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# The Nexus between Poverty and Income Inequality in Nigeria (1975-2007)

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**Abstract_**

This study examined the magnitude of poverty and income inequality in Nigeria. It revealed the nexus that existed between the two variables – poverty and income inequality. Secondary data were sourced from the statistical digest of National Bureau of Statistics and Central Bank of Nigeria publication. Unit root test was conducted on the time series data using Phillip-Peron unit root test table after which the Vector Auto Regressive (VAR) model of estimation was employed to assess the relationship between poverty and income inequality through the VAR impulse response analysis and its variance decomposition analysis. It revealed that a positive relationship existed between poverty and income inequality, which is measured by gini coefficient, thus income inequality was linked to the growing dimension of poverty in our society. The study recommended the implementation of various poverty reduction schemes to help reduce the nations poverty level and bridge the income inequality gap.

**Keyword:** Economic growth, Income Inequalities, Poverty.

## Introduction

Poverty is a phenomenon that has plagued the world in general and Nigeria in particular over the years. It is generally acknowledged that basic human capabilities such as living a long and healthy life, being knowledgeable and enjoying a decent standard of living are important in their own right. Poor health, malnutrition, illiteracy, lack of voice, powerlessness, social and physical isolation can be considered as measuring directly the level of deprivation that characterizes most African countries especially Nigeria.

Poverty is a multidimensional concept that encompasses both economic conditions and their consequences. The 2004 United Nations World Summit on Social Development described overall poverty as a lack of income and productive resources (conditions) to ensure sustainable livelihoods, hunger and malnutrition, ill health, limited or lack of access to education and other basic services, increased mortality and morbidity from illness, homelessness and inadequate housing, unsafe environments, social discrimination and exclusion deprivation of basic human needs; particularly food, safe drinking water, sanitation facilities, health, shelter, education (Gordon 2005).

Poverty is the inability to achieve a certain minimal standard of living (Aigbokhan 2000). In the early 1980s, the severe economic shocks that rocked the Nigerian economy led to an increase in the level of poverty in the country. Among the factors contributing to the shocks were declining prices of oil, the country's main export and rise in real international interest rates that compounded the external debt. The major underlying reason however was an unprecedented rise in income inequality which virtually led to the disappearance of the middle class.

Income inequality is detrimental to economic growth and development. In Nigeria, Canagarajah(1997), Aigbokhan(2000), Oyekale(2005) shown that income inequality is increasing in the rural and urban areas and this can be linked to the growing dimension of poverty. The widening dimension of poverty has aroused serious humanitarian concerns and fears of political instability.

Inequality is the unequal relationship existing among individuals or groups in a society as regards income, wealth, prestige, power or race. Income inequality refers to the gap existing between the poor and the rich in the society. It is reasonable to attribute inequalities to the past defective colonial economic policy where majority of the Africans lives were neglected (Essama-Nssah, B. and Lambert, Peter J. (2006).

The pivotal development advantages which the urban centers and city dwellers enjoyed in terms of education, employment opportunities and health facilities to mention a few, set the skewed structure of development. Poverty is unequal access to control of productive resources by men and women. Inequality could arise from undue ownership of the means of production (Land and Capital) and unequal access to economic and social goods and services. For instance, in Nigeria, fewer women compared to men own land because of certain socio-economic constraints particularly men subordination over women within marriages, lack of economic power to purchase land at the market price (Awoyemi, 2003).

In Nigeria, despite the rapid economic growth witnessed within 1965-1974, there was a serious income disparity among various income classes in the Nigerian economy. Aigbokhan(1997) emphasized that past policy interventions to correct the abnormality of income distribution in Nigeria suffered series of setbacks due to lack of commitment, political will on the part of the policy makers. In the report of UNO (2002), it was submitted that a quantitative analysis of the exact relationship between income inequality and poverty is necessary to correct abnormalities in the policy formulation and means to address the problem of poverty in many developing countries. This paper critically examined the nexus between poverty and income inequality.

**Literature Review**

Poverty is a multidimensional concept. Development Assistance Committee (DAC) (2001) reported that poverty encompasses different dimension of deprivation that relate to human capabilities including consumption and food security, income or consumption of individuals or households within a region or country.

The World Bank's Development Report (2000-2001) survey of Africa perceived the poor as those lacking security, living in poor houses, having no access to essential services and being perpetually in debt and constantly having to borrow. In rural areas, poverty was expressed in terms of lack of access to land and capital along with non-access to markets for the goods and services the poor can sell which is caused by their remote geographical location.

Nigeria is blessed with mineral resources and rich in crude oil. Ironically, the citizens are hungry and poor in the mist of plenty. The UNDP has classified the country as $154^{th}$ poorest nation on human development index. In its report, Nigeria is considered one of the $20^{th}$ poorest countries in the world with 70% of the population classified as poor and 54.4% living in absolute poverty (UNDP 2006). Available evidence shows that poverty has been a serious problem confronting the Nigerian nation since independence. Nigeria instead of advancing has lately degenerated into one of the poorest countries of the world. In 1960, the poverty level in the country was about 15% and by 1980 it reached 28.1%. In 1985, the poverty level was 46.3 but dropped to 42.7% in 1992. Nonetheless, with the termination of the democratic processes by the military government, the poverty level rose to 43.6% in 1995. A year after about 65% of the population was below poverty line that is about 67.1 million Nigerians. ( Mattew 2007)

In the 1999 and 2000 United Nations Development Report, Nigeria had degenerated further as 85% of the populations were below the poverty line (UNO report 2004). The pattern of income inequality has been a concern to economists for a long time (Clarke 2003). Specifically, the 1990s witnessed resurgence in theoretical and empirical attention by economists to the distribution of income and wealth (Atkinson and Bourguignon, 2000). This is because high level of income inequality produces an unfavorable environment for economic growth and development. Previous studies have shown that income inequality has risen in many developing countries over the last two decades (Addision and Cornia, 2001; Cornia and Kiiski, 2001; the widening dimension of poverty has aroused serious humanitarian concerns and fears of political instability. It has therefore become evident that in absence of strong foreign markets, the domestic inter-sectoral linkages and policy environment requires for rapid economic growth cannot be in provided by policies which result in further concentration of national income in the hand of few proportion of the population (Aighokhan 2000, Clarke 2003).

In Nigeria, accompanying the rapid disparity that was recorded between 1965 and 1974 was a serious income intervention to correct this abnormality, the problem of income inequalities has increased poverty depth in some rural areas. During the Structural Adjustment Programme (SAP) for instance, Aighokhan (2000) submitted that a quantitative analysis of the level of income inequality before and after the implementation of the policy shows that income inequality worsened.

Nigeria's decline in real GDP per capita by 1988 to US$ 290 relegated the nation to low-income status below

India, Pakistan and Ghana. Other indicator of development; life expectancy- for which Nigeria ranked 148$^{th}$ among 173 countries were consistent with Nigeria's low ranking in income per capita (UNDP 2007).

Development Assistance Committee (2001) acclaimed the concept of poverty has undergone four changes over the past decade. First there has been a shift from a physiological model of deprivation to a social model of deprivation. The social model is about incorporating issues of political and economic rights and social justice into the anti-poverty programmatic framework. Second, there has been renewed emphasis placed on the concept of vulnerability and its relationship to poverty. Third, the concept of inequality and its relationship to poverty has re-emerged as a central concern. Fourth, the idea that poverty should be conceptualized as the violation of basic human rights has been painstakingly argued by UN system agencies.

Canagarajah (1997) reported that, although growth reduced poverty, the distribution of income worsened in Nigeria between 1982 and 1992. He observed that Nigeria has high level of poverty and income inequality accompanied by low level of economic growth. Oyekale (2005) in his work titled "sources of income inequality and poverty in rural and urban Nigeria" attempted an estimation of the level of income inequality using mean, standard-deviation and coefficient of variation to measure income inequality. His findings revealed that income inequality increases in rural and urban areas in the country and it's detrimental to economic growth and development.

Jones (2007), in his work titled "income inequality, poverty and social spending", stressed that income inequality and relative poverty among the working age population in Japan rose to a high level with effect on their social spending.

The National Bureau of Statistics (NBS) released the poverty incidence figures for 2010 and forecast for 2011 for Nigeria. The figures suggest that the incidence of poverty in Nigeria worsened between 2004 and 2010. The report indicates that the number of Nigerians living below poverty line rose from 68.7m to 112.5m (63.7% rise in poverty incidence) during the period while the population rose from 139.2m to 158.6m (13.9% rise in population) over the same period. Earlier figures on unemployment in Nigeria corroborated this situation as the number of unemployed members of the labour force continued to grow from 12.3% in 2006 to 23.9% in 2011. However, during the same period, Nigeria economy grew strongly at an average annual growth rate in excess of 6.6%, making the country the 5th fastest growing economy in the World in 2010 at 7.87% real growth rate. This represents the paradox of growth in the face of poverty and inequality.

The incidence of poverty in Nigeria became alarming in 2010 when the Millennium Development Goal (MDG) report for the year suggested that more than 50% of Nigerians lives in chronic poverty. The incidence of relative poverty stood at 69% in 2010 and estimated/forecasted to reach 71.5% of the population in 2011.

The National Bureau of Statistics measures four types of poverty incidence: The food poverty measure, which defines proportion of population living on less than 3000 calories of food per day; the absolute poverty measure, which defines those living below a defined minimal standards of food, clothing, healthcare and shelter; the relative poverty measure, which defines those living below the living standards of majority in a given society; and the Dollar per day measure, which defines those living below US$1 per day based on the World Bank's Purchasing Power Parity (PPP) index.

In 2010, it was estimated that 66m Nigerians or 40.63% of the population did not have access to 3000 calories of food per day. About 99m or 60.5% of Nigerians are absolutely poor living below humanly acceptable level of food intakes, had no decent clothing and no access to standard healthcare and shelter. 112m Nigerians are also relatively poor, and 99.5m lives on less than a dollar per day. Across the 6 geopolitical zones, the Northwest had the highest incidence to poverty across the poverty measures. The south west had the lowest incidence of poverty. Among the 36 States of the federation, Gombe State had the highest incidence of food poverty while Lagos State has the lowest. On Chronic poverty measures- dollar per day Poverty measure, Sokoto State had the highest incidence of chronic poverty while Niger State has the lowest.

An average Nigerian Lived on less than US$2 per day in 2010; it would be barely US$2 per day in 2012 Although the real per capita income of Nigerians has trended upward, rising from US$559 or N57,073.9 in 2004 (based 2000 price and exchange rate level) to US$757 or N71,674.2 in 2010, the growth rate has been slower at an average annual growth of 3.85% over the same period and its projected to remain unchanged through 2012. This is in the face of an average population growth rate of 2.6%. At purchasing power parity and assuming the wealth of the nation is distributed equally, the real per capital income figures above suggest that an average Nigerian lived just about US$2 per day in 2010. The fact that 60.77% of the population lived on less than US$1 per day in 2010 supports the high inequality measure of 0.45 Gini Coefficient. The IMF forecast in 2011 put the real per capital income at N77,289.70 or US$757 in 2012 suggesting that an average Nigerian would live on about US$2.07 per day. The forecasted poverty incidence for 2011, according to NBS is 71.5% and could be worse in 2012. Even though growth has helped to reduce poverty in a large number of countries since the mid-1990s, Fosu (2011) concludes in his recent review of poverty trends that 'further progress could have occurred under a relatively more favourable income distribution'. It is thus not surprising that redistribution, broadly defined as the use of tax and transfer policies to reduce income inequality, has re-entered the mainstream of the poverty debate.

**Methodological Framework**

**Model specification**

Poverty index consists of the headcount ratio, average propensity gap and poverty gap severity. Foster-Greer-Thobecke (1984) summed up a general formulation known as the FGT index. The index considered the poverty level to be determined by the distribution of income among the poor considering the gap of inequality in the society.

Poverty = f(income inequality).

Consequently, the model is specified as:

$P_t = F\ (Gini_t)$

$P_t = \alpha_0 + \alpha_1\ Gini_t + Ui_t$

Where Pt = Poverty rates

$Gini_t$ = Gini coefficient (A measure of income inequality)

**Estimation Techniques**

The main focus of this paperwork is the determination of the casual relationship between poverty and income inequality in Nigeria. (Vector Auto Regression (VAR) is set up to capture the existence of shock in the long run. The model examined the time series properties of the variables using the Phillip Peron unit root test.

Gini coefficient was estimated from the gross domestic product and employment rate through the Lorenz curve function.

Y = f(x), a non-constant regression. The function was estimated to be; $Y = 0.772x$

For the first year, 1980 … The Gini coefficient was estimated to be:

GINIC = 1 - $\int_0^2 0.034698(0.772x)dx$

**Empirical Results**

**Table 1: Stationarity of the variables**

| Variables | PP Statistics | | | Critical Value | | |
|---|---|---|---|---|---|---|
| | Level | 1st diff | 2nd diff | 1% | 5% | Order of Integration |
| Pov | -1.9297 | -4.5865 | Na | -3.7115 | -2.9810 | 1(1) |
| Gini | 76.73 | -0.0762 | -0.0914 | -3.7115 | -2.9810 | 1(3) |

Source: Computed from data

From the table above, the two variables are non-stationary at their levels. Poverty was stationary at 1st difference while Gini coefficient was not stationary at 1st and 2nd difference. As the two variables does not co-integrate together at the same order of difference, this lead to the use of VAR.

**Table 2: VAR Result**

| Series | POV | Gini |
|---|---|---|
| Pov (-1) | 1.5071 | 234.5321 |
| Pov (-2) | -0.7321 | -208.7518 |
| Gini (-1) | 0.0036 | 2.1110 |
| Gini (-2) | -0.0036 | 36.9981 |
| C | 11.2325 | -2817.708 |
| R-Squared | 0.7713 | 0.3430 |
| Adj. R Squared | 0.7277 | 0.2179 |
| F-Statistics | 17.7021 | 2.7408 |

Source: computed from data

The VAR estimates above indicated the strong relationship between the endogenous variables. It portrays the direction of causality. The $R^2$, Adjusted $R^2$ is above 70% with a high F-statistics value than that of Gini coefficient. This signifies that poverty is being determined by Gini coefficient.

**Table 3: Impulse Response Analysis**

**Response of Poverty** **Response of Gini**

| Period | POV | Gini | | Period | Pov | Gini |
|---|---|---|---|---|---|---|
| 1 | 7.05937 | 0.000000 | | 1 | -1208.310 | 133660.6 |
| 2 | 6.2867 | 481.4838 | | 2 | -895.1482 | 282163.7 |
| 3 | 5.4167 | 1262.636 | | 3 | -46594.13 | 5653778 |
| 4 | -161.0729 | 20904.85 | | 4 | -131523.1 | 22570529 |
| 5 | -553.3681 | 91606.71 | | 5 | -2040455 | 2.61E+68 |
| 6 | -7594.595 | 983671.5 | | 6 | -9269760 | 1.4E+09 |
| 7 | -37113.91 | 5535716 | | 7 | -96727561 | 1.28E+10 |
| 8 | -365564.4 | 48873877 | | 8 | -5.54E+08 | 8.02E+10 |
| 9 | -2173482 | 3.12E+08 | | 9 | -4.83E+09 | 6.55E+11 |
| 10 | -18407485 | 2.51E+09 | | 10 | -3.11E+10 | 4.41E+14 |

Source: computed from data

The impulse response analysis of the Vector Autoregressive (VAR) allows us to trace out the time path of the various shocks on the variables of the VAR system. From table 3 above, the response of poverty rate (POV) to a one standard deviation shock to poverty rate itself is positive in the first period to the third period and turns negative afterward. This signifies that poverty exhibit negative response to a one standard deviation innovation. This is a clear indication that poverty is a more dependent variable than Gini. Poverty rate is being determined by Gini coefficient.

**Table 4: Variance Decomposition Analysis**

| Variance Decomposition of Poverty | | | | | Response of Gini | | | |
|---|---|---|---|---|---|---|---|---|
| **Period** | **S.E.** | **POV** | **Gini** | | **Period** | **S.E** | **POV** | **Gini** |
| 1 | 7.059366 | 100.000 | 0.000000 | | 1 | 133666.1 | 0.008172 | 99.99183 |
| 2 | 481.5766 | 0.038530 | 99.96147 | | 2 | 312223.9 | 0.002320 | 99.99768 |
| 3 | 1351.368 | 0.006500 | 99.99350 | | 3 | 5662584 | 0.006778 | 99.99322 |
| 4 | 20949.11 | 0.005939 | 99.99406 | | 4 | 23270387 | 0.003598 | 99.99640 |
| 5 | 93973.19 | 0.003763 | 99.99624 | | 5 | 2.63E+08 | 0.006070 | 99.99393 |
| 6 | 988179.3 | 0.005941 | 99.99406 | | 6 | 1.4E+09 | 0.004416 | 99.99558 |
| 7 | 5623347 | 0.004539 | 99.99546 | | 7 | 1.29E+10 | 0.005651 | 99.99435 |
| 8 | 49197678 | 0.005581 | 99.99442 | | 8 | 8.12E+10 | 0.004802 | 99.99520 |
| 9 | 3.16E+08 | 0.004861 | 99.99514 | | 9 | 6.60E+11 | 0.005421 | 99.99458 |
| 10 | 2.53E+09 | 0.005384 | 99.99462 | | 10 | 4.46E+12 | 0.004988 | 99.99501 |

Sources: computed from data

The variance decomposition method of analysis gives information about the relative importance of each random innovation or shock to the variables in the Vector Autoregressive Scheme (VAR). Table 4 above revealed that the magnitude of the shocks to poverty rate is being explained by 100% shock to itself in the first period after which it declined subsequently. The shock from poverty is obtained as a result of Gini coefficient through the 99% shock it produces over the periods.

**Conclusion**

The evidence provided in this study based on empirical findings revealed the nexus between poverty and income inequality in Nigeria. Income inequality measured by gini coefficient is a major cause of poverty in the country. This was established from the direction of causality. The magnitude of the cause-effect relationship between the two variables was also established.

**Policy Recommendations**

This paper recommended that; the income inequality gap must be bridged as its one of the reasons for the widespread of poverty in the land. Poverty reduction schemes such as capacity building of the poor, reduction of unemployment are to be implemented to help the nation reduce its poverty level, the use of fiscal policy through taxation, must be put in place to serve as a measure to bridge the gap between the rich and the poor in the society. Proper implementation of government budget should be set in motion as this help to better the life's of the general public.

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