Human Capital Investment, Poverty and Economic Development in Nigeria

[1]Clement Atewe IGHODARO, PhD and [2]Abraham Oni AGBONKHESE, PhD

[1]Department of Economics & Statistics, Faculty of Social Sciences, University of Benin, Benin City Nigeria
[2]Department of Economics, Faculty of Arts and Social Sciences, Admiralty University of
 Nigeria, Ibusa, Delta State, Nigeria
 Email: clemigho2006@yahoo.com & Clement.ighodaro@uniben.edu
 Abraham_oni@yahoo.com   Agbonkhese-econs@adun.edu.ng

Abstract

This paper examined the relationship between human capital investment, poverty and economic development in Nigeria with the use of time series data from 1980 to 2018 and the autoregressive distributed lag model. The result for Augmented Dickey-Fuller unit root test for stationarity established that none of the variable used in the estimation was of order two while the Bounds test showed that long run equilibrium relationship exists among the variables. There were mixed results with respect to the human capital investment measures in relation to economic development while poverty had negative relationship with economic development. It was recommended that expenditure in the educational sector should be efficiently used as this may increase economic development and reduce poverty rate in the long run.

Keywords: Autoregressive Distributed Lag (ARDL), Economic development, Human capital and Poverty

Introduction

Nigeria is blessed with a pool of human resources but has not been able to harness these great potentials especially towards eradicating poverty in the country. Human capital investment is seen as a catalyst for development and if utilized properly could be used as a tool for eradicating poverty in Nigeria (Chikelu, 2016). Poor human capital investment and poverty in Nigeria have over time impacted on economic development adversely (Bakare & Edozie, 2015). On the other hand, Ewubare and Mark (2018) noted that poor human development index and a high level poverty have continued to limit the Nigeria's potentials in competing effectively in the global economic environment. There is still no consensus on the exact relationship between human capital investment, poverty and economic development as previous empirical results are still mixed.

As projected by the World Poverty Clock and compiled by Brookings Institute in June 2018, Nigeria is noted to be the poverty capital of the world (Adebayo, 2018), though, investing in its human capital is very crucial to any efforts in eliminating poverty which will further enhance economic development. Nigeria' gross domestic product per capita for 2015 was $2,730, a 15.27% decline from 2014 and further declined to $2,176 in 2016 representing a decline of 20.31%. As at 2017, it further fell to $1,969 representing a decline of 9.53% from 2016 figure and increased to $2,028 in 2018 representing 3.03% increase from 2017 figure (World Development Indicator, 2018). Studies in Nigeria such as Shobande, Odeleye and Olunkwa (2014); Osoba and Tella (2017); Imide and Diana (2019); Aransi (2019) and Agbarakwe (2019); Chijioke and Amadi (2019) among others focused on human capital investment and economic growth while Chikelu (2016); Ebunoluwa and Yusuf (2018); Agbasi, Edeko and Ezeanolue (2018) harped on poverty and economic growth ignoring their impact on economic development.

This paper is important, particularly as real gross domestic product per capita has been on the decrease since the past three years. It is important to empirically verify if such decrease could result from certain economic development determinant factor like human capital investment through education and health expenditure, or whether the fight to reduce poverty has not been well intensified over time. The paper uses real per capital gross domestic product as a measure of economic development while education and health expenditure were used to capture human capital investment rather than primary, secondary or even tertiary school enrolment as done in some previous studies. Hence, determining the interrelationship among human capital investment, poverty and economic development in Nigeria is important, particularly with the use of the autoregressive distributed lag model which simultaneously shows the short run and long run interaction among the variables of interest contrary to previous studies. The objective of this paper therefore is to examine the interrelationship among human capital investment, poverty and economic development in Nigeria. Following section 1, section 2 provides the literature review while section 3 discusses the methodology. Section 4 presents the empirical results while section 5 concludes and provides policy recommendations based on the result estimates.

Literature Review

There are volumes of literature that suggest that human capital investment impacts positively on economic development, though, few studies showed that human capital investment and economic development are inversely related. Similarly, there are mixed results as it relates to poverty and economic development, though, in theory, there is inverse relationship between poverty rate and economic development. Oluwatoyin (2011) used the error correction mechanism to examine human capital investment and economic growth in Nigeria. Though, the sampled period was not identified in the study, it was found that a positive relationship existed between government expenditure on education and economic growth while a negative relationship was the case with respect to government expenditure on health. However, a major critique of the paper is that four out of the six variables used for the estimation were of order two, that is I (2) variables while serial correlation was not corrected for.

Ilegbinosa (2013) used primary data and the Chi-square method to analyze human capital investment as an effective tool for economic development in Nigeria. A total of 120 questionnaires were distributed to the students of University of Benin, Benin City; Ambrose Ali University, Ekpoma and Auchi Polytechnic, Auchi, all in Edo State. They found that investment in human capital had an impact on the development of the Nigerian economy without actually discussing the nature of the impact, probably because of the tool of analysis used. Shobande, Odeleye and Olunkwa (2014) examined the impact of human capital investment on economic development of Nigeria with the use of time series data that span from 1970 to 2011 and the use of the ordinary least squares estimation method. They found a negative and insignificant short run relationship between economic development and human capital investment in Nigeria.

Jaiyeoba (2015) empirically investigated the relationship between investment in education, health and economic growth in Nigeria using time series data from 1982 to 2011 and ordinary least squares method. The author found that government expenditure on health had positive and significant impact on economic growth while expenditure on education had negative and insignificant impact on economic growth. With respect to enrolment in the levels of education, only primary and tertiary levels of education had significant impact on economic growth. However, primary school enrolment had negative parameter estimates. Chikelu (2016) used the OLS and co-integration methods to examine the impact of human capital development on poverty

reduction in the Nigerian economy from the period 1986 to 2012. The results showed the existence of a long run relationship between poverty rate and primary school enrolment, secondary school enrolment, tertiary school enrolment and per capita income.

Osoba and Tella (2017) considered the interactive effects of the relationship between human capital investment and economic growth in Nigeria within the period 1986 to 2014 and the use of the fully modified ordinary least squares (FMOLS) technique. The result showed a positive and significant relationship between the interactive effects of human capital components and growth in Nigeria and noted that the provision of investment in education and health is essential for economic development.

Obialor (2017) examined the effect of government human capital investment on the economic growth of three Sub-Sahara African countries (Nigeria, South Africa and Ghana) with data from 1980 to 2013 and the use of vector error correction methodology (VECM) respectively for the three different countries. The results indicated that expenditure on health and education showed significant and positive effect on economic growth in Nigeria. School enrolment, proxy for literacy ratio was positively insignificant in all the three countries. Andabai and Eze (2018) used the ordinary least squares technique and data for the period 1990 to 2017 to establish the impact of government expenditure on health and education, measures of human capital investment on economic growth and development of Nigeria. The result showed that both measures of human capital investment have positive and significant relationship with economic growth and development in Nigeria. The study concluded that human capital investments had a significant effect on economic growth and development in Nigeria.

Ebunoluwa and Yusuf (2018) used VAR to determine the effect of government expenditure, unemployment growth rate and real gross domestic product on poverty incidence in Nigeria with the use of time series data that span from 1980 to 2016. The result showed that government expenditure was positively related to poverty incidence which suggested that the poor were not benefitting from the economy at large, particularly from total government expenditure. Adekoya (2018) investigated the causal relationship between human capital development measured with health and education and its impact on poverty alleviation measured by per capita income in Nigeria over the period 1995 to 2017 and the use of the vector error correction mechanism. The author found no causality between government expenditure on education and health, infant mortality, gross enrolment ratio and per capita income. The author recommended that the federal government of Nigeria should ensure that it invests more in education and health as they are essential factors that can help in alleviating poverty. Agbasi, Edoko and Ezeanolue (2018) examined the relationship between economic growth and poverty reduction in Nigeria using the ordinary least squares and data for the period 1980 to 2017. They found significant and negative relationship among economic growth, poverty, mortality rate and consumption.

Aransi (2019) examined the direction of causality between human capital investment measured with government capital and recurrent expenditures on health as well as education and economic growth in Nigeria with the use of data from 1981 to 2017. The author found unidirectional causality from economic growth to total government expenditure on human capital. Chijioke and Amadi (2019) examined human capital investment and sustainable economic development in Nigeria with the use of data for the period 1986 to 2017 and the use of the ordinary least squares estimation technique. The result showed a positive relationship between government expenditure on health and real gross domestic product and concluded that policy makers in Nigeria should pay more attention to the health sector through increase in its yearly budgetary allocation.

Agbarakwe (2019) considered human capital investment (primary school enrolment and public expenditure on education and health) and economic growth in Nigeria with the use of the vector error correction methodology and data for the period 1980 to 2018. The author found that on the long run and short run, only the one period lag value of primary school enrolment was positive and significant in the determination of economic growth. The result may not be valid because the error correction term, though negative is not significant. Imide and Dania (2019) examined human capital investment and economic growth in Nigeria using the ordinary least squares estimation method and data for the period 1991 to 2017. They found that expenditure on health had negative and significant impact on economic growth while that of education had positive and significant impact. When they combined data on education and health expenditure, they found positive and significant impact on Nigeria economic growth, though; this may not help in policy because it is important to disentangle the effects of the two expenditures.

From the review, it is clear that there is no consensus on the relationship among the variables of interest. Furthermore, most of the studies examined the interrelationship between human capital investment and economic growth while others considered poverty and economic growth separately. Majority of the studies used ordinary least squares and only few used the autoregressive distributed lag which disentangles the short run from the long run result estimates.

Materials and Methods

Data Sources

This paper used annual time series data for the period of 1980 to 2018 and all the data were obtained from the World Development Indicators (WDI) data base of 2018 and the Central Bank of Nigeria Statistical Bulletin (2018).

Augmented Dickey Fuller Unit Root Test

An important step in the estimation of the Autoregressive Distributed Lag (ARDL) model is to test for the stationarity of the variables to ensure that none of the variables is integrated of order two. ARDL allows for a mix of I(0) and I(I) variables in an estimation. The Augmented Dickey Fuller test (Dickey and Fuller, 1981) unit root test (only intercept and intercept and trend) is used to establish the order of integration of the variables and is generally modelled as:

$$\Delta Y_t = \varpi_1 + \delta Y_{t-1} + \sum_{i=1}^{n} \alpha_i \Delta Y_{t-1} + \varepsilon_t \qquad (1)$$

$$\Delta Y_t = \varpi_1 + \varpi_t + \eta Y_{t-1} + \sum_{i=1}^{n} \beta_i \Delta Y_{t-1} + \varepsilon_t \qquad (2)$$

Where Δ is the first difference of Y, **while** ϖ_1 and ϖ_t are respectively the intercept term and time trend while n is the lag value. The Augmented Dickey-Fuller test is taken as superior to the Dickey Fuller because the Dickey Fuller test does not take account of possible autocorrelation in the error process (Uko & Nkoro, 2016).

Bounds Cointegration Testing Approach

Autoregressive Distributed Lag (ARDL) approach to cointegration or Bounds procedure for a long-run relationship is used irrespective of whether the underlying variables are I(0), I(1) or a

combination of both. In such situation, the application of ARDL approach to cointegration will give realistic and efficient estimates.

Autoregressive Distributed Lag (ARDL) Model

Pesaran and Shin (1999) introduced the ARDL model and was further extended by Pesaran, Smith and Shin (2001). This approach is based on the estimation of an unrestricted error correction model. It has some advantages over the conventional cointegration method of Johansen and Juselius (1990) cointegration test. While the Johansen cointegration methods are sensitive to the size of the sample, the ARDL test is suitable even if the sample size is small (Pesaran, Smith and Shin, 1996b). In addition, with the presence of omitting variables and autocorrelation problems which are very common in time series analysis, the short and long-run components of the model can be estimated at the same time. The order of the lags in the ARDL model were selected based the lag order selection criteria. This paper uses the ARDL modelling approach as originally introduced by Pesaran and Smith, (2001) and can be modelled as:

$$\Delta LNGDPPC_t = \alpha_0 + \sum_{i=1}^{n} \alpha_1 \Delta LNGDPPC_{t-i} + \sum_{i=1}^{n} \alpha_k \Delta V_{t-i} + \sum_{i=1}^{n} \alpha_j \Delta Q_{t-i} + \alpha_7 ECM(-1) +$$

$$\beta_1 GDPPC_{t-i} + \beta_\rho V_{t-i} + \beta_\gamma Q_{t-1} + \varepsilon_t \qquad (3)$$

Where:

LN before a variable is the log of that variable.

GDPPC: Real per capita gross domestic product measure of economic development.

V: Measures of human capital investment; that is health expenditure (HEXP) and education expenditure (EDU); $k = 2,3$ are the short-run dynamic parameters of the model and α_7 is the speed of adjustment parameter.

Q: Other economic development determinants - Poverty Rate (POV); Agriculture value added (AGRC); and Official exchange rate of Naira to US\$ (EXCR); $j = 4,5,6$; $\rho = 2,3$; $\lambda = 4,5,6$ while j and λ are the long run parameters.

ECM(-1): Error Correction Term

ε_t: Error Term

A priori Expectation

It is expected that expenditure on education and health as well as agriculture value added should have positive relationship with economic development while poverty should have inverse relationship with economic development. Exchange rate could have positive or negative relationship with economic development depending on the policy direction of the government.

Result of the Findings

Results of Unit Root Test: Augmented Dickey-Fuller (ADF) Test

Tables 1 and 2 present the results of the Augmented Dickey-Fuller test at levels and first difference using only trend as well as trend and intercept. The results showed that none of the variable was integrated of order two, they are all I(1) variables, hence the use of ARDL Bounds test for co-integration is valid.

Table 1: Augmented Dickey-Fuller Test Results – Intercept Only

Variable	ADF Test Statistic	Critical Value	Order of Integration
LNGDPPC	0.242377	-2.943427	Non-stationary
D(LNGDPPC)	-4.537447	-2.945842	I(1)
LNEDU	-2.582966	-2.954021	Non-stationary
D(LNEDU)	-8.029034	-2.945842	I(1)
LNHEXP	-1.483263	-2.954021	Non –stationary
D(LNHEXP)	-9.966340	-2.945842	I(1)
LNPOV	-2.005381	-2.948404	Non-stationary
D(LNPOV)	-6,054554	-2.954021	I(1)
LNAGRC	1.176832	-2.943427	Non-stationary
D(LNAGRC)	-5.496377	-2.945842	I(1)
LNEXCR	-1,988630	-2.943427	Non-stationary
D(LNEXR)	-5.170239	-2.945842	I(1)

Source: Authors' Results using E-views 9.0

Table 2: Augmented Dickey-Fuller Test Results – Intercept and Linear Trend

Variable	ADF Test Statistic	Critical Value	Order of Integration
LNGDPPC	-2.454760	-3.536601	Non-stationary
D(LNGDPPC)	-4.841379	-3,540328	I(1)
LNEDU	-0.194059	-3.552973	Non-stationary
D(LNEDU)	-5.996001	-3.552973	I(1)
LNHEXP	0.017880	-3.552973	Non –stationary
D(LNHEXP)	-5.264052	-3.552973	I(1)
LNPOV	-2.005381	-3.544284	Non-stationary
D(LNPOV)	-6.142712	-3.552973	I(1)
LNAGRC	-1.841731	-4.536601	Non-stationary
D(LNAGRC)	-5.766248	-3.540326	I(1)
LNEXCR	-1.282763	-3.536601	Non-stationary
D(LNEXR)	-5.525713	-3.540328	I(1)

Source: Authors' Results using E-views 9.0

ARDL Bounds Test of Co-integration

The result to establish the existence of long run relationship among the variables is provided in Table 3.

Table 3: Result for Bounds Test of Cointegration

ARDL Bounds Test
Sample: 1983 2017
Included observations: 33
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	4.137827	5

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

Source: Authors' Computation: E-views, 9.0

The Bounds' test result as shown in Table 3 showed two set of critical values for a given level of significance, that is the lower bound I(0) and the upper bound I(1). Since the computed F-statistic is 4.137827 and it exceeded the upper Bound at the 5 percent significant level, it can be concluded that there was evidence of a long run relationship among the series, implying that the hypothesis of no long run relationship was rejected.

Lag Order Selection Criteria

The lag order selection was determined using the Final prediction error (FPE), Akaike Information Criteria (AIC) and the Hannan-Quinn information criteria (HQ) as shown in Table 4.

Table 4: Lag Order Selection Criteria

VAR Lag Order Selection Criteria
Endogenous variables: LNGDPPC LNEDU LNHEXP LNPOV LNAGRC LNEXCR
Sample: 1980 2018
Included observations: 33

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1633.391	NA	5.69e+35	99.35702	99.62911	99.44857
1	-1476.507	247.2112	3.90e+32	92.03071	93.93536*	92.67157
2	-1413.860	75.93552*	9.76e+31*	90.41576*	93.95296	91.60592*

 * indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
 FPE: Final prediction error
 AIC: Akaike information criterion
 SC: Schwarz information criterion
 HQ: Hannan-Quinn information criterion

Table 5: ARDL Cointegration and Long Run Form Estimation Result

ARDL Cointegrating And Long Run Form
Dependent Variable: LNGDPPC
Selected Model: ARDL(1, 2, 0, 2, 0, 0)
Sample: 1980 2018
Included observations: 33

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNEDU)	0.062268	0.036952	1.685090	0.1061
D(LNEDU(-1))	-0.025121*	0.013965	-1.798891	0.0858
D(LNHEXP)	-0.013786	0.028785	-0.478928	0.6367
D(LNPOV)	-0.217095	0.156708	-1.385344	0.1798
D(LNPOV(-1))	-0.321784	0.216516	-1.486186	0.1514
D(LNAGRC)	0.109489**	0.050129	2.184145	0.0399
D(LNEXCR)	-0.055553**	0.021491	-2.584874	0.0169
ECM(-1)	-0.485502***	0.128478	-3.778885	0.0010

Cointeq = LNGDPPC - (0.1889*LNEDU -0.0284*LNHEXP -1.0993*LNPOV + 0.2255*LNAGRC -0.1144*LNEXCR + 6.1808)

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNEDU	0.188913*	0.096137	1.965052	0.0622
LNHEXP	-0.028396	0.062749	-0.452524	0.6553
LNPOV	-1.099277***	0.284425	-3.864915	0.0008
LNAGRC	0.225517***	0.074581	3.023771	0.0062
LNEXCR	-0.114423**	0.045261	-2.528055	0.0192
C	6.180774	2.598732	2.378381	0.0265

Significance levels: *** (**) (*) (1%) (5%) (10%)

Source: Authors' Computation E-views 9.0

The ARDL result in Table 5 showed that in the short run, health expenditure and poverty rate were not significant in the determination of economic development in Nigeria, though, health expenditure was not rightly signed. Result from education expenditure, one of the measures of human capital was mixed. While the contemporaneous level showed positive and insignificant relationship with economic development, the one-year lag value of education had significant and negative relationship with economic development with a delayed effect. It showed that a 10% increase in education expenditure deceased economic development by less than one percent in the previous period meaning that education expenditure was not properly used. This may imply that past implementation of education policies through investment in education impacted insignificantly and inversely on economic development while the previous and present poverty status of the people may further prevent parents from taking their children to school despite government efforts at human capital investment, this may impact on economic development negatively. The positive parameter estimate of the contemporaneous value of education expenditure is in line with the results obtained by Osaba and Teller (2017); Andabai and Eze

(2018); Imide and Dania (2019). On the long run however, education expenditure was significant at 10% level of significance in the determination of economic development. The result showed that a 10% increase in education expenditure will increase economic development by about two percent.

Health expenditure had negative and insignificant relationship with economic development. It shows that a 10% increase in health expenditure will reduce economic development by less 1% in both the short run and long run. Though, the importance of investment in human capital through health expenditure cannot be neglected in the process of development, the reason for the negative parameter estimates may result from corruption through channelling expenditure made for the health sector to other uses. The result negated that of Andabai and Eze (2018); Chijioke and Amadi (2019) who found positive and significant relationship between government expenditure on health and economic growth and economic development respectively.

Poverty rate was rightly signed and significant in both the short run and long run. The result showed that increase in poverty rate by say, 10% will reduce economic development by about 2% in the short run and about 11% in the long run. This is because increased poverty rate will reduce incentive to work as a result of frustration and possibly health challenges as a result of the inability to access health facility due to poverty. The result further affirmed the one obtained by Adekoya (2018) who found insignificant relationship between poverty and economic growth in Nigeria. In the short and long run, agriculture value added was significant in the determination of economic development in Nigeria. The result showed that an increase in agriculture value added by 10% will increase economic development by 1% and about 2% respectively in the short run and long run. The result further affirmed the importance of agriculture in economic development process of Nigeria.

Exchange rate was negative and significant in the determination of economic development in the short and long run. The result shows that a 10 percent depreciation of the Naira *vis –a- vis* $US will lead to 1% increase in economic development through higher demand for agriculture products from foreign countries in the short run and more than 1% in the long run. The error correction term is negative and significant at 1% level of significance while the speed of adjustment is more than 49%.

Residual Tests

The Breusch-Godfrey test of serial correlation is based on the null hypothesis that the residuals are not serially correlated. From the result as shown in Table 6, the p-value of the F-statistic of 0.7583 percent which is above the 5% level of significance means that we cannot reject the Breusch-Godfrey test null hypothesis that there is no serial correlation in the residual. This therefore affirms the absence of serial correlation in the residual.
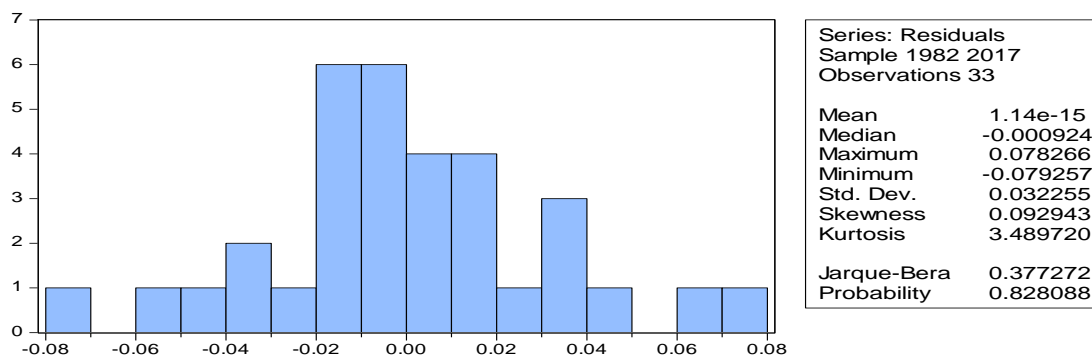
Table 6: Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.060436	Prob. F(1,21)	0.8082
Obs*R-squared	0.094698	Prob. Chi-Square(1)	0.7583

The Breusch-Godfrey-Pagan test of heteroscedasticity is based on the null hypothesis that the error variances are equal (Homoscedasticity). From Table 7, the p-value of the F-statistic is 0.3497 percent which is well above the 5 percent level of significance imply that we cannot reject the null hypothesis. Therefore, the residual has no heteroscedasticity problem.

Table 7: Heteroscedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.115188	Prob. F(10,22)	0.3943
Obs*R-squared	11.10079	Prob. Chi-Square(10)	0.3497
Scaled explained SS	6.141745	Prob. Chi-Square(10)	0.8032

The result of the normality test (Figure 1) showed that the probability value is 0.828088 which is greater than 0.05%, meaning that residual is normally distributed. Based on the battery of tests, the results are desirable and can be used for policy purpose and this result is desirable.

Figure 1: Normality Test Result

Series: Residuals	
Sample 1982 2017	
Observations 33	
Mean	1.14e-15
Median	-0.000924
Maximum	0.078266
Minimum	-0.079257
Std. Dev.	0.032255
Skewness	0.092943
Kurtosis	3.489720
Jarque-Bera	0.377272
Probability	0.828088

Conclusion

This research paper examined the relationship among human capital investment, poverty and economic development in Nigeria from 1980 to 2018. The Augmented Dickey-Fuller (ADF) test for unit root showed that none of the variables was I(2) hence, justified the use of ARDL estimation technique. The ARDL Bounds test for co-integration showed that there was long run equilibrium relationship among the variables. The result showed that human capital investment (education and health sectors' expenditures) had mixed results. While the contemporaneous value of education expenditure had positive and insignificant relationship with economic development, its one-year lag value impacted on economic development inversely and significantly in the short run while in the long run it is positive and significant. Health expenditure was not significant at both short and long run and the parameter estimates did not meet the *a priori* expectation while poverty rate had a negative relationship, though, significant in the long run. The estimation had no residual problems.

Recommendations

Based on the empirical result, the following are recommended for both short and long run economic development in Nigeria:

i.   Government budgetary allocation to education has been on the average of 10%. This should be increased to meet the recommended 25% budgetary allocation by UNDP in order to achieve the desired economic development.
ii. An effective way of directing and efficiently utilizing government funds on human capital development through education expenditure should be encouraged. This can be achieved through monitoring and evaluation on the use of such government fund for the purpose it was meant for.

iii. The condition of service in the educational sector should be revisited in order to encourage more qualified people into the profession rather than applicants taking it as a job to stay put on until better offer comes. This is not the same for other sectors like the oil and gas as well as the communication sub sector. Employing more qualified people into the sector will reduce brain drain and improve productive which will lead to increased economic development.

iv. There is the need for government, through relevant ministries, departments and agencies to develop a suitable framework that would attract foreign partners to invest in every level of education in Nigeria.

v. Relevant ministries, departments and agencies should formulate practical and feasible education policy in order to promote investment in the sector and maximize benefit from the sector in the long-run. Such policies should be formulated to build on existing poverty reduction policies and programmes in Nigeria.

vi. Though, health expenditure, one of the measures of human capital investment was not significant and did not meet the *a priori* expectation, it is important for government to fight corruption in the system without taking political consideration into play.

vii. Poverty related policies and programmes should not be politicized as it appears that the policies and programmes implementation are one sided or politically based, to the best of our knowledge.

References

Adebayo, B. (2018). *Nigeria overtakes India in extreme poverty ranking.* Retrieved from https://edition.cnn.com/2018/06/26/africa/nigeria-overtakes-india-extreme-poverty-intl/index.html

Adekoya, A.D. (2018). Impact of human capital development on poverty alleviation in Nigeria. *International Journal of Economics & Management Sciences*, 7(4); 1-8.

Agbarakwe, W.C. (2019). Human capital investment and economic growth in Nigeria: an empirical approach. *International Journal of Management Sciences,* 7(3); 01 – 13.

Agbasi, O.E. Edoko, T.D. & Ezeanolue, U.S. (2018). Economic growth and poverty reduction in Nigeria. *Sumerianz Journal of Economics and Finance,* 1(1); 31-36

Andabai, P.W. and Eze, G.P. (2018). Empirical investigation of human capital investments and its effect on economic growth in Nigeria (1990-2017). *European Journal of Business and Innovation Research*, 6(6); 73-80.

Aransi, W.O. (2019). Direction of causality between human capital investment and economic growth in Nigeria: Lesson for policy makers. *International Journal of Academic Management Science Research (IJAMSR),* 3(2); 19-26.

Bakare, I. A. & Edozie, K. V. (2015). The poverty-economic growth nexus in Nigeria (1981-2012). *International Journal of Research in Arts and Social Sciences,* 8(1); 242-259.

Central Bank of Nigeria (2018). *Annual Reports and Statement of Accounts*.

Chijioke, A.K. & Amadi, A.I. (2019). Human capital investment as a catalyst for sustainable economic development in Nigeria. *International Journal of Management Sciences and Business Administration*, 5(5); 13 – 22.

Chikelu, J.C. (2016). Impact of human capital development on poverty reduction in Nigeria. Munich Personal RePEc Archive. Retrieved from https://mpra.ub.uni-muenchen.de/. Assessed 2nd March, 2020.

Dickey, D.A. & Fuller, W.A. (1981). Likelihood ratio statistics for autoregressive time series with a unit root. *Econometrica*, 49; 1057- 1072.

Ebunoluwa, O.O. & Yusuf, W.A. (2018). Effects of economic growth on poverty reduction in Nigeria. *IOSR Journal of Economics and Finance (IOSR-JEF)*. 9(5); 25-29.

Ewubare, D.B. & Mark, T. (2018). Human capital development and poverty reduction in Nigeria. *Journal of Economics and Business*, 1(2); 150-163.

Ilegbinosa, I.A. (2013). Human capital investment as an effective tool for economic development in Nigeria. *International Journal of Management & Business Studies*, 3(1); 7 – 13.

Imide, I.O. & Dania, E.N. (2019). Human capital investment and economic growth in Nigeria. International Journal of Economics, Commerce and Management, 2(4); 374 – 387.

Jaiyeoba, S.V. (2015). Human capital investment and economic growth in Nigeria. African Research Review: *An International Multidisciplinary Journal, Ethiopia*. 9(1); 30 – 46.

Johansen, S. & Juselius, K. (1990). Maximum likelihood estimation and inference on cointegration- with applications to the demand for money. *Oxford Bulletin of Economics and Statistics,* 52(2); 169-210.

Nigeria National Bureau of Statistics (NBS) (2018). Annual Abstract of Statistics. Retrieved from http://www.nigerianstat.gov.ng/pdfuploads/annual_abstract_2012.pdf

Obialor, M.C. (2017). Effect of government human capital investment on economic growth in Sub-Saharan Africa: Evidence from Nigeria, South Africa and Ghana (1980 – 2013). *International Journal of Asian Social Science*, 7(4); 328-339

Oluwatoyin, M.A. (2011). Human capital investment and economic growth in Nigeria: the role of education and health. *Knowledge Management, Information Management, Learning Management,* 14; 266 – 277.

Osoba, A.M. & Tella, S.A. (2017). Human capital variables and economic growth in Nigeria: An interactive effect. *Euro Economica,* 36(1), Retrieved from http://journals.univ-danubius.ro/index.php/euroeconomica/article/view/3332/4054

Pesaran, M.H., Smith, R.J. & Shin, Y. (1996b). Testing for the Existence of a long run Relationship, *DAE Working Paper 9622*, Department of Applied Economics, University of Cambridge.

Pesaran, M.H. & Shin, Y. (1999). An Autoregressive distributed lag modelling approach to cointegration analysis. *Econometrics and Economic Theory in the 20th Century*: The Ragnar Frisch Centennial Symposium, Strom, S. (ed.) Cambridge University Press.

Pesaran, M.H., Smith, R.J. & Shin, Y. (2001). Bounds testing approaches to the analysis of level relationships, *Journal of Applied Econometrics,* 16; 289-326.

Shobande, O.A., Odeleye, A.T. & Olunkwa, N.C. (2014). Human capital investment and economic development: The Nigerian experience. World Journal of Social Science, 1(2); 107 – 115.

Uko A.K. & Nkoro, E. (2012). Inflation forecast with ARIMA, Vector Autoregressive and Error Correction Models in Nigeria, *EJEFAS, 50*, July

UNDP (2018). *Human Development Report*, Oxford: Oxford University Press.