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Analysing Poverty Situation in Rural Nigeria

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Abstract

In spite of increase in the growth rate of the economy in recent times and the huge revenues derived from oil, it is worrisome to discover that Nigeria is still suffering from high level of poverty. The study employs Shapley decomposition approach to address the paradox of whether economic growth in Nigeria reduces poverty or not. The result indicates that the so-called "trickle down" phenomenon, underlying the view that growth improves poverty is not supported by Nigeria's data. The paper therefore investigates changes and the extent of poverty in rural Nigeria from 2004 to 2010. It examines the contributions of growth and redistribution factors to changes in poverty within the study period. The analysis is based on the National Living Standard Survey (NLSS) data of 2004 and 2009/2010 sourced from the National Bureau of Statistics (NBS). The study reveals that the extent of poverty in the rural sector declined slightly during the second period of study (2010). Decomposition of changes in poverty into growth and redistribution components indicate that both the growth and the redistribution component were poverty reducing but at different magnitudes indicating that the deterioration of income inequality contributes to the worsening of poverty in Nigeria. Equitable distribution of income and pro-poor growth is thus essential for growth to translate into meaningful and rapid poverty reduction.

Keywords

Economic-Growth, Rural Poverty, Redistribution, Shapley-Decomposition-Approach

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1. Introduction

Poverty reduction remains one of the major priorities of development efforts in developing countries as pointed out by millennium development goals (MDGs). According to the World Bank Report (1990), the burden of poverty also weighs heavily on the people living in the regions of the developing world, among the countries of these regions, and among the localities of these countries. Almost half of the world's poor live in South Asia which accounts for nearly 30% of the world's population. The people of SSA and those of South Asia are among the poorest in the world, both in terms of real income and of access to social services. The above World Bank Report reveals that about 45% of the 590 million people of SSA countries live under their national poverty lines. In recent years however, most of these countries have achieved significant progress in the reduction of poverty. Estimates from country studies carried out in this region show that more than 40 million persons in these countries escaped poverty during the 1999-2003 period, most of this reduction being mainly due to the recovery of economic growth World Bank (2004). Growth is defined as pro-poor under a relative approach if the growth benefits the poor proportionately more than the non-poor (Chotikapanich, Griffiths, Rao, and Karunarathne 2014).

The trap stems from the fact that the condition of poverty itself has effects that cause poverty. In other words, not only does economic growth affect the incidence of poverty, but, where the majority of the population is very poor, the incidence of poverty also affects economic growth. In societies where the majority of the population live at or below income levels sufficient to meet their basic needs, and

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the available resources even where equally distributed are barely sufficient to meet the basic needs of the population, this all-pervasive poverty itself acts as a major constraint on economic growth" (Gore, 2002). Just like the case in Nigeria, the incidence of poverty in rural India and rural PRC is quite high compared to their urban counterparts, indicating an unequal distribution of growth across rural and urban regions of these countries.

A growing number of studies have confirmed that there is a strong relationship between economic growth and poverty. Economic growth is the best way to combat poverty through increasing the income of people (by providing employment and redistribution of wealth) and providing social services (by increasing expenditure on social services such as education and health etc) (Chotikapanich *et al.* 2014**).** A number of methods for examining pro-poorness of growth have been developed over the last decade. For example, Ravallion and Chen (2003) advocate the use of growth incidence curves and provide an index of pro-poorness of growth using the Watts index. Kakwani and Pernia (2000) provide a number of measures of pro-poorness of growth and also offer useful decompositions of the pro-poorness measures of growth. Duclos and Verdier-Couchane (2010) and Klasen *et al.* (2004) provide useful applications of these methods to the analysis of pro-poor growth in South Africa, Mauritius, and Bolivia. Typically, analyses of pro-poorness of growth require unit record data on incomes or expenditures at two different points of time. Data on households are then used to examine growth in income at different quantiles, which in turn provides information to compute pro-poorness measures**.**

The World Bank (1996) has described the poverty situation in Nigeria as a paradox and this description has continued to be confirmed by events and official statistics in the country. This view is supported by other authors like (Nwaobi, 2003; Aigbokhan 2008) who assert that Nigeria presents a paradox and that the country is rich but the people are poor. Kale (2012) is of the opinion that it remains a paradox that despite the fact that the Nigerian economy is growing, the proportion of Nigerians living in poverty is increasing every year. Given this condition, Nigeria should rank among the richest countries that should not suffer from poverty. The paradox is that the poverty level in Nigeria contradicts the country's immense wealth. Among other things, the country is enormously endowed with human, agricultural, petroleum, gas, and large untapped solid mineral resources (Obadan, 2002). According to 2004 Human Development report, the proportion of Nigerians living below the poverty line of one dollar a day has increased dramatically during the last two decades. The report ranks Nigeria number 151 and places the country among the 26 poorest countries in the world. In year 2000, the statistics show that more than 70% of Nigerians were estimated to be living below the internationally defined poverty line of one dollar a day. (World Bank, 1995). This view is supported by other studies like (FOS, 1999; Okojie, *et al*. 2000; World Bank 2000, Soludo, 2006).

Four decades after independence, Nigeria remains a poor country with an annual per capita income of barely \$300. This figure is below the sub-Saharan average of \$450 (AFPODEV, 2006). At the dawn of the third millennium, approximately 70 percent of the population still lived on less than US \$1 a day, an indication of extreme poverty reported that 71% of Nigerians still live below the poverty line of less than £1/day (World Bank 1995) a situation which Human Development Index described as undesirable. The report further indicated that both per capita income and per capita private consumption were lower than the early 1970s. Per capita income fell from \$1,600 in 1980 to \$290 in 2002. This is due to, among others, neglect of the agriculture sector, depreciation of the naira and economic mismanagement by the past non-civilian governments. To-date the average GDP per capita has oscillated between US \$ 355 and 387. Majority of Nigerians (about 90%) who are engaged in Agriculture are poor and reside in rural villages, while 58% of the urban population is living in poverty. Nigeria's economy is projected to continue growing but poverty is biting harder as the gap between the rich and the poor continue to widen. Those who can afford the essential things of livelihood (food, shelter and clothing) rose to 60.9% in 2010 compared with 54.7% in 2004 (Oseni et al 2012)

However, there is general agreement in the literature that growth is necessary but not sufficient for poverty reduction (Ravallion and Datt 2002, Hoekman et al. 2001). Others argued that growth in incomes of the poor is strongly correlated with overall growth of the economy especially growth in the agricultural sector, and this fact has been demonstrated in cross-country and individual country studies (Hoekman et al. 2001).

A growing number of studies have confirmed that there is a strong relationship between economic growth and poverty. Economic growth is the best way to combat poverty through increasing the income of people (by providing employment and redistribution of wealth) and providing social services (by increasing expenditure on social services such as education and health etc) (Zaman et al 2012). It is widely accepted that economic growth is necessary but not sufficient for poverty reduction. The pattern and stability of economic growth also matter in reducing poverty. Growth contributes most to poverty reduction when it expends employment, productivity, and wages of poor people, and when resources are spent on human development and physical infrastructure (Khan 2002). 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 (Osahon and Osarobo, 2011)

Specifically, a number of government programmes initiated in the past, have aimed at improving basic services, infrastructure and housing facilities for the rural and urban population, extending access to credit farm inputs, and creating employment. Most of the programmes were, however, not specifically targeted towards the poor, though they affect them. There are specific multisector programmes (water and sanitation, environment, etc) as well as sectors pecific programmes in agriculture, health, education, transport, housing, finance, industry/manufacturing and nutrition (Obadan, 2002). Literatures on development in Nigeria have categorized government's efforts into two distinct time frames or eras. These include the pre-SAP, SAP/post-SAP eras. The policies of the Pre-SAP era, described as essentially ad hoc, included Operation Feed the Nation (OFN), Free and Compulsory Primary Education (FCPE), Green Revolution, Low Cost Housing, River Basin Development Authorities (RBDA), National Agricultural Land Development Authority (NALDA), Agricultural Development Programme (ADP), Agricultural Credit Guarantee Scheme (ACGS), Strategic Grains Reserves Programme (SGRP), Rural Electrification Scheme (RES) and Rural Banking Programme (RBP) (Garba, 2006; Omotola, 2008:506; Chukwuemeka, 2009: 406). During the SAP era, which witnessed the worsening of the socio-economic and political situation of the country, the government equally made some attempts to fight the scourge of poverty (Omotola, 2008:506). These programmes included the Directorate for Food, Roads and Rural Infrastructure (DFRRI), National Directorate of Employment (NDE), Better Life Programme (BLP), People's Bank of Nigeria (PBN), Community Banks Programme, Family Support programmes (FSP) and Family Economic Advancement Programme (FEAP) (Garba, 2006; Eze, 2009: 447). Also worth mentioning is the National Economic Empowerment and Development Strategy (NEEDS) described as a medium term strategy. The implementation of NEEDS rests on four major strategies. First, it aims at reforming government and institutions by fighting corruption, ensuring transparency and promoting rule of law and strict enforcement of contracts. Another strategy is to grow the private sector as the engine of growth and wealth creation, employment generation and poverty reduction. Third, it seeks to implement a social charter with emphasis on people's welfare, health, education, employment, poverty reduction, empowerment, security, and participation. The fourth key strategy is value reorientation (Federal Government of Nigeria, 2004: 4; Omotola. 2008: 511; Chukwuemeka, 2009: 407). NEEDS is a national framework of action, which has its equivalent at the state and local government levels as State Economic Empowerment and Development Strategies (SEEDS) and Local Economic Empowerment and Development Strategies (LEEDS) respectively (AFPODEV, 2006).

The implementation also stresses collaboration and coordination between the federal and state governments, donor agencies, the private sector, civil society, NGOs and other stakeholders (Action aid Nigeria, 2009). As a home-grown strategy, NEEDS has been described as the Nigerian version of the MDGs (AFPODEV, 2006). The civilian administration that started in 2007 under the leadership of late President Umar Musa Yar'Adua proposed a Seven-Point Agenda of development. The agenda later became the policy thrust of the administration. The main objectives and principles of the agenda include improving the general well-being of Nigerians and making the country become one of the biggest economies in the world by the year 2020. The agenda has critical infrastructure as the first key area of focus. This includes power, transportation, national gas distribution and telecommunication. The transformation agenda is planned for between 2011 and 2015, which is the duration of president Jonathan administration and it is necessitated by the need to correct the flaws in the country's drive for development where there is absence of long-term perspective, and lack of continuity, consistency and commitment (3Cs) to agreed policies. These antipoverty measures notwithstanding, poverty has consistently been on the increase in Nigeria, showing the ineffectiveness of the strategies and programmes. The policies of the pre-SAP and SAP eras obviously failed to eradicate poverty in Nigeria. During these periods, the poverty situation in Nigeria was steadily increasing. A special poverty alleviating program under the immediate past Jonathan administration is known as You Win which is targeted at youths between the ages of 18 and 35 and who already own businesses or have strong business plans had been put into place. The You Win 2013, according to President Jonathan is targeting only women entrepreneurs (Jonathan, 2012). Past poverty reduction programs, including the Family Economic Advancement Program, had a little impact on poverty, despite large budgetary allocations. These programs failed to achieve their objectives because of poor design which is a reflection of the inadequate capacity that existed.

Studies such as (Sahn and Younger 2001; Aigbokhan 2000) have argued that economic growth which is supposed to be a stimulus to poverty reduction has contributed to even worsen economic and social outcome, only exacerbating the conditions that lead to poverty and vulnerability. Some argued that the output growth are indeed the key to promoting living standard and reducing poverty, while others maintained that economic growth has not been directly contributing to the poverty reduction in so many developing countries. The issue of poverty in Nigeria can be described as a paradox as it is poverty in the midst of plenty. The paper addresses the following questions:

- What has been the extent of poverty in Nigeria during the study period (2004 to 2010)?
- Did economic growth and income redistribution reduce poverty in Nigeria during the study period?

The study is therefore set out to examine the contribution of growth and redistribution to rural poverty in Nigeria between the study period.

The study will also examine how far the equity motivated programmes of economic reforms in Nigeria has led to poverty reduction in the rural areas

The rest of the paper is organized as follows: Section 2 reviews the literature. Section 3 presents the theoretical framework and methodology, and Section 4 discusses the empirical results. Section 5 contains the summary conclusions and policy implications.

2. Theoretical Framework and Literature Review

2.1. Conceptual/Theoretical Framework on Poverty and Inequality

The links among poverty, economic growth, and income distribution occupy a central position in recent literature on economic development. Absolute poverty can be alleviated if at least two conditions are met. First, economic growth must occur—or mean income must rise—on a sustained basis. Second, economic growth must be neutral with respect to income distribution or reduce income inequality. Generally, poverty reduction cannot be achieved in the absence of economic growth. In fact, the persistent poverty of a substantial portion of the population can dampen the prospects for economic growth (Ravallion and Datt, 1999). Also, the initial distribution of income (and wealth) can greatly affect the prospects for growth and alleviation of mass poverty. There is substantial evidence that a very unequal distribution of income is not conducive to either economic growth or poverty reduction. Current experience of economic growth has shown that if countries put in place incentive structures and complementary investments to ensure that better health and education lead to higher incomes, the poor will benefit doubly through increased current consumption and higher future incomes. The pattern and stability of economic growth also matter. On the one hand, traditional capital-intensive, import-substituting, and urban-biased growth—induced by government policies on pricing, trade, and public expenditure—has generally not been good for alleviating poverty. On the other hand, agricultural growth—where there is a low concentration of land ownership and labor-intensive technologies are used—has almost always helped to alleviate poverty (Gaiha, 1993; Datt and Ravallion, 1998).

2.2. Literature Review

2.2.1. Poverty

Gore (2002) explains the concept of 'all-pervasive' poverty. According to him, poverty is all-pervasive where the majority of the population lives at or below income levels sufficient to meet their basic needs, and the available resources even where equally distributed, are barely sufficient to meet the basic needs of the population. Gore reiterates further that pervasive poverty leads to environmental degradation, as people have to eat into the environmental capital stock to survive. When this happens, the productivity of key assets on which livelihood depends is greatly undermined. Development Assistance Committee (DAC) (2001) posits that poverty encompasses different dimensions of deprivation that relate to human capabilities including consumption and food security, health, education, rights, voice, security, dignity and decent work. Nwaobi (2003) also identifies the dimensions highlighted by poor people to include lack of income and assets to attain basic necessities (food, shelter, clothing and acceptable levels of health and education), sense of voicelessness and powerlessness in the institutions of the state and society; and vulnerability to adverse shocks.

2.2.2. Inequality

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 (Litchfied, 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.

High and rising inequality also reduce the likelihood that economic and social policies fostering inclusive growth and human development will be delivered and implemented. For instance, richer groups may secure economically inefficient advantages such as regressive taxes or an allocation of public funds for their own interest rather than for that of the country (Vandemoortele 2009). Finally, in developing countries, where the institutions of government are often weak, inequality exacerbates the problem of creating and maintaining accountable government, thereby increasing the probability of the adoption of economic and social policies that inhibit growth and poverty reduction (Birdsall 2005). The relationship between economic growth and poverty reduction has gone through various phases in the literature. Theories of development given by Kuznets (1955), Anand and Kanbur (1993) and Deininger and Squire (1996) focused on the concept that 'benefits of economic growth would trickle down to the poor'. They showed the mechanisms through which the benefits of growth may be transmitted to the poor directly. Kuznets (1955) hypothesis is based on an inverted U shape relationship between economic growth and income inequality. Adelman and Morris (1973), questioned upon the relationship between economic growth and benefits to the poor in a pronounced manner. Chenery and Syrquin (1975), argued on the importance of redistribution alongside economic growth. Major focus on Pro-poor growth is shown in the research of Ravallion and Chen (2003). Dollar and Kraay (2001) opined that a positive economic growth provides benefits to both the poor and the whole economy. Similarly, Knowles (2001) finds a significant negative effect of inequality on economic growth. Foster and Szekely (2000) showed that positive value of poverty elasticity, which is a positive indicator for poverty reduction. Kakwani and Son (2004) presented that rapid reduction in poverty can be assessed through the Poverty Equivalent Growth Rate (PEGR) instead of normal growth rate / GDP growth rate. Son (2006) proposed a methodology by which the pro-poorness of government fiscal policies can be assessed with a view to bring marginal reforms. She used pro-poor growth index for assessing government expenditure and tax policies. The recent trends in global and regional poverty clearly suggest that rapid economic growth over a prolonged period is essential for poverty reduction. At the macro level, economic growth implies greater availability of public resources to improve the quantity and quality of education, health and other services. At the micro level, economic growth creates employment opportunities, increases the income of the people and therefore reduces poverty. Many developing countries have succeeded in boosting growth for a short period. But only those that have achieved higher economic growth over a long period have seen a lasting reduction in poverty. East Asia and China are classic examples of lasting reduction in poverty (Akhtar 2006).

This relationship between high inequality and weak growth appears to be particularly strong in countries where a large part of the population is ‘trapped’ in poverty. One reason that poor countries find it so difficult to grow is that all income in an impoverished household goes for consumption. There are no taxes and no personal savings. “Yet, depreciation and population growth continue relentlessly. The result is a fall in capital per person and a negative growth rate of per capita income. That leads to still further impoverishment of the household in the future” (Johnston 2010).

In Nigeria, Aigbokhan (2000) carried out an empirical study on the relationship between poverty, inequality and economic growth in Nigeria for the period 1986 to 1996 and found a significant and positive relationship between growth and poverty meaning that the impressive growth of the economy in 1986-1992 could not yield an improvement in poverty. This finding implies that the so-called “trickle down” phenomenon, underlying the view that growth improves poverty and inequality, is not supported by Nigeria’s data. This may not be unconnected with the nature of growth pursued and the macroeconomic policies that underlie it and perhaps that the growth is driven by the oil and mining sectors. A further empirical study is therefore required to bridge the gaps between his findings and what obtains presently. A number of structural changes must have taken place since the period of his research which may have otherwise trickled down poverty. This study intends to update the implications of economic growth and income redisribution on poverty in Nigeria especially in the rural areas which is the main focus of the study.

3. Data and Survey Methodology

3.1. Sampling Procedure and Sampling Size

Data from the 2004 World Bank assisted National Living Standard Survey (NLSS) and 2009/2010 Harmonized National Living Standard Survey (HNLSS), collected by the National Bureau of Statistics (NBS) will be used for this study. Both survey data sets followed the same sampling procedure. For 2004 NLSS, a two-stage stratified sampling method was adopted. At the first stage, from each of the 36 states and the Federal Capital Territory (FCT, Abuja), cluster of 120 housing units called Enumeration Area (EA) were randomly selected. The second stage involved random selection of five housing units from the selected EAs. A total of 600 households were randomly chosen in each state and the FCT, summing up to 22,200 households in all (NBS, 2003). Preliminary analysis of the data shows that out of the 22,200 households that were targeted, only, 19,158 completed the questionnaire. The Harmonized Nigeria Living Standard Survey (HNLSS) 2009/2010 is an enlarged scope of previous National Consumer Surveys and also a follow-up to the Nigeria Living Standard Survey (NLSS) 2003/2004. The scope of the HNLSS 2009/2010 was enlarged to include: demography; health; and fertility behaviour, education and skills/training; employment and time-use; housing and housing condition; social capital, Agriculture; household income and consumption, and expenditure.

3.2. Foster – Greer – Thorbecke (FGT) Measures of Poverty

One of the methods that will be considered in the study is the popular FGT. Many earlier studies have used relative poverty lines, which are proportions (two third) of the average per capita expenditure (Canagarajah and Thomas 2001 and FOS (now NBS), 1999). In this study, this same approach will be followed but instead of per capita expenditure used by many authors, it intends to employ adult equivalent expenditure which will give a more robust result and part of the gap filled by this study. We define the poverty line as the two thirds mean value of per capital consumption in the rural areas. This poverty line helps us in classifying the poor and non poor and then calculate the poverty indices for rural households in Nigeria. We used the (FGT) indices to measure the magnitude, depth and severity of rural poverty. The $p\alpha$ class of poverty according to Foster et al (1984) can be addressed in respect of poverty incidence, (a =0), Depth of poverty (a =1) and Severity of poverty (a =2). The larger the value of a, the greater the weight given to the severity of poverty. For a =0, FGT reduces to Head Count Ratio (H) and when a =1, it reduces to poverty gap and if a =2, we have poverty severity index. The equation is given as:

$$\text{FGT } \alpha = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{z-y_i}{z}\right)^{\alpha} \tag{1}$$

Where:

n = the total number of households

z = the poverty line

y_i =household per capita expenditure

α = a parameter which takes values 0, 1, and 2.

3.3. Gini Coefficient (Measurement of Income Inequality)

The main measures of inequality in literature include; The Gini, Theil and Atkinson indices. This study however focused on the Gini index or coefficient. This is not only because it is the most widely used method but also because it has properties that inform policy. The Gini coefficient was used in this study to analyse inequality between different households in a population. Since Fei, Ranis and Kuo (1978) the coefficient has been found to be useful for this purpose. The coefficient is calculated as the ratio of the area between the Lorenz curve and the diagonal line of perfect distribution and the total area below the line. It has a value of between 0 and 1.

If the Lorenz curve is the 45° line, then the value of the Gini coefficient would be zero. In general, the closer the Lorenz curve is to the line of perfect equality, the less the inequality and the smaller the Gini coefficient. The Gini coefficient is computed as:

$$\mathrm{I}_{gin}\left(Y\right) = \frac{2\sum_i^n = 1}{n^2\mu} i\left[\frac{n+1}{2}\right] y_i \tag{2}$$

Where n is the number of observations, μ is the mean of distribution, and y_j is the income of the jth household while i is the corresponding rank of total income and I_{gin} is the income gini.

3.4. Shapley Growth-Redistribution Decompositions

The Shapley decomposition approach proposed by Shorrocks (1999) following Datt and Ravallion (1992) will be used extensively in the decomposition of poverty into growth and redistribution components. The decomposition was derived from the concept introduced by Shapley (1953). The proposed framework is for decomposition analysis, whether static or dynamic, and whether it concerns poverty or inequality in the distribution of living standards. It also has the advantage of eliminating the residual component that remained unexplained in the Datt and Ravallion (1992) approach. The results will then be used to quantify the contribution of any number of factors to total inequality. In contrast to other regression–based methods, the Shapley value decomposition methodology circumvents the problem of a large residual and decomposes inequality exactly into its contributory factors (Shorrocks 1999).

Starting with the work of Datt and Ravallion (1992) with a fixed poverty line z written formally as:

$$p = p(L, \mu, z) \quad (3)$$

$$P = P(L, \mu/z) \quad (4)$$

The poverty level at time (t) given as μ_t is normalized average income and the Lorenz curve L_t captures redistribution as measured by Gini. The growth factor in the change of poverty between period t and t+n can be denoted as $G = \frac{\mu_{t+n}}{\mu_t} - 1$ and the redistribution factor by $D = L_{t+n} - L_t$. The issue is that of identifying the contribution of growth, G and redistribution D, in the decomposition of changes in any poverty measure that is additively decomposable. The aggregate change in poverty measures is given as:

$$\Delta P = P_{t+n} - P_t = F_{t+n}(z) = F_t(z) = P(\mu_{t+n}, +L_{t+n}, z) - P(\mu_t, L_t, z) \quad (5)$$

This can be decomposed further to give:

$$\Delta \mathrm{P} = \mathrm{P}(\mu_{t+n}, L_{t+n}, z) - \mathrm{P}(\mu_t, L_t, z) \quad (6)$$

This is an expression of the change in poverty, ΔP which was decomposed into the growth (G) and redistribution (D) components given as:

$$G = P_{t+n} - P_t = P(\mu_{t+n}, L_t, z) - P(\mu_t, L_t, z) \quad (7)$$

$$D = P_{t+n} - P = P(\mu_{t+n}, L_t, z) - P(\mu_{t+n}, L_t, z) \quad (8)$$

As stated by Kolenikov and Shorrocks, (2003), equation 7 expresses the marginal effect of the change in mean income with redistribution held constant while equation 8 indicates the marginal effect of redistribution when mean income is held constant. These two types of decomposition generate a residue, such that:

Variation in poverty = Growth effect + Redistribution Effect + Residue which is in line with Datt and Ravallion (1992).

To remove the arbitrariness of the choice of a reference period and the error term, we can use the Shapley value and the two effects can be averaged and further expressed as:

$$G = \frac{1}{2}\left[\mathrm{P}(\mu_{t+n}, L_t, z) - \mathrm{P}(\mu_t, L_t, z)\right] + \frac{1}{2}\left[\mathrm{P}(\mu_{t+n}, L_{t+n}, z) - \mathrm{P}(\mu_t, L_t, z)\right] \quad (9)$$

$$D = \frac{1}{2}\left[\mathrm{P}(\mu_t, L_{t+n}, z) - \mathrm{P}(\mu_t, L_t, z) - \frac{1}{2}\left[\mathrm{P}(\mu_{t+n}, L_{t+n}, z) - \mathrm{P}(\mu_{t+n}, L_{t+n} z)\right]\right. \quad (10)$$

Equation (9) and (10) are Shapley values for Growth and Redistribution components respectively.

4. Results and Discussions

4.1. Decomposition of Changes in Poverty

Table 1 presents the contributions of growth and redistribution to changes in poverty using all the three measures of poverty. The table presents both Datt and Ravallion and Shapley decomposition values. Since our main focus is the redistribution effect of poverty, it would be more appropriate to rely on the transfer-sensitive measure, FGT (2). For the sake of comparison however, we present the results using both Datt and Ravallion (1992) and Shapley decomposition results. With the period t_1 as reference point, the growth component is negative (-0.06935) and the redistribution component also negative (-0.02105). For the period t_2 as reference point, the growth component is (-0.08247) while the redistribution component is (-0.00794).

4.2. Inequality and Poverty Reduction in Nigeria

Reference period t_1 (2004) is the period within the President Olusegun Obasanjo civilian regime. During this period, the new civilian leadership has shown commitment to improving the lives of the people through serious economic and social reforms. Also the government realized that development should be participatory with government spearheading all activities in partnership with the private sector, the civil society and the individual citizens. Under a peaceful and conducive environment, it is expected that every economic agent will have the incentive to concentrate on productive activities and will be able to create and generate wealth thereby contributing to societal well-being. Reform programmes put in place during the period seem to have a close association with the rise in growth effects, indicating that both economic growth and its ability to reduce poverty are achieved in the reform process (Adigun, 2014). It is assumed that as economic reforms are likely to bring in higher growth, the growth or mean effect is expected to go up in period t_2. A strategy of growth with employment generation would help the poor benefit from economic reforms, enhancing not only the growth effect but also making inequality and population shift effects more beneficial in poverty reduction (Bhanumurthy and Mitra, 2001). The Olusegun Obasanjo civilian administration which was put in place in 1999 came with the introduction of several economic reform measures and this resulted in the improvement of living standards of the people. For example, with the expansion in the number of private mobile telephone operators, many youths who would have been unemployed are engaged in the sale of recharge cards and operation of telephone kiosks. This means that many were taken from the category who earn less than US$ 1 a day and this may explain part of the decline in measured poverty incidence from its' level of 69.2 percent in 1996 to 65.1 percent in 2004. There has also been a significant increase in the number of private and public educational institutions. The number of primary schools (public and private) increased from 49,306 in 2001 to 59,174 in 2003. The number of secondary schools (public and private) rose from 6,292 in 2001 to 10, 964 in 2004 and the number of university equivalent from 51 in 2001 to 63 in 2004 (Aigbokhan, 2008). All these developments provide more employment opportunities for teaching and non-teaching occupations. It was the period whereby the country was just recovering from the effects of SAP and economic recession of the past military regime. During that time, a decline in the per capita household income and economic recession contributed to increase in poverty. This is because, in Nigeria, accompanying the rapid economic growth between 1965 and 1975 was a serious income disparity which widened substantially. This is to show that though the economy may be performing strongly, the gap between the lower income households and the upper income households is growing, which is an indication that the rapid economic growth experienced has only resulted in further concentration of national income in the hands of few proportion of the population. This national trend is also reflected at the community or city level, which makes income inequality a useful metric in understanding the state of the community (Adigun, 2014). The contribution of growth to poverty was more because of concentration of wealth in the hands of few elites in the country. This has led to increasing inequalities in inter-personal incomes and a widening gap between urban and rural incomes, especially since 1986. It has therefore become evident that the policy environment required for rapid economic growth cannot be provided by policies which result in further concentration of national income in the hands of few proportion of the population.

For the period t_2 as reference point, redistribution contributes more to poverty. This could be as a result of a less egalitarian redistribution of resources. President Goodluck Ebele Jonathan took oath of office on 29 May, 2011 with the introduction of a policy package tagged the Transformation Agenda. which is a 5-year development plan (2011-2015). The Transformation Agenda itself is focused on three key areas which include strong, inclusive and non-inflationary growth; employment generation and poverty alleviation and value re-orientation of the citizenry. Using thirteen key sectors as the spring board, the President hopes to transform the whole economy of Nigeria.

Shapley decomposition values for the two periods are -0.08247 and 0.00796 for growth and redistribution components respectively. The value for growth is negative implying that that there is a decline in poverty as a result of effects of growth and redistributive policies in the country within these two periods. Growth contributes most to poverty reduction when it expends employment, productivity, and wages of poor people, and when resources are spent on human development and physical infrastructure (Khan 2002). According to Chotikapanich et al (2014) economic growth is the best way to combat poverty through increasing the income of people (by providing employment and redistribution of wealth) and providing social services (by increasing expenditure on social services such as education and health etc). The positive sign of redistribution shows that growth did not trickle down far enough and, as a result, there was an increase in inequality. The various economic reforms policies and programmes of the immediate past Jonathan civilian regime has resulted in growth of the Nigerian economy during the second period of study (2010). These include: Opening up of Nigeria to the global business community and becoming Africa's number one destination of foreign investors. In the first six months of 2014, a total of US$9.70 billion or N1.51 trillion flowed into the national economy as foreign direct investments (FDI) (www.naij.com 2014). Also under the administration, Nigeria rebased it's GDP for the first time in over a decade to become the largest economy in Africa, overtaking South Africa and Egypt in the process. Proceeds from Nigeria's non-oil exports rose to 2.97 billion by the end of 2013, up from 2.3 billion in 2010. The Youth Enterprise with Innovation in Nigeria (YOUWIN) program aims to generate over 100,000 jobs for innovative unemployed youths across the country in the course of three years. Nigerians are now a step closer to being fully integrated into the international e-commerce community with the approval and reinclusion of Nigeria as one of the Paypal-compliant countries after being banned from using the service at the peak of the advanced fee fraud (419 scams). With Paypal, Nigerians can now pay for goods and services online from anywhere in the world. Other notable achievements include the revival of the dead automotive industry in Nigeria. Global auto giants like Peugeot, Nissan and Hyundai now either assemble or wholly manufacture small cars, Sport Utility Vehicles, trucks and buses at various locations in Nigeria. Under the same administration, Nigeria became the first country in West Africa to host the World Economic Forum (WEF) in 2014 which was the most successful World Economic Forum for Africa (WEFA) in history. Other achievements include the revival of the comatose railway system of transportation in the country among others. It may be added here that economic reforms have a direct influence on productivity as infrastructure supply, concentration of activities, and other factors constituting the external economies of scale are likely to grow with reforms. Hence with differences in the level of reforms pursued across the country, productivity and growth differentials are likely to grow, indicating the tendency of divergence rather than convergence. From the result in Table 1, the growth in income during this period of economic reform would have reduced poverty much more than what is observed had the rising inequality not offset some of the potential positive effects of growth on poverty. This goes in line with the slightly modified "dynamic version" of the Kuznets hypothesis, which postulates that inequality increases as the rate of growth of income goes up. The Shapley decomposition result implies that under faster growth rates, the poor will receive proportionally lower benefits of growth than the rich. As recorded by Kakwani and Pernia (2000), the degree of poverty depends on two factors: average income and income inequality. An increase in average income reduces poverty and an increase in inequality increases it. Economic growth increases average income (or consumption), but at the same time it may be accompanied by increasing or decreasing inequality. The increase in inequality implies that the proportional benefits received by the poor are less than those of the non-poor while a decrease in inequality implies that the proportional benefits received by the poor are more than those of the non-poor. Thus, in strict terms, growth is pro-poor when it is accompanied by a reduction in inequality. A recent World Bank study by Dollar and Kraay (2001) has come out with a much stronger result that the income of the poor rises one-for-one with overall growth. It means that the proportional benefits of growth enjoyed by the poor are the same as those by the non-poor. Chinweoke (2011) among others noted that the Nigerian economic development process tends towards industrial strategy that was based on import substitution. It aimed at acquiring technology, develop internal market through private sector to stimulate local demand and block economic leakages. However, the transformation programme in Nigeria is dominated by low technology. In addition, infrastructural failure, economic disorderliness, corruption and security challenges are issues hindering socio economic transformation in Nigeria.

Table 1. Decomposition of Poverty into Growth and Redistribution Components.

	Datt and Ravallion		Shapley Decomposition		
	Growth	Redistribution	Residual	Growth	Redistrib
P_0					
t_1	0.147753	-0.05039	-0.01314	0.141186	-0.05696
t_2	-0.13462	-0.06352	-0.01314		
P_1					
t_1	0.125314	-0.03434	-0.01544	0.133035	-0.02662
t_2	0.140757	-0.0189	0.015442		
P_2					
t_1	-0.06935	-0.02105	-0.01311	-0.07591	-0. -0.14493
t_2	-0.08247	-0.00794	0.013114		

5. Conclusion and Policy Implication

Economic reforms have been pursued at different levels across the country, and this seems to have enhanced variations in economic growth. The reduction in poverty could be as a result of reform programmes of the present system of government. Decomposition of poverty into growth and redistribution components shows that during the initial period, the contribution of redistribution to poverty was more than that of growth and according to authors like (Ravallion and Datt 2002, Hoekman et al. 2001) there is general agreement in the literature that growth is necessary but not sufficient for poverty reduction. This could be as a result of unequal distribution of wealth in the country as indicated by rise in inequality from 2.2% in 2004 to 4.2% in 2010.

The result implies that the wealth in the country was concentrated in few hands and not equally distributed among the mass majority. This resulted into increasing inequalities in personal incomes. The evidence from the decomposition analysis buttresses the view that equitable distribution of income and pro-poor growth is essential for growth to translate into meaningful and rapid poverty reduction. The study will also imply that growth would have a significantly positive impact on poverty alleviation with policies that redistribute resources in favour of the rural areas.

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