



Human Capital Development and Poverty Reduction: The Nigerian Experience

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ABSTRACT

This study investigated the impact of human capital development on poverty reduction in Nigeria. The key variables bothering on human capital development were used. A gender perspective was introduced in this paper as one of the dimensions was examined from both the male and female perspectives. Tests such as descriptive analysis, unit root, bounds test for cointegration, ARDL, serial correlation, heteroskedasticity and granger causality tests were conducted. From the results, the coefficient of determination, which tests the goodness-of-fit, shows that the independent variables explain variations in the dependent variable at 80.1%. The F-test, which tests for the overall significance of the model, is also statistically significant while the speed of adjustment between the short-run and the long-run is 0.57 (57%). The coefficient of determination, which tests the goodness-of-fit, shows that the independent variables explain variations in the dependent variable at 80.1%. The F-test, which tests for the overall significance of the model, is also statistically significant while the speed of adjustment between the short-run and the long-run is 0.57 (57%). The results also show that increase in Per capita income, investment on basic School Enrolment, improvement on life Expectancy of Male and Female lead to reduction in poverty level. The study recommended that more public and private investments in education, healthcare and job creation should be encouraged if poverty is to be reduced in Nigeria.

Keywords: Life Expectancy, Basic School Enrolment, National Poverty Index

1.1 INTRODUCTION

In the face of recent global challenges facing economies of the world, almost all the nations of the world have been prompted to act towards creating and sustaining a competitive and comparative advantage in their dealings with other nations of the world. To this end, it has been supposed that nations that have individuals with higher levels of competence in their areas of specialization stand a better chance of succeeding. In the end, people have become a priceless asset, and can be recognized within the context of human capital. The idea of human capital denotes the abilities and skills of human resources of a country, while 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). Similarly, 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. Human beings alone have the innate ability to learn adapt, innovate and bring creative changes in the production process. Poverty suggests several practices of social and financial scarcities. Poor people live their lives without the essential liberty of actions and choices that people around them have. Most times, they cannot afford basic food and housing, education and wellbeing which eventually keep them emotionally and mentally unhappy. The poor in our society are most vulnerable to sickness, natural disasters, institutional abuse and capitalist exploitation.

Different government administrations have continuously implemented chains of policies and programmes in an effort to mitigate the impact of the severe poverty which majority of the Nigerian

society is facing, but these policies have not yielded the much needed fruit, prompting a move away from the status quo, hence the need for systematic and human approach to poverty, which sees human capital development as the main point of economic development as well as poverty reduction. This new style to poverty reduction got credibility from numerous human development reports published by the United Nation Development Programme (UNDP) since 1990, which present an insightful and all-inclusive study on the prospects and challenges facing human capital development, inspiring policy discussion and presenting policy recommendations for both global and national actions. At national level, the human development report sees human development strategy as a way to fulfill the potentials of the people by enlarging their capabilities and this necessarily implies the empowerment of people, and enabling them to participate actively in their own development. It is also a means through which the skills, knowledge, productivity and ineffectiveness of people are enhanced.

1.2 Statement of the Problem

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 disquieting truth, is the fact that successive governments have invested huge materials and human resources to arrest the 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 (ODI) while occupying 40th position from below in its human development index (HDI), these figures have not significantly improved for the better till date. It is in line with the foregoing, that this study seeks to examine the impact of human capital development on poverty reduction in the Nigerian economy.

Poverty is the willingness and readiness of a young child playing outside a village school, but unable to registered in the class due to his parent's inability to pay for basic needs of the school. Poverty is the grief of parents watching a three-month old child die of a routine childhood disease because he cannot afford any medical care. There are poor among people of all ages, races and educational levels, among the working as well as the unemployed and the retired (Lipsey, Oteinerand Purvis, 1987). Todaro and Smith (2005) opine that family in rural areas, household is likely to comprise 10 or more people including parents, five to seven children, two grandparents and some aunts and uncles. Which the total combined per capital annual income, in money and in kind of \$ 250 to \$300. All live in a poorly constructed one room apartment as tenant. The father, mother, uncle and older children must work all day without off. None of the adults can read or write, of the five schools – age children only two can attend school regularly, they could not have expected to proceed beyond basic primary education, often the teachers are absent. There is often one meal a day which is not sufficient to alleviate the children's persistent hunger pains. The house has no electricity, sanitation or fresh water supply. There is much sickness, but qualified doctors and medical practitioners are far away from them, attending to the needs of wealthier families. In this part of world, the only relief from the daily struggle for physical survival lies in the spiritual traditions of the people.

Previous studies have extensively monitored the impact of HDI on the poverty level of Nigeria over the years. All the research works examined looked at this important issue using HDI against poverty index. They were also based on the VAR method of regression analysis. However, this study looked at the same topic from a different perspective by disintegration the components of human capital development. The researcher also used the method of Autoregressive Distributed Lag Model (ARDL) due to the nature of the data used.

The objective of this study is to evaluate the impact of Human Capital Development (HCD) on Poverty Reduction in Nigeria.

2.2 Literature Review and Theoretical framework

2.2.1 Human Capital Theory

They are many theories on human capital among economists, sociologists, psychologists and human resources scholars. The most popular and generally accepted theory on human capital is the one propounded by Schultz in 1971. Human capital theory rests on the important of education be it formal, informal or non-formal. The assumption is that education is highly instrumental and it is

necessary to improve the productive capacity of population. Psacharopoulos and Woodhall (1997) in Oluwuo and Asodike (2016) vital to productive investment in human's theory have considered as equally or even more equally worthwhile than that of physical capital. According to Jhingan (2005), human capital is the process of acquiring and increasing the number of persons who have the skills, education and experience which are critical for the economic and the political development of a country. Human capital development is basically, involved the vital aspect of investment in human being and his development to be creative and productive resources for further production for entire society. Human capital theory emphasizes on how human being education and health increases the productivity, and efficiency of workers, efficiency of workers by increasing the level of cognitive stock of economically productive human capability which is a product of innate abilities and investment in human beings.

2.3 Empirical Literature

Uwatt (2012) empirically examined the impact of human capital on economic growth, using five variants of the original Solow Model linking physical capital, labour and human capital proxied by total enrolment in educational system to real Gross Domestic Product. The result showed that physical capital exerted a positive and very statistical impact on economic growth. Its coefficient was statistically different from zero at 5% significant level. Labour force that entered all the models in log form had also positive but statistically insignificant effect on economic growth. On human capital variable, it was human capital from primary school education that was statistically very significant on the growth of the Nigerian economy. In the case of tertiary education, the result failed to tally with a priori expectations. Ewubare (2021) working on rural household poverty and public spending in Nigeria using augmented distributed lag model found that rural access to electricity has significant negative effect on rural poverty in Nigeria.

Ndiyo (2012) on the "Paradox of education and Economic Growth in Nigeria" modeled for contribution of education growth. He considered real growth of the Real Gross Domestic Product (RGDP) as respondent variable and gross fixed capital formation (GFCT), aggregate labour force (LAF) and real budget allocation to education (REDUB) as explanatory variables. He estimated the models in both level form and in logarithmic form respectively. From the two sources, it was observed that the growth of real gross domestic product (RGDP) is positively affected by the amount of physical capital and labour inputs in all the specifications but in most cases they have insignificant effects. He observed that contrary to a priori expectations, the estimate for the impact of growth in educational capital on the growth of real Gross Domestic Product was consistently negative. That growth in educational capital crowds out the growth of GDP was a puzzle. However, Ndiyo in this position believes that the contribution of education to economic growth certainly depends on the quality of education, Gylfason and Zoega (2013), 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. More and better education financed by public expenditure can encourage economic growth and reduce inequality in the distribution of income as well. In the work of Bakare (2016), he investigated the growth implications of human capital investment in Nigeria using vector autoregressive error corrections mechanism. The study revealed that there is a significant functional and institutional relationship between the investments in human capital and economic growth in Nigeria. It was revealed that 1% fall in human capital investment led to a 48.1% fall in the rate of growth in gross domestic output between 1970 and 2000. On the contrary, Ayara (2013) provided evidence on the relationship between the paradox of education and economic growth in Nigeria using the standard growth-accounting model. The findings suggest that education has not had the expected positive growth impact on economic growth.

Ararat (2007) analysed the role and impact of education on economic growth in the two largest economies of the former Soviet Bloc, namely, the Russian Federation and Ukraine. The study attempts to estimate the significance of different educational levels, including secondary and tertiary education, for initiating substantial economic growth that now takes place in the two countries. 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. Increasing the number of college-educated specialists leads to sustainable economic growth.

Babatunde and Adefabi (2005) investigated the long run relationship between education and economic growth in Nigeria between 1970 and 2003 through the application of Johansen cointegration technique and vector error correction methodology. Their findings reveal that the Johansen cointegration result establishes a long run relationship between education and economic growth. A well-educated labour force appears to significantly influence economic growth both as a factor in the production function and through total factor productivity. Dauda (2010) in the study on the investment in education and economic growth employed Johansen cointegration technique and error correction methodology and found empirically that there is, indeed a long-run relationship between investment in education and economic growth. He found that all the variables used, including labour force, gross fixed capital formation and educational capital appeared with the expected positive signs and are statistically significant (except labour force) in the Nigerian economy. The study seems to suggest that a concerted effort should be made by policy makers to enhance educational investment in order to accelerate growth which would engender economic development. Adawo (2011) used an econometric model to examine the contributions of primary education, secondary education and tertiary education to economic growth of Nigeria. He made some proxy such as education by school enrolments at various levels, physical capital formation, and health measured through total expenditure on health. He found that primary school input, physical capital formation and health contribute to growth. Secondary school input and tertiary institutions were also found to dampen growth. He recommended that there should be adjustment in admission process in favour of core science and technical oriented course and schools should be adequately funded.

Previous studies have extensively monitored the impact of HDI on the poverty level of Nigeria over the years. All the research works examined looked at this important issue using HDI against poverty index. They were also based on the VAR method of regression analysis. However, this study looked at the same topic from a different perspective by disintegration the components of human capital development. The researcher also used the method of Autoregressive Distributed Lag Model (ARDL) due to the nature of the data used.

Most of the studies also examined human capital development from the input perspective. Though this may not be out of place in economic literature, this paper considers it a gap in literature as some worthwhile may be available from the output side of human capital development. To this effect, this study focuses on the output side of human capital development. Moreover, the reviewed literature paid little or no attention to the relationship between health and economic outcomes from a gender perspective. This gap is filled in this study by looking at the relative impact of male and female life expectancy on poverty rate.

3.1 METHODOLOGY

The study adopted quasi-experimental research design. This design was informed due to the nature of data involved, which is a time series data. The data used for this study were obtained from the World Development Indicator and Central Bank of Nigeria Statistical Bulletin. More so, the period covered by the study is 1981-2019.

Model Specification

The functional form of the model is stated below:

$$NPI = f(PCI_t, BSE_t, LEM_t, LEF_t) \quad 3.1$$

The econometric estimation form of the functional specification of models above is presented as follow:

$$NPI = \beta_0 - \beta_1 PCI - \beta_2 BSE - \beta_3 LEF - \beta_4 LEM + \mu \quad 3.2$$

The Logged Form:

$$\text{LogNPI} = \beta_0 - \beta_1 \text{logPCI} - \beta_2 \text{logBSE} - \beta_3 \text{logLEF} - \beta_4 \text{logLEM} + \mu$$

A priori expectation = $\beta_1 < 0, \beta_2 < 0, \beta_3 < 0, \text{ and } \beta_4 < 0$

Where:

NPI = National Poverty Index (as proxy for poverty rate)

PCI = Per capita income

BSE = Basic School Enrolment

LEM = Life Expectancy of Male

LEF = Life Expectancy of Female

u_t = Stochastic Term

Pre-estimation Tests

The study conducted some pre-estimation tests such as tests of stationarity using the Augment Dickey-Fuller (ADF) method and bounds test for cointegration. These tests were to find out if the data used are suitable for the research work. While the stationarity tests were conducted to determine the appropriate cointegration test to be used. The cointegration tests are conducted to determine the existence of long run relationship among the time series variables in the model. However, the choice of model estimation technique is premised on both the stationarity and cointegration tests.

Model Estimation

Autoregressive Distributive Lag (ARDL) econometric technique was adopted for this study. The ARDL is estimated when a mixed order of integration is evident among the time series in the model. The ARDL model is an ordinary least square (OLS) based model, which is applicable for both non-stationary time series as well as for times series with mixed order of integration.

The selected ARDL(k) model long run equation is stated thus:

$$Y_t = \delta_0 + \sum_{i=1}^k \alpha_1 X_{1t} + \sum_{i=1}^k \alpha_2 X_{2t} + \dots + \sum_{i=1}^k \alpha_n X_{nt} + v_{1t} \quad 3.8$$

Where:

$X_s(X_{1t}, X_{2t}, \dots, X_{nt})$ = explanatory or the long run forcing variables

k = number of optimum lag order.

Post-estimation Diagnostic Tests

Post-estimation residual diagnostic tests were conducted on the estimated model. They are the serial autocorrelation test, heteroscedasticity and CUSUM tests. While the serial autocorrelation for the residuals tests for the presence of serial autocorrelation among the independent variables, the heteroscedasticity test was conducted to determine whether the variance of the regression is constant or not over time. If the variance is not constant, there will be high standard error resulting to poor analytical use of the result. Again, the researcher conducted the CUSUM test to determine the strength of the model used. The ARDL analytical technique was used in the study. Granger causality test was also conducted to determine the causal relationships between the variables used. The researcher used E-views version 10 to conduct these analysis.

4.1 RESULTS AND DISCUSSIONS

Descriptive Analysis

	LOG_NPI	LOG_PCI	LOG_LEM	LOG_LEF	LOG_BSE
Mean	3.968631	12.46488	3.854477	3.896178	2.867025
Median	3.981549	12.37879	3.815204	3.858538	2.885192
Maximum	4.203199	12.86190	3.985069	4.018525	3.264520
Minimum	3.666122	12.20126	3.793352	3.848593	2.494649
Std. Dev.	0.137826	0.241162	0.065262	0.057048	0.246281
Skewness	-0.439180	0.448455	0.764628	0.927458	0.091393
Kurtosis	2.564374	1.564488	2.006427	2.306197	1.587182
Jarque-Bera	1.562092	4.655858	5.404447	6.373371	2.790514
Probability	0.457927	0.097497	0.067056	0.041309	0.247769
Sum	154.7766	486.1304	150.3246	151.9509	94.61182
Sum Sq. Dev.	0.721853	2.210042	0.161846	0.123670	1.940942
Observations	39	39	39	39	33

Based on the results of the JB, the female life expectancy is not normally distributed while other variables are normally distributed as shown by their respective JB probability ratios (Prob>0.05).

Unit Root: ADF Tests

Test at levels	Variables	P-Value	Order of Integration
	LOGNPI	0.0027	I(1)
	LOGBSE	0.9609	I(0)
	LOGPCI	0.8608	I(0)
	LOGLEM	0.6539	I(0)
	LOGLEF	0.7309	I(0)
Test at First Difference	Variables	P-Value	Order of Integration
	LOGBSE	0.0238	I(1)
	LOGPCI	0.0052	I(1)
	LOGLEM	0.0253	I(1)
	LOGLEF	0.0062	I(1)

Source: Authors computation using Eviews

The unit root test results are shown in the table above shows that the variables are stationary at various levels. However, LOGNPI is stationary at levels. The mixture of the variables in the ADF analysis satisfies for the use of ARDL model in the regression analysis.

Bounds Test for Cointegration

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	4.475508	10%	2.75	3.79
K	5	5%	3.12	4.25
		2.5%	3.49	4.67
		1%	3.93	5.23

Source: Authors computation from Eviews

Drawing from the result of the stationarity test, it is clear that the order of integration for the variables in each of the three specified model is not the same. A mixed order of integration was evident in the model. By this, the test of cointegration adopted for the model is the ARDL Bounds Cointegration test. This is used to test if there is a long term relationship between the variables used.

ARDL Model Estimation

SHORT RUN RESULTS

Dependent: LOGNPI

Variable	Coefficient	Std. Error	t-Statistic	Prob.
@TREND	0.016594	0.006962	2.383321	0.0254
LOG_NPI(-1)*	-0.578051	0.203848	-2.835691	0.0091
LOG_BSE_**	-0.065679	0.128858	-0.509702	0.6149
LOG_LEF_**	5.334369	3.162590	1.686709	0.1046
LOG_LEM_**	-5.834198	3.381586	-1.725285	0.0973

Dependent: LOGNPI LONG RUN RESULT

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG_BSE_	-0.265679	0.128858	-2.061797	0.0009
LOG_LEF_	-1.004369	0.162590	-6.177311	0.0000
LOG_LEM_	-3.356198	1.381586	-2.429257	0.0073
LOG_PCI_	-3.312601	1.321256	-2.507160	0.0009
CointEq(-1)*	-0.578051	0.136447	-4.236441	0.0003

R-Squared = 0.805644 F-Stat = 9.896152 Prob(F-stat) 0.000529 D-W stat = 2.191892

The results above present both the short-run and long-run tests results of the ARDL model. The coefficient of determination, which tests the goodness-of-fit, shows that the independent variables explain variations in the dependent variable at 80.1%. The F-test, which tests for the overall significance of the model, is also statistically significant while the speed of adjustment between the short-run and the long-run is 0.57 (57%).

The post estimation results

Serial Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.742489	Prob. F(2,22)	0.4875
Obs*R-squared	2.023391	Prob. Chi-Square(2)	0.3636

Source: Author's computation from Eviews

The serial autocorrelation helps to determine if the variables are serially autocorrelated or not. As the result shows using the Prob of F-stat (0.4875), there is no presence of serial autocorrelation.

Heteroskedasticity Test

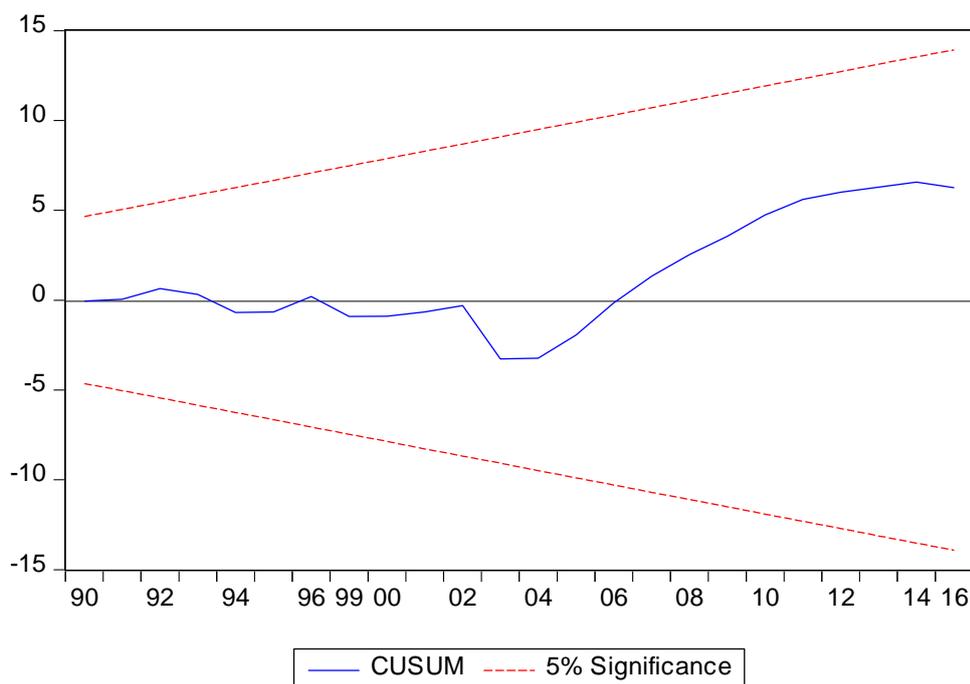
Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	8.770465	Prob. F(7,24)	0.4670
Obs*R-squared	23.00632	Prob. Chi-Square(7)	0.3317
Scaled explained SS	32.55961	Prob. Chi-Square(7)	0.5770

Source: Author's computation from Eviews

The variance of the model is also constant based on the results of the heteroskedasticity test.

CUSUM Test



The CUSUM Test shows that the model is well specified.

Finally, the result shows that there is a negative relationship between NPI and LEM as expected from the apriori expectations. As LEM increases by a unit, NPI decreases by -3.356198 and vice versa. Again, LEM is statistically significant at 5% level of significance hence the alternative hypothesis is accepted, that there is a significant relationship between NPI and LEM over the period.

Granger Causality Test

Pairwise Granger Causality Tests

Date: 12/14/21 Time: 19:41

Sample: 1981 2019

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LOG_PCI_ does not Granger Cause LOG_NPI_	37	2.08318	0.0506
LOG_NPI_ does not Granger Cause LOG_PCI_		2.83243	0.0442
LOG_LEM_ does not Granger Cause LOG_NPI_	37	2.60697	0.0163
LOG_NPI_ does not Granger Cause LOG_LEM_		54.6364	5.E-11
LOG_LEF_ does not Granger Cause LOG_NPI_	37	3.74407	0.0010
LOG_NPI_ does not Granger Cause LOG_LEF_		54.8089	5.E-11
LOG_BSE_ does not Granger Cause LOG_NPI_	28	0.31193	0.7351
LOG_NPI_ does not Granger Cause LOG_BSE_		0.16574	0.8483

Source: Author's computation from Eviews

The pair-wise granger causality test shows the direction of causality between the dependent and the independent variables. This does not necessarily co note a relationship between the variables. As shown above, there are bidirectional causalities between the NPI and PCI, LEM, LEF. However, there is no causality between NPI and BSE over the period.

4.1 DISCUSSION OF THE FINDINGS

The results above have shown the extent to which the independent variables affect the dependent variable over the period. Any increase in the independent variables will lead to a decrease in the dependent variable and vice versa. It is evident that the variables are effective tools to curb poverty from the root. The results above agrees with the works of Uwatt (2012) and Ndiyo (2012) who looked at the relationship between HDI and economic growth and concluded that there is a positive and significant relationship with the variables in their studies. Again, the results agrees with the works of Gylfason and Zoega (2013) who 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 and found a significant relationship between the variables. Finally, the above findings agrees with the works of Bakare (2016) who investigated the growth implications of human capital investment in Nigeria using vector autoregressive error corrections mechanism.

5.1 CONCLUSION AND RECOMMENDATIONS

From the findings, the study concludes that the key to poverty reduction lies with the improvement in some of the key variables used in this study. The BSE, PCI and life expectancies have significant impact on the NPI. With the governments interventions in such areas as basic education, job creation and better health care for the people, there will be a declining poverty trajectory over the years. The study recommends that families should be encouraged to enroll their children to basic schools as this has been found to be beneficial in poverty reduction. Moreover, policies and structures that will increase the per capita income must be put in place if the government must be taken serious when it comes to fighting poverty. Finally, it is therefore recommended that public and private investment in education, health care and job creation should be increased significantly yearly in effort to achieve significant reduction in poverty level in the country. As the saying goes "Health is Wealth". A healthy population will contribute significantly to wealth creation and poverty reduction.

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