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# Economic Growth, Income Redistribution and Poverty Reduction: Experiences from Rural Nigeria

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***Authors' contributions***

*This work was carried out in collaboration between both authors. Author AGT designed the study, wrote the protocol, managed the literature searches and wrote the first draft of the manuscript. Author ATT performed the statistical analysis of the study. Both authors read and approved the final manuscript.*

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## ABSTRACT

The paper examines changes and the extent of poverty in rural Nigeria from 1996 to 2004. It investigates the contributions of growth and redistribution factors to changes in poverty within these eight years. The analysis is based on household National Consumer Survey (NCS) of 1996 and the National Living Standard Survey (NLSS) data of 2004 all collected by the National Bureau of Statistics (NBS). Using Shapley Decomposition Approach, the study reveals that the extent of poverty in the rural sector declined slightly during the second period of study (2004). 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.

*Keywords: Growth; redistribution; poverty reduction; rural Nigeria; Shapley decomposition.*

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## 1. INTRODUCTION

Poverty and income inequality are closely related and it has been argued that income inequality is a manifestation as well as a strong cause of poverty [1]. The high level of poverty in the late 1990s in Russia was attributed to the rise in income inequality rather than to decline in average income [2]. When economic growth increases, poverty rate decreases, but as income inequality increases, the incidence of poverty also increases. Because of the linkage between income inequality and poverty, reducing income inequality has become a major public policy challenge among development agencies and poverty-reduction experts. Yet, in most developing countries, discussions about poverty reduction strategies often focus exclusively on income growth, neglecting the potential roles of income redistribution and inequality [1].

In order to achieve reduction in poverty, income growth has to be equitably distributed. Thus, in current thinking on how best to achieve poverty reduction, both economic growth and equity have assumed a central position. Series of studies show growth to be on average good for the incomes of the poor [3,4,5,6] and effective in reducing the poverty headcount ratio [7,8,9,10,11]; although with considerable regional variation [12]. At the same time, equity is seen to be not only of intrinsic importance but also of instrumental importance through its impact on the rate at which economic growth converts into poverty reduction. Taking as an example, the 2006 World Development Report [13]; the 2005 Human Development Report [14] and the 2005 Report on the World Social Situation which all devote the bulk of their analyses to the myriad ways in which equity matters for economic opportunities open to poor people, an emphasis which has already led some observers to speak of a ‘new equity agenda’ [15]. Evidences in the literature point to the increasing level of income inequality in developing countries including Nigeria over the last two decades [16,17]. Poverty reduction requires economies to address inequality and economic structures - in addition to sustaining high levels of economic growth [18]. In Nigeria, the increasing level of income inequality has been a concern to policy makers for a long time. For example [19] found the overall Gini index for Nigeria to be 0.580. In sectoral sense, the study found income inequality to be higher in rural areas as compared to urban areas with 0.5278.

Variations in the level of income obtained by people in the rural areas is on the increase which could very much be linked to the growing dimensions of poverty even among the rural households, which indicates a high level of income inequality produces an unfavourable environment for economic growth and development [20]. Thus, in the 1970s and 1980s, the pre-occupation was for the growth of the economy and income as growth is seen as a pre-requisite for improved welfare.

The government therefore introduced series of economic reform measures, starting with the Economic Stabilization Measures in 1982, Economic Emergency Measures in 1985 and Structural Adjustment Programme (SAP) in 1986. The implementation of Structural Adjustment Programme (SAP) was part of policy efforts by the government to tackle the problem of severe economic crisis which worsened the lives of many Nigerians. Components of SAP include market- determined exchange and interest rates, liberalized financial sector, trade liberalization, commercialization and privatization of a number of enterprises [21]. Other efforts of the government aimed at poverty alleviation include the establishment of specialized agencies which include: Agricultural Development Programmes, (ADPs) Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB), National Agricultural Insurance Scheme (NAIS), National Directorate of Employment (NDE), National Primary Health Care Agency, Peoples Bank, Urban Mass

Transit, mass education through Universal Basic Education (UBE), Rural Electrification Schemes (RES), Strategic Grain Reserve, National Agricultural Land Development Agency, National Directorate for Food, Roads and Rural Development (DFRRI) and National Economic Reconstruction Fund. Others are Better Life Programme, and Family Employment and Advancement Programme. In 1994, the Poverty Alleviation Programme Development Committee was established, which produced the Community Action Programme for Poverty Alleviation (CAPPA). In 1999, the Poverty Alleviation Programme (PAP) was established, with the objective of creating 200,000 jobs annually. PAP, however, failed to have any appreciable impact on poverty reduction in the country, due to "state capture" and leakages, among other reasons [21,22]. It was replaced in 2003 by the National Poverty Eradication Programme (NAPEP), with five main programme areas. It is observed that four of the programmes have employment components. It is estimated that since inception, NAPEP has been able to train 130,000 youths and engaged 216, 000 persons who are attached to various establishments [23]. However, like the PAP, beneficiaries are largely non-poor. Up till June 2003, there was no clear economic strategy in the country, and monetary policy was totally ineffective to check expansionary fiscal operations. Weak institutions and legal environment stymied the benefits that would have accrued from oil earnings, which had started to firm up [24]. The entire scenario however changed in 2004, with the formal announcement and presentation of the Federal Government's economic agenda, tagged the National Economic Empowerment and Development Strategy (NEEDS). It was launched along with State Economic Empowerment Development Strategy (SEEDS). NEEDS is a medium-term strategy that seeks to implement series of reforms that would lay a solid foundation for a diversified Nigerian economy by 2007. It sets specific goals in major growth indices as wealth creation, employment generation, institutional reforms and social charter. The conceptual issues on NEEDS/SEEDS are based on four goals which are: Poverty reduction, Wealth creation, Employment generation and value re-orientation. The framework for actualizing the goals of NEEDS is anchored on three pillars namely; empowering people and improving social delivery, fostering private sector led growth through creating the appropriate enabling environment, and enhancing the efficiency and effectiveness of government, by changing the way government does its work [25]. Recently, one of the seven-point development agenda is to fight poverty and diseases. Like earlier reform packages, the strategy considers economic growth as crucial to poverty reduction. The major issues of the seven point agenda include: Power and Energy, food security, wealth creation, transport, land reforms, security and education.

The objective of this study is to estimate the contribution of growth and redistribution to rural poverty in Nigeria between 1996 and 2004. This stems from the fact that the growth being experienced in Nigeria has not led to expected reduction in the poverty level and the basic aim of the reform which is to restore long-term growth and development has not been realized. The choice of rural sector as the main focus of this study arises from the fact that majority of Nigerians live in rural areas and development of this sector holds promise to improve the general welfare of the country. In the rural areas, social services and infrastructure are limited or non-existent. The great majority in such areas is poor and depends on agriculture for food and income. About 90% of the country's food is produced by small scale farmers cultivating tiny plots of land who depend on rain fed rather than irrigation systems. Surveys show that across the country, 44 per cent male farmers and 72 per cent female farmers cultivate less than one hectare per household. The poorest group eke out subsistence living but often go short of food, particularly during the pre-harvest period [26].

According to [27]; the bitter reality of the Nigerian poverty situation is that more than 40 percent of Nigerians now live in conditions of extreme poverty, spending less than ₦320 (about $2) per capita per month. This expenditure would barely provide a quarter of the nutritional requirements for healthy living. Unequal distribution of wealth, income and productive resources, widespread poverty and sluggish economic performance become the obvious features of the Nigerian economy.

One of the main policy issues in Nigeria especially among the rural dwellers, is the distributional consequences of economic growth. This is because inequalities in Nigeria have led to growing disparity among rural dwellers. These inequalities can be attributed in part to the past defective colonial economic policy with regard to the concentration of socio-economic and other development programmes in the urban centres, where European administrators and their allies lived while the rural areas where majority of Africans lived were neglected. Thus, the developmental advantages, which the urban centers and city dwellers enjoyed in terms of education, employment opportunities and health facilities among others, set the skewed structure of development [23]. To the best of our knowledge, there is no serious study yet in Nigeria which has looked into changes in poverty over a period of time or which has studied poverty changes based on public policies especially with the use of two data-points. This study fills the gap by investigating temporal changes in poverty with focus on rural population. The analysis is based on household-level data (National Consumer Survey (NCS) and National Living Standard Survey (NLSS)) collected by National Bureau of statistics. The analysis of poverty based on these survey data may not prove any causality between government development policies and changes in poverty, but it can provide a hint on how growth and redistribution factors have contributed to the observed changes in poverty in Nigeria.

According to [28], studies on decomposition of income inequality are desirable for both arithmetic and analytical reasons. It can shed light on the structure and dynamics of income within different socio-economic groups in the economy. Estimating the contribution of growth and income redistribution to total inequality and understanding the link between socio-economic characteristics and total inequality can also be useful to economic policy analysts and designers of poverty reduction programmes. Studies on income inequality decomposition are very few in Nigeria. Given the general belief that poverty is more widespread and prevalent in rural than urban areas [29], and that inequality is higher in rural than urban Nigeria [19], it becomes appropriate to conduct an in-depth analysis of rural income inequality, with the aim of identifying which should be more emphasized (whether growth or redistribution of resources) and suggesting ways of reducing rural poverty generally.

This study differs from previous studies especially in terms of methodology for poverty decomposition. Other studies like [30,31] and in Nigeria [32,33,19] did not decompose inequality into exact results as most of them generated residuals which could lead to a loss of lots of useful information. This study intends to add to the already existing body of knowledge by decomposing poverty into Growth and Redistribution components focusing on the rural sector and investigating the redistribution of income over some time period. Two different periods will be considered for the study; the first period (1996) is when there was no democratic rule in the country. It coincides with the military era when the management of oil revenue and the macro-economy was haphazard; translating into macro-economic instability and the second period (2004) is when democratic rule and redistributive policies was already in place. This is in order to see whether the various equity motivated efforts of the Nigerian government has caused any meaningful improvement in the lives of Nigerians over a period of time or otherwise as regards growth in income and redistribution of wealth most especially among the rural population.

The rest of the paper is organized as follows: Section 2 presents a brief discussion on literature, section 3 presents major issues involved in measuring poverty and investigates the temporal changes in levels of poverty in the rural sector in Nigeria. Section 4 decomposes the temporal changes in poverty into components associated with growth and redistribution factors. Section 5 concludes.

## 2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

### 2.1 The Poverty- Growth- Inequality Theory

According to [34], change in the distribution of income can be decomposed into two effects. First, there is the effect of a proportional change in all incomes that leaves the distribution of relative income unchanged known as a *growth* effect. Second, there is the effect of a change in the distribution of relative incomes which, by definition, is independent of the mean known as a distributional effect.

He states further that the following definitions help to clarify these linkages:

- “Poverty” is measured by the absolute poverty headcount index that is the proportion of the population below a particular *poverty line* (1$ a day) as derived from household survey data.
- “Inequality” (or “distribution”) refers to disparities in *relative income* across the whole population, that is, disparities in income after normalizing all observations by the population mean so as to make them independent of the scale of incomes.
- “Growth” is the percentage change in mean welfare level (for example income or consumption) in the household survey.

A change in poverty can then be shown to be a function of growth, distribution and the change in distribution. For sufficiently small changes in mean income and in the distribution, the preceding decomposition corresponds to an identity which expresses the change in poverty as a function of the growth in mean income and changes in the distribution of relative income.

### 2.2 Literature Review

The relationship between growth, inequalities and poverty is a recurrent theme of investigation in development economics. The debate has historically turned around the famous Kuznets hypothesis the possibility of growth inducing inequalities at the early stage of development as there is another strand of growth–or development–theory in the 1950s in which distribution played an important role. This was based on the path-breaking works of [35 and 36]. Lewis’s model of growth “with unlimited supplies of labour” is fundamentally different from Kaldor’s (or Solow’s), in that it is driven by the movement of a factor of production (labour) from a low productivity sector to a high productivity one. The contribution of [36] owed much to the observation that, if inequality between these two sectors is rather more substantial than that within each sector, then inequality would first rise–as people moved across sectors-and then fall, as most of them found themselves in the new sector, or the economy reached a point where factor movement is equalizing returns across sectors. Whence the stylised Kuznets “inverted-U” curve– but the recent focus on poverty reduction strategies has added poverty to the terms of the debate. Nowadays the question is to determine how to accelerate the pace of poverty reduction [37].

Long run economic growth is one of the best ways to bring people out of poverty. Some formerly poor countries, like South Korea, have had impressive growth performance, and consequently a significant increase in its' citizen's living standards. Other countries, notably many in Sub-Saharan Africa (SSA) including Nigeria, have had much less success in advancing the material welfare of their citizens. There is the need for growth targets to be sustainable and equitable [38]. It must be sustainable because sound environmental policies can protect the productive capacity of Africa's natural resources. Equitable in the sense that long term political stability is impossible without sustainability. For equitable growth to be realized, measures are to be taken to reduce poverty, especially by improving the access of the poor to productive assets.

A growth strategy may be defined as a set of policies designed to promote economic growth by allocating resources, either by indirectly moulding the structure of incentives or by directly redistributing resources between different sectors of production as well as between different owners of factors of production. Depending on the allocation of resources induced, any given growth strategy will lead to a certain rate of growth and a certain distribution of income among individuals. These effects on the rate of growth and the distribution of income—which together can be described as the "pattern of growth" induced by a growth strategy—will determine the impact the strategy will have on the rate of poverty reduction. Different growth strategies will differ in their impact on poverty because they will induce different patterns of growth as defined above [39] Depending on the allocation of resources induced, any given growth strategy will lead to a certain rate of growth and a certain distribution of income among individuals. Economic growth accompanied by declining real wages among low–wage workers or reduced employment of unskilled labour or reduction in public assistance are likely causes of relatively small effect of growth on poverty. Economic growth may not result in even growth in all subsectors of the economy, and the growth in each subsector may not be equally effective in reducing poverty.

### 2.2.1 Income inequality

Income inequality refers to the distribution of income among households or persons. All analysts of income inequality need to answer the questions: The distribution of what, when and amongst whom? Most analysts of inequality use a measure of disposable money income. For most households, the primary income source is market income which includes earned income from wages, salaries, self-employment and other cash income from private sources such as property, pensions, alimony or child support. To enhance disposable income, governments add public transfer payments (such as retirement, family allowances, unemployment compensation, welfare benefits) and deduct income tax and social security contributions from market income [40]. The answer to the question "distribution among whom"? is "among individuals". As stated by [41], the principal element that is missing from the existing theories is an explicit treatment of the distribution of the various forms of assets. A more general statement would recognize that the income of any household is derived from a variety of assets: land, privately owned capital, access to public capital goods and human capital embodying varying degrees of skills. A grouping of households according to the type and productivity of their assets provide more insight into the nature of income determination among the lower income groups than does a narrower focus on the determinants of wages for different types of labour.

Much of the variations in income at the lower levels can be attributed to lack of human skills as well as lack of ownership of physical capital, complementary assets and other inputs. Whatever the shares of labour and capital as determined in the factor markets, greater equality of personal incomes could be achieved if ownership of private and access to public facilities were more equally distributed.

## 3. METHODOLOGY

### 3.1 Sampling Procedures and Sampling Size

The study used data collected by the National Consumer Survey of 1996 and 2003/2004 Nigeria Living Standard Survey. The National Consumer Survey of the Federal Office of Statistics (Now National Bureau of Statistics) is a nationally representative survey covering about 11,577 households. A two- stage sampling design was used while the stratification criteria were based on the state of residence and the locality (urban/rural). The survey contains detailed information on the income, expenditure and consumption of household members. The National Living Standard Survey NLSS is based on the National Integrated Survey of Household (NISH) framework. The NISH is an ongoing programme of household surveys enquiring into various aspects of households.

A two-stage stratified design was employed. The population census Enumeration Areas (EAs) constitutes the primary sampling units while the housing units were the secondary sampling units. In each state, a sample of 120 EAs was selected for the survey, while 60EAs were selected for Abuja. At the second stage, a total selection of 5 housing units from each of the selected EAs was chosen. Thus, a total of 600 households were randomly interviewed in each of the states and the FCT, summing up to 22,200 households across the country (NBS, 2005). The rural household components of NCS and NLSS data totaling 9377 and 14,515 respectively were used for this study. The questionnaires were designed to obtain information from various members of the household, including husbands, wives and adult children. Topics addressed in the questionnaires include: demographic characteristics of all household members; age, sex, education, state, non-farm and off farm employment; family size, land tenure, distance from source of water, electricity supply, sources of household income etc.

### 3.2 ISSUES IN MEASURING POVERTY

#### 3.2.1 Foster – Greer – Thorbecke (FGT) measures of poverty

One of the methods considered in this study is the popular FGT. Earlier studies have used relative poverty lines, which are proportions (two third) of the average per capita expenditure [42,43]. In this study, the same approach was followed using the household per capita expenditure as a proxy for well being. 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 [44] (FGT) indices to measure the magnitude, depth and severity of rural poverty. The $p_\alpha$ class of poverty according to [44] can be addressed in respect of poverty incidence, ($\alpha$ =0), Depth of poverty ($\alpha$ =1) and Severity of poverty ($\alpha$ =2). The larger the value of $\alpha$ , the greater the weight given to the severity of poverty. For $\alpha$ =0, FGT reduces to Head Count Ratio (H) and when $\alpha$ =1, it reduces to poverty gap and if $\alpha$ =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
$\alpha$ = a parameter which takes values 0,1, and 2.

### 3.3 Gini Coefficient (Measurement of income inequality)

The main measure of inequality in literature include; The Gini, Theil and Atkinson indices. This study however focuses 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 [45] 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:

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

Where n is the number of observation, $\mu$ 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 [46] was used extensively in the decomposition of poverty into growth and redistribution components. The decomposition was derived from the concept introduced by [47]. 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 [48] approach.

The results are then used to quantify the contribution of any number of factors to total inequality. The [49] method has been criticized on the basis that although the methodology requires the inclusion of an error term into the original income generating equation, it does not make any contribution towards overall inequality [50]. In contrast, Fields' decomposition methodology accounts for the contribution of the regression error to total inequality, but this tends to be large leaving unexplained the major proportion of inequality. Neither method accounts for the contribution of the constant term 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 [47].

Starting with the work of [49] with a fixed poverty line z written formally as:

$$p = p(L, \mu, z) \tag{3}$$

$$P = P(L, \mu/z) \tag{4}$$

The poverty level at time (t) given as $\mu_t$ 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:

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

This can be decomposed further to give:

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

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

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

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

As stated by [2], 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 [49]. 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:

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

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

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

## 4. RESULTS AND DISCUSSION

### 4.1 Estimates of Poverty in Rural Nigeria

The normalized poverty threshold between the two periods was ₦17218.35 per annum. As reported by [GT Adigun, University of Ibadan, Unpublished PhD thesis] the level of poverty in the rural area was more severe in 1996 (69.2 percent) than what obtained in 2004 (65.1 percent). Also Gini was 0.479 percent and 0.460 percent for 1996 and 2004 respectively. The rise in poverty in the agricultural sector in 1996 is explained by the abandonment of rural agricultural policies of the SAP period. Although there was relative decline in the percentage of poverty among people in the agricultural sector in 1996, there was still a concentration of poverty in the agricultural sector. During that period fiscal deficits were high, unemployment and interest rates were also high with lending rates hovering around 21 per cent. The inflation rate was also very high standing at over 70 per cent [25]. This was traceable to continued depreciation of the naira, the price hike on petroleum products, high import rates of duties and periodic shortages of food items. In general, the economic environment prevailing in 1996 was that of structural and financial imbalances. Programmes such as better life, Family support Programme and Family Economic Advancement Programme introduced by the military government during the period achieved very little in combating poverty. The challenge for Nigeria is not to improve one sector or region at the expense of another, or to introduce policy distortions and inefficiencies in resource allocation to benefit one group, which in the past has led to increased poverty for others. The challenge is to adopt growth and social service oriented policies (i.e., public expenditure, revenue and investment – budget) that will enable all its inhabitants to improve their welfare. Again the reduction in poverty experienced in 2004 may not be unconnected with the various economic recovery measures put in place by the present civilian administration. This enhanced the per capita incomes of both the poor and non-poor households.

### 4.2 Decomposition of Poverty into Growth and Redistribution Components

Since we are interested in 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 in Table 1 the contributions of growth and redistribution to changes in poverty using all the three measures. The table shows Datt and Ravallion as well as Shapley decomposition values. Using the period $t_1$ as reference point, the growth component is negative (-0.030) and the redistribution component also negative (-0.061). For the period $t_2$ as reference point, the growth component is (-0.019) while the redistribution component is (-0.049). Reference period $t_1$ (1996) is the period before the present civilian regime. It was the period whereby the country was just recovering from the effects of SAP and economic recession. 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. 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 less to poverty. This could be as a result of a more egalitarian redistribution of resources. 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. 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 $t_2$. Though the extent of fall in the incidence of rural poverty in the 2000s has been only marginally higher than that in the 1990s as noted above, the assumption of a higher growth or mean effect in period 2 may still be valid. In addition to this, the inequality effect might also have fallen in period $t_2$ compared to period $t_1$ if economic reforms aimed at generating pro-poor growth, that is, employment generation occurring in the process of economic growth has occurred [51]. Further, as the coefficient of variation of the change in the incidence of rural poverty rose in the 2000s over the 1990s it can be assumed that the economic reforms executed at different levels across states have generated different mean and/or inequality. 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 [52]. The present 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 [21]. All these developments provide more employment opportunities for teaching and non-teaching occupations.

**Table 1. Decomposition of poverty in rural Nigeria into growth and redistribution Components**

| | Datt and Ravallion | | | Shapley | |
|---|---|---|---|---|---|
| | **Growth** | **Redistribution** | **Residual** | **Growth** | **Redistribution** |
| $P_0$ | | | | | |
| $t_1$ | -0.239 | -0.369 | 0.258 | -0.109 | -0.240 |
| $t_2$ | 0.088 | -0.112 | -0.258 | | |
| $P_1$ | | | | | |
| $t_1$ | -0.042 | -0.082 | 0.008 | -0.038 | -0.079 |
| $t_2$ | -0.034 | -0.075 | 0.008 | | |
| $P_2$ | | | | | |
| $t_1$ | -0.030 | -0.061 | 0.011 | -0.025 | -0.056 |
| $t_2$ | -0.019 | -0.049 | -0.011 | | |

*Source: Author's computation from survey data, 2012*

Shapley decomposition values for the two periods are -0.025 and -0.056 for growth and redistribution components respectively. Both values carry negative signs 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. Redistribution component is however more poverty reducing than growth. This is as a result of the economic reforms policies of the civilian regime which results in a more even distribution of resources. 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. It means that under faster growth rates, the poor will receive proportionally lower benefits of growth than the rich. As recorded by [51] 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 (decrease) in inequality implies that the proportional benefits received by the poor are less (more) 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 [53] 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. An important implication of this research is that growth is good for the poor irrespective of the nature of growth. To achieve a rapid reduction in poverty, the government should focus on maximizing economic growth while maintaining macroeconomic stability.

## 5. CONCLUSION AND POLICY IMPLICATION

Estimation of poverty for the two periods reveals that there was a higher incidence of poverty during the initial period than during the final period. The overall incidence of poverty in the country reduced from 69.2 in 1996 to 65.1 in the second period (2004). Economic reforms have been pursued at different levels across the country, and this seems to have enhanced variations in economic growth. The reduction could be as a result of reform programmes of the present system of government. The distribution sensitive poverty severity index has also reduced during the final period of study. This is an indication of transfer of more of the budget to the poorest households.

Decomposition of poverty into growth and redistribution components shows that during the initial period, the contribution of growth to poverty was more than that of redistribution. 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. During the final period, redistribution contributes less to poverty because of more egalitarian distribution of resources. Shapley decomposition values for both periods indicate that both growth and redistribution contribute to poverty reduction at different magnitudes. There is a decline in poverty for both periods as a result of effects of growth and redistributive policies in the country within the two periods. 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.

## COMPETING INTEREST

Authors have declared that no competing interests exist.

## REFERENCES

1. UNU/WIDER. United Nations University/ World Institute for Development Economic Research, World Inequality Database. 2000;10. Helsinki.
2. Kolenikov S, Shorrocks A. A decomposition analysis of regional poverty in Russia. World institute for development economic research (UNU/WIDER) Helsinki. Discussion Paper. 2003;74.
3. Roemer M, Gugerty M. Does economic growth reduce poverty? CAER II Discussion; 1997.
4. Timmer P. How well do the poor connect to the growth process? CAER II. Harvard Institute for International Development, Cambridge, Massachusetts. Discussion Paper. 1997;17.
5. Gallup JL, Radelet S, Warner A. Economic growth and the income of the poor. Harvard Institute for International Development, Cambridge, Massachusetts CAER II Discussion Paper. 1998;36.
6. Dollar D, Kraay A. Growth is good for the poor. Journal of Economic Growth. 2002;7:195–225.
7. Ravallion M, Datt G. How important to India's poor is the sectoral composition of economic growth? Harvard Institute for International Development, Cambridge, Massachusetts. World Bank Economic Review. 1996;10(4):1-25.

8. Ravallion M, Chen S. What can new survey data tell us about recent changes in distribution and poverty? World Bank Economic Review. 1997;11(2):357-382.
9. Bruno M, Ravallion M, Squire L. Equity and growth in developing countries: Old and new perspectives on the policy issues. In Tanzi V and Chu KY, editors. Income Distribution and High Quality Growth. Cambridge, Mass.: MIT Press; 1998.
10. Ravallion M. Growth, inequality and poverty: Looking beyond averages. World Development. 2001;29(11):1803-1815.
11. Adams RH (Jr.). Economic growth, inequality and poverty: Estimating the growth elasticity of poverty. World Development. The World Bank, Washington, DC, USA. 2004;32(12).
12. Besely T, Burgess R. Halving global poverty. Department of Economics, London School of Economics, Mimeo; 2002.
13. World Bank. World development indicators report. (Washington: World Bank); 2006.
14. UNDP. Human Development Index; 2005.
15. Anderson E, O'Neil T. A new equity agenda? Background discussion paper for roundtable discussion on the 2006 World Development Report, the 2005 Human Development Report, and the 2005 Report on the World Social Situation, mimeo, Overseas Development Institute, London; 2006.
16. Kanbur R, Lustig N. Why is inequality back on the agenda? Paper Prepared for the Annual Bank Conference on Development Economics, World Bank Washington DC; 1999.
17. Addison A, Cornia GA. Income distribution policies for faster poverty reduction. UNU-WIDER Discussion Paper. 2001;(93).
18. Wanbugu A, Munga B. Growth, poverty and income inequality in Kenya: Suggested policy options. The Kenya Institute for Public Policy Research and Analysis; 2009.
19. Oyekale OS, Adeoti AI, Oyekale TO. Measurement and sources of income inequality in rural and urban Nigeria. Revised final report submitted to Poverty and Economic Policy Network (PEP), Universite Laval, Canada; 2006.
20. Oluwatayo IB. Explaining income inequality and welfare status of households in rural Nigeria: Evidence from Ekiti State. Humanity and Social Sciences Journal. 2008;(3)1:70-80. ISSN 1818-4960.
21. Aigbokhan BE. Poverty, growth and inequity in Nigeria: A case study. African Economic Research Consortium Research Paper. 2008;102.
22. Ogwumike F. An appraisal of poverty reduction strategies in Nigeria: Department of Economics, University of Ibadan, Ibadan – Nigeria. CBN Economic & Financial Review. 2002;39(4).
23. Olaniyan O, Awoyemi TT. Inequality in the distribution of household expenditure in rural Nigeria: A decomposition analysis. A research report submitted to the African Economic Research Consortium (AERC), Nairobi for the Second Phase Collaborative Poverty Research Project; 2006.
24. Adedipe B. The impact of oil on Nigeria's economic policy formulation. Text of a paper presented at the conference on Nigeria: Maximizing pro-poor growth: Regenerating the socio-economic database, organized by overseas development Institute in collaboration with the Nigerian Economic Summit Group; 2004.
25. Federal Government of Nigeria. National economic empowerment and development strategy-NEEDS. National Planning Commission, Abuja; 2004.
26. IFAD. Rural Poverty in Nigeria. International fund for agricultural development: Rome, Italy; 2006. Accessed 16 October 2013. Available: http://www.ifad.org/poverty/index.htm
27. Nigerian Institute of Social and Economic Research (NISER). Understanding Poverty in Nigeria. Ibadan; 2003.

28. Litchfield JA. Inequality methods and tools, text for World Bank's site on inequality. Poverty and Socio-economic Performance; 1999. Accessed 16 October 2013. Available: www.worldbank.org.
29. IFAD. The rural poverty report. International Fund for Agricultural Development: Rome, Italy; 2001. Accessed December 11 2013. Available: http://www.ifad.org/poverty/index.htm
30. Fields G. Changes in poverty and inequality in developing countries. World Bank Research Observer. 1998;4:167-186.
31. Leibbrandt Murray, Servaas Van Der Berg, Haroon Bhorat. Introduction to fighting poverty. Haroon Bhorat et al, editors. Cape Town: UCT Press; 2001.
32. Alayande B. A text of paper submitted to the UNU-WIDER for the conference on inequality, Poverty and Human well being in Helsinki, Finland; 2003.
33. Awoyemi TT. Explaining income inequality in Nigeria: A regression based-approach; 2004. Accessed 13 July 2012. Available: http:/wwwaercafrica.org/aes/paper/group_A/9-Timothy%20Awoyemi.pdf.
34. Bourguignon F. The growth elasticity of poverty reduction: Explaining heterogeneity across countries and time periods, in: Inequality and growth: Theory and policy implications. Eicher T, Turnovsky S. (Eds.). Cambridge The MIT Press; 2003.
35. Lewis WA. Economic development with unlimited supplies of labour. Manchester School of Economics and Social Studies. 1954;22:139-181.
36. Kuznets S. Economic growth and income inequality. American Economic Review. 1955;45(1):1-28.
37. Bourguignon F. The poverty-growth elasticity triangle. Paper Presented at the Indian Council for Research on International Economic Relations. New Delhi; 2004.
38. UNDP. Human Development Nigeria 2008 to 2009: Achieving Growth with Equity; 2009.
39. Osmani SR. Growth strategies and poverty reduction. Asian Development Review. 2000;18(2).
40. Jesuit D, Smeeding T. Poverty and income distribution. Maxwell School of Citizenship and Public Affairs, Syracuse University Syracuse, New York 13244-1020, Luxembourg Income Study Working Paper. 2002;293.
41. Ahluwalia MS, Chenery H. The economic framework, in redistribution with growth. Bell et al, (Eds). A joint study by the World Bank's Development Research Centre and the Institute of Development Studies at the University of Sussex. Oxford University Press; 1974.
42. Canagarajah S, Thomas S. Poverty in a wealthy economy: The case of Nigeria. Journal of African Economy. 2001;10(2):143–173.
43. FOS. Poverty profile for Nigeria (1980 – 1996) Federal Office of Statistics. Abuja; 1999.
44. Foster JJ, Greer J, Thorbecke E. A class of decomposable poverty measures. Econometrica. 1984;52(3):761–766.
45. Fei JC, Ranis G, Kuo S. Growth and the family distribution of income. Quarterly Journal of Economics. 1978;92(1):17-53.
46. Shorrocks AF. Decomposition procedures for distributional analysis: A unified framework based on the Shapley value. University of Essex; 1999.
47. Shapley L. A value for n-Person games. In: Kuhn HW, Tucker AW, editors. Contributions to the theory of games. Princeton University Press. 1953;2.
48. Datt G, Ravallion M. Growth and redistribution components of changes in poverty measures. A decomposition with applications to Brazil and India in the 1980s; 1992.
49. Morduch J, Sicular T. Rethinking inequality decomposition. With evidence from rural China. Economic Journal. 2002;112:93-106.

50. Wan G. Accounting for income inequality in rural China: A regression based approach. Journal of Comparative Economics. 2004;32:348-363.
51. Kakwani N, Pernia EM. What is pro-poor growth? Asian Development Review. 2000;18(1):1-16.
52. Bhanumurthy NR, Mitra A. Economic growth, poverty and inequality in Indian states in the pre-reform and reform periods. Asian Development Review. 2004;21(2):79-99.
53. Dollar D, Kraay A. Growth is good for the poor. Policy research working paper. World Bank, Washington D.C. 2001;25-87.



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