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Impact of Human Capital Development on Inequality in Nigeria

Adeleke, Ayomide, A.[1], Dr. Christopher Ehinomen[2]

[1,2]Department of Economics, Faculty of Social Sciences, Federal University, Oye – Ekiti,

Ekiti State, Nigeria

Abstract

This study assessed the impact of the Human capital development on inequality in Nigeria. The main objective of this study was to determine the impact of human capital development on inequality in Nigeria. The research study employed Auto-Regressive Distributed Lag (ARDL) technique. The result of the study revealed that there is long run relationship between human capital development and inequality in Nigeria. There is an interrelationship among human capital development and inequality in Nigeria. It was observed at the end of the study that about 10.96% (inequality) of the short-run inconsistencies are being corrected and incorporated into the long-run equilibrium relationship in each period. Effort of the government should be at increasing government expenditure on education and health in order to reduce inequality in the short run and long run respectively. Policy that promotes education without the productive capacity of labour would not lead to reduction in inequality, also, policies of reducing income inequality in Nigeria should invariably incorporate productivity growth measures for such policies to be sustainable.

Keywords: Human Capital; Inequality; (ARDL) technique; Productivity Growth.

Introduction

Recently, developing countries have been classified generally by high income inequality, poor literacy level, low income, poor health care system, and low standard of living (Todaro and Smith, 2011). Moreover, spending by the government on health care and education, which are the main precondition infrastructure necessary to improve human capital development in developing countries, is extremely low. Low level of human capital results in a range of socio-economic challenges, which includes income inequality, poverty and unemployment in an economy, and has been on the rise over the years in a number of developing countries especially those of Sub Sahara Africa countries such as Nigeria. Countries that developed human capital significantly, on the other hand, enjoy quite a number of benefits such as equitable income (low-income inequality), reduced poverty, increased employment opportunities, wealth distribution, income equality and sustainable economic growth rate. Countries that failed to develop her human capital adequately have the following demographic indicators such as low life expectancy, and high mortality rate. (Ajibola, Loto&Enilolobo 2019)

Nigeria, in attempt to develop her human capital embarked on some educational programs in the past such as Universal Basic Education (UBE), etc ; but these have only served as conduits to transfer money to the corrupt political leaders and their cronies.

It is evident that accumulation of human capital positively and significantly affects the

income level of individuals and the entire nation. Consequently, individuals with low education have lesser prospects to earn as much income as those with better education. Inequality has negative consequences on the economy and more acute for developing nations than the developed nations. The implications are poverty, poor health of the people, low life expectancy, high level of illiteracy. (Chani, Jan, Pervaiz and Chaundhary 2014).

According to World Bank (2011) , Human Development Index (HDI) in 2011 puts Nigeria at 156th position among 177 countries as compared to the 151st position in 2002. (National Bureau of Statistics - NBS, 2012; UNDP, 2013). Thus, this study seeks to examine the effect of human capital (education and health) on inequality, by bridging the gap between the rich and the poor i.e., reducing inequality.

1.2 Statement of the Problem

Nigeria as one of Africa's biggest economies has been faced with the problem of human capital development over the years. In spite of all the abundant resources of the nation such as crude oil, bitumen, fertile land for agriculture, and so on, Nigeria has failed to realize her full development potential in terms of sustainable human capital development or people-oriented development, like many other prosperous economies with similar or even less naturally endowed.

Various other policies have been done in Nigeria to reduce income inequalities which include the National Economic Empowerment Development Strategy for the period of 2003 and 2007, which was aimed at sustainable wealth creation, poverty reduction, employment generation and value re-orientation. The programme was spread to the State level, and named State Economic Empowerment Development Strategy. The policy was to ensure that the nation has her income equitably distributed. Yet, income inequality worsened between 2004 and 2013 from 35.6 to 41 percent, and continues to get worse by every yearly. The inequality rate hits its peak in Nigeria at 0.55 according to the GINI index (Oxfam international 2018).

Private universities have increased by over 100 percent in Nigeria. Consequently, it increased the cost of education and made education unaffordable for the low-income earners. In response to this, various researchers have investigated the factors affecting human capital and inequality in Nigeria with diverse views and their outcomes remain inconclusive and unsatisfactory for the essential empirical needs of policy makers. A few of the research studies are Ajibola, Loto and Enilolobo (2019), Ewubare and Okpani (2018), Lucky and Achebelema (2018) which examined the relationship between poverty and inequality in Nigeria. Also Sharimakin, Oseni and Adegboye (2015) examined the role of education and productivity on income inequality in Nigeria. Researchers like Chani, Jan, Pervaiz and Chaudhary (2014) examined the causal relationship between human capital and income inequality in Pakistan. None of the above previous studies examined the relationship between human capital development and inequality in Nigeria, which is the central focus of this study. These form the gap, the needs, and justification for this study.

With the aim to successfully carry out this research, the succeeding question was raised: What is the impact of human capital on inequality in Nigeria?

The broad objective of this study is to examine the impact of human capital development on inequality in Nigeria.

Literature Review

Inequality is the differences in the sharing pattern of something among people where the share is more for some than others. Income inequality refers to material dispersion across

the country that has an influence on the position of individuals. Krugman (2002) income inequality occurs when an individual or a group of people are beneficiaries of resources, while another individual or group of people are denied of the same resources. Income inequality is the inequitable distribution of resources (income) among the population of an economy.

Functionalist Inequality Theory

The functionalist argue that inequality is functional for a country since it ensures that those who exhibit the most prospective gifts are confident to increase their gifts by gaining qualifications through education and training with the aim of higher incomes. The country is in layers like a pyramid of unequal people, and the layers ensures that the best people stay at the top of the pyramid and the rest at the bottom part of the pyramid with less power and are given less rewards than the people at the top of the pyramid.

Davis and Moore (1945) propounded that inequality ensures that most functionally important jobs are done by the most qualified people. So, it is justifiable for the head of an organisation to earn more money than the cleaner because his job is functionally more important in that organisation. The functional importance of a job was ascertained by the extent to which the job is unique, level of skills and the number of years for training, which implies that only a few (those who are qualified) can perform those functions.

They were some criticisms against the functionalist theory. Firstly, it is difficult to ascertain the functional importance of a job, as specialisation and inter-dependence make every position unique and imperative in the overall operation of an organisation. For example; Footballers earn more than doctors. Are footballers more important than doctors?. Secondly, the social stratification by the functionalist does not work like the functionalist claimed because some are born into the top of the pyramid (children of company owner, the wealthy) and just remain at the top of the pyramid not having to worry about climbing the ladder up.

Empirical Review

Ajibola, Loto and Enilolobo (2019) examined poverty and inequality in Nigeria from 1980 to 2013. The study adopted the OLS, Johansen co-integration and pair-wise granger causality tests. The result of the study showed a uni-directional causality from Poverty (POV) to Growth Rate of Gross Domestic Product (GGDP); Government Expenditure on Health (GEXPH) to Inequality (measured by PCI); Government Expenditure on Education (GEXPED) to PCI. The study recommended that policies and strategies aimed at improving access to quality health facilities and educational opportunities with increased job creating opportunities should be pursued.

Ewubare and Okpani (2018) examined the relationship between poverty and income inequality in Nigeria within the period 1980-2017. The study adopted the OLS, co-integration, ECM and Granger causality test. The result of the study showed that national poverty index was positively related to inequality but statistically not significant. The ECM result showed that poverty and unemployment have positive significant relationship with inequality. It was established that as poverty and unemployment rate increased, inequality increased correspondingly, inferring close links among the variables. The study recommended that deliberate effort should be made by government to creating employment opportunities as a major tool in order to combat poverty and inequality in Nigeria.

Lucky and Achebelema (2018) examined poverty and income inequality in Nigeria. The study adopted the Nigerian Bureau of Statistics survey to examine poverty and income inequality in Nigeria. The findings of the study showed that there is wide gap

between the rich and the poor and significant proportions of Nigerian population are living below the poverty line adopted in this study. The study also found. The study recommend implementable polices to reduce poverty and reduce income inequality in Nigeria.

Sharimakin, Oseni and Adegboye (2015) examined the role of education and labour productivity on income inequality in Nigeria for the period 1981 to 2013. The study adopted the co-integration and error correction methodology in the empirical analysis. The result of the study showed that productivity has a stronger impact on inequality reduction than education. The study recommended that any policy that promotes education without the productive capacity of labour would not lead to reduction in inequality and that policies of reducing income inequality in Nigeria should invariably incorporate productivity growth measures for such policies to be sustainable.

Research Methodology

This study examined the impact of human capital development on inequality in Nigeria and it relied on time series data from 1985 to 2020. The time frame was due to the availability of data from the central bank of Nigeria statistical bulletin, World Bank database and SWID database.

The study adopted the empirical model used by Ajibola, Loto and Enilolobo (2019) on poverty and inequality in Nigeria which is presented in equation 1 as:

$$POV_t = f(PCI_t,\ E_t,\ H_t,\ UNEMP_t) \quad 1$$

Where:

PCI = Per capita income

POV = Poverty

H = Government expenditure on Health

E = Government expenditure on Education

UNEMP = Unemployment

In order to suitably examine the effect of human capital on inequality, the study modified the model in equation 1 by dropping poverty rate and unemployment rate and replaces them with life expectancy, mortality rate and average years of schooling. The justification for the choice of these variables is based on role they play in human capital development of a nation, thereby leading to economic development. The study further replaces per capital income with inequality data. The justification for this is to directly measure inequality without proxy or manipulation on data. By so doing, the study included life expectancy, mortality rate and average years of schooling, inequality in addendum with the already government expenditure on health and education variables. Thus, the modified model proposed for this study is specified as in equation 11 as follows:

$$INQ_t = f(H_t, E_t, L_t, M_t, A_t) \quad 2$$

Where:

INQ = Inequality

H = Government expenditure on health

E = Government expenditure on Education

L = Life expectancy

M = Mortality rate

A = Average rate of schooling

Expressing equation 11 in linear form:

$$INQ_t = H_t + E_t + L_t + M_t + A_t \quad 3$$

Expressing equation 3 in stochastic form:

$$INQ_t = \alpha_0 + \alpha_1 H_t + \alpha_2 E_t + \alpha_3 L_t + \alpha_4 M_t + \alpha_5 A_t + \mu_t \quad 4$$

Where α_0 is the constant and $\alpha_1 \alpha_2\ \alpha_3 \alpha_4 \alpha_5$ are the coefficients of the variables. From equation (4), INQ_t is Inequality, H_t is the Government Expenditure on Health, E_t is the Government Expenditure on Education, L_t is the Life Expectancy, M_t is the Mortality Rate,

A_t is the Average Years of Schooling, μ_t is the error term.

The estimation techniques used for this study, is Auto Regressive Distribution Lag test to test for the presence of long run relationship among the variables, Error Correction model to show the rate at which short-run inconsistencies are being corrected and incorporated into the long-run equilibrium relationship was employed which was determined after conducting the preliminary tests like the unit root test, co-integration, lag selection test.

To derive a well reliable result, the data for Inequality were sourced from the SWIID Database while the data for Mortality rate, Life Expectancy and Inequality were gotten from World Development Indicators, also human capital was represented with government expenditure on health and education which were gotten from the Central Bank Nigeria (CBN) statistical bulletin was used to source for annual time series data while the E-view was used to analyze the data sourced.

Results

Table (i): Unit Root Test

Variables	Test statistics	Critical value			Order of Integration
		1%	5%	10%	
INQ	-3.077574	-3.632900	-2.948404	-2.612874	I(0)**
AYS	-3.815736	-3.632900	-2.948404	-2.612874	I(0)***
GHEA	-2.984452	-3.711457	-2.981038	-2.629906	I(1)**
LE	-2.937667	-3.639407	-2.951125	-2.614300	I(0)**
GEDU	-3.995774	-3.724070	-2.986225	-2.632604	I(1)**
MR	-7.113841	-3.639407	-2.951125	-2.614300	I(1)*

Note: * (**) (***) denotes null hypothesis at 10%, 5% and 1% level of significant respectively
Source: Author's Computation, (2021) from E-view 9, Statistical Package

Table (i) showed the result of the Augmented Dickey-Fuller unit root test. From the result, it is shown that inequality, average years of schooling and life expectancy attained stationarity at level and at 1%, 5% and 10% level of significance while government expenditure on health, government expenditure on education and mortality rate attained stationarity after differencing i.e. at first difference and at 5% level of significance. The economic implication of this is that any shock or disturbance (e.g. government policy) to the variables will not be sustained for a long period of time meaning such shock will die off in a short while.

According to the rule of thumb which says that when there is mixture of 1(0) and 1(1) ARDL approach to co-integration should be applied and otherwise Johansen co-integration. Since there are mixtures of I (0) and I(1) variables. Autoregressive Distributed Lag model (ADRL) was adopted and bound test was used to capture the presence of co-integration as against Johansen co-integration.

ARDL Bound Co-integration on Human capital development and Inequality

Table (ii): ARDL Bound test

Null Hypothesis	F - Statistic	Critical Values Bounds		
		Significance	**Lower bound**	**Upper bound**
No long-run relationships exist	5.091188	10%	2.26	3.35
		5%	2.62	3.79
		2.5%	2.96	4.18
		1%	3.41	4.68

Source: Author's Computation, (2021) from E-view 9, Statistical Package

The table (ii) revealed that the computed F-stat of 5.091188 is greater than the Upper Bound table value at any % level of significance. The study rejects the null hypothesis. This is interpreted as there is long-run relationship among the variables, that is, the variables co-move on the long run. This implies that study may proceed further to the long run analysis and the short-run dynamic and error correction analysis.

Long and Short Run Estimation Coefficients

Having confirmed the existence of long-run relationship among the variables, the study will estimate long run and short run parameters by general to specific procedure ARDL model.

Table (iii): Long Run Co-Integrating Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C (INQ)	275.507503	104.740699	2.630377	0.0141
GEXEDU	3.623982	1.199420	3.021445	0.0077
GEXHEA	2.264555	1.023284	2.213027	0.0409
LE	-2.578103	1.495507	-1.723900	0.0966
AYS	13.769637	9.479756	1.452531	0.1583
MR	-0.314533	0.120518	-2.609851	0.0148

Source: Author's Computation, (2021) from E-view 9, Statistical Package

The result of table (iii) indicated that the coefficient of inequality is positive and statistically significant at 5% level of significance. This implies that if all the variables are held constant, inequality will be significantly increased by 275.50%. The coefficient of government expenditure on education and health are positive and statistically significant at 5% level of significance which implies that 1 percent change in expenditure toward educational and health sectors will significantly affect inequality positively by 36.23% and 22.64% respectively. On the other hand, life expectancy portrayed a negative and insignificant relationship with inequality which connotes that 1 percent increase in life expectancy will reduce inequality by 25.78%. Furthermore, average years of schooling indicated a positive and an insignificant relationship with inequality, implying that 1% increase in average year of schooling will result to about 13.78% increase in inequality though not significant. On the final note, mortality rate has negative and significant relationship with inequality which implies that 1% change in the effort of the government on

mortality rate will result to about 3.14% change in inequality.

The Short-run Dynamic and the Error Correction Model

Table (iv) The Short-run Dynamics and Error Correction Model

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(GEXEDU)	0.603477	0.198556	3.039320	0.0074
D(GEXHEA)	0.683367	0.305594	2.236191	0.0390
D(LE)	5.321118	3.281819	1.621393	0.1170
D(AYS)	15.092418	11.400500	1.323838	0.1971
D(MR)	0.164173	0.298951	0.549165	0.5876
ECM (-1)	-1.096065	0.213615	-5.131020	0.0000

Source: Author's Computation, (2021) fromE-view 9, Statistical Package

The result in the table (iv) indicated that the coefficient of the error correction term ECM(-1) has the correct sign and significant at 5% level. The value of the coefficient is -1.096065. The result shows that about 10.96% of the short-run inconsistencies are being corrected and incorporated into the long-run equilibrium relationship in each period. In other word, it can be said that the level at which human capital development adjust to equilibrium was about 10.96%. This therefore implied that an approximate 11% of the discrepancy between long and short run level of human capital development in Nigeria was corrected and incorporated on yearly basis.

The short run result revealed that government expenditure on education as well as on health sectors has positive and significant relationship with inequality. Therefore, it can be concluded that the government expenditure on education and health has the coefficient of 0.603477 and 0.683367 implying that government expenditure on education and health decreased inequality by 6.03% and 6.83% respectively in the short run. In further relationship between life expectancy and inequality, the analysis disclosed that though a positive relationship exists but it is insignificant in nature which implies that the standing relationship between life expectancy and inequality is positive and insignificant at 5%, hence, life expectancy will positively contribute to inequality by 53.21%. More so, the result of average years of schooling and inequality posited a positive and an insignificant relationship. Therefore, when the level of average years of schooling increases by 1 unit, it will result to 15.0924 increases on inequality. Lastly, mortality rate has a positive and an insignificant relationship with inequality to the tune of 1.64%.

Discussions and Recommendations

Discussions:

The central objective of the study is to investigate the human capital formation as a driver for solving inequality problem in Nigeria covering period of 1985 to 2020.

Human capital development was proxied by government expenditure on education and health, life expectancy, average years of schooling and mortality rate; whereas inequality was directly captured. Secondary data were exacted from Central Bank of Nigeria (CBN) Statistical Bulletin and World Development Indicators.

Recommendations:

Some policy options that could strengthen human capital development and inequality in Nigeria include:

i. Effort of the government should be at increasing government expenditure on education and health in order to reduce inequality in the short run and long run respectively.

ii. Effort of the government should be at creating employment opportunities as a major tool in order to reduce income inequality and combat poverty in Nigeria;

Contributions to Knowledge

The study made some important contributions to knowledge by:

i. Establishing the influence of human capital development on inequality;

ii. Building on recent data for the purpose of analysis.

iii. Providing information on the significant effect of government expenditure on education and health as parameters of human capital development on inequality.

Suggestion for Further Studies

This study opens new opportunities for future researchers in the following ways;

1. Future research could extend by covering more countries by doing cross country research in order to strengthen results.
2. Secondly, a comparative study may be carried out on industries.
3. Thirdly, application of quarterly data is suggested.
4. Comparative study on regions of the country could be researched

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