

# EMPIRICAL ANALYSIS OF THE RELATIONSHIP BETWEEN HUMAN CAPITAL DEVELOPMENT AND ECONOMIC GROWTH IN NIGERIA 1987-2016.

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## Abstract

*Human Capital is an important component of any country's economic growth and development. This study investigated the relationship between human capital development and economic growth in Nigeria during a period of 1987 to 2016. The study utilized secondary sources of data obtained from Central Bank of Nigeria statistical bulletin. Dynamic lease squares co-integrating regression technique was applied to ascertain the degree of the relationship between human capital development and economic growth. Granger causality test was also applied to see the direction of causality between the series, the study reports that government recurrent expenditure on health has a positive significant influence on economic growth while education is negative but statistically significant at 1%. The study reports the evidence of unidirectional causation running from real GDP to GOVHEL and also GOVEDU. On the basis of the finding, the study concludes that human capital exerts influence on economic growth in Nigeria. The study therefore recommends that government should increase its allocation to health and education sectors and also addressing the challenges inhibiting the growth of the education sector.*

**Key words: Human Capital, Development, Economic, Growth, Nigeria.**

## INTRODUCTION

The importance of human capital development as an engine of economic growth and development has been widely recognized in theoretical and empirical studies. No country has achieved sustained economic growth and development without substantial investment in human resource. There can be

no significant economic growth in any country without adequate human capital development.

In the past, much of the planning in Nigeria was centered on the accumulation of physical capital for rapid growth and development, without the recognition of the important role played by human capital in the development process. As a matter of fact, people are the most valuable assets in a country. It is essential for human development that these assets be deployed sensibly. A defective incentive system can result in a waste of human resources, higher incidence of poverty and greater inequality in the distribution of income. It is not enough to use existing resources wisely, we must add to the existing resources through human capital formation (Adenuga, 2002).

Most of the indices of human welfare which incorporate income on education and health show that Nigeria's level of human development is low compared with several other countries in the African regions. Of great concern is the deterioration in the quality of education services at all levels, especially the higher education levels where persons are trained to take up leadership roles in science, technology, management and business (Atoyebi, Olaleye, Ishola, Adekunjo & Kadiri 2013). For a meaningful growth to take place, human capital must be developed and efficiently utilized. Strategies and priorities towards sustained human development, efficient investment in human capital and effective manpower planning and utilization policies need to be put in place by the government. This would in its way ultimately excite growth that will allow the nation and the people to progress and achieve the required economic turnaround. Despite the importance of educational institutions, Nigeria spends an almost insignificant proportion of her financial resources on education.

In Nigeria, education expenditure as a proportion of gross domestic product (GDP) averaged 5.64 per cent between 1986 and 1990, compared to 5.84 per cent between 1999 and 2003. The United Nations recommends that 26 per cent of the total expenditure be devoted to education. Seychelles had committed 10.2 per cent of its gross national product (GNP) to total education in 1985-87 and 8 per cent in 1995-97. Ghana allocates an average of 20 per cent of its total expenditure to education yearly. Between 1986 and 1992, Botswana spent 21 per cent of her expenditure on education; Malaysia, 19 per cent; Kenya, 20 per cent; Uganda, 15 per cent; and Nigeria, 5.23 per cent

(Olaniyi and Adam, 2003). Human capital is so important that in the Khartoum Declaration of 1988, it was asserted that:

□ *The human dimension is the sine qua non of economic recovery, no SAP or economic recovery programme should be formulated or can be implemented without having at its heart detailed social and human priorities. There can be no real structural adjustment or economic recovery in the absence of the human imperative”* (Adedeji, et al., 1990 cited in Oladeji 2015).

It is against this backdrop that this paper examines the correlation between Government Recurrent Expenditures on Education and Health Sectors, and Economic Growth in Nigeria. Among other objectives, the paper focuses on public recurrent expenditures on the education and health sectors during the period under review with a view to ascertaining the relative commitments of the governments to these sectors.

## **LITERATURE REVIEW**

Human capital refers to the abilities and skills of human resources and human capital development refers to the process of acquiring and increasing the number of skilled persons who have the education and experience which are critical for the economic growth of the country (Harbison 1973).

Economic growth means the expansion of a country's capacity to produce goods and services its people want within a given period. Gross Domestic Product (GDP) refers to the total market value of all final goods and services produced in an economy within a given period (Gbosi and Omoke, 2004).

Several studies, both in Nigeria and abroad, have been carried out to examine the relevance or importance of human capital development in the achievement of economic growth. There seems to be a consensus from most of these studies that the development of human capital engenders economic growth. A review of some of the empirical literature is provided below;

Sankay, Ismail and Shaari (2010) investigated the impact of human capital development on economic growth in Nigeria during the period 1970 to 2008. Johansen co integration technique and vector error correction analysis were used to ascertain this relationship. The basic macroeconomic variables of concern derived from the literature review are: Real gross domestic product (RGDP), real capital expenditure (RCE) on education, real recurrent expenditure (RRE) on education, real capital stock (RCS), total school

(SCHE) enrolments and labour force (LF) are used to proxy human capital development. The result indicated that human capital development has a significant impact on Nigeria's economic growth.

Atoyebi, Olaleye, Ishola, Adekunjo & Kadiri 2013). Examined human capital and economic growth in Nigeria an empirical analysis using co-integration regression techniques. The results uncovered that there is strong evidence of co-integration between RGDP and HCI. The study concluded that human capital development has increases the utilization of resources both human and material.

Oladeji (2015). Analyzed the impact of human capital development on economic growth in Nigeria using OLS techniques. The result shows that considering the magnitude, 1% increase in GDP is brought about by 22% increase in human capital. This postulates that an increase in allocation to education and health will lead to increase in GDP.

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

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

negatively related to the level of real

output. The study recommends appropriate channeling of the nation's capital expenditure on education and health to promote economic growth.

### **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 theorist shave established that basic literacy enhances the productivity of worker's low skill occupations.

## **METHODOLOGY**

### **Research Design**

The Ex-post factor design is used for this research: Ex-post factor design is a systematic and empirical inquiry in which the researcher does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulated (Akuezuilo, 1990). This kind of study is based on analytical examination of dependent and independent variables. The variables used in this study as dependent variable is real gross domestic product as a proxy for economic growth while the independent variables are total government recurrent expenditure on education and health as proxy for human capital development. The co-integration test is employed to check the existence of long run relationship between the variables.

### **Data Requirement and Source**

This study utilized secondary data from 1987 to 2016 (30 years). The reason for selecting 30 years is to adhere to central limit theorem that time sample size must not be less than thirty for normality purpose. The data was source secondary from CBN statistical Bulletin 2016.

## Model Specification

In exploring the analysis of the relationship between human capital development and economic growth in Nigeria, we specified the following model.

$$\text{RELGDP} = F(\text{GOVEDU}, \text{GOVHEL}) \dots\dots\dots (1)$$

Where RELGDP = Real Gross Domestic Product

GOVEDU = Total Government Recurrent Expenditure on Education

GOVHEL = Total Government Recurrent Expenditure on Health

Expressing in structural econometric form, equation one becomes;

$$\text{RELGDP}_t = \beta_0 + \beta_1 \text{GOVEDU}_t + \beta_2 \text{GOVHEL}_t + U_t \dots\dots\dots (2)$$

Where;  $\beta_0$  = constant parameter  $\beta_1$  and  $\beta_2$  = coefficient of the parameters

$U_t$  = Error term.

This study utilized a systematic time series econometric approach of testing whether the nature of time series data will be stationary or non stationary in order not to obtain spurious regression result.

## DATE ANALYSIS AND PRESENTATION OF RESULTS

In this section, the results of the estimation are analyzed below:-

### Econometric Analysis

#### Unit Root Test

This test examined the characteristics of the variables identified in order to avoid the problem of spurious correlation associated with non-stationary time series and establish the long-run relationship (co-integration).

**Table 1: Augmented Dickey Fuller (ADF) and Phillips Perron Unit Root Test.**

Variable	ADF t Stat 5% Critical	PP t Stat 5% Critical Value	Order of integration	
			ADF	PP
RELGDP	-4.730940 3.5875 (0.004)	-6.013475 3.5806 (0.000)	I(1)	I(1)
GOVEDU	-4.935383 3.5806 (0.002)	-5.040369 3.58062 (0.001)	I(1)	I(1)
GOVHEL	-6.556335 3.5875 (0.000)	-11.91633 3.5806 (0.000)	I(1)	I(1)

Source: Authors' Computation (2017) using E-views version 9.0

The result of the test shows that the null hypothesis (Series has a Unit root) at 5% level of significant cannot be rejected at levels value. At first difference all the variables are stationary and integrated of order I(1) using both ADF and PP. Thus, the null hypothesis of non stationary is rejected and the alternative hypothesis of series stationary is accepted for each of the variables.

Since all the series have the same order of integration, this implies that these variables are integrated of order one, thus a long-run relationship is suspected amongst them. Therefore, co-integration test became imperative to ascertain if there exists long-run relationship.

In order to ascertain the long-run relations between the series both Engel-Granger and Phillips Ouliaris single-equation co-integration test were ran. The results obtained for the tests are presented below.

**Table 2 Engel-Granger Single –Equation Co-integration Test**

<b>Dependen</b>	<b>Tau –</b>	<b>Prob.</b>	<b>Z-statistic</b>	<b>Prob.*</b>
RELGDP	-3.284975	0.3548	-16.12999	0.3371
GOVHEL	-1.925407	0.9131	-29.26914	0.9999
GOVEDU	-5.679519	0.0055	-98.46309	0.0001

Source: Authors' computation (2017) using E-views version 9.0

**Table 3 Phillips-Ouliaris Single –Equation Co-integration Test**

<b>Dependen t</b>	<b>Tau –</b>	<b>Prob.*</b>	<b>Z-statistic</b>	<b>Prob.*</b>
RELGDP	-3.264912	0.3633	-14.88978	0.4160
GOVHEL	-7.761354	0.0001	-23.83051	0.0549
GOVEDU	-4.119431	0.1064	-17.52378	0.2590

Source: Authors' computation (2017) using E-views version 9.0

If any of the probability value of the tau-statistic and z-statistic is significant, then there is co-integration or long-run relationship among the series. The results of both Engel-Granger and Phillips Ouliaris indicated two co-integrated equations, thus, co-integration exists. Since co-integration exist, the co-integrating regression became imperative.

### Co-integration Regression: Dynamic Least Squares (DOLS)

**Table 4 Co-integrating Regression Result (Dependent variable RELGDP)**

Variable	Co-efficient	Standard Error	P-value
GOVHEL	704.6453	157.5256	0.0003
GOVEDU	-342.1937	98.56833	0.0029
<u>CONSTANT</u>	<u>14262.64</u>	<u>119.3905</u>	<u>0.0000</u>
R- Squared	0.995468	mean dependent var	35375.26
Adjusted R-Square	0.993068	S.D dependent var	17119.08
S-		E of Regression	1425.290
Sum squared resid	34534653	<u>Long-run varianc e</u>	
<u>4093759.....</u>			Source: Authors' computation (2017) using E-views version 9.0

The result presented above was obtained from the co-integration regression analysis using DOLS and the result shows that there is positive relationship between total government recurrent expenditure on health and Economic growth while negative relationship between total government recurrent expenditure on education and economic growth. This implies that a million naira increase in health section will bring about N670.1502 million increases in real GDP.

The relationship between Health and Economic Growth is statistical significant at 1%. The coefficient value of GOVEDU is negatively related to RELGDP but statistically significant at 1%. This indicates that a million naira increase in education sector will reduce the real GDP by 342.1937 million. The constant parameter is positive and statistically significant. This shows that when all other explanatory variables are held constant the real GDP will be increase by 14262.64 millions.

The R-square value shows the degree of joint influence of the regressors on the regressant.  $R^2 = 0.99$  this means that, 99% of the variation in real GDP are explained by the variations in GOVHEL and GOVEDU. And only 1% of the variation is explained by other variables not controlled in the model.

#### **Granger Causality Test**

In order to achieve the second objective of this study which is to determine the direction of causality between human capital development and economic growth, the test was conducted using E-views version 9.0 statistical software.

**Table 5: Grangercausality test results**

Null Hypothesis:	Obs	F-Statistic	Prob
GOVEDU does not Granger Cause RELGDP	28	0.48289	0.62
RELGDP does not Granger Cause GOVEDU		7.78174	0.0026
GOVHEL does not Granger Cause RELGDP	28	0.82958	0.44
RELGDP does not Granger Cause GOVHEL		11.6645	0.0003
GOVHEL does not Granger Cause GOVEDU	28	2.38467	0.11
GOVEDU does not Granger Cause GOVHEL		1.97428	0.1617

Source: Authors' computation (2017) using E-views

The Granger causality results revealed unidirectional causality runs from RELGDP to GOVEDU. This shows that RELGDP influences GOVEDU. Similarly, there is also evidence of unidirectional causality runs from RELGDP to GOVHEL.

### Findings

The empirical test on Unit root shows that RELGDP, GOVEDU and GOVHEL are not stationary at level values. However, all the series are stationary at first difference in both ADF and PP tests. The results show that the time series are integrated of the same order I(1), which necessitated the co integration test or long-run relationship between the series. The Engle-Granger and Phillips Ouliaris co-integration results show two co-integrating equations.

The results of the co-integrating regression using Dynamic least squares (DOLS) shows that there is positive relationship between GOVHEL and RELGDP while negative relationship between GOVEDU and RELGDP and both are statistically significant at 1%. The Granger causality test revealed a unidirectional relationship RELGDP and GOVHEL and GOVEDU.

### 5. Conclusion

On the basis of findings above, the following conclusions are drawn: there is evidence of correlation between the series. There is positive and statistical significant relationship between GOVHEL and RELGDP while there is negative and statistical significant relationship between GOVEDU and RELGDP. Based on the findings of this study, we may conclude that total

government recurrent expenditure on health impact positively on economic growth in Nigeria.

## 6. Recommendations

Consequent upon the major conclusion of this study, a number of recommendations have been identified below:

- a. In order to sustain the long-run relationship between human capital development and economic growth in Nigeria, government should have budgeted substantial amount in the health and education sectors.
- b. Government recurrent expenditure in education was found to have negative impact of the economic growth. Thus, effort should be made by the government to address the challenges inhabiting the growth of the education sector.

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