Poverty and Inequality in Nigeria: Implications for Inclusive Growth

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The study empirically examined poverty and inequality in Nigeria with respect to its implications for inclusive growth from 1980 to 2013. Uni-directional causality was found 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; Unemployment (UNEMP) to GEXPH and UNEMP to PCI, no causality was found between POV and PCI (Inequality). Johansen co-integration test revealed evidence of long-run co-integration. GGDP and GEXPH impacts positively on PCI (inequality) but negatively on POV, while PCI impacts negatively on POV. Thus, as the economy grows, public spends more money to improve health services, inequality rises and poverty reduces. GEXPED impacts negatively on PCI (inequality) but positively on POV contrary to theory, a situation where more education failed to lead to quality jobs and improved standard of living. The study therefore recommends policies and strategies aimed at improving access to quality health facilities and educational opportunities with increased job creating opportunities should be pursued.

Key words: Poverty, Inequality, Inclusive Growth, Nigeria

INTRODUCTION

Poverty is seen as lack/insufficient access to basic human necessities such as food, shelter, clothing and Medicare (Ogunniyi, Adepoju & Olopade-Ogunwole, 2011). Poverty is also regarded as the long-term deprivation of essential human needs to which an individual, household, community or nation are subjected, a situation considered inadequate for a decent living. This menace (Poverty) can be further described as the root-cause and symptoms of underdevelopment. Manifestations of poverty include the lack of capability to function and feed well in the society (Sen, 1996). It is a situation of low-calorie intakes, lack of access to adequate healthcare facilities, poor educational system, low income, unemployment, underemployment and poor access to housing and social facilities (Onibokun & Kumuyi, 1996).
Low investment in rural infrastructure by the government also contributed to poverty and income inequality. Income disparity and poverty can be tackled through provision of adequate access to good rural road network, efficient cost effective irrigation system, rural electrification and improved per capita energy consumption, upgraded market infrastructure, improved health delivery system, qualitative education, safe drinking water and sanitation (Medulu & Adekoya, 2005; Ogunniyi et al, 2011).

Income Inequality is very pronounced in most part of economically developing nations like Nigeria where earnings and assets are largely unevenly distributed. There are very rich people with a high standard of living who has adequate means to essentials of life such as balanced three square meals, comfortable housing with basic infrastructure etc. as well as some other very poor people with a low standard of living, who daily struggle for survival. Poverty is often defined in absolute terms of low income, for example, living on less than 2 dollars a day. But in reality, the consequences of poverty exist on a relative scale. The poorest of the poor, around the world, have the worst health. Evidence has shown that the lower an individual’s socioeconomic position the worse their health. (WHO, 2013) Living a low-quality life resulting in unhealthy conditions, mass illiteracy, abject poverty, unstable jobs and inability to meet basic human longings such as nourishment, decent wears and comfortable housing suggests the presence of abject poverty in an economy. This income disparity between the rich and the poor continues to grow wider without any feasible solution in sight. It is notable that poverty reductions, as well as a reduction in income inequality, are core components of inclusive growth. If growth is to be inclusive the questions to ask are: is growth able to generate employment for the massive poor and unemployed population who has been previously excluded from contributing to the growth process? Are the proceeds from economic growth equitably distributed? Is there an improvement in social inclusion, do the poor now have equal access to economic opportunities? Inequality of opportunity, both within and among nations, sustains extreme deprivation, results in wasted human potential and often weakens prospects for overall prosperity and economic growth (WDR, 2006) Inequality and poverty is a multifaceted phenomenon in the Nigerian context, revealed in different dimensions such as social and economic deprivation, marginalization, crime and corruption. Efforts have been made in order to reduce or eradicate poverty and inequality through establishment of policies and programs in Nigeria over the past decades, such effort includes SURE-P and YOUWIN project by the immediate past president, FADAMA project, National Directorate of Employment (NDE), Operation Feed the Nation (OFN), Conditional Cash Transfer programme (already implemented in 27 States, with special focus on homes led by poverty-stricken and aged relicts, physically deprived and minors) just to mention a few (Onyema, 2012). To correct this situation and reduce poverty more effectively, equity and development imply, ensuring more equitable access by the poor to health care, education, jobs, capital and secure land rights among others. (WDR, 2006)

In Nigeria, notwithstanding the very high potential in agriculture, oil reserves as well as human and natural endowments poverty remains pandemic. Thus, Nigeria is constantly regarded as less developed or developing economy in human development reports. Prevailing circumstances indicated that the problem of poverty and inequality has been a long-standing issue in the Nigerian economy beginning from 1970, 12 years after oil was discovered in commercial quantities. Record of a poverty rate of about 27.2% was made in 1980 which has been the lowest ever since, which has consistently been on the rise from about 46.3% in 1985 to 65.5 in 1996 and
to an all-time high of 88% in 2002 and 72% in 2012. The NBS report in 2011 showed that 112.6 million citizens out of 163 million population live in abject poverty, a whopping 69%. Rural poverty rose to 73.2% in 2010, which is 9.1% higher than the 2004 estimates in the same vein, poverty rate in the urban area rose to 61.8% in 2010 from 35.4% in 2004. Rural poverty is further skyrocketed due to long years of low or non-existent meaningful improvement in infrastructure, education, investment in health and almost half the population lack adequate opportunity to access purified drinkable water. During these periods, social resources distribution worsened as Gini-coefficient persistently increased from 38.7% to 46.5% and 58% in 1985, 1996 and 2007 respectively.

One of the main goals of establishing the millennium development goals (MDGs) was to reduce poverty by half by the year 2015. Poverty rates have significantly reduced since the 1980s in all regions of the world with the exception of sub-Saharan Africa (SSA). As a matter of fact, poverty rates for all less developed nations declined from 27.9% to 21.1%, while the rates for African countries, in reality, rose from 44.6% to 46.4% (Ravallion & Chen, 2004). Thus, this revelations formed the basis for the conclusion of most recent scholarly articles that most African countries may not be able to achieve the target of halving poverty by 2015 (see Fosu, 2008; UNDP, 2003; Adigun, Awoyemi & Omonma, 2011). The success rates of poverty alleviation in the last two decades have been very minute notwithstanding the massive efforts and investments made through several programmes (see Canagarajah, Ngwafon & Thomas, 1997).

Primarily, economic growth has been traditionally regarded as a major engine of poverty reduction, given the fact that income growth has to be equitably distributed before any meaningful reduction can occur in poverty rates (see Kalwij & Verschoor, 2007; World Bank, 2006) then priority must be given to both economic growth and equity in any meaningful development strategy. If ever, economic growth will reduce poverty or become pro-poor it hinges on the influence of economic growth on inequality and on how much this influence impacts on poverty. Since, theoretically, the major cause of poverty is inequality or uneven distribution of wealth and income (Debroy and Bhandari, 2007). The question is how exactly will poverty react given the changes in growth and inequality in Nigeria? This in more technical terms is regarded as growth elasticity of poverty.

In Nigeria, the government is faced with the gargantuan burden of non-inclusiveness of growth as the over a decade high economic growth rates recorded by the country failed to substantially reduce poverty and inequality. Although the economy grew on the average by above 6% through the last decade increased inequality and poverty showed that growth has not absorbed large segment of the economy, it is regarded as a phenomenon called jobless non-inclusive growth. Inclusive growth has been defined as the broad-based rapid pace of growth across sectors in an economy contributed to and benefited by a cross-section of people in the economy including the poor. The focus is on how to increase the rate and speed of growth by engaging more fully parts of the labour force enslaved in low productive activities or completely excluded from the growth process. In order to achieve inclusive growth, there must as a matter of priority be an improvement in productivity with the creation of new employment opportunities. Inclusive growth is concerned with improving the pace of growth and expanding the size of the economy while creating an enabling environment for investment so as to increase productive employment opportunities. The major concern here is sustainable growth and for growth to be sustainable it
has to be of a wider scope and must across all sectors leading to structural transformation and diversification of the entire economy. It should also include a large portion of the country’s working population. This is highly essential because the process of generating the growth is essential for propelling poverty reduction. Productive employment is emphasised rather than income redistribution, the strategy is to teach a person how to catch a fish rather than giving him a fish, hence the core of inclusive growth strategy is not only on growing employment by numbers but also on improving productivity. The study shall, therefore, endeavour to answer the following question:

What has been the trend of poverty, inequality and inclusive growth measures in Nigeria from 1980 to date?
What are the impacts of poverty and inequality on inclusive growth variables in Nigeria over the study period?

The rest of the study shall be organised as follows, this introduction shall be followed by a review of relevant literature (both theoretical and empirical) in section 2, while section three will focus on the methodology, section 4 will contain discussion and interpretation of the result. Section five will entail conclusion and recommendations.

LITERATURE REVIEW

The study begins with a review of theories on inequality and poverty, after which empirical literature shall be gleaned for related findings on the relationship between income inequality, poverty and economic growth in Nigeria.

Theoretical Review

The Capitalist Entrepreneurial Theory

This theory presents the view that the payment of meagre wage rates, as well as unfair, poor and irritating working conditions, are means of exploiting the masses of workers and excessive saving and capital accumulation. This results in inequality in income distribution which could foster and accelerate poverty among the labouring masses.

The Individual Attribute Theory

This theory proposed that the cause of poverty and inequality cannot totally be blamed on the activities of capitalists in an economy but rather on individual attributes, that is, the location of an individual in the society’s ranking of income and wealth which was ascertained to be determined, by the motivations, attitudes and abilities of such individual (see McClelland, 1961; Hagen, 1962).

The National Circumstantial Theory

This theory proposed that both actions of entrepreneurs and the individual’s attribute cannot sufficiently explain inequality and poverty. There is need to identify other components such as
geography and natural resources of the environment in which people live as well as employment, age class (whether old or young), physical disabilities etc. as culprits of inequality and poverty (see Akeredolu-Ale, 1975).

The Power Theory

This implies that rather than attribute a person’s failure or success to the capitalist attitude, the individual’s attitude or geographical forces, the political structure of the economy should be held responsible, because whether a person is poor or not is dependent on the recognised morphology of bureaucratic power in the society, which arbitrates the ambit and distribution of inequality and poverty among the population.

Individual Theory of Poverty

A dominant advocate of this school was Oscar Lewis (1966). The ideology proposed that we cannot blame an individual’s poverty on the geography or other persons, not even the political power structure. Man is the origin of his own poor poverty. He is poor because poverty is in him (inherent) and his attitudes like laziness, lack of education, teenage parenting, single female-headed family which makes them impotent to favourably scramble for economic freedom and convenience. As such this demeanour becomes a culture for man which he passes on from one generation to the next resulting in a vicious cycle of poverty (see Jordan, 2004), this philosophy, however, remains argumentative among researchers of poverty and policymakers.

Economic Theory of Poverty

Here, poverty emanates from the morphology of the economy. Part of the determinant of poverty is differing employment level and the nature of income distribution. Shockingly, a person is poverty stricken not as a result of his laziness but due to the fact that he lacks the opportunity to work. He became poor as a consequence of the faulty economic system that deprived him his portion of income and equity, a dominant supporter of this ideology was Rainwater Lee (Jordan, 2004).

Marxist view of Poverty and Inequality

According to the Marxist view, the major cause of poverty is inequality or uneven distribution of wealth and income, which is a main consequence of capitalism. Large national organizations or bureaucracies are responsible for this. Any society with inequality is bound to have poverty. In order words, poverty is more likely to occur in a society which accepts inequality. Sociologists who accept the relative definition of poverty accepts that for the eradication of poverty, it is necessary to first abolish all inequality in income (Debroy and Bhandari, 2007).

The Link between Poverty and Inequality

Poverty and income inequality have been theoretically identified as inseparably related, thus the presence of one indicates the presence of the second (see Burtless and Smeeding, 2002; Ogbeide & Agu, 2015) the lowest income group are able to exit poverty in the presence of equitable
income distribution. The linkage between inequality and poverty could either be a direct or indirect one. Under the direct link, unequal circulation of income and wealth in the economy restricts the people who are impacted negatively such that they will have less than enough to cater for basic necessities of life as well and as well cater for their children’s schooling and healthcare, as such they are poor. The indirect links between inequality and poverty are economic growth and employment.

The link through growth is based on the notable Kuznets hypothesis of the inverted U-shaped relationship between inequality and growth (though the theory is not widely accepted among scholars). At the early period of economic prosperity, as the economy grows with increasing inequality, the people who suffer from this high values of inequality are known as poverty-stricken people, thus, the negative effect of growth on inequality also results in increasing value of poverty following the positive relationship between the level of inequality and poverty affecting an individual or in an economy.

Some of the contributory factors (which are also interrelated) to inequality such as education, ethnicity, rural expenditure pattern, religion and political differences do not just affect the income pattern through creation of similar pattern of distribution but also led to infrastructure collapse through policy effects on education, public health services, transport system, as well as regulatory services. Education seems to play a more critical role among these factors, as educational outcomes (higher attainment & gender equity) are very significant in ensuring more equitable income distribution, (Gregorio & Lee 1999). Education provides people with special skills and improved productiveness. As longer periods are dedicated to the acquisition of learning greater dexterity and rewards (remuneration) will accumulate. According to Aboyade (1983) earning of workers with complete primary education on the average is around 1.7 times more than the unlearned. And secondary school certificate holder receives around 1.6 times the take-home of primary school graduates on the average and about 2.7 times the unlearned, while tertiary institution graduates earn 12 times the take-home of the uneducated and 4.5 times the level of those with secondary school education on the average in Nigeria. Similarly, the income inequality between primary and secondary school graduates is 50% while the divergence between secondary and tertiary institutions graduates is 60%, (see Diejomaoh & Anusionwu, 1981).

Arguably, Poverty and income inequality has been regarded as being closely related given that inequality viewed as a dimension and root of poverty (United Nations University, 2000) this is supported by the findings of Kolenikov and Shorrocks (2003) increases in economic growth leads to reduction in poverty rates; as income inequality rises the incidence of poverty will also rise. As a result of the link between income inequality and poverty strategies aimed at inequality reduction has become a major dilemma for public policy makers in developing nations. However, most developing nations have focused their discussion on poverty reduction strategies almost exclusively on income growth, neglecting the potential role of income distribution and inequality (United Nations University, 2000). Of major concern is the failure of the discussions in recognising that, in order to attain poverty reduction, income growth must be equitably distributed.
The Gini-coefficient revealed that this elasticity value seems to be lower in nations with high values of inequality (Ravallion, 2001). The implication is that policies aimed at reducing inequality inadvertently raises poverty reduction gained from economic growth. It does not absolutely imply that such policies will necessarily yield more reduction in poverty as they may also lead to a decline in economic growth rates. This is the trade-off between policies and redistribution (Anderson, 2005).

While public authorities primarily focus on poverty reduction through pro-poor growth strategies, little interest was bestowed on the creation of viable and vibrant bourgeois given the fact that it is burdensome to terminate or reduce poverty outside the efforts of the bourgeois who have the know-how, dexterity and material to accelerate growth and facilitate jobs creation for the poor.

**Empirical review**

Although a plethora of studies has investigated broadly on the issues of poverty, inequality and growth in Nigeria, none of them particularly dealt with the issues of inclusive growth for the economy. Even the available empirical evidence on the nature and direction of the relationship between inequality and poverty in Nigeria is mixed and controversial. Thus, the need for a critical review of existing empirical works and the necessity for this study to bridge the gap by bringing to the fore the major implications for inclusiveness of growth in Nigeria.

Ogbeide and Agu (2015) examined the nature and direction of causality between poverty and income inequality in Nigeria from 1980 to 2010. Using Granger causality approach, the authors found a bi-directional causality between inequality and poverty for the period. The study, therefore, concluded that policy measures should not be taken in isolation thus a policy aimed at reducing inequality should be supported with policies aimed at reducing poverty. Bakare (2012) in an examination of the topic measured income inequality in Nigeria: using the Lorenz curve and the Gini coefficient approach, the ordinary least square regression technique was employed to analyse the determinants of inequality in Nigeria. The results indicated a depressing level of income inequality for the Nigerian economy. There is a high divergence in income distribution with a rising value of literacy rates indicating the need for public authorities to enact and implement policies targeted at the improvement in the wellbeing of the poor people and those that provide employment and improves a lot of low-paid labourers.

Osahon and Osarobo (2011), examined poverty and income inequality in Nigeria: an empirical assessment 1980 to 2008, using the error correction mechanism. The authors found that a positive relationship exists between poverty (proxy by private consumption expenditure) and economic growth in the long run. Edoumiekumo, Kanmo and Tombota (2014), examined income poverty in Nigeria: incidence, gap, severity and correlates in Bayelsa state using the FGT decomposable class of poverty measures and Logit regression models as analytical tools on the 2009/2010 Nigeria Living standard Survey (NLSS) data. The results showed that 25% of households are income poor. to escape from poverty the averagely poor has mobilized financial resources that meets 14% of N22393.62 household per capita expenditure monthly and the core poor has to mobilize up to 9% of N22393.62 household per capita expenditure monthly. Also, it was found that agriculture and household size increases the probability that a household will be
poor, however, the poverty correlates in Bayelsa state are per capita expenditure on education and health, years of schooling and household size. The authors, therefore, recommended the provision of free, compulsory and quality education at least up to the basic levels as well as easily accessible quality health care services.

Onyema (2012) examined the dynamics of poverty and income distribution: is the Nigerian middle class statistically or economically growing? Utilizing General Household Survey (GHS) data (1996), Nigeria Living Standard Survey (NLSS) of 2004 and the 2009/2010 Harmonised Nigeria Living Standard Survey (HNLSS). The results indicated that the present middle class in Nigeria are worse off relative to the period in 2004 and 1996. The middle class only exist statistical not economically, since macroeconomic components and other measures of consumer welfare failed to support their reality.

Awe and Rufus (2012) investigated the determinants of income in the Nigerian economy, 1977 – 2005 using co-integration techniques. Results showed a high value of Gini coefficient in the Nigerian economy, implying higher inequality. Employment rate, inflation rate, gross domestic product and social spending are true determinants of income distribution in Nigeria during the period of study. Both growth rate of output and public health expenditures exhibited an inverse relationship with Gini coefficient of income distribution while, employment rate, inflation rate and public education expenditures had direct relationships with Gini coefficient of income distribution in the economy. A long run relationship was also found between income distribution and its determinants. The authors, therefore, recommended appropriate policy formulation, implementation and monitoring of employment, public expenditure on education and health which should be pragmatically followed as well as ensuring more equitable income distribution.

Kolawole, Omobitan and Yaqub (2015) examined the phenomenon of rising growth in the presence of chronic poverty and inequality in Nigeria from 1980 to 2012 using ordinary least square regression (OLS) estimates and the Error Correction Mechanism (ECM). The study revealed that gross domestic product growth rate leads to increasing value of inequality but a declining value of poverty in the economy. It was therefore recommended that apart from promoting economic growth, increased and effective public spending on education and healthcare equipment with programmes primarily focused on non-privileged such as children, women and poor in general should be pursued for poverty and inequality to reduce in the economy.

Akin-Olagunju and Omonoma (2014) examined sources of income, inequality and poverty among rural households in Ibadan, Oyo state Nigeria, based on data collected from 120 households in rural parts of Ibadan, using multi-stage sampling procedure found that agriculture and non-farm self-employment are inequality-increasing and thus recommended the need to incorporate non-farm self-employment income sources into developmental efforts of public by empowering rural dwellers financially and ensuring equitable access to agricultural credits and other farm inputs. Ogujiuba (2014) examined of poverty incidence and reduction strategies in Nigeria: challenges of meeting 2015 Millenium Development Goals (MDGs) targeted and specifically reviewed poverty reduction efforts of the public from 2007 to 2012. The study identified lack of necessary infrastructure, poor targeting of recipients in previous poverty reduction measures and corruption among others as pertinent issues that could orchestrate the MDGs to a stalemate. And therefore, suggests that new poverty reduction strategies for Nigeria
should be anchored on inclusive growth fundamentals, redistributive public expenditure, increasing rate of productive job creation and a broad-based sectoral growth. The study failed to give a clear meaning of inclusive growth as well as the implications for poverty and inequality and its overall impact on the economy. This study hopes to provide a solution to these.

RESEARCH METHODOLOGY

The study focused on comprehending the interrelatedness or otherwise among inequality, poverty and growth in the Nigerian economy. By implication, the study hopes to find out if poverty causes inequality or vice versa as soon, as this finding will help on the approaches to strategy on poverty alleviation in order to arrive at a more equitable society. To achieve this aim the study will, after carrying out the necessary diagnostic tests such as stationarity test, Johansen co-integration test and pair-wise Granger causality tests to determine causality among the variables, employ ordinary least square (OLS) regression technique for estimation of the relationship or impact among the variables of interest.

Many researchers have dealt with the phenomenon of poverty, inequality and growth using variety of techniques, for example, Le (2008) reported that poverty and inequality can be influenced by a host of control variables like GDP per capita level, initial inequality, the ratio of investment to GDP, trade openness and a measure of human capital. The nomenclature of Le (2008) study necessitated the choice of OLS technique. While Ogbeide and Agu (2015) were concerned with causality between inequality and poverty and as such adopted the Granger causality technique. In this study, the main concern is not just causality among the variables of interest but also the nature of impact and relationships among the variables, thus the adoption of both Granger causality technique and the Ordinary Least Square regression model.

To achieve the above, a Granger causality equation is formulated thus:

\[ INE_t = \alpha_0 + \sum_{i=1}^{n} \alpha_i INE_{t-i} + \sum_{j=1}^{n} \beta_j POV_{t-j} + \sum_{k=1}^{n} \delta_k GGDP_{t-k} + u_t \]  

\[ POV_t = \gamma_0 + \sum_{m=1}^{n} \gamma_m POV_{t-m} + \sum_{p=1}^{n} \phi_p INE_{t-p} + \sum_{v=1}^{n} \phi_v GGDP_{t-v} + u_2 \]  

\[ GGDP_t = \eta_0 + \sum_{e=1}^{n} \eta_e GGDP_{t-e} + \sum_{w=1}^{n} \pi_w INE_{t-w} + \sum_{\lambda=1}^{n} \sigma_\lambda POV_{t-\lambda} + u_3 \]

Where INE = inequality  
POV = Poverty  
GGDP = Growth rate of GDP

However, other related variables will be included in this study such as unemployment and the question here will be whether employment status of a person is capable of causing poverty or inequality in Nigeria?

Efforts towards the establishment of a possible relationship between poverty, inequality and economic growth in Nigeria, will lead to the specification and estimation of two distinct linear equations. The first will examine the impact of GDP growth, public expenditures on education
and public expenditures on health on inequality in Nigeria. While the second equation will examine the effect of Per Capita Income, GDP growth, public expenditures on education, public expenditures on health and unemployment rate on poverty rates in Nigeria.

**Data Sources and Definition of Variables**

The variables used in this study emanated from the income approach discussed in Ravallion, Chen and Sangraula (2008) and Kolawole, Omobitan and Yakub (2015). The poverty rate was sourced from the National Bureau of Statistics (NBS) Annual Abstract of Statistics for the various years. Measurements of income inequality are primarily done through Lorenz curve and Gini coefficient. The Gini coefficient determines inequality based on the Lorenz curve whose value varies between 0 (perfect equality) and 1 (perfect inequality). A Lorenz curve plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual or household. The Gini index measures the area between the Lorenz curve and a hypothetical line of perfect equality, expressed as a percentage of the maximum area under the line. The major limitation of these measures of inequality is that both neither indicate the number of people who fall below the poverty line nor the extent of impoverishment (see Anyanwu, 1997 and Kolawole et al, 2015).

Moreover, time series data on inequality for Nigeria are non-existent. Hence, Per Capita Income (PCI, Adjusted Net National Income per capita; current US Dollar) is employed as a proxy for inequality this was obtained from the World Development Indicators (2013). Public expenditure on education (Proxy by public recurrent expenditure on education) and health (Proxy by public recurrent expenditure on health) are also variables that arbitrate the level of inequality and individually stimulate poverty as each influences effective demand in the society (Anyanwu and Erhijakpor, 2010; Kolawole et al, 2015), sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin (2013). GDP growth rate (proxy by the growth rate of Gross Domestic Product) also influences the level of poverty and income inequality.

**Models Specification**

Examine of the relationship between Inequality (Per Capita Income) and GDP growth in this study follows the model used by Barro, 2000; Gregorio and Lee (2002) on the determinants of income inequality as pre-specified by Fan (2008); Badiane and Ulimwengu (2009) and Kolawole et al, (2015)

\[
PCI_t = f(GGDP_t, GEXPED_t, GEXPH_t) ................................................. (4)
\]

\[
\ln PCI_t = \alpha_0 + \alpha_1 \ln GGDP_t + \alpha_2 \ln GEXPED_t + \alpha_3 \ln GEXPH_t + \epsilon_t, ......................... (5)
\]

Where PCI = Per Capita Income, GGDP = GDP growth, GEXPED = Public Expenditure on education, GEXPH = Public expenditure on health.

While the following modified specification in equations (vi) and (vii) shows the relationship and captures the average influence of Per Capita Income, GDP growth rate, literacy rate, public expenditure on education and health.

\[
POV_t = f(PCI_t, GGDP_t, GEXPED_t, GEXPH_t) ................................................. (6)
\]
\[
\ln P_{OV_t} = \beta_0 + \beta_1 \ln PCI_t + \beta_2 \ln GGDP_t + \beta_3 GEXPED_t + \beta_4 GEXPH_t + \beta_5 UNEMP + \varepsilon_t \ldots (7)
\]

Where, UNEMP = Unemployment rate, POV = Poverty rate.
From equations (iv), (v), (vi) and (vii) \( \alpha_0 \) and \( \beta_0 \) are constant terms, \( t \) is time while \( \varepsilon \) is the error term.

**A priori Expectation**

\[ \alpha_1 > 0, \alpha_2 > 0, \alpha_3 > 0 \]

and

\[ \beta_1 < 0, \beta_2 < 0, \beta_3 < 0, \beta_4 < 0 \]

\[ \beta_5 > 0 \]

**EMPIRICAL RESULTS AND DISCUSSION**

**Trend Analysis**

The study commenced with an analysis of trend among the variables involved in the two models specified in section three (3) above as shown in figures (i) to (xi). Figure (i) showed the trend of gross domestic product growth rate from 1980 to 2013.

Fig. (i): Trend of the Growth rate of GDP

Source: Authors’ Computation, 2018

It was observed that the growth rate of GDP was negative from 1981 to 1984 which led to the implementation of the Structural Adjustment Programme (SAP) in 1986. Shortly after which the growth rate started picking up and became positive for quite some time until the adverse effects of SAP began to manifest resulting in very low and negative growth rates in the 1990s. However, from around year 2000 the growth rate has been moderately high and positive indicating the periods of democratic governance and various developmental efforts such as NEPAD (New Partnership for African Development), NEEDS (National Economic Empowerment and Development Strategies), MDGs (Millennium Development Goals), Transformation Agenda, Vision 20:2020 and so on. Figure (ii) presents the trend of public expenditures on Health from 1980 to 2013.

Fig. (ii): Trend of Government Expenditures on Health
It could be seen that public expenditures on health were quite low and insignificant from 1980 till around 1995 when the public began to see reasons for meaningful investment in health in order to improve Nigeria’s rank on the human development index. However, periods from 1999 to 2013 witnessed substantial (though still considered low compared to the national budget) investment in health by the public, which was revealed in the significant improvement in life expectancy and a drastic reduction in maternal mortality as well as under 5 mortality rate, with substantial improvement in human development index rank. Figure (iii) showed the trend of poverty in Nigeria.

Fig. (iii): Trend of Poverty rates

Source: Authors’Computation, 2018

The trend revealed that poverty has been rising over time in Nigeria with periods from 1992 to 2003 as the periods of constantly rising poverty rate which peaked at 88% in 2002 despite the abundance of oil resources and the huge excess reserves in the period. Figure (iv) depicts the trend of unemployment in Nigeria from 1980 to 2013. The trend revealed very high unemployment rate from 2000 to 2013 despite the considerable growth of GDP rendering the decade a period of jobless growth in the country.

Fig. (iv): Trend of Unemployment rates

Source: Authors’Computation, 2018
Figure (v) presents the trend of public expenditures on education in Nigeria from 1980 to 2013. It exhibited the same pattern with the trend of public expenditure on health (figure ii) with 1999 to 2013 witnessing significant investment from the public in the education sector.

Fig. (v): Trend of Government Expenditures on Education

Source: Authors’ Computation, 2018

Figure (vi) showed the trend of Per Capita Income for Nigeria from 1980 to 2013 which has been very low over the period with a significant increase from 2006 to 2013.

Fig. (vi): Trend of Per Capita Income

Source: Authors’ Computation, 2018

Figure (vii) and (viii) presents the trend of per capita income and public expenditures on health and public expenditure on education from 1980 to 2013 both expenditures of public tend to move
along in the same direction with PCI over the period of study except for 1996 to 2007 where PCI and GEXPH moved in opposite direction.

Fig. (ix): Trend of Poverty and Government Expenditures on Health

Figure (ix) and (x) showed the trend of POV and GEXPH and GEXPED respectively where periods 2005 to 2013 witnessed the a substantial impact of both GEXPH and GEXPED on POV.

Fig. (x): Trend of Poverty and Government Expenditures on Education

Figure (xi) revealed the trend of POV and PCI showing PCI everywhere above POV.

**Unit Root Test**

The results of the unit root test via the Augmented Dickey-Fuller and Phillips-Perron Unit root tests are presented below:
From table 1 above the unit root test revealed that all the variable were stationary at first difference in both the ADF and PP tests except GGDP which was found to be stationary at a level in both tests. Going by the result, the Johansen co-integration technique was employed to determine the possibility of the existence of long-run relationships among the variables.

**Granger Causality Test**

The result of the Granger causality test showed evidence of unidirectional causality between POV and GGDP; GEXPH and PCI; GEXPED and PCI; UNEMP and GEXPH; as well as UNEMP and PCI. However, no causality was found between POV and PCI (Inequality) over the period of study (see Table 1A in Appendix).

**Co-integration Test**

**Table 2: Result of Johansen Co-integration test for Model 1**

<table>
<thead>
<tr>
<th>No. of CE(s)</th>
<th>Eigenvalue</th>
<th>Trace Stat</th>
<th>5% C.V.</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>None *</td>
<td>0.559491</td>
<td>57.98231</td>
<td>47.85613</td>
<td>0.0042</td>
</tr>
<tr>
<td>At most 1 *</td>
<td>0.480436</td>
<td>31.74792</td>
<td>29.79707</td>
<td>0.0294</td>
</tr>
<tr>
<td>At most 2</td>
<td>0.251025</td>
<td>10.79543</td>
<td>15.49471</td>
<td>0.2244</td>
</tr>
</tbody>
</table>

Source: Author’s Computation, 2018

**Table 3: Result of Johansen co-integration test for Model 2**

<table>
<thead>
<tr>
<th>No. of CE(s)</th>
<th>Eigenvalue</th>
<th>Trace Stat</th>
<th>5% C.V.</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>None *</td>
<td>0.594427</td>
<td>80.65655</td>
<td>69.81889</td>
<td>0.0053</td>
</tr>
<tr>
<td>At most 1 *</td>
<td>0.471819</td>
<td>51.77801</td>
<td>47.85613</td>
<td>0.0205</td>
</tr>
<tr>
<td>At most 2 *</td>
<td>0.446567</td>
<td>31.35187</td>
<td>29.79707</td>
<td>0.0328</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.295961</td>
<td>12.4202</td>
<td>15.49471</td>
<td>0.1379</td>
</tr>
<tr>
<td>At most 4</td>
<td>0.036527</td>
<td>1.190733</td>
<td>3.841466</td>
<td>0.2752</td>
</tr>
</tbody>
</table>

Source: Author’s Computation, 2018

From tables 2 and 3 above the two models showed evidence of long-run relationships among the variables with model 1 revealing the possibility of 2 co-integrating equations while model 2 displayed 3 co-integrating equations. We hereby proceed to the model estimations through the ordinary least squares regression technique.
Regression Estimates

Table 4: Ordinary Least Square Estimates for model 1 and 2

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPCI</td>
<td>0.01373 (6.461818)*</td>
<td>-0.023035(-0.494497)</td>
</tr>
<tr>
<td>LGGDP</td>
<td>0.241469(2.326724)**</td>
<td>-0.007232(-1.807165)***</td>
</tr>
<tr>
<td>LPCI</td>
<td>-0.165667(-3.558416)*</td>
<td>0.108853(2.443624)**</td>
</tr>
<tr>
<td>LUNEMP</td>
<td>0.016949(1.963338)***</td>
<td>4.511614(16.39181)*</td>
</tr>
<tr>
<td>C</td>
<td>4.933329(23.89356)*</td>
<td>4.511614(16.39181)*</td>
</tr>
</tbody>
</table>

Source: Author’s computation, 2018, *, **, *** implies level of significance at 1%, 5% and 10% respectively, the values in parenthesis are t-statistics.

From Model 1 above, LGEXPH were LGGDP positively related to LPCI (Inequality) with statistically significant probability values at 1% and 5% level of significance respectively, this is in conformity with the a priori expectation. While LGEXPED displayed a negative and statistically insignificant relationship with LPCI (Inequality) this is however contrary to a priori expectation, this is in line with the findings of Kolawole et al (2015). The adjusted $R^2$ was 0.79 meaning that the explanatory variables sufficiently explained up to 79% of variations in the dependent variable. The predictive ability of the model was also found to be statistically significant, the Durbin-Watson Statistic of 1.57 also revealed the absence of serial auto correlation among variables within the model. In Model 2, LGEXPH, LGGDP and LPCI (inequality) were negatively related to LPOV in conformity with the a priori expectations (the empirical relations between LPCI (Inequality) and LPOV is contrary to the findings of Kolawole et al, 2015), with only LGGDP and LPCI (Inequality) being statistically significant at 5% and 10% respectively. While LGEXPED and LUNEMP maintained a positive though statistically significant (5% and 10% respectively) relationship with LPOV. The positive relationship between LPOV and LGEXPED is contrary to a priori expectations while that of LPOV and LUNEMP conforms to theory as well as empirical findings.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The study examined the empirical relationship between poverty, inequality and economic growth in Nigeria. Specifically measuring how growth contributes to poverty and inequality individually as well as how poverty and inequality affect each other. To achieve these; the study, on one hand, investigated, the effects GDP growth, public expenditures on health and public expenditures on education on Per Capita Income for Nigeria. On the other hand, the study also
examined impacts of Per Capita Income, GDP growth rate, public expenditures on education, public expenditures on health and unemployment on poverty rate in the country. The results revealed that all variables were stationary at first difference except the GDP growth rate found to be stationary at level using both ADF and PP tests. The Johansen co-integration test revealed the existence of long-run relationships among variables in each of the models, with two and three co-integrating equations in model 1 and 2 respectively.

Furthermore, the Granger causality test revealed evidence of causal relations among the variables of interest in the study. A uni-directional causal relation was found between poverty and GDP growth rate with poverty causing GDP growth; public expenditure on health and Per Capita Income (Inequality) with public expenditure on health causing Per Capita Income (inequality) this is because people with the same health status have different capabilities and productive abilities which may be due to educational attainments or creativity; public expenditures on education and Per Capita Income (inequality) with public expenditure on education causing Per Capita Income (inequality) since the higher the educational attainment the higher the potential to gain a higher level of income; unemployment and public expenditures on health causing public expenditures on health with unemployment causing Per Capita Income (inequality) with unemployment causing Per Capita Income (inequality). No causality was found between POV and PCI (Inequality) over the period of study, this is, however, strange and contrary to the findings of others as some found a bidirectional causality between poverty and inequality causing a feedback relationship between the two (see Table 1 in Appendix).

The Ordinary Least Square (OLS) regression estimates revealed that GDP growth rate and public expenditure on health impacts positively on Per Capita Income (inequality) but negatively on Poverty rate, while Per Capita Income (inequality) impacts negatively on poverty rates. Implying that as the economy grows and public spends more money to improve health services inequality rises and poverty reduces because people will have more access to health care with improved ability and energy to work and free themselves from poverty. That is, as the economy grows the gap between the rich and the poor widens (conforming with the findings of Dauda (2004) and Kolawole & Omobitan, 2014) but the number of people below the poverty line of $1.25 a day slightly reduces. This also implies that the economic growth is being enjoyed by the few rich in the category of the highest twenty percent while the remaining population languishes in poverty.

Thus the over one decade of growth experienced in the country has not been inclusive of the majority (poor) of the population since it is a jobless growth, that is, growth that does not lead to job creation for the masses of the poor, poverty-stricken unemployed citizens. Public expenditure on education impacts negatively on Per Capita Income (inequality) while public expenditure on education has a positive relationship with poverty rates

**Conclusion**

The study therefore concludes that as public expenditure on education increases, inequality reduces this is because education serves as the ladder needed to cross from poverty to affluence due to the emphasis on certificates and grades as criteria for employment and promotion and poverty increases, this is a situation where more education failed to lead to quality jobs and
improved standard of living. More graduates are turned out yearly by our educational institutions without the hope of getting quality employment and better living standard thus as education spending and attainment increases poverty also rises. This is a consequence of non-inclusiveness of growth due to the fact that people strive to go through the educational system with the hope of getting a paid employment afterwards but upon graduation the job is non-existent, thus, unemployment increases and poverty also rises. Also, the type and form of education provided are such that tailor people towards paid employment rather than that which can make them creators of jobs and employer of labour.

This is confirmed by the positive relationship between unemployment rate and poverty rate. As unemployment increases poverty also increases. The growth rate of the economy also impacts positively on Per Capita Income (Inequality) but negatively on poverty while PCI (Inequality) impacts negatively on poverty by implication, as the growth rate increases, Per Capita Income (Inequality) rises, this increase in Per Capita Income (Inequality) is expected to cause a decline in the poverty rate but in reality this is not the case for Nigeria, thus growth in Nigeria has not been inclusive of the masses of the poor and deprived in the economy. Public health expenditure positively impacts Inequality but negatively impacts poverty. Implying that an increase in health expenditure by public authorities would lead to rising inequality and declining poverty.

**Recommendations**

Thus for Nigeria to experience inclusive growth, the following should be observed:

- Policies and strategies aimed at improving access to quality health facilities by all members of the population should be implemented by the public authority
- Practical oriented educational opportunities should be provided so that graduates will possess practical knowledge they can utilize to produce and develop new ideas that will transform the economy. As this will turn our graduate into employers of labour due to the creative practical education they have received.
- Schemes should be established to provide funding for start-ups and promotion of existing businesses in order to aid entrepreneurial development.
- Policies targeted at reducing inequality should be complemented with policies that will ensure growth and poverty reduction.

**REFERENCES**


41. UNDP (2003) United Nations Development Programme Human Development Index
44. World Development Indicators (2013) World Development Data Bank

APPENDIX

Table 1A: Pairwise Granger Causality Tests

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Obs</th>
<th>F-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGDP does not Granger Cause POV</td>
<td>32</td>
<td>0.60711</td>
<td>0.5522</td>
</tr>
<tr>
<td>POV does not Granger Cause GGDP</td>
<td></td>
<td>5.64544</td>
<td>0.0089</td>
</tr>
<tr>
<td>GEXPH does not Granger Cause POV</td>
<td>32</td>
<td>0.27878</td>
<td>0.7589</td>
</tr>
<tr>
<td>POV does not Granger Cause GEXPH</td>
<td></td>
<td>1.67970</td>
<td>0.2053</td>
</tr>
<tr>
<td>GEXPED does not Granger Cause POV</td>
<td>32</td>
<td>0.64246</td>
<td>0.5338</td>
</tr>
<tr>
<td>POV does not Granger Cause GEXPED</td>
<td></td>
<td>3.22752</td>
<td>0.0554</td>
</tr>
<tr>
<td>PCI does not Granger Cause POV</td>
<td>32</td>
<td>0.77099</td>
<td>0.4725</td>
</tr>
<tr>
<td>POV does not Granger Cause PCI</td>
<td></td>
<td>0.73617</td>
<td>0.4883</td>
</tr>
<tr>
<td>UNEMP does not Granger Cause POV</td>
<td>32</td>
<td>2.44877</td>
<td>0.1054</td>
</tr>
<tr>
<td>POV does not Granger Cause UNEMP</td>
<td></td>
<td>1.41390</td>
<td>0.2606</td>
</tr>
<tr>
<td>GEXPH does not Granger Cause GGDP</td>
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<td>0.43132</td>
<td>0.6540</td>
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<td>GGDP does not Granger Cause GEXPH</td>
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<td>0.4730</td>
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<tr>
<td>GGDP does not Granger Cause GEXPED</td>
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<td>0.8247</td>
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<td>PCI does not Granger Cause GGDP</td>
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<td>0.04787</td>
<td>0.9533</td>
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<td>GGDP does not Granger Cause PCI</td>
<td></td>
<td>1.89947</td>
<td>0.1691</td>
</tr>
<tr>
<td>UNEMP does not Granger Cause GGDP</td>
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<td>0.3280</td>
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<tr>
<td>GGDP does not Granger Cause UNEMP</td>
<td></td>
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<td>0.7321</td>
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<td>0.46277</td>
<td>0.6344</td>
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<td>GEXPH does not Granger Cause GEXPED</td>
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<td>PCI does not Granger Cause GEXPH</td>
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<td>43.9480</td>
<td>3.E-09</td>
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<td>1.47355</td>
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<td>PCI does not Granger Cause GEXPED</td>
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<td>24.5437</td>
<td>8.E-07</td>
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<td>GEXPED does not Granger Cause PCI</td>
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<td>4.15306</td>
<td>0.0268</td>
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<tr>
<td>UNEMP does not Granger Cause GEXPED</td>
<td>32</td>
<td>2.63436</td>
<td>0.0901</td>
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<tr>
<td>GEXPED does not Granger Cause UNEMP</td>
<td></td>
<td>2.09494</td>
<td>0.1426</td>
</tr>
</tbody>
</table>
UNEMP does not Granger Cause PCI  32  5.05854  0.0136
PCI does not Granger Cause UNEMP  0.85467  0.4366

Source: Authors’ Computation, 2018