Human Capital Investment and Poverty Reduction in Nigeria

By

1. OBAYORI, Joseph Bidemi
   Profobj2000@gmail.com

   Department of Economics, Faculty of Social Sciences Nnamdi Azikiwe University, Awka Nigeria

2. UDEORAH, Sylvester
   sylvester.udeorah@uniport.edu.ng

   Department of Economics, Faculty of Social Sciences University of Port Harcourt, Nigeria

3. ABORH, Kemkamma Bright
   bekeymez@yahoo.com

   Department of Economics, Faculty of Social Sciences University of Port Harcourt, Nigeria

ABSTRACT

The paper examined the impact of human capital investment on poverty reduction in Nigeria. The study was motivated because of high poverty level that characterized underdeveloped economy. The objectives of the study were to examine how investment in both education and health will help to reduce poverty in Nigeria. Therefore, secondary data were collected from CBN statistical bulletin, United Nations and World Bank reports. The econometric methods of unit test and GMM test were used to analyze the collected data on education expenditure, health expenditure and poverty level in Nigeria. Based on empirical results; the KPSS stationarity test showed that all the variables are stationary and the GMM result showed that both government expenditure in education and health were negatively and significantly related with poverty level while positively and significantly related. The implication of the findings is that a well-educated and healthy society vis-à-vis adequate funding in both education and health sectors will help in poverty reduction in Nigeria. Based on the research findings, the study therefore recommended that adequate attention must be given to the reduction of poverty through increase in the funding or budget to both the education and health sectors in order to increase the intellectual capacity of the people as well as good health which will in turn lead to increase in production capacity of the economy and hence a reduction in poverty level.
KEY WORDS: Human Capital, Investment, Poverty Level, Expenditure, KPSS, GMM

1.0 INTRODUCTION

The growing rate of poverty in the world has been a key concern to both global agencies and various administrations. Poor people live their lives in the absence of needed freedom of choices that people that surround them have. Often times, they find it very difficult to afford adequate food and housing, education and wellbeing which invariability makes them emotionally and psychologically hopeless. The poor in the society are most susceptible to sickness, social vices and institutional abuse amongst others. Thus, one of the fundamental aims of the Sustainable Development Goal (SDG) is to exterminate poverty by half in the year 2030. Nigeria government in her quest at reducing poverty to the bearest minimum in the country was a signatory to the MDG agreement (Asaju, 2012). Similarly, in the Sustainable Development Goals (SDGs) and the Poverty Reduction Strategy Paper (PRSP) human capital is considered as a tool for poverty reduction. Thus, Nigeria government in her own Poverty Reduction Strategy Paper (PRSP) laid emphasis on human capital as a tool for curbing poverty because without human capital formulation the objectives of poverty alleviation is unattainable in the developing country (Masood, 2011).

Meanwhile, the perception of poverty is composite; this is evident in various ways depending on the nature and degree of dearth faced by individuals. In absolute term, poverty denotes total or insufficient lack of fundamental desires such as food, housing and medical cares. It includes the insufficiency education opportunities, consumption of goods and environmental health facilities. Relatively, people are said to be poor when their income fall below the average income in a community (World Bank, 2000). On the other hand, Ejere (2011) postulated that human capital has to do with the human factor in the process of production; and comprises of the joint knowledge, abilities or proficiencies and aptitudes of the labor force. Similarly, human capital development refers to the procedure of obtaining and growing the number of persons who have the skills, education and experience that are critical for economic growth and development of a country’s economy (Okojie, 1995).
Nigeria’s poverty situation is quite alarming. Both the quantitative and qualitative measurements show the rising prevalence and gravity of poverty in the country. This situation however, is quite ironical given the enormous physical and human resources that the country is blessed. A more alarming truth, is the fact that successive governments have invested huge material and human resources to arrest poverty situation, but significant improvement have not been recorded in that direction. The Human Development Report (UNDP, 2003) reveals that Nigeria is one of the poorest among the poor countries of the world. Nigeria ranks 54th with respect to the human poverty index (HPI) - making it the 20th poorest country in the world. It is also ranked 30th in gender related development index (GDI) while occupying 40th position from below in its human development index (HD1), these figures have not significantly improved for the better till date (Chikelu, 2016).

According to Obayori (2016), reduction in the level of poverty is the most difficult challenge facing any country in the developing world where on the average majority of the population is considered poor. Evidence in Nigeria shows that the number of those in poverty has continued to increase. For example the number of those in poverty increased from 27 percent in 1980 to 46 percent in 1985; it declined slightly to 42 percent in 1992, and increased very sharply to 67 percent in 1996 by 1999 it estimates had it that more than 70 percent of Nigerians lived in poverty. The increase in poverty level is accounted for by poor investment in human capital such as poor investment in education and health of the citizenry (Gbosi, 2005).

Meanwhile, since Nigeria independence in 1960, successive governments have taken measures to promote programmes that enhances human capital development and poverty reduction in diverse ways. Several programmes such as Deep Sea Fish-Cage Culture, school-to-land, farm development and management programme (FDMP), poverty alleviation programme and skill acquisition centre amongst others which are aimed at developing the citizen, thereby reducing the incidence of poverty in the country. But these policies are yet to yield the much needed fruit.

In lieu of the above, the question is, is there any relationship between the level of poverty and human capital investment in Nigeria? Thus, the aim of the study is to examine the impact of
human capital investment vis-à-vis (government investment in education and health) on poverty reduction in Nigeria.

1.0 LITERATURE REVIEW

This section examined the review of relevant literatures under the following sub-headings; theoretical literature and empirical literature reviewed.

Theoretical Framework: The Human Capital Theory

The human capital theory shows how increase in 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 so 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 which the proponents of human capital theory considers to be worthwhile than the physical capital. Human capital theorists have established that basic literacy enhances the productivity of workers low skill occupations. Similarly, investment in health is desired. This is because society that is fully educated but devoid of good health cannot be productive effectively. Thus, health investment is desirable in order to increase productivity and reduce the level of poverty in the economy.

From the above analogy, human capital development through investment in education and health is desirable because of its valuable and sustainable benefits to the individual and the society at large. The acquirer uses his talents and capabilities to transform and as well enhance the wellbeing of himself as an individual and family, and his society at large. It covers not only the expenditure on education and training, but also the development of attitudes towards productive activities (Ojo, 1997).

Meanwhile, the human capital theory was criticized for emphasizing only investment in education and neglecting investment in other aspect of human capital development such as R & D and others.
Empirical Literature

Empirical works of selected authors were reviewed to see what they had to say about the impact of human capital investment on poverty reduction in Nigeria. One of such author is Chikelu (2016) who used 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 that a long run relationship exists between the dependent variable (poverty rate) and four explanatory variables (primary school enrolment, secondary school enrolment, tertiary school enrolment and per capita income).

Asaju (2012) examined human capital development and poverty alleviation in Nigeria by using a theoretical approach. Human capital development through education is a long time investment made by the state to enhance the wellbeing of her citizenry. Thus, human capital development enhances economic growth and is a sufficient condition for poverty reduction in Nigeria.

Gylfason and Zoega (2003) examined the impact of gross secondary school enrolment, public expenditure on education relative to national income and expected years of schooling for girls to the distribution of income as measured by the Gini coefficient as well as to economic growth across countries. The study found that these measures of education are directly related to income equality. It also finds that more and better education appears to encourage economic growth directly as well as indirectly through increased social equality and cohesion.

Ararat (2007) examined the role and impact of education on economic growth in Russian Federation and Ukraine. This study estimates the model of endogenous economic growth and the system of linear and log-linear equations that account for different time lags in the possible impact of higher education on economic growth. The model estimation shows that there is no significant impact of educational attainment on economic growth. The results from the system of equations indicate that an increase in access of population to higher education brings positive results for the per capita GDP growth in the long term.
Self and Grabowski (2004) used granger causality test to examine the impact of education on income growth in India. The results indicate that primary education has a strong casual impact on growth than the impact for secondary education. Moreover, it is evident that female education at all levels has potential for generating economic growth while males have a casual impact on growth only at primary level. Bakare (2006) investigated the growth implications of human capital investment in Nigeria using vector autoregressive error corrections mechanism. The study revealed that there is a significant relationship between the investments in human capital and economic growth in Nigeria.

Babatunde and Adefabi (2005) investigated the long run relationship between education and economic growth in Nigeria between 1970 and 2003 with the application of Vector Error Correction method. Their findings established a long run relationship between education and economic growth. A well-educated labour force significantly influences economic growth both as a factor in the production function and through total factor productivity. Risikat (2010) examined the impact of investment in education on economic growth in Nigeria, using the cointegration and error correction techniques. The study found that investment in education in Nigeria is quite low and fall below the recommendations of the United Nations. Nevertheless, it is found that investment in education does not only contribute positively to economic growth in Nigeria, but the impact is strongly on economic growth.

3. RESEARCH METHOD
The study used secondary data collected from CBN statistical bulletin (various issues), United Nations and World Bank reports. The Kwiatkowski, Phillips, Schemidt and Shin (KPSS) unit root test, the Generalized Method of Moments (GMM) test as pre-estimation tests were used for data analysis. Also, the serial autocorrelation and the normality tests were used as a post-estimation test to affirm the validity of the pre-estimation tests and as well makes the model fit for policy and forecasting.

Theoretical Framework
Theoretically, the study was based on human capital theory, which is functionally stated as $Q = f(K)$ (3.1), where; $Q$ is the rate of growth and $K$ is government expenditure. Conversely, the model was restated based on the empirical work as decrease in poverty is a function of increase in government expenditure in education and health. The model for the study was stated in a nonlinear form in order to put the variables on the same as;

$$\ln(P_L) = \ln\alpha_0 + \alpha_1 \ln(EE_t) + \alpha_2 \ln(HE_t) + U_t \quad (3.2)$$

Where; $PL$ is Poverty Level, $EE$ is government expenditure in education sector, $HE$ is government expenditure in health sector, $\ln$ is Natural Logarithm, $U$ is Error Term, $t$ is Time/Period, $\alpha_1$ - $\alpha_2$ = Slope Parameters and $\alpha_0$ = Intercept Parameter. On the apriori, it is expected $\alpha_1$ and $\alpha_2$ are $<0$

**Pre- Estimation Tests**

**The Unit Root Test**

The Kwiatkowski, Phillips, Schemidt and Shin (KPSS) test of stationarity precedes the GMM test. The KPSS unit root test is unique because it has the advantage of associating with low power in the evident of structural break in the series. Thus, the null hypothesis of stationarity is tested against the alternative hypothesis of no stationarity at 5% level. This general form of the unit root test model with a constant and trend is formalized below:

$$\Delta PL_t = \alpha_0 + \alpha_1 PL_{t-1} + \sum_{i=1}^m \delta_i \Delta PL_{t-i} + U_t \quad (3.3)$$

Where: $PL_t$ is the time series under consideration, $\alpha_1$ and $\delta_i$= parameter estimates, $m$ = lag length, $\Delta$= First difference operator and $U_t$= Random disturbance term

**The Generalized Method of Moments(GMM)**

The GMM estimation technique is preferred in the study due to its ability of avoiding biased results due to correlation between the error term and the lagged endogenous variable. The following GMM model was formulated to ascertain the relationship between poverty and human capital investment in Nigeria.

$$\sum (a (x_1 - y_1) \beta) = 0 \quad (3.4)$$
By substitution into the model in equation (3.2);
\[ \ln(P_{L_{t-1}}) = \alpha_0 + \alpha_1 \ln(EE_{t-1}) + \alpha_2 HE_t + U \] (3.5)

Where; \( \alpha_0 \) is the constant term, \( PL_{t-1} \) is one year past value of poverty level, \( U \) is the error term, \( EE \) and \( HE_t \) are human capital investment variables (government expenditure in education and health sectors) at current form.

**Post Estimation Test**

Aside the pre-estimation tests, a post estimation test vis-à-vis normality test was carried out to check if the residuals are normally distributed. The probability value of the Jarque-Bera statistics forms basis for rejecting the null hypothesis. Also, the Breusch-Godfrey higher order serial correlation was employed to check for evidence of serial correlation.

**4. RESULTS AND DISCUSSIONS**

The study examined the impact of human capital investment on poverty reduction in Nigeria during the period 1980-2016. An econometric model was constructed for poverty reduction in the Nigerian economy. The constructed model has Poverty Level (PL) as the dependent variable while government expenditure in education and health sectors (EE and HE) are the independent variables. All the variables mentioned above are in Million Naira (₦ m). The various regression results were presented and discussed in the tables below;

**Table1: KPSS Unit Root Test of Stationarity**

<table>
<thead>
<tr>
<th>Series</th>
<th>Levels test</th>
<th>First Difference test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LM Stat.</td>
<td>Critical value (5%)</td>
</tr>
<tr>
<td>Ln(PL)</td>
<td>0.7277</td>
<td>0.4630</td>
</tr>
<tr>
<td>Ln(EE)</td>
<td>0.550</td>
<td>0.4630</td>
</tr>
<tr>
<td>Ln(HE)</td>
<td>0.6350</td>
<td>0.4630</td>
</tr>
</tbody>
</table>
The result of the KPSS stationarity test of each of the series is presented in Table 1. Illustrated that none of the variables was stationary at levels. This is because the LM statistics for each of the values at the levels test are higher than 5 percent critical value (0.4630). This implies that the time series have are non-stationary. The series were then differenced once to attain stationarity. Therefore, the result showed that all the three-time series were stationary at first difference as their respective LM statistics are less than 5 percent critical values.

Table 2: Generalized Method of Moments Result

<table>
<thead>
<tr>
<th>Dependent Variable: LOG(GDP)</th>
<th>Method: Generalized Method of Moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>Coefficient</td>
</tr>
<tr>
<td>C</td>
<td>9.10269</td>
</tr>
<tr>
<td>Ln(EE)</td>
<td>-0.212080</td>
</tr>
<tr>
<td>Ln(HE)</td>
<td>-0.012201</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.59869</td>
</tr>
</tbody>
</table>

Source: Authors’ Computation from (E-view 9.0).

The estimated GMM regression result showed that coefficient of education expenditure appeared with negative sign and statistically significant at 5% level. Thus, a percentage increase in investment in education will decrease poverty by 0.21208%. Also, the t-statistic of 3.993 with the t-prob of 0.0003 shows that there is a significant relationship between investment in education and poverty reduction in Nigeria during the period of study. Thus, the alternative hypothesis was accepted. Moreover, the negatively signed coefficient of investment in health with poverty level showed that a percentage increase in health expenditure will decrease poverty by 0.012201%. Also, the t-statistic of 2.939 with the t-prob of 0.0014 showed that there is a significant relationship between investment in health and poverty reduction in Nigeria during the period of study. Thus, the alternative hypothesis was accepted. The R² of 0.598 showed that about 60% systematic variation of the dependent variable was caused by the independent variables. This shows the good fit of the model. Also, the Durbin Watson of 1.8 showed that the presence serial autocorrelation is not a problem in the estimated model. Thus, the estimated model is fit for policy and forecasting. The implication of the results is that investment in health
and education leads to increase in productivity and efficiency of workers by increasing the level of their well-being and cognitive skills.

**Table 3: Post Estimation Test (Normality Test)**

<table>
<thead>
<tr>
<th>Test type</th>
<th>Test Stat.</th>
<th>p-value</th>
<th>Critical Value @ 5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normality test</td>
<td>Jarque-Bera stat</td>
<td>0.7254</td>
<td>0.05</td>
</tr>
<tr>
<td>Serial correlation test (Breush-Godfrey LM test)</td>
<td>X² Stat</td>
<td>0.536</td>
<td>0.05</td>
</tr>
</tbody>
</table>

*Source: Authors’ Computation from (E-view 9.0).*

The post-estimation test result as reported in Table 3 disclosed that the residuals are normally distributed as the P-value 0.7254 > 0.05. Thus, the normality test indicated that the model is associated with a constant residual variance and normally distributed errors. Again, the outcome of the serial correlation test showed that the residuals are uncorrelated. This is established from the probability value (0.536) of chi-square statistic which is greater than 0.05. Thus, the estimated parameters are stable over time and as such can produce a reliable forecast.

**5. CONCLUSION**

This paper examined the impact of human capital investment on poverty reduction in Nigeria. The increasing rate of poverty in the country has been a major concern to various levels of governments. The concern is aimed at enhancing human wellbeing by reducing the high rate of poverty through human capital investment. This is because high poverty level is a characteristic of underdeveloped economy. The study thus identified investment in both education and health as an aspect of human capital development that can help to reduce poverty to the beeriest minimum.

Based on empirical results; the KPSS stationarity test showed that all the variables are stationary at first difference. Also, the GMM result showed that both government investment in education and health were negatively and significantly related with poverty level. The post-estimation test result showed that the estimated parameters are stable over time and as such can produce a reliable forecast. The implication of the findings is that a well-educated and healthy society vis-
à-vis adequate funding in both education and health sectors will help in poverty reduction in Nigeria.

Based on these findings, the study therefore recommended that since increasing rate of poverty has negative effects on a nation irrespective of its economic ideology, thus adequate attention must be given to reduction of poverty through increase in the funding or budget to both the education and health sectors in order to increase the intellectual capacity of the people as well as good health which will in turn lead to increase in production capacity of the economy and hence a reduction in poverty level. Also, there should be massive investing in human capital through education and empowerment programmes. These will serve as strategies for overcoming the underdevelopment nature of the country, especially poverty reduction.

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