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EMPIRICAL INVESTIGATION OF HUMAN CAPITAL INVESTMENTS AND ITS EFFECT ON ECONOMIC GROWTH IN NIGERIA (1990-2017)

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ABSTRACT: *The study examined the empirical investigation of human capital investments and its effect on economic growth in Nigeria; for the period 1990-2017. Secondary data were used and collected from Central Bank of Nigeria Statistical Bulletin. The study used Gross Domestic Product (GDP) and was employed as the dependent variable to measure the human capital investments on economic growth in Nigeria; whereas, government expenditure on health and government expenditure on education were also used as the independent variables to measure human capital investments in Nigeria. Hypotheses were formulated and tested using Ordinary Least Square econometrics techniques. The study showed that government expenditure on education had a significant effect on Gross Domestic Product in Nigeria. Government capital expenditure on health sector had a significant effect on Gross Domestic Product in Nigeria. The coefficient of determination indicated that about 69% of variations in Gross Domestic Product can be explained by changes in government capital expenditure variables in Nigeria. The study concluded that human capital investments had a significantly effect on economic growth in Nigeria. The study recommended that Government should ensure proper management of human capital expenditure in a manner that will promote growth and development in the economy. The government and policy makers should increase its investments in health and education; since, it would increase the level of development in the economy as well as the standard of living. Government should encourage and manage the funding of the education and health sectors. The policy makers should ensure that appropriate evaluation techniques should be used for projects that will ensure that capital expenditure is not made in an extravagant manner.*

KEYWORDS: Investigation, Human Capital, Investments, Economic Growth, Nigeria.

INTRODUCTION

Human beings are the most valuable assets in both developed and developing countries; as a result, this is one of the reasons these assets need to be properly managed and effectively utilised. Hence, this can also be achieved by ensuring that adequate investment is made in human capital development by government at all levels. A study conducted by Oluwatobi and Oluranti (2018) described human capital as the collective skills, knowledge, and intangible assets of individuals that can be used to create economic values. The significance of human capital development in the achievement of meaningful and sustainable growth and development in any modern economy cannot be overemphasized (Amassoma & Nwosa, 2018). This is because, human capital development is a key prerequisite for a country's socio-economic and political transformation objectives (Uchendu, 2018). The work of Aigbokhan, Imahe and Ailemen (2017) revealed that human capital is recognized as an agent of national development in all countries of the world; by providing education and health services to the people and also one of the major ways of improving the quality of human resources.

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Study carried out by Aliyu and Adamu (2018) revealed that the developed economies depend on education to foster economic growth. Consequently, health is also fundamental to economic growth and development and is one of the key determinants of economic performance both at the micro and macro levels. Thus, the Millennium Development Goals (MDGs) will be a fruitless exercise if adequate attention is not given to educational and health expenditures by the federal government (Olatunji & Tatujen, 2018). Unfortunately, in Nigeria this seems have been hampered as a result of inconsistent government policies, primitive agricultural practices, weak infrastructure, and uninspiring growth of the manufacturing sector and mismanagement of resources (Olatunji, Anthonia & Ndubisi, 2018). Thus, these identified problems have created a knowledge gap in this study; and, it is against this background that the study attempts to investigate empirically the human capital investments and its effect on economic growth in Nigeria.

Theoretical Framework

The study predicated on human capital investment theory of Kenhman (1952). This theory shows how human capital development leads to increase in productivity. The study by Jacob (2008) introduced the notion that people invest in human capital or as to increase their stock of human capabilities which can be formed through investments. The provision of a productive investment in human capital, an investment which is in physical capital. However, the work of some note- able human capital theorists such as Debreu (1956), Solow (1970), Hicks (1989) and Becker (1981) have established that human capital investments enhanced the growth and development of any modern economy. They further stated logical and analytical reasoning that provides technical and specialized knowledge to increase productivity in the economy. Human capital investment also a means to enhance the skills, knowledge, productivity of people through a process of human capital formation. Improvements in health standards are associated with increase in output due to increased labor productivity and capital accumulation. The work of Musibau and Rasak (2015) revealed two types of channels to test the significance of human capital for economic growth. In the first channel, human capital is used as an independent factor of production and in the second channel; human capital affects economic growth through technology parameter. The study further showed that a well-educated labor force significantly affects economic growth through both channels.

Empirical Review

Oluwatobi and Ogunrinola (2017) examined the relationship between human capital development efforts of the Government and economic growth in Nigeria. It seeks to find out the impact of government recurrent and capital expenditures on education and health in Nigeria and their effect on economic growth. The 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.

Adawo (2017) study used an econometric model to examine the contributions of primary education, secondary education and tertiary education to economic growth of Nigeria. These variables were proxied by school enrolments at various levels. Other variables included

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physical capital formation, health measured through total expenditure on health. In all primary school input, physical capital formation and health were found to contribute to growth. Secondary school input and tertiary institutions were found to dampen growth. Among others, this paper recommends that there should be adjustment in admission process in favour of core science and technical oriented course. The paper also recommends that schools should be adequately funded.

Isola and Alani (2017) evaluated the contribution of different measures of human capital development to economic growth in Nigeria. It used data from Nigeria and adopted the growth account model which specifies the growth of GDP as a function of labour and capital. The model also included a measure of policy reforms. Based on the estimated regression and a descriptive statistical analysis of trends of government commitment to human capital development, it was found that though little commitment had been accorded health compare to education, empirical analysis showed that both education and health components of human capital development are crucial to economic growth in Nigeria.

Zhang and Zhaung (2018) examined a panel data of around 100 countries. It was observed from the study that expenditures are found to constitute a form of investment. It increases the individual's chances of employment in the labour market, and allows him to get returns and gives him opportunities for job mobility. It is well known and widely accepted that education plays a great and significant role in the economy of a nation, investment in education is critical for economic growth and social cohesiveness of any society.

METHODOLOGY

The study used *ex-post-facto* research design. Secondary data were used and collected from Central Bank of Nigeria Statistical Bulletin. The study used Gross Domestic Product (GDP) and was employed as the dependent variable to measure on economic growth in Nigeria; whereas, Government Expenditure on Education and Government Expenditure on Health were also used as the independent variables to measure human capital investments.

Model Specification

Multivariate linear regression models are used to test each of the null hypotheses proposed for this study. Based on the formulated hypothesis: Human capital investments does not have any significance effect on economic growth in Nigeria. The study adapted a model from the work of (Aigbokhan, Imahe & Ailemen, 2017). The model is stated as follows: GDP = *f*(GEH, GED)

Where: GDP = Gross Domestic Product as proxy for Economic Growth

GEH = Government Expenditure on Health

GED = Government Expenditure on Defense

The above model is modified in this study by introducing Government Expenditure on education as a proxy for Government Expenditure on Defense and was employed as independent variable. Hence, the modified model was stated as: GDP = *f*(GEH, GEE).....(1).

The econometric model can be written as:

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$GDP = a_0 + a_1GEH + a_2GEE + \mu$.....(2).

Where: GDP = Gross Domestic Product as proxy for Economic Growth.

GEH = Government Expenditure on Health

GEE = Government Expenditure on Education

a_0 = Constant parameter, a_1–a_2 = Elasticity Co-efficient of each variable. μ = Stochastic error term.

DATA PRESENTATION AND DISCUSSION

The study focused on the empirical investigation of human capital investments and its effect on economic growth in Nigeria; for the period (1990-2017). The study used Gross Domestic Product as proxy for economic growth and was employed as the dependent variable; whereas, Government Expenditure on Education and Government Expenditure on Health were also used as the independent variables to measure human capital investment as indicated in appendix **1**.

Table 1: Descriptive Statistics

	GDP	GEH	GEE
Mean	2,012.188	3,714.234	1,814.250
Median	3,162.300	2,385.430	1,786.500
Maximum	9,702.530	7,703.242	7,609.865
Minimum	4.021.600	3,424.324	5.250.231
Std. Dev.	6.001302	148.6905	5.409579
Skewness	0.215372	3.111248	1.067069
Kurtosis	3.025392	14.19450	5.256220
Jarque-Bera	0.5477363	218.7151	12.86010
Probability	0.8103595	0.000000	0.0012 12
Sum	162.3100	3173.310	512.4000
Sum Sq. Dev.	1038.357	685374.4	907.0260
Observations	28	28	28

Source: E-views 9.1 output

The descriptive statistics on table 1 shows that Gross Domestic Product for the period under study had a mean value of N2,012.188, government capital expenditure on health had N3,714.234, while government capital expenditure on education had N1,814.250. The Jarque-Bera statistic indicates that two of the variables: Gross Domestic Product and government capital expenditure on health were normally distributed while government capital expenditure on education highly skewed. Furthermore, government capital expenditure on health has a mean of N3,714.234 this implies that for the period under review the government capital expenditure on health was very high. This is in line with the work of Oluwatobi and Ogunrinola (2017) which reveals a significant effect of human capital development on economic growth in Nigeria. The dependent variable in the model is the level of real output while the explanatory

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variables are government capital and recurrent expenditures on education and health, gross fixed capital formation.

Unit Root Test

The test for stationary of the variables was done using the Augmented Dicker Fuller (ADF) Unit Root Test. The result in **table 2** shows that all the variables are integrated at levels i.e. 1(1) at the 5% or 1% level of significance.

Table 2: Unit Root Test Analysis

Variables	ADF test Statistics	Mackinnon critical vale @ 5%	No of the time difference	Remark
GDP	3.3748538	-3.546376	1(1)	Stationary
GEH	-6.2648978	-1.476936	1(1)	Stationary
GEE	-6.6584994	-2.867568	1(1)	Stationary

Notes: (1)1% level of significance, 5% level of significance, 10% level of significance. The tests accepted at 5% level of significance. Decision rule -The critical value should be larger than the test statistical value for unit root to exist. **Source:** Researcher's Estimation using- E-views 9.1

Table 3: Ordinary Least Square (OLS) Estimation Results

Dependent Variable: GDP
Method: Least Squares
Date: 20/11/2018. Time: 6:56
Sample Period: 1990-2017
Included observations: 28

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	11.29062	5.254246	0.856956	0.000017
GEH	6.365296	0.003972	2.380061	0.000023
GEE	5.835432	5.386433	0.748005	0.000012
R-squared	0.693428	Mean dependent var		74.79856
Adjusted R-squared	0.672163	S.D. dependent var		16.24530
S.E. of regression	23.63778	Akaike info criterion		3.865763
Sum squared resid	3102.650	Schwarz criterion		9.865295
Log likelihood	103.5468	F-statistic		7.695859
Durbin-Watson stat	1.839832	Prob(F-statistic)		0.000000

Source: Author's computation with the use of E-view 9.1

From table 3 the coefficient of determination (R^2=0.693428) indicates that about 69% of the variations in economic growth can be explained by changes in human capital investments variables (GEH and GEE) in Nigeria. This implies that a significant portion of economic growth is explained by human capital investments variables. The F-Statistics of 7.695859 which is significant at 5% confirms the effect of human capital investments on economic growth in Nigeria; for the period 1990-2017. Reject H_0: If p-value<0.05 and accept H_0 if p-

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value>0.05. The results on table 3 reveals the effect of human capital investments on economic growth in Nigeria has a F-statistic of 7.695859; and, with a probability of 0.000000, which is lower than the level of significance of 0.05, which means, the effect is statistically significant. The null hypothesis is therefore, rejected. That is to say that human capital investments had a significant effect on the growth of the Nigerian economy. This is also confirmed by the F-probability which is statistically zero. Thus, the study then concludes that the entire model is well specified that means it is statistically significant.

CONCLUSION AND RECOMMENDATIONS

The study concluded that human capital investments has a significant effect on economic growth in Nigeria. This is evident from the results of Ordinary Least Square econometric technique. This is consistent with the work of Chiwendu and Okorie (2017) which revealed a significance effect of human capital development on economic growth in Nigeria. The study recommends that government should ensure proper management of human capital expenditure in a manner that will promote growth and development in the economy. The government and policy makers should increase its investments in health and education; since, it would increase the level of development in the economy as well as the standard of living. Government should encourage and manage the funding of the education and health sectors. The policy makers should ensure that appropriate evaluation techniques should be used for projects that will ensure that capital expenditure is not made in an extravagant manner.

Contribution to Knowledge

The study was able to modify the model, expand the existing literature, empirical review, geographical spread and updated data that will enable researchers and scholars to use it for further studies. The study concluded that human capital investments has a significant effect on economic growth in Nigeria.

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APPENDIX 1:

Human Capital Investment and Economic Growth in Nigeria (1990-2017).

Year	Health Sector (₦ Billion)	Education Sector (₦ Billion)	GDP at Current Market Price (N' Billion)
1990	423,623,200	324,400,600	263.29
1991	353,782,200	225,962,000	382.26
1992	435,213,400	222,987,300	472.65
1993	263,734,500	135,262,700	545.67
1994	234,321,400	137,731,900	875.34
1995	302,262,900	235,264,100	1,089.68
1996	352,213,600	236,355,400	1,399.70
1997	346,973,100	273,427,600	2,907.36
1998	326,134,810	236,026,300	4,032.30
1999	424,311,600	312,063,300	4,189.25
2000	554,735,300	340,363,800	3,989.45
2001	627,715,600	420,625,900	4,679.21
2002	764,222,130	539,967,100	6,713.57
2003	926,954,877	625,835,800	6,895.20
2004	1,243,363,682	836,423,700	7,795.76
2005	2,225,763,225	1,136,690,000	9,913.52
2006	2,673,365,060	1,366,135,000	11,411.07
2007	2,553,124,212	1,625,765,000	14,610.88
2008	2,527,913,321	1,335,833,000	18,564.59
2009	4,537,184,221	2,983,330,000	20,657.32
2010	9,526,213,212	3,336,693,000	24,296.33
2011	8,749,132,561	3,773,864,000	24,794.24
2012	6,416,903,411	4,136,513,000	54,612.26
2013	7, 328,433,121	4,625,336,000	62,980.40
2014	5,215,123,317	3,973,584,000	71,713.94
2015	12,514,126,403	1,365,400,600	87,576.474
2016	13,123,835,179	2,369,600,000	94,144.960
2017	14,364,645.756	2,766,846.757	101,144.49

Source: Central Bank of Nigeria Statistical Bulletin, 2017

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