Human Capital Development: A Catalyst for Achieving Sdgs in Nigeria

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Abstract: There is no gainsaying in the fact that one of the objectives of Sustainable Development Goals (SDGs) is to attain poverty hitch-free by 2030. However, the continuous increase in poverty level has generated a lot of debates among policymakers, scholars and economists while government have also been continuously formulating different policies to avert this ugly situation. Various studies have documented the contributions of human capital development to poverty alleviation in Nigeria with special reference to MDGs and their results might not be transmitted to achieving the SDGs in Nigeria. This study therefore addresses this issue. The paper examines the impact of human capital development on poverty alleviation in Nigeria over the last two and half decades (1990-2017). The results obtained shall be used to project into the future as to whether investments in human capital expenditure has potential to achieve the objectives of Sustainable Development Goals (SDGs) by 2030. The study adopts a log-linear regression model formulated sequentially from the Solow's neo-classical growth theory and standard Cobb-Douglas production function. The prevalence of poverty rate as a percentage of total population was regressed on unemployment rate, real government expenditures on education and health. The result of the estimated model reveals that real government expenditure on education and unemployment rate both have significant effect on the prevalence of poverty in Nigeria. However, real government expenditure on health has negative but insignificant inelastic effect on the prevalence of poverty rate in Nigeria during the period under review. On this basis, the paper therefore suggests that government should invest more in education and facilitate the integration of vocational training programmes and courses as part of academic curriculum in schools at all levels. Also, government should increase investment in the health sector to ensure improvement and access to quality health facilities in the country, if human capital investment should catalyze SDGs achievement.

Keywords: Human Capital Development; Poverty Alleviation; Sustainable Development Goals (SDGs)

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1. Introduction

Nigeria has the largest population in Africa, harboring over 180 million people which accounts for about 50% of West Africa's population (and nearly one-fifth of SSAs). The country features a diverse population, comprising of over 250 ethnic groups, many different indigenous languages and practicing two major religions: Christianity and Islam. (World Bank, 2007) The nation is richly endowed with human capital and natural resources (mainly crude oil).

It is very surprising that a significant proportion of the Nigerian population still lives in extreme poverty despite the country's relative oil wealth. About 70million people live on less than US$1 per day. (World Bank and DFID, 2005) 54% of the Nigerian population live below the poverty line (UNDP, 2006) while 60.9% of Nigerians in 2010 were living in "absolute poverty". (SDG Report, 2016) While the discovery of oil in Nigeria made the country became a major exporter of oil, yet this has not translated to significant increase in the living standard of her people as the proportion of Nigerians experiencing income poverty and unemployment has been on the increase in recent decades.

The nation's unemployment rate rose from an average of 1.9% in 1995 to an estimated 4.5% at the end of 1997. In 2009, the World Bank reported that there were about 40million unemployed youths between 18 and 25years who are looking for job but could not get and therefore engage in the informal wage employment with an insignificant income. In Q3 of 2016, youth unemployment is 45.65% and there are only 22.47% of the new job entrants created annually (NBS, Q3, 2016). Her per capita income was US$2211 in 2016 (which is below the SSA average of US$3508) (World Bank and DFID, 2015).

Nigeria's poverty is multidirectional in nature and the human development index (HDI) for the country is relatively low (0.527), ranking the country in 152nd position out of a sample of 177 countries (UNDP, 2016). One out of every five children pass away before attaining the age of five, three million people are infected with the deadly HIV/AIDS disease, and seven million children are out of school. (DFID, 2007)

The poverty level in Nigeria aggravated for more than thirty years of military regime and until recently made worse by civilian governance coupled with the obstinate effects of the oil economy. Nigeria is typically prototype of a country subject to the resource curse; generating significant revenues from oil sources which in turn have served as an inducement to the political class for institutionalizing the embezzlement and mismanagement of revenues from the country's most essential economic asset. The preoccupation with oil has made the country a mono-product economy and this has brought about a neglect of activity in other viable areas of the economy

(particularly agriculture and manufacturing), leading to a reduction in the growth of non-oil sectors, fueling unemployment and intensifying poverty and conflict. Institutionalized corruption and pathetic formal accountability have weakened the bond between poor Nigerians and the government, while political and electoral processes are subject to alliances made around ethnicity, religion and favouritism.

Drivers and maintainers of poverty in Nigeria include neglect of agriculture, urbanization (Nigeria flaunts the world's highest rate of urbanization at 5.3% per annum, (Bird, 2005), weakness of human capabilities, high maternal mortality, health and natural epidemics etc. Inequality and exclusion are also drivers and maintainers of poverty in the country. Inequality reigns highly in Nigeria, with the richest 10% claiming ownership to over 40% of the wealth of the nation while the poorest 10% own only about 1.6%. (Bird, 2005) Unequal distribution of asset contributes greatly to this inequality, and this is partly traceable to the indigenization of Nigerian enterprises and industry which began in 1972, decreeing that all Nigerian enterprises should be at least 40% domestically owned. This led to the development of an asset-owning class and the concentration of much wealth in the possession of an estimated few people. (Erubami & Young, 2003)

Conflict also contributes to poverty in Nigeria. There are series of localized conflicts in Nigeria. Such include conflict in the Niger-Delta over a share of the "national cake" in form of access to the benefits of oil production. Others include ethnic group conflicts e.g the Fulani herdsmen killings, politically motivated conflicts and religious conflicts top of that list being the famous Boko Haram insurgency. These conflicts drive and maintain poverty in a number of ways. At the level of the household, assets are stripped and the society become unsafe for productive activities, hence contributing to poverty. At the national level, these conflicts hinder domestic and foreign investment, thereby reducing opportunities for economic development and pro-poor growth.

Studies on the contribution of education and human development to growth and economic development show that there exists a causal nexus between spending on human development and poverty reduction. However, studies carried out in Nigeria yield inconclusive outcome. While some evidences suggest positive association between human development and economic growth (Shamistha and Grabowski, (2004), Podrecca and Carmic, (2002) and Temple (2001). Other studies such as Odusola (1998) submit that government spending on human capital development over the past four decades has not been able to promote economic growth or alleviate poverty. Realistically, there seems to be no sufficient study in Nigeria that investigates the impacts of government spending on human capital investment and poverty trend in the country. Moreover, goal 1 of the current sustainable development goals of poverty eradication by 2030 requires a country-specific investigation.

The study is therefore set to fill this research gap as it intends to answer the question "Does human capital development in Nigeria has the potential to eradicate poverty as one of the Sustainable Development Goals (SDGs)"? The remaining part of this paper covers four sections. Review of literature including conceptual issues and empirical review are highlighted in the second section while methodological issues are addressed in the third section. Section Four is devoted to presentation of results and interpretation of empirical analysis. The concluding section summarizes and presents policy recommendations.

2. Literature Review

2.1. Conceptual Issues

2.1.1. Concept of Human Capital Development

Briggs (1999) stated that economic state of developing countries and their slow rate of progress could be attributed to their deficiency in education. He stated "No illiterate society has been known to progress far in the modern world, also there is no educated society, with initiative and leadership that remained backward. Literacy and education can thus be said to affect the course of growth significantly".

International Labour Organization (1999) opines that "a healthier more educated and highly skilled population is the surest rate to higher productivity". Following this assertion, we may suggest that in ensuring sustainable economic growth and development in an economy, investment in human capital is essential. Human capital can be described as the capital value of man or the capital embodied in people. It can also be expressed as investment that human beings make in themselves to improve their productivity and quality of life.

The means of human capital formation are education, on-the-job-training, health, and other activities meant to acquire skills and knowledge necessary to increase productivity. Therefore, the term "human capital formation" is defined as the process of acquiring the number of people who have the skills, education and experience that are essential for socio-economic development of a country. (Harbison, 1962)

The expenditure made in physical goods can be used to determine the magnitude of physical capital formation, but this is not the case for human capital formation. This is because expenditure on human skills is both for investment and consumption purpose. For instance, Nigeria's educational objectives include the acquisition of appropriate skills, abilities and competence (i.e. investment) as well as self-actualization of the inculcation of national consciousness and national unity (i.e. consumption).

Generally, the main benefits of education transcend beyond just economic spheres – it includes social, political, religious, cultural as well as physical benefits.

2.1.2. The Sustainable Development Goals (SDGs)

The SDGs represent the most overarching of the initiatives, framework and strategies designed to address the comprehensive development and alleviating poverty in the poorest countries in the world. The SDGs were chosen so that the achievement of one goal enhances the chances of achieving the others. These objectives include; to:

- End poverty in all its forms everywhere;
- To end hunger, achieve food security and improved nutrition and promote sustainable agriculture;
- Ensure healthy lives and promote well-being for all at all ages;
- Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all;
- Achieve gender equality and empower all women and girls;
- Ensure availability and sustainable management of water and sanitation for all;
- Ensure access to affordable, reliable, sustainable and modern energy for all;
- Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all;
- Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation;
- Reduce inequality within and among countries;
- Make cities and human settlements inclusive, safe, resilient and sustainable;
- Ensure sustainable consumption and production patterns;
- Take urgent action to combat climate change and its impacts;
- Conserve and sustainably use the oceans, seas and marine resources for sustainable development;
- Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and biodiversity loss;
- Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels;
- Strengthen the means of implementation and revitalize the global partnership for sustainable development.

2.2. Empirical Review

2.2.1. Human Development and Economic Growth in Nigeria

Within the empirical literature, there exist a plethora research work on the impact of human development (particularly education) and economic growth in Nigeria. Yet,

the debate is inconclusive as to whether increases in government spending on education stimulate economic growth or not.

Notable among the studies include Benhabib and Spiegel (1994) and Pritchett (2001) suggest that changes in educational levels have little or no explanatory power in the variation of output. However, some empirical works such as Kruger and Lindahl (1999), Temple (1999) and Topel (1999) show that the result may be biased by measurement error, or driven by the presence of a few influential outliers and that a positive correlation emerges once these potential problems are properly accounted for. Podrecca and Carmeci (2002) emphasized that any association observed between education levels and growth or between investment and growth, does not prove causality.

Sharmistha and Grabowski (2004) examine the causal linkage between education at all levels and growth in the Indian economy for the time period of 1966-1996. Their empirical results suggest that primary education has a strong causal impact on growth with more limited evidence of such an impact of secondary education. They equally found that female education at all levels has potentials for generating economic growth more than male education.

Odusola (1998) examined the relationship between human capital investment and economic growth in Nigeria. The findings from the study indicate that the relationship between human capital and economic growth is weak, although positive. After disaggregating government expenditure into its capital and recurrent components, the findings revealed that capital expenditure on education promotes growth more than recurrent expenditure does.

Oulton (1997) examined the extent to which human capital can explain growth in total productivity thus, removing the effects of possible interaction with the stock of physical capital. Using a 1996 version of Barro and Lee's data set, the study revealed that 1% increase in human capital per worker in 1965 raised the growth rate of total factor productivity by 0.0365%. The findings of the study also suggest that increasing the years of education from five years to six years raised the growth rate by 0.73% per annum.

Attanasio *et al.*, (2017) investigated the relationship between human capital growth and poverty using high quality data from Ethiopia and Peru to estimate the production functions of human capital from age 1 to age 15 while characterizing the nature of persistence and dynamic complementarities between two components of human capital; health and cognition. The findings revealed that more able and higher income parents invest more, particularly at younger ages when investments have the greatest impacts. The differences in investments by parental income lead to large gaps in inequality by age 8 which persist through age 15.

Kruger and Lindahl (2001) estimated that linkage between education and growth followed different track. They divided countries into three groups on the basis of their level of education. They found out that education is positively related to growth only for countries with the lowest level of education. Consequently, they explore a quadratic relationship between economic growth and years of education and the result reveals that for low levels of education, education contributed positively to growth.

Grammy and Assane (1996) investigated new evidence on the effect of human capital on economic growth. The result of the study indicated that there exists a positive and statistically significant relationship between human capital and economic growth. However, Olaniyan *et al.*, (2007) examined the impact of education on growth in Nigeria between 1970 and 2004. They adopted Ordinary Least Square (OLS) technique and found out that physical accumulation has a statistically significant positive impact on education.

Fosu (2010) examined the influence of inequality on the effectiveness of income growth in poverty reduction using 1990s data for a sample of African countries. Employing an analysis of covariance model, the results of the study indicates that the responsiveness of poverty to income is a decreasing function of inequality implying a large variation across African countries in the amount of growth required to meet a unit of poverty reduction.

Fosu (2017) analyzed regional trends in GDP growth and povertry reduction of developing countries for the periods 1981-1995 and 1996-2005 depicting a shift in the mid-90s when economic growth in developing countries took off. The findings of the study showed that growth has led, on average, to income growth in many parts of the world, a major driving force behind poverty reduction.

2.2.2. SDGs and Poverty in Nigeria

Prior to the introduction of SDGs, the Nigerian government especially at the national level introduced a number of programmes and policies to alleviate poverty. The table below summarizes a number of such programmes between 1986 and 2001.

Table 2.2. below summarizes the purpose and nature of the programmes.

Table 2.2. Poverty Alleviation Programmes in Nigeria (1986-2001)

Programme	**Year Est.**	**Target group**	**Nature of intervention**
Directorate of food, road and rural infrastructure (DFRRI)	1986	Rural areas	Feeder roads, rural water supply and rural electrification
National Directorate of Employment	1986	Unemployed youths	Training, financing and guidance
Better Life Programme (BLP)	1987	Rural women	Training, financing and guidance
People's Bank of Nigeria (PBN)	1989	Underprivileged in the rural areas	Encouraging saving and credit facilities
Community Banks	1990	Rural resident micro enterprises in rural areas	Banking facilities
Family Support Programmes (FSP)	1994	Families in rural areas	Health care delivery, child welfare, youth development, etc.
Family Economic Advancement Programme (FEAP)	1997	Rural areas	Credit facilities to support the establishment of cottage industries
National Poverty Eradication Programme (NAPEP)	2001	Unemployed youths as well as poor masses	Employment generation in rural sector and societal welfare.
Rural Electrification Scheme (RES)	2006	Rural and semi-urban areas	Provision of steady and reliable power supply at economic rates for residential, commercial, industrial and social activities.
Youth Enterprise with Innovation in Nigeria (YOUWIN)	2011	Unemployed youths	Finance the projection of the government of enhancing 3600 youth entrepreneurs in the country.
Subsidy Reinvestment and Empowerment Programme (SURE-P)	2012	Unemployed youths and the poor	Re-investing the federal government savings from fuel subsidy removal on critical infrastructure projects and social safety net programmes with direct impact on the citizens of Nigeria.

Economic Recovery and Growth Plan (ERGP)	2017	The economy	Enhance the country's economic recovery and also serve as the much needed catalyst for growth and sustainable development, with sectoral plans for Agriculture and Food Security, Energy and Transport Infrastructure, Industrialisation and Social Investments.

Source: Authors' Compilation

Nigeria is a regional giant. A prosperous and growing Nigeria, advancing towards zero poverty and achieving other goals of the SDGs, would therefore transform the social and economic development of not just the country alone, but of the whole of Sub-Saharan Africa. (World Bank and DFID, 2005, p. 1)

The National Economic Empowerment and Development Strategy (NEEDS) is the framework of the Nigerian government for poverty reduction, the state level framework is the State Economic Empowerment and Development Strategy (SEEDS), the local government framework is the Local Economic Empowerment and Development Strategy (LEEDS), the community level is the Community Economic Empowerment and Development Strategy (CEEDS), and while at the household level is the Personal Economic Empowerment and Development Strategy (PEEDS). NEEDS was launched in May 2004 as the strategy of the Nigerian government for pursuing growth and poverty reduction with four major pillars: empowering people and improvement in social service delivery; improving the private sector and focusing on non-oil growth; changing the way government works and improving governance; and value reorientation at all levels. (World Bank, 2007)

There are significant challenges hindering Nigeria's quest for poverty reduction, accelerating growth and achieving the SDGs. The country receives relatively little development assistance per capital (approximately US$6/person compared to the USA of $20—DFID, 2007). As have been recognized by the World Bank and DFID, significant public financing is highly required to make meaningful progress in human development and ease the nation's enormous infrastructural needs. (World Bank and DFID, 2005) The World Bank and DFID have articulated their development assistance through a joint Country Partnership Strategy (CPS).

The CPS seeks to increase financial and technical assistance as a strong support for the effort of the Nigerian government and to help in financing necessary investment towards propelling growth, development and reducing poverty. The CPS encompasses specific activities to support the federal government and selected well-

performing or lead states and targeted SDGs-related action elsewhere. Work with the federal government is in four specific areas; financing investments in infrastructure (especially power, gas infrastructure and transport); technical assistance and advisory services on accountability and transparency and to fight corruption; technical assistance and advisory services on investment climate and policies to stimulate private sector-led growth; and support to national initiatives for human development, particularly those aimed at fighting HIV/AIDS towards strengthening the health system and supporting the "knowledge economy". (World Bank and DFID, 2005)

In lead states of the federation, technical and financial assistance seeks to leverage efforts and resources to boost economic activity and improve social-service delivery while the emphasis is more directly on the lives of poor people and their access to productive and social infrastructure, goods and services in the remaining less-performing states. (World Bank and DFID, 2005) Following the first year of the CPS, the partnership was extended to include USAID and cooperation was strengthened with the UNDP, ADB and EU, resulting in joint monitoring and reporting. (World Bank, 2007)

Nigeria is richly blessed with enormous resources including oil, a large and diverse population, sea and river access, forests and lands. Yet, these advantages have not been effectively translated into sustainable and peaceful development for the nation. This to a large extent is as a result of poor governance and weak institutions which are deeply embedded in the socio-political nature of the society. Foreign donors continue to stay engaged in the country because of the persistent and in some places, rising poverty. For the national and states' development strategies to generate an improvement in achieving the SDGs, it depends on whether the underlying cause of poverty-discrimination corruption, patronage politics and the likes are effectively tackled and dealt with.

3. Methodology

3.1. Model Building

To be able to ascertain whether investment in human capital development can stimulate the achievement of economic growth, and in turn reduce the prevalence of poverty rate in Nigeria, there is need to carry out an empirical study on the impact of human capital formation on the economic growth of Nigeria in a period of twenty-eight years (1990-2017).

The theoretical framework of the study follows the conventional neo-classical growth theory modeled by Robert Solow (1956) which postulates that economic growth is as a result of accumulation of physical capital and an expansion of the labour force in conjunction with exogenous factor which he termed technological

progress for effective knowledge. The aggregate production function framework includes educational capital which was later extended in terms of augmenting the model which equally incorporates human capital.

The model can be formulated in a Cobb-Douglas production function as:-

$Y_t = A_t\ K_t^{\alpha}\ H_t^{\beta}\ L_t^{r}$ ---------- 1

Where Y = Output

A = Technology or effective knowledge

K_t = Physical capital

H_t = Human capital

L_t = Labour force

$(\alpha + \beta + r) = 1$. The production function is therefore homogenous of degree 1 and exhibits a constant returns to scale.

Normalizing by the labour factor and consequently taking natural log to produce a linear equation expressed as:

$\text{In } Y = \text{In } A + \alpha \text{ In } K + \beta \text{ In } H + r \text{ In } L$ ----------2

Incorporating the intensive form of the explanatory variables in equation (2) to represent the elasticity effect and thus expressed as:

$y = a + \alpha k + \beta h + rl$ ----------3

For the purpose of this study, the equation (4) is defined and re-specified based on equation (3) as:

$\text{In } RPCI_t = \emptyset + \alpha \text{ In } RHCI_t + \beta \text{ In } PCF_t + \gamma \text{ In } LFC_t$----------4

Where: *RGDP* = Real per capita income;

RHCI = Real human capital investment;

PCF = Physical capital formation;

LFC = Labour force.

Since, the objective of this study is to examine the effect of human capital investment on poverty alleviation (as one of the SDGs) in Nigeria between 1990-2017, real per capita income (RPCI) as incorporated in equation (4) is proxied by percentage of poor to total population (POV) in Nigeria, while labour force is proxied as unemployment rate since it is one of the indicators of poverty as shown in the appendix. Likewise, the indicators of SDG goal 3 is indicated in the equation (4) as physical capital formation (PCF) and this is to foster goals interaction i.e. interaction

between SDG goal 1 and 3. This is taken as total government expenditure on health. Also, the real human capital investment (RHCI) is captured by total government expenditure on education. In line with the classical proposition of randomness with white noise process, the error term is incorporated.

However, on the basis of the above transformation, the empirical model for this study is therefore expressed as:

$$\text{In } POV_t = \emptyset + \beta_1 REE + \beta_2 \text{In } REH_t + \beta_3 UNM_t + \mu_t \text{ ----------5}$$

Where: POV = Prevalence rate of poverty as percentage of total population

REE = Real government expenditure on education

REH = Real government expenditure on health

UNM = Unemployment rate

In = Natural logarithm

$\emptyset$ = Intercept or effective knowledge

β_{1-3} = Elasticity parameters

μ_t = White noise error term i.e. $\mu_t \approx N(0, \sigma_t)$

3.2. Data Source and Estimation Techniques

The time series variables employed for the precise analysis of human capital development and its catalyst roles in achieving Sustainable Development Goals (SDGs) of eradicating extreme poverty in Nigeria by 2030 are time series data on poverty prevalence rate, unemployment rate, real capital and recurrent expenditure on education, primary, secondary and tertiary enrolment rates used in this study were sourced from the Central Bank of Nigeria (CBN) (2017) statistical bulletin, and the World Bank Development Indicators (WDI) (2017).

The specified model (5) is estimated through the use of Johansen Cointegration Technique and Error Correction Mechanism (ECM). The choice of the econometric method is based on the time series properties of the variables.

4. Presentation and Interpretation of Empirical Results

4.1. Presentation of Results

The time series data employed for the analysis of human capital development and its catalyst roles in achieving the Sustainable Development Goals (SDGs) of eradicating extreme poverty in Nigeria by 2030, based on the formulated empirical model are presented at the appendix. The result of the time series properties of the variables

using the Augmented Dickey Fuller (ADF) method to determine the level of integration of the variables is presented below:

Table 4.1. Time-Series Properties of Variables using Augmented Dickey Fuller Method

Variables	*Level*	*Critical Value @ 5%*	*First Difference*	*Critical Value @ 5%*	*Order of Integration*
LOG(POV)	0.7955	-1.9544	-3.3569	-1.9544	I(1)
LOG(REE)	1.0705	-1.9544	-5.9891	-1.9544	I(1)
LOG(REH)	0.1992	-1.9544	-8.3471	-1.9544	I(1)
UNM	-0.2304	-1.9544	-6.5024	-1.9544	I(1)

Source: Authors, 2018

The time series properties of the variables were conducted using Augmented Dickey Fuller (ADF) test and the results from this test showed that none of the variables was stationary at level. However, all the variables were stationary at first difference meaning that all the variables were integrated at order one. The implication of this was that all the variables were I(1) series. This therefore called for further long-run co-movement among the variables using Johansen co-integration technique so that the number of co-integrating equation would also be determined.

Table 4.2. Johansen Co-integration Result

Hypothesized	Trace	0.05	Max-Eigen	0.05
No. of CE(s)	**Statistic**	**Critical Value**	**Statistic**	**Critical Value**
r≤0	51.26464*	40.17493	31.21153*	24.15921
r≤1	20.05312	24.27596	11.92875	17.79730
r≤2	8.124371	12.32090	7.794297	11.22480
r≤3	0.330074	4.129906	0.330074	4.129906
*** denotes rejection of the hypothesis at the 0.05 level**				

Source: Authors, 2018

The results of the Johansen co-integration test showed that there was long-run co-movement among the variables. This was evidenced from the Trace statistic and Max-Eigen statistic which showed that the Johansen co-integration had one co-integrating equation derived from each statistic. Thus, this result showed there was a convergence relationship among the variables in the long-run.

Table 4.3. Error Correction Mechanism Result

Dependent Variable: DLOG(POV)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
ECM(-1)	-0.494339	0.201465	-2.453723	0.0225*
C	3.280220	0.152810	21.46606	0.0000
DLOG(REE)	0.103512	0.017607	5.879193	0.0000**
DLOG(REH)	-0.138855	0.121823	-1.139812	0.2666
D(UNM)	-0.011587	0.004493	-2.578934	0.0171*
R-squared	0.764527	**Akaike info criterion**		-2.274511
Adjusted R-squared	0.721714	**Schwarz criterion**		-2.034541
F-statistic	17.85724**	**Durbin-Watson stat**		1.964061

Source: Authors, 2018

Note: *(**) implies 5% (1%) significance level

Having established the long-run relationship and co-movement among the variables, there was a need to examine the speed of adjustment that took all the variables to converge in the long-run. This test was done using error correction mechanism (ECM). The principle behind the result of the ECM was that the coefficient of the ECM must be negative and significance at 5% level. However, this was used to calculate the speed of adjustment. That is, the time it takes the variables to converge in the long-run. Therefore, the coefficient of the ECM was negative and significant at 5% as evidenced in table 4.3. Hence, it took the variables approximately 2 years to converge in the long-run.

This result had no serial correlation problem as evidenced in the Durbin-watson statistic which can be approximated to 2 and the overall model was statistically significant at 1% level as indicated by the significance of F-statistic. Also, the explanatory power of the model explained approximately 72% of the total variations in the poverty prevalence in the economy. Hence, the model had high goodness of fit.

The result also revealed that log of real government expenditure on education (InREE) exert positive and significant impact on poverty prevalence rate as a proportion of total population (InPOV) but this does not conform to theoretical postulations. This implies that government expenditure on education contributes more to the prevalence rate of poverty in Nigeria and the magnitude of this effect is based on its coefficient value. This could be attributable to the several cases of embezzlement of various government expenditures on education which have not been effectively utilised towards enhancing the quality of education in the country. Also, log of real government expenditure on education is poverty inelastic since its coefficient is less than 1.

However, the log of real government expenditure on health (InREH) was found to exert negative but insignificant influence on the prevalence rate of poverty in Nigeria which conforms to theoretical expectations, while unemployment rate (UNM) was found to have negative and significant effect on the prevalence rate of poverty in Nigeria (InPOV) which is in stark contrast with theoretical expectation. Likewise, the log of real government expenditure on health (InREH) and unemployment rate (UNM) are found to be poverty prevalence rate (InPOV) inelastic because their estimated parameter values are less than 1 and even negative.

4. Conclusion and Policy Recommendations

The econometric analysis of the link between human capital development and its catalyst roles in achieving the Sustainable Development Goal (SDG) of eradicating extreme poverty in Nigeria between 1990 and 2017 based on the log-linear regression model reveals that real government expenditure on education (InREE) and unemployment rate (UNM) have significant impact on the prevalence of poverty rate in Nigeria. However, the log of real government expenditure on health (InREH) was found to exert insignificant influence on the prevalence rate of poverty in Nigeria. Based on the empirical findings of this study, we therefore recommend that: the government should invest more in the education sector especially in the areas of empowering students at all levels through skills acquisition and ensure that funds allocated for such investment are put into effective usage. Effective vocational trainings, programmes and courses should be integrated as part of school curriculum in order to instill self-confidence among the youths and foster entrepreneurial spirits. Also, government should increase investment in the health sector to ensure improvement and access to quality health facilities in the country. This is a way of ensuring a healthy workforce, and when people are healthy, they will be more motivated to actualize their entrepreneurial spirits and this will significantly reduce level of unemployment, and by extension, poverty level in the country. On this basis, the number of people living below US$1/day will reduce drastically before 2030 set as the target year.

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APPENDIX

Time Series Data for Human Capital Development Indicators and Poverty Prevalence Rate in Nigeria

Year	POV	REE	REH	UNM
1990	44	2734.3	2.85E+00	3.38
1991	43.5	1545.4	2.85E+00	3.58
1992	42.7	675.4	2.83E+00	3.5
1993	49	10445.38	2.85E+00	3.37
1994	54.7	9788.44	2.87E+00	1.95
1995	60	13053.8	2.77E+00	1.8
1996	65.6	14711.95	2.92E+00	2.9
1997	65.6	18661.54	2.92E+00	3.2
1998	70.9	26382.49	3.47E+00	3.2
1999	72.9	52127.25	3.38E+00	3.1
2000	70	81299.24	2.84E+00	18.1
2001	70.1	59542.8	3.25E+00	13.7
2002	64.5	89745.88	2.43E+00	12.2
2003	60.1	79462.35	4.05E+00	14.8
2004	54.4	98074.65	4.33E+00	13.4
2005	58.2	110235.7	4.11E+00	11.9
2006	61.5	123086.2	3.66E+00	13.7
2007	62.7	153827.9	4.47E+00	14.6
2008	68.7	221525.1	4.00E+00	13.43
2009	64.3	166146.4	4.24E+00	13.91
2010	65.23333	180499.8	3.47E+00	13.98
2011	66.07778	189390.5	3.69E+00	13.77333
2012	65.2037	178678.9	3.30E+00	13.88778
2013	65.50494	182856.4	3.70E+00	13.88037
2014	65.59547	183641.9	3.67E+00	13.84716
2015	65.43471	181725.7	3.556667	13.87177
2016	65.4415	181610.6	3.50E+00	13.8578
2017	65.4064	181045.3	3.43E+00	13.8535

Source: CBN Statistical Bulletin (2017) and World Development Indicators (2017)