. (NES). Ibadan. Polygraphics Ventures Ltd.
- Khan, S. Mohsin. (2005), "Human capital and economic growth in Pakistan." *The Pakistan Development Review*, 44:4, 455-478.
- Lawanson, O. I. (2009), "*Human Capital Investment and Economic Growth and Health*" Oxford University Press.
- Loening J. (2002), "Time Series Evidence on Education and Growth: The Case of Guatemala 1951-2002", *Revista de Análisis Económico*, Vol. 19, N° 2, pp. 3-40.
- Mills, D.Q. (1978), "Labor market intermediaries: an overview", Ch. 2 in Labor Market Intermediaries, Special Report 22. Washington, DC: National Commission for Manpower Policy.
- Moser, C., & Eliot, G. (2005). "Education and Economic Growth". Uppsala: Department of Development Studies.
- Olaniyan. D.A. & Okemakinde. T. (2008), "Human Capital Theory: Implications for Educational Development", *European Journal of Scientific Research*, 24(2), pp.157-162
- Ojo, Oladeji and T. Oshikoya (1995), "Determinants of Long-Term Growth: Some African Results". *Journal of African Economies*, Vol. 4, no.2
- Organization for Economic Co-operation Development (2001). "Paris :OECD.Planning in Africa .Addis Ababa.UNECA.
- Schultz,T.W.(1961), "Investment in Human Capital " *American Economic Review* :3 pp.1 – 17 .
- Schultz,T.W.(1993), "The Economic Importance of Human Capital in Modernization", *Education Economics*,1(1),13-19 .
- Seebens, H., & Wobst, P. (2003), "The impact of increased school enrolment on economic growth of Tanzania", Centre for Development Research.
- Taniguchi, K. Wang. (2003), Nutrition intake and economic growth, Studies on the cost of hunger food and agriculture organization of US Rome, Italy.
- Temple, Jonathan R. W. (2001), "Generalizations that aren't? Evidence on education and growth" *European Economic Review*, 45(5) pp 905-918



This academic article was published by The International Institute for Science, Technology and Education (IISTE). The IISTE is a pioneer in the Open Access Publishing service based in the U.S. and Europe. The aim of the institute is Accelerating Global Knowledge Sharing.

More information about the publisher can be found in the IISTE's homepage:

<http://www.iiste.org>

## CALL FOR JOURNAL PAPERS

The IISTE is currently hosting more than 30 peer-reviewed academic journals and collaborating with academic institutions around the world. There's no deadline for submission. **Prospective authors of IISTE journals can find the submission instruction on the following page:** <http://www.iiste.org/journals/> The IISTE editorial team promises to review and publish all the qualified submissions in a **fast** manner. All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Printed version of the journals is also available upon request of readers and authors.

## MORE RESOURCES

Book publication information: <http://www.iiste.org/book/>

Recent conferences: <http://www.iiste.org/conference/>

## IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digital Library, NewJour, Google Scholar

