POVERTY AND INCOME INEQUALITY IN NIGERIA: AN EMPIRICAL ASSESSMENT

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Abstract

This paper attempts to empirically assess the relationship between poverty, income distribution and the growth of the Nigerian economy. To do this, a co-integration technique was employed to test for the unit root and the error correction mechanism (ECM). The Real Gross Domestic product was regressed on Private Consumption Expenditure, Per Capita Income, Registered Unemployment, and Government Expenditure on Health and Education. Arising from the findings, the paper recommends that, for there to be sustainable improvements in the economy, the government at all levels should, amongst others, focus more on the development of essential social services for easier access to education, health, transportation and financial services. This should be complemented by executing relevant development programmes that will boost the income level of the poor, which is desirable for both income redistribution and poverty alleviation purposes.

Keywords: Poverty, Income Distribution, Growth, Cointegration

Introduction

Lately, there has been a renewed and growing concern about increasing poverty and income inequality (both within and across countries) and their negative implications for both economic growth and social peace (Bourguignon, Fournier and Gurgand 1998; Bouillon, Legovini and Lustig 1999; Birdsall 2005).

In Africa, poverty remains a scourge that undermines development in contemporary African society in that, it is deep-rooted and pervasive (Igbatayo and Igbinedion, 2006). Perhaps, nowhere else in the African continent is the scourge more prevalent than in Sub-Saharan African, where about one-sixth of the people are chronically poor (Word Bank, 1996; CFA, 2005). To reverse this trend, many Sub-Saharan African countries from the early 1980s initiated and implemented the IMF World Bank Structural Adjustment Programmes (SAP). These programmes have been reported to have stimulated growth in most of these developing countries. However, in some other countries, there has been little or no change in terms of growth and poverty reduction.

In Nigeria, the twin issues of poverty and inequitable income distribution present a paradox. This is so because, though the country is rich in land, human and natural resources, the people are still considered to be poor, as nearly 70 percent of Nigerians in 1999 were living in poverty (FOS, 1999; Okojie, et al 2000; World Bank 2000; Soludo, 2006), while the incidence of poverty has remained relatively high, hovering around 54% between 2005 and 2009 (CBN, 2009). Per Capita income by 2000 was still around the same level as in 1965 and in between, Nigeria's cumulative revenues from oil (after deducting the payments to the foreign oil companies) have amounted to about US$350 billion at 1995 prices (Salai-Martin and Subramanian, 2003). Worse still, the problems of poverty in Nigeria are multi-faceted, among which are widespread outbreak of AIDS pandemic, lack of access to good health facilities, high infant
mortality rate, lack of essential infrastructure, unemployment and underemployment, corruption, e.t.c.

In the past few years, Nigerian government has spent colossal sum of money both at the Federal, State and Local Government levels in vain attempts at the relief of poverty by initiating and executing several poverty alleviation programmes. However, many of the "Noveau Riche" who are put in charge of such programmes have been accused of having only succeeded in enriching themselves and their cronies, sending the country deeper into the abyss of higher poverty and inequality.

Interestingly, a major strategy which has been used in reducing the level of poverty in most developing countries (Nigeria, inclusive) is the economic growth strategy which focuses on the macro and microeconomic policy which ensures rapid growth of the economy. Economic growth is regarded as crucial as it would generate income-earning opportunities for the poor and thereby make use of their most abundant asset, that is, their labour. Besides, human capital, the product of education and improvement of health, is also crucial to raising the living standard by raising productivity, stimulating growth and by opening up economic opportunities to more people, which contributes to reducing income inequality.

In the light of the above scenario, this paper attempts to empirically analyze the relationship between poverty, income distribution and growth in the Nigerian economy. Accordingly, the rest of the paper is structured into four sections. Section two reviews some relevant literatures on poverty and income distribution, while section three provides the theoretical framework and model specification. Section four contains the analysis of the econometric results and its policy relevance, while section five concludes the paper with pertinent remarks.

Review of related literature
Poverty remains a multi-dimensional concept, as it does not lend itself to a single, universally accepted definition (UNECA, 2005). Hence, the literature is replete with definitions reflecting the peculiar perceptions of various researchers and policy makers, as well as the circumstances prevailing in different regions of the world (Igbinedion and Igbatayo, 2007). For instance, many analysts conceive poverty in terms of individual or family insufficiency of assets and income. Atolaye (1997) and Enslama Bamidele (1997) conceptualized poverty as the "lack of basic necessities". Along this basic needs approach, poverty can be conceived of as absolute poverty or relative poverty (UNIDO, 1990).

Inequality, on the other hand, implies the dispersion of a distribution whether one is considering income, consumption or some other welfare indicators or attributes. Although conceptually distinct, income inequality is often studied as part of the broad analysis covering poverty and welfare. Thus, inequality is a broader concept than poverty because it is defined over a whole distribution (Litchfield, 1999).

The pattern of income distribution has been of great concern to economists for a long time. Since Atkinson (1970), most questions about the measurement of inequality have been formulated using the explicit logic of social choice theory. Pigou (1912) and Dalton (1920), proposed a Pigou-Dalton transfer principle. This principle opines that inequality increases when there is a transfer of income from a poorer to a richer person. Most measure of inequality in literature satisfies this principle. Furthermore, Dalton (1920) proposed the population principle of income inequality measurement, which observes that inequality measures are invariant to replications of the populations. This implies that, merging two identical distributions will not alter the level of inequality.

However, following the works of Kuznets (1955, 1966), on the relationship between development and income inequality, many development economists have been inspired to find the major sources of income inequality. In this regard, Datt and Ravallion (1992), proposed a method that decomposed poverty change into income redistribution, income growth and a residual
component, otherwise known as the "Black box". Kakwani (1997) adopted an axiomatic approach to decompose poverty change into their growth and redistribution components.

On the factors that could possibly widen or reduce income distribution in a country, Alayande (2003), decomposed income inequality in Nigeria using a regression-based approach as proposed by (Morduch and Sinclair, 2002). With 1996/1997 data, the Gini decomposition method revealed that primary and post-secondary educational attainments are important in reducing income inequality, while the number of unemployed persons in the households contributed positively to income inequality.

Baye (2005), using Shapley (1953) value for assigning entitlement in distributive analysis, assessed the within and between sector contributions to changes in poverty levels in Cameroon between 1984 and 1996. It was found that the within sector effect disproportionately accounted for increase in poverty, but the between sector contributions in both rural and semi-urban areas increase poverty.

On the relevance of income inequality to economic development, efforts can be judged by the spread of researchers that have kept close focus at it since the past few decades. Specifically, the 1990s witnessed resurgence in theoretical and empirical attention by development economists to the distribution of income and wealth (Atkinson and Bourguignon, 2000). This is because high level of income inequality produces unfavourable environment for economic growth and development (Birdsall, 2005). In many developing countries, studies have shown that income inequality had risen over the last two decades.

In Nigeria, accompanying the rapid growth that was had between 1965 and 1974 was a serious income disparity that is believed to have widened substantially. Despite past policy interventions to correct this abnormality, income inequality has increased the dimension of poverty in the country. Aigbokhan (1997) found that income inequality worsened after the Structural Adjustment Programme (SAP) of 1986. Similarly, poverty incidences were 28.1, 46.3, 65.6 percent in 1980, 1985, 1996 respectively (World Bank, 1996).

Furthermore, studies have shown that a high level of income disparity exists between Nigeria's rural and urban areas (Etukudo, 1978; UNDP, 2001). This is largely because most rural communities depend on agriculture, while urban engage mostly in paid jobs. This lopsided development in income distribution has often times resulted in discontents, violence, corruption, hence, as part of macroeconomic objectives, government always gives equitable distribution of income a priority. This is important because income inequality is closely related to poverty (Abayode, 1983) and a careful study of it gives some insight into the incidence of poverty.

**Theoretical framework and model specification**

While economists have a theory of economic inequality, there is no theory of poverty in the conventional sense of the word (Akeredolu-Ale, 1975). Rather, poverty theories are woven around the objects and subjects, as well as the nature of the phenomenon (Tella, 1997).

The capitalist entrepreneurial theory opines that the rather crude exploitation of the poor by means of low wages and poor conditions of services allows for a possible rise in savings among the entrepreneurial class. The resultant inequality in income could result in the preponderance of poverty among the peasant majority.

The individual attributes theory, on the other hand, posits that an individual's location in the society's hierarchy of income and wealth is presumed to be determined above all, by his motivations, attitudes and abilities (McClelland, 1961; Hagen, 1962).

The national-circumstantial theories identify factors such as geographical locations and natural endowments of the environment in which persons live including such other variables as unemployment, old-age, physical disabilities, e.t.c as culprit of poverty (Akeredolu-Ale, 1975). The power theory recognizes the structure of political power in the society as the main determinant of the
extent and distribution of poverty among the population.

The modern theoretical approach, however, considers the income dimension as the core of most poverty-related problems. To this end, poverty may arise from (a) change in average income and (b) change in the distribution of income. Assuming a relationship between poverty line \( L \) and the average income of the population \( Y \), the poverty index will increase/decrease as \( L/Y \) increases/decreases. So, the higher average income is above the poverty line, ceteris paribus, there will be less poverty. Also, if for instance two countries with identical mean income (and poverty line, \( L \)), but with one having a wider spread of distribution of income, poverty will generally be greater in the country with higher inequality, since there will be relatively more people with incomes lower than the poverty line (\( L \)).

**Model specification**

For the purpose of this study, the functional relationship between RGDP and its associated independent variables can be expressed in the following functional form:

\[
\text{RGDP} = f(PCE, \text{GGREH}, \text{GGREE}, \text{PCI}, \text{RUEM})
\]

Putting the foregoing functional relationship in a form that is estimable,

\[
\ln\text{RGDP} = a_0 + a_1\ln\text{PCE} + a_2\ln\text{GGREH} + a_3\ln\text{GGREE} + a_4\ln\text{PCI} + a_5\ln\text{RUEM} + \text{Ut}
\]

where:

- \( \ln \) = natural log
- RGDP = Real Gross Domestic Product Growth
- PCE = Private Consumption Expenditure
- GGREH = Growth in Government Recurrent Expenditure on Health
- GGREE = Growth in Government Recurrent Expenditure on Education
- PCI = Per Capital Income
- RUEM = Registered Unemployment
- Ut = Error term

The apriori expectations are:

- \( a_1 < 0 \), \( a_2 > 0 \), \( a_3 > 0 \), \( a_4 < 0 \), \( a_5 > 0 \)

**Model estimation technique**

In investigating the impact of poverty and income distribution on the Nigerian economy, this study adopted a co-integration and error correction mechanism technique within the sample period (1980-2008). This choice of technique was informed by the need to determine the time series characteristics of the variables that are employed in the econometric estimates of the study.

**Unit root test**

This is also called the test of stationarity and it tries to determine the order of integration of the variables. Consequently, the table below shows the outcome of the stationarity test of the model earlier stated using the Dickey-Fuller (DF) test statistics.

Table 3.1 (about here)

The result of the unit root test in the table above shows that GDP and PCI were stationary at level, while the other variables were not stationary. However, this led to the differencing of the variables and the result shows that DGREH, DRUEM became stationary with DPCE still maintaining it non stationarity status. This means that at levels, GDP and PCI exhibited a deterministic trend and at first difference, GREH and RUEM also exhibited the same trend. As for PCE, it exhibited a stochastic trend.

**Error correction equation**

This is also done, taking the first difference of the variables and the result is shown in the table below.

Table 3.2 (about here)

In order to obtain a better result, we sought to find the "equilibrium error" by tying the short run behaviour of GDP to its long-run values and relating the changes to the changes in the regressors and the equilibrating error in the previous period.

Therefore, the ECM result shows that, the coefficient was appropriately signed. The result indicates that 0.29085 of the short term disequilibrium in GDP is corrected each period. This implies that -0.29085 of the discrepancies between the actual and the long-run values of GDP is estimated every year.

Table 3.3 (about here)
From the table above, it can be noticed that there is a long-run positive relationship between private consumption expenditure (PCE) (a proxy for poverty level) and the Gross Domestic Product (GDP). So the PCE which has a coefficient of 7.2322 suggests that there is practically a one to seven relationship between Gross Domestic product and the private consumption expenditure.

**Policy implication**

Arising from the preceding empirical findings, the following policy implications can be deduced:

1. Given the relationship between Private Consumption Expenditure (PCE) and Gross Domestic Product (GDP) in Nigeria within the period, relevant policies should be directed towards enhancing these variables, as increasing them may help to alleviate the impact of poverty on the citizenry.

2. Expenditure in both the health and the educational sectors should be reasonably stepped up with a view to enhancing the growth of the domestic economy, while concrete long-term policies should be put in place with a view to reducing the high literacy level in line with Millennium Development Goals (MDGs).

3. Since unemployment has a negative relationship with the GDP, appropriate policies should be pursued to ensure that unemployment rate is reduced to a single digit figure. Such policies should be jobs creation-oriented, either by the government or the private sector or both, through the National Directorate of Employment (NDE) or through other relevant skills acquisition schemes.

4. In all, greater efforts should be made towards strengthening the domestic macroeconomic management, with a view to engendering growth in the economy. This should be complemented by relevant policies aimed at addressing equitable distribution of income and an acceptable revenue sharing formula.

**Concluding remarks**

Poverty has remained a major source of concern to many developing nations of the world because of its debilitating effects on the citizenry. In Nigeria, poverty is multi-faceted, as it incorporates economic, social, cultural and political dimensions. As such, achieving an appreciable rate of poverty reduction within a reasonably short time would require the irrevocable commitment of all stakeholders.

First, the government at all levels should be resolute in ensuring more equitable distribution of income aimed at mitigating poverty, by focusing more on the development of essential social infrastructures for easier access to education, health, transportation, and financial transactions.

Second, we are of the opinion that previous poverty alleviation programmes in the country failed to reasonably address the scourge of poverty partly because those mostly affected by it had no input in their formulation and execution. Consequently, we recommend that, subsequent programmes in this wise should be country-driven, encompassing wide consultations with different segments of the prospective recipient population, particularly the poor and the vulnerable. In other words, the conceptualization, design and implementation of poverty alleviation programmes should be guided by the needs of the poor as identified by the poor themselves.

Furthermore, increasing household sizes inevitably reduces per capita income and worsens the incidence of poverty. This underscores the need to campaign against large family size, while women are placed on birth control programmes.

Also, both the private and public sectors should strive to create more job opportunities. In this wise, small-scale enterprises, that are both agricultural and non-agricultural based, should be genuinely encouraged. The government, through the activities of the National Directorate of Employment (NDE), should refocus more on the rural areas where the incidence of poverty is greater. Skill acquisition in non-agricultural enterprises that can be managed within the socio-economic structure of the rural areas should be promoted, while notable problems mitigating against agricultural development in Nigeria, like inefficient pricing system and natural resource degradation, should be urgently addressed.
References


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Table 3.1: The Result from Unit Root Test

<table>
<thead>
<tr>
<th>S/NO</th>
<th>Variables</th>
<th>DF Test Statistics</th>
<th>Critical Values</th>
<th>Order of Integration</th>
<th>LAG</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>GDP</td>
<td>6.1848</td>
<td>-2.9970</td>
<td>I (0)</td>
<td>0</td>
<td>Stationary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3.7702)</td>
<td>-3.6219</td>
<td>l(0)</td>
<td>2</td>
<td>Stationary</td>
</tr>
<tr>
<td>2.</td>
<td>DGREH</td>
<td>4.3928</td>
<td>-3.0039</td>
<td>l(0)</td>
<td>0</td>
<td>Stationary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4.9086)</td>
<td>(-3.6331)</td>
<td>l(0)</td>
<td>0</td>
<td>Stationary</td>
</tr>
<tr>
<td>3</td>
<td>PCI</td>
<td>5.1838</td>
<td>-2.9970</td>
<td>l(0)</td>
<td>0</td>
<td>Stationary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.8399)</td>
<td>(-3.6219; 1(1))</td>
<td>l(1)</td>
<td>1</td>
<td>Not Stationary</td>
</tr>
<tr>
<td>4</td>
<td>DPCE</td>
<td>2.9981</td>
<td>-3.0039</td>
<td>I(1)</td>
<td>2</td>
<td>Not Stationary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.7610)</td>
<td>(-3.6331)</td>
<td>(1)</td>
<td>2</td>
<td>Not Stationary</td>
</tr>
<tr>
<td>5</td>
<td>DRUEM</td>
<td>-6.2665</td>
<td>-3.0039</td>
<td>l(0)</td>
<td>0</td>
<td>Stationary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-6.1754)</td>
<td>(-3.6331)</td>
<td>l(0)</td>
<td>0</td>
<td>Stationary</td>
</tr>
</tbody>
</table>

Source: Computer Computation (Microfit Software, 1997).
NOTE: the values in parenthesis are test with a linear trend.

Table 3.2: Error Correction Equation

<table>
<thead>
<tr>
<th>Variables</th>
<th>LAG</th>
<th>Coefficients</th>
<th>Std Error</th>
<th>T- values</th>
</tr>
</thead>
<tbody>
<tr>
<td>dDPCE</td>
<td></td>
<td>-0.03523</td>
<td>0.12302</td>
<td>-0.28640</td>
</tr>
<tr>
<td>dDPCI</td>
<td>1</td>
<td>-1.5270</td>
<td>0.45351</td>
<td>-3.3670</td>
</tr>
<tr>
<td>dD GREH</td>
<td></td>
<td>-34627.7</td>
<td>27568.9</td>
<td>-1.2560</td>
</tr>
<tr>
<td>dD GREE</td>
<td></td>
<td>59963</td>
<td>16789.2</td>
<td>3.5715</td>
</tr>
<tr>
<td>dD RUEM</td>
<td></td>
<td>-1.5000</td>
<td>3.3500</td>
<td>-0.44776</td>
</tr>
<tr>
<td>dINT</td>
<td></td>
<td>-4.5100</td>
<td>7.5400</td>
<td>-0.59778</td>
</tr>
<tr>
<td>ecm(-1)</td>
<td></td>
<td>-0.29085</td>
<td>0.24548</td>
<td>-1.1848</td>
</tr>
</tbody>
</table>
R-squared 0.97129
Adjusted R-squared 0.9514
F-Statistics 73.301
D-W 2.0998

Source: Computer Estimation (Microfit Software, 1997).

Table 3.3: Long-Run Coefficient of DGDP

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficients</th>
<th>T-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPCE</td>
<td>7.2322</td>
<td>1.0894</td>
</tr>
<tr>
<td>DGREH</td>
<td>-978861</td>
<td>-1.0798</td>
</tr>
<tr>
<td>DGREE</td>
<td>691796</td>
<td>1.2151</td>
</tr>
<tr>
<td>DRUEM</td>
<td>-5.1600</td>
<td>0.44087</td>
</tr>
<tr>
<td>INT</td>
<td>-1.5500</td>
<td>0.47585</td>
</tr>
</tbody>
</table>

Source: Computer Estimation (Microfit Software, 1997)