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# **Poverty reduction efforts in Nigeria 1996 – 2004: a micro level analysis of the relative importance of income growth and redistribution.**

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## **Abstract**

A common narrative on Africa's development process is that specific country policies of income growth and redistribution are necessary for poverty reduction. For growth theoreticians, economic growth must be pursued while for political economists, redistribution is necessary to cushion the detrimental effect of reform policies. These views appear to converge in the many policies and programmes implemented over the years by the Nigerian government. In light of this, we accounted for the effect of these variables using two recent national household survey data sets collected by the National Bureau of statistics in 1996 and 2004 upon which we applied three commonly used poverty indices(FGT) and the Shapely decomposition analytical framework. For robustness, we carried out complementary analysis using the stochastic dominance test and growth incidence curve. Results showed that for the whole country, rural and urban areas respectively, income growth component accounted for -16%, -10% and -10%, while the redistribution component represented -5%, -7% and -4%, suggesting on the average a poverty reducing role. However, a more disaggregated pattern of changes in per capita income reveal that the poor did not benefit much.

JEL code: I0132

Key words: Income growth, distributional shift, poverty, household, pro-poor growth

## **1. Background**

A critical problem in Sub-Saharan Africa is the huge number of people wallowing below a minimum standard particularly in the rural sector of the economy. Programmes and targets have been set globally to address this issue, but it is being said that many countries in the region are far from achieving these targets. (Dercon, (2009), Fosu, 2008,). While the poverty reduction strategy for Nigeria, reveals many home grown programmes<sup>1</sup> over the past three decades, the poverty debacle remains elusive. Some have argued that the weakness in some of these policies lies in the emphasis on achieving rapid aggregate growth with little or no emphasis on poverty targeting (NISER, 2000) while others argue that the weakness lies on the problem of poor

governance, corruption and military rule.(Ikpi, (1996), Awoyemi, (2004) ). These arguments seem to suggest that poverty reduction remains an unfinished business thus motivating this article.

The period 1996 – 2004, reflects to large extent strategies of growth and distribution for broad-based development. It also marked the transition from military rule to civilian administration. It was a period characterized by political and economic reforms to stimulate growth as well as income distributional programmes to redistribute income across individuals and cushion the detrimental effect associated with economic reforms. Some of the distributional programmes include National Special Programme on Food Security (NSPFS), Root and Tuber Expansion Programme (RTEP), National Poverty Eradication Programme (NAPEP), Universal Basic Education (UBE), and National Fadama Development Programmes one and two as well as the National Economic Empowerment Strategy (NEEDS). Hind sight reveals these efforts are not relatively new. For example, Aigbokhan (2008) noted the following reforms: the economic stabilization measures of 1982, economic emergency measures in 1985, and the structural adjustment programme (SAP) in mid-1986. Olayemi (1995) noted direct government production strategy and the integrated rural development programmes.

The expectation of policies of growth is a faster rise in household income while policies of distribution<sup>2</sup> are to induce shifts in household income distribution and together bring about changes in poverty. In view of this, this paper seeks to examine the relative implication of income growth and shifts in income distribution on poverty reduction as well as the character of growth over the period. Few studies, to the best of our knowledge have done this using Nigerian data but they lack detailed theoretical context on income growth, shift in distribution and poverty connection. Also most of these

studies used relative poverty lines rather than absolute poverty lines which is not appropriate for over time analysis. (Bourguignon, 2004). This paper is divided into the following sections starting with the background to the study. Following this is section two presents the socio-economic context of the study. Section three gives a brief review of the theoretical and empirical literature while sections four, five and six consider the methodology, results and discussion; and Conclusion respectively.

## **2. Socio economic context**

Nigeria is a member of the organization of petroleum exporting countries (OPEC) and has been described in many studies as a resource rich economy. (Dercon, 2009). Although crude oil is the major source of revenue, agriculture has remained a leading sector in terms of its contribution to GDP over the years. In terms of administration, although states constituted administrative regions since the first major state creation in 1967, the constituent assembly in 1995 identified six geopolitical zones or regions in the country as operational entities for policy making (Aigbokhan, 2000). These regions include: North-east, North-west, North-central, South-east, South-west and South-south. The economy of all the regions is dichotomized into rural and urban areas. The rural economy is larger in terms of population and is agriculture-based. The urban economy is capital intensive with few multinational firms, a multitude of small-medium scale industries with low capacity utilization, financial organizations, government parastatals, and a thriving informal small trade and service businesses. The formal urban capital intensive jobs are better paying and more secure but scarce.

The economic and demographic features of Nigeria reflect a typical situation of most developing countries. First unemployment rate in Nigeria remains a double digit although it declined from 18.1% in 2000 to 12.2% in 2002, it increased to 14.8% in the succeeding year, before declining to 11.8% in 2004. The labour market is highly segmented where high skilled jobs are characterized by excess demand like banks, oil firms and the telecommunication while the low skill jobs display large excess supply. Although women participation is growing the labour market is also segmented along gender lines. (NBS, 2005). In terms of growth, most of the years of the 1980s, were negative as depicted in figure 1.1. In the 1990s, the relatively low growth rates averaged about 3 per cent. The very high economic growth rate of 10.2 per cent achieved in 2003 has tended to prove unsustainable as it declined to 6.6 per cent in 2004. Sectoral performance is equally revealing. NBS (2005) showed Agriculture had a strong growth rate of 6.5% in 2004 but surpassed by the manufacturing and distributive trade sectors having growth rate of 10% and 9.7% respectively in 2004.

### **3. Theory /Literature Review**

Underlying this study are the views of Kuznet (1955) U-shaped hypothesis which draws a connection between economic growth and income distribution and the new political economy view which looks at the negative effect of a worsening income distribution on growth and poverty. The first view argues that income distribution would first worsen and later becomes better as per capita income rises. Two issues arise from this view: the first is the connection between income distribution and growth. The second is that a better income distribution is attainable over time and under a faster growth regime. The new political economy view argues on the contrary that a worsening income distribution is detrimental to growth. (Persson and Tabellini,

(1992), Perotti (1996)). Thus the two views seem to suggest the importance of growth and distribution for sustainable poverty reduction.

Although controversies exist regarding these views as well as several other studies that have documented no clear link between growth and income distribution (Deininger and Squire, 1996), this study assumes this connection with the premise that poverty reduction occurs as a result of growth in household income and shift in income distribution while the character of growth viz, pro-poor and anti-poor, depends on whether growth is associated with a reducing inequality or increasing inequality respectively. The most widely used approach to formalize this assertion empirically is the Datt–Ravallion framework based on the mathematical relationship between the chosen poverty index and the mean and Lorenz curve of the income distribution. The decomposition breaks down poverty difference across space or over time into two components that are respectively associated with income growth and distributional shifts. Studies that pioneered such a decomposition of poverty changes are Ravallion and Huppi (1991) for Indonesia, Datt and Ravallion (1992) for regions of Brazil and India, and Kakwani (1993) for Côte d’Ivoire.

A drawback of Datt-Ravallion framework is that it comes with a residual term which as argued by Wan and Zhang (2006), may obscure main findings from numerical analyses. An advance from this is the Shapley value approach which decomposes poverty changes exactly as a function of growth and distributional shift without the residual term. This study adopts the shapely decomposition since it is vital for evaluating the state of governance in Nigeria. Decomposition of poverty changes into growth and income distribution components have also been noted by Ravallion and Chen (2001) to be fraught with the problem of interpreting distributional changes

as pro-poor when in actual sense there is no absolute gain to poor. Or interpreting distributional changes as pro-rich when there are absolute gains to the poor. A way out of this problem is the use of growth incidence curve which shows how the growth rate of for a given quantile varies across quantiles ranked by income or expenditure.

Addressing income growth, distributional shift and poverty trend connection empirically involves some methodological issues. First, Deaton (1985) and other economists have shown that income and expenditure are good proxies of welfare or living standard. Thus this study follows a money-metric approach and specifically adopts consumption expenditure being more practical as a measure of welfare in developing countries. Although growth is often used as a macro concept, McKay and Perge (2009) noted that the mean household income or consumption is seen as a close proxy of growth in the developing countries especially as a concept for examining its relationship to poverty reduction<sup>3</sup>. Another important methodological issue is the appropriate poverty line to use. While absolute poverty is defined using a poverty line (absolute) that has a fixed purchasing power determined so as to cover basic needs, relative poverty is defined using a poverty line (relative) established in terms of a fixed proportion of some income standard in the population. Relative poverty lines can be used to make comparisons between different population groups, but are less useful to make comparisons over time. (Bourguignon, 2004).

#### 4. Methodology

A poverty measure  $P$  is a function of income distribution  $Y$  and poverty line  $z$ , that is:

$$P = P(Y, z) \quad (1)$$

Where  $Y$  is characterised on one hand by its mean income  $\mu$  which captures the absolute incomes of the distribution, and on the other hand by its Lorenz curve  $L$  which captures all relative incomes of the distribution (Zhang and Wan, 2006) That is,

$$Y = Y(\mu, L) \quad (2)$$

If the poverty line,  $z$ , is held constant over time, a change in poverty between period 0 and period T can be defined as:

$$\Delta P = P(Y_T, z) - P(Y_0, z) \quad (3)$$

Therefore change in poverty  $\Delta P$  over time is as a result of changes in either of these two characteristics of income distribution  $\mu$  or  $L$ . Therefore a change in poverty  $\Delta P$  can be attributed to two effects: the growth component and the distribution component. To express these components mathematically let  $Y(\mu_i, L_j)$  be a hypothetical income distribution with mean income  $\mu_i$  and Lorenz curve  $L_j$  taken from different distributions, i.e.,  $i = 0$  or  $T$ ,  $j = 0$  or  $T$ , and  $i \neq j$ . And let  $P(\mu_i, L_j)$  represent the poverty level corresponding to  $Y(\mu_i, L_j)$ . A change in poverty



$\Delta P$  between periods 0 and  $T$  can be decomposed into two components: the first, known as the growth component captures the effect of the variation in absolute mean income between periods 0 and  $T$  at a constant distribution of income  $L_0$  using period 0 as the reference or  $L_T$  using  $T$  as reference. The second, known as distributional shift component captures the effect of the variation in relative income between periods 0 and  $T$  at a constant level of income  $\mu_0$  using period 0 as the reference or  $\mu_T$  using  $T$  as reference. These components are captured mathematically as:

### **Growth component**

$$(0, \text{reference}): \quad P(\mu_T, L_0) - P(Y_0) \quad 2 \quad (4)$$

Or

$$(T, \text{reference}) \quad P(Y_T) - P(\mu_0, L_T) \quad 2a \quad (5)$$

### **Distributional shift component**

$$(0, \text{reference}) \quad P(\mu_0, L_T) - P(Y_0) \quad 3 \quad (6)$$

Or

$$(T, \text{reference}) \quad P(Y_T) - P(\mu_T, L_0) \quad 3a \quad (7)$$

From the foregoing, using two reference points, can result in 4 ways of decomposing a poverty change,  $\Delta P$ . For example, using the combination of equations 4 and 7 or 5 and 6, a change in poverty can be decomposed as:

$\Delta P = P(Y_T, z) - P(Y_0, z) = \text{growth component} + \text{distributional shift component}$

$$= [P(\mu_T, L_0) - P(Y_0)] + [P(Y_T) - P(\mu_T, L_0)] \quad (8)$$

$$= [P(Y_T) - P(\mu_0, L_T)] + [P(\mu_0, L_T) - P(Y_0)] \quad (9)$$

As noted in Zhang and Wan (2006), the decomposition methods used in previous studies, comprise one or two of the above decompositions and which are sensitive to the choice of the reference period, and are inexact or have a non-vanishing residual term. A departure from this is the Shapley decomposition which is symmetric and exact. It has a theoretical root in the cooperative game theory and the algorithm involves taking the average of expressions of the above equations.

$$\begin{aligned} \Delta P = & 0.5 \{ [P(\mu_T, L_0) - P(Y_0)] + [P(Y_T) - P(\mu_0, L_T)] \} \\ & + 0.5 \{ [P(Y_T) - P(\mu_0, L_T)] + [P(\mu_0, L_T) - P(Y_0)] \} \end{aligned} \quad (10)$$

Therefore, the growth (G) and distributional shift (R) components of a change in poverty, then becomes:

$$G = 0.5 \{ [P(\mu_T, L_0) - P(Y_0)] + [P(Y_T) - P(\mu_0, L_T)] \} \quad (11)$$

$$R = 0.5 \{ [P(Y_T) - P(\mu_0, L_T)] + [P(\mu_0, L_T) - P(Y_0)] \} \quad (12)$$

The growth and distributional shift components will be estimated using the DAD statistical package by Duclos et al (2006). To estimate changes in absolute poverty over time, we follow common practice of measuring poverty by the use of three measures from the Foster-Greer-Thorbecke ( $P$ ) class of poverty measures. (Foster et

al, 1984). Assuming individuals income is denoted by  $y_i$  and ranked from the poorest ( $i=1$ ) to the richest ( $i=n$ ), and given a poverty line  $z$ , then the FGT class of measures ( $P_\alpha$ ) is represented as:

$$P_\alpha = \frac{1}{n} \sum_{i=1}^q \left( \frac{z - y_i}{z} \right)^\alpha \quad (13)$$

Where  $q$  is the number of individuals classified as poor (that is, for whom  $y_i < z$ ), and  $\alpha$  is a non negative parameter reflecting the weight placed on the depth of poverty. In descriptive terms,  $P_0$  is the headcount index, which gives the proportion of the population whose incomes fall below the poverty line  $z$ .  $P_1$  is the poverty gap index, measures the average income shortfall in meeting the poverty line. The squared poverty gap index  $P_2$  is the sum of the proportionate poverty gaps weighted by themselves, and is thus more sensitive to the income changes of poorer individuals. For this study we used the absolute poverty line computed by the National Bureau for statistics estimated at N30128 per capita per annum or N82.54 per capita per day. To assess the character of growth over the period, that is, if growth was pro-poor or anti-poor the growth incidence curve was employed which plots the annual growth rate in each percentile  $p$  ranging from 0 to 1 of the distribution of per capita expenditure.

#### **4.1. Data**

Data were drawn from the National Consumer Survey of 1996 and National Living Standard Survey for 2004 all processed for public use by the National Bureau of Statistics. The data are Cross-sectional, most recent and each at a different point in

time. The 1996 data set covered information on 14395 households while the 2004 data set covered 19158 households<sup>4</sup>. The unit of analysis is per capita expenditure simply arrived at by dividing household expenditure by household size. We also adjusted expenditure by price index to reflect differences in cost of living as well as scaling 1996 expenditure to 2004 naira prices.<sup>5</sup>

## **5. Discussion of results**

### **5.1. Poverty trend, 1996 – 2004**

This section examined the poverty trend in Nigeria using household-level expenditure data from two different surveys, 1996 and 2004. Table 1 presents the poverty estimates of the three FGT indicators in this order: head-count ratio, poverty gap, and squared poverty gap for the two datasets for the whole country (pooled) and separately for rural and urban areas.

Also shown in the table are separate estimates for expenditure adjusted by cost of living and that without cost of living. However, this section describes only estimates derived from household per capita expenditure adjusted by cost of living shown in the 5<sup>th</sup> and 6<sup>th</sup> column of table 1 above. Poverty head count over the period, reduced from 79% to 59% by 23% for the whole country, from 84% to 67% by 20% for rural and for urban reduced from 63% to 49% by 22%. The magnitude of poverty reduction is higher in the urban area compared to rural area. Also reduced poverty head count in rural area remains at 67% in 2004 which is higher than reduced poverty for the whole country and urban area at 59% and 49% respectively in 2004.

Furthermore comparing these results with previous studies that have used these data for poverty analysis, our results appear not quite different. For example, published

reports by Aigbokhan (2008) and NBS (2005) showed that poverty head count in the whole country reduced by 17% while in the urban and rural area areas poverty head count reduced by 22% and 8% respectively. The little discrepancies could be as a result of slight differences in methodology. Nevertheless, the estimates in this study and those in NBS (2005), Oyekale et al (2006), and Aigbokhan (2008) agree that poverty decreased in 2004. Notwithstanding, this result should be interpreted with caution since the two data sets employed are snapshots.

To test the robustness of poverty reduction over the period, figures 1, 2 and 3 show the poverty dominance analysis at first stochastic dominance for the whole country, rural and urban while figure 4 shows the dominance test at second stochastic order for only the urban area. The first order dominance test involves plotting the cumulative percent of population at each level of per capita expenditure. Figure 1 shows the cumulative distribution functions (CDFs) for per capita expenditure in 1996 and 2004. The CDF for 2004 begins below that of the CDF for 1996 and stays clearly below it up till N700 poverty line with no clear sign of crosses between the curves. This means that for no poverty line below N700 was poverty lower in 2004 for any poverty measure with  $\alpha > 0$ . Therefore poverty reduction performance for 2004 was better than its performance in 1996 up till N700 poverty line for the whole country. For rural area as shown in figure 2, the 1996 and 2004 CDFs cross each other at N425 poverty line implying that rural poverty reduction performance in 2004 was better than in 1996 up till N425 poverty line. For urban area as shown in figure 3, the 1996 and 2004 CDFs cross each other at N275 poverty line implying that rural poverty reduction performance in 2004 was better than in 1996 up till N275 poverty line. Nevertheless poverty reduction performance in 2004 was better that 1996 poverty

reduction performance for a poverty line beyond N82.54 per capita per day up till N700, N425 and 275 for the whole country, rural and urban respectively.

However, it is not possible to make a definitive statement about changes in poverty for all poverty lines and all poverty measures since the CDFs for 1996 and 2004, crossed at certain poverty lines particularly for the urban area. To make a definitive statement for the urban area, figure 4 plots the area under the poverty incidence curves for per capita household expenditure. These curves are called poverty deficit curves. They do not cross each other reflecting second-order dominance of poverty reduction performance of 2004 over 1996 in the urban areas

## **5.2. Relative roles of growth and distribution policies**

This section examines the relative roles of income growth and distributional shift in bringing about poverty reduction over the period 1996- 2004. The relative roles have been done for rural and urban areas separately and also for the whole of the country, Nigeria. The income growth component determines the extent of decrease (increase) in poverty incidence due to a rise (fall) in mean per capita expenditure while the shift in distribution captures the character of growth depending on whether the shift is positive or negative. This also in line with the interpretation of Zhang and Wan (2006) that the growth component represents gain/losses to the poor while the distributional shift component represents the extent to which income growth has been pro-poor.

Table 2 presents the estimates for the whole country, rural and urban. The growth component for the whole country accounted for -16% while for rural and urban areas, accounted for -10% reductions in poverty respectively. The negative sign implies that

income growth resulted in poverty reduction as a result of growth in per capita household income. The distributional shift component contributed -5%, -7% and -4% to poverty reduction in the whole country, rural and urban respectively. This implies beneficial contribution of distributional shift to poverty reduction. However, the magnitude of the distributional shift in the rural area at 7% was higher than in urban area at 4% and the whole of the country at 5%. However as noted by Ravallion and Chen (2001), this type of analysis has the problem of interpreting distributional changes as pro-poor when in actual sense there is no absolute gain to poor or interpreting distributional changes as pro-rich when there are absolute gains to the poor. A way out of this problem is the use of growth incidence curve which shows the real character of growth across percentiles ranked by income or expenditure. This is discussed in what follows.

### **5.3. Pro-poor growth**

To ascertain the character of growth over the period, figures 5 and 6 presents growth incidence curve for the whole country and urban area respectively for the period 1996 – 2004. The growth incidence curve was obtained using the DAD package. From the figures, the upper horizontal broken line represents the growth rate of the poor across percentiles which are constant at -0.31%. Below it is the mark of the over all mean growth rate at -0.36%. The growth incidence curve is represented by the undulating broken line and as suggested by Clancy and Maddan (2005) it helps to see precisely what part of the distribution is driving inequality and consequently pro-poor or anti-growth character. Following Demombynes and Hoogeveen (2007), Ozler (2007), growth over the period is considered absolutely pro-poor in character if the mean growth rate for the poor is greater than zero and relatively pro-poor if in addition, the

mean growth rate for the poor is greater than or equal to growth rate in the over all mean. A growth incidence curve that is downward sloping implies a decreasing inequality movement while an up ward sloping implies an increasing inequality movement.

As shown in the figure5, the growth rate of the poor is below zero across all percentiles and therefore, growth is absolute not pro-poor in character. In addition, the mean growth rate of the poor at -0.31% is higher than and not equal to the over all mean growth rate at -0.36% suggesting that growth was relatively pro-poor. From the growth incidence curve we find a downward sloping curve up till the first 5% bottom percentile of the population before flattening out unevenly suggesting a relative benefit to the first 5% of the poor and beyond which it was neither pro-poor nor anti-poor. This result holds true for the rural area but different in the urban area where the urban growth incidence curve as shown in figure 6 presents both downward and upward slops. Specifically the curve slopes downward unevenly up till the 11<sup>th</sup> percentile, taking off from there upwards up till 15<sup>th</sup> percentile and then downwards up till 25<sup>th</sup> percentile. Ascends upward again after the 25<sup>th</sup> percentile, downwards after the 40<sup>th</sup>, upwards after the 57%, downwards after the 70<sup>th</sup> and upwards after the 85<sup>th</sup> percentile before dropping finally after the 95<sup>th</sup> percentile. These slopes present a pattern of pro-poor and anti-poor growth character. The downwards slopes imply reduced inequality and therefore growth can be seen as beneficial to the poor while the upward slops suggest increased inequality and therefore growth can be seen as anti poor. Therefore although growth appears not to be pro-poor in absolute terms, it is pro-poor in relative terms but better in urban than in rural.



## **6. Summary and conclusion. .**

This paper has examined the changes in Nigeria's poverty from 1996 – 2004 using two most recent datasets that give a snapshot of household consumption expenditure. To estimate changes in poverty we used a fixed poverty line at 2004 Naira prices to define the poor and the non poor for both years using the three widely used poverty indices as advanced by (Foster et al, 1984). The stochastic dominance test was carried out to ascertain the robustness of poverty changes over the period. To quantify the relative contributions of income growth and distributional shift, we adopted the Shapley value version of the growth–redistribution poverty decomposition advanced by Datt and Ravallion (1992) while the character of growth was verified using the growth incidence curve documented in Ravallion and Chen (2001). Results revealed that on the average poverty reduction was as a result of the impressive income growth component and distributional shift over the period but the paradox remains that growth was not pro-poor absolutely but relatively so to larger extent in urban than in rural and the whole of the country.

A pro-poor pattern of growth is preferable in terms of its impact on poverty particularly on poorest population. This type of growth is labour intensive rather than capital intensive and places emphasis on raising skill levels among the poor and access to the global market. Although poverty reduced, the incidence level for the whole country tends towards 60% and in the rural towards 65% and in the urban towards 50%.

It is obvious, therefore, that although growth and distributional strategies can bring about poverty reduction, a deeper reduction in poverty depends on how effectively and efficiently markets and the distributional system are working. This requires good

governance and institutional innovations that can reduce corruption, unintended beneficiary syndrome and mis-management. However a mere descriptive study like ours is not adequate to evaluate the contribution of growth and distributional shift on poverty reduction. This can be done through a general equilibrium model. Also this study is limited by the use of two cross sectional data rather than a panel data. Thus interpretation requires some caution. The analysis suggests that the government should continue better targeting services particularly in the rural area.

## Notes

1. See Obadan, M.1. (2002).
2. The role of rising income inequality in slowing down poverty reduction is well known in development literature (Khan (1999), Gustafsson and Wei (2000), Yao (2000), Chen and Wang (2001), and Ravallion and Chen (2004).
3. The arguments are: first substantial number of households engaged in self-employment activities. Second household consumption represents the largest component of GDP. Thirdly there are the well known problems of the comparability of household survey and national accounts estimates of consumption.
4. The 2004 national living data set is more detailed than the 1996 data set. Although the use of household size rather than adult equivalent, underestimates the economic wellbeing for larger households as compared to smaller households, adult equivalent variable is only available in the 2004 data set, it is not available in the 1996 data set. The sampling technique and the

nature of the data are well detailed in the following studies. (Aigbonkhan, 2000, Oyekale et al 2006, Awoyemi, 2004).

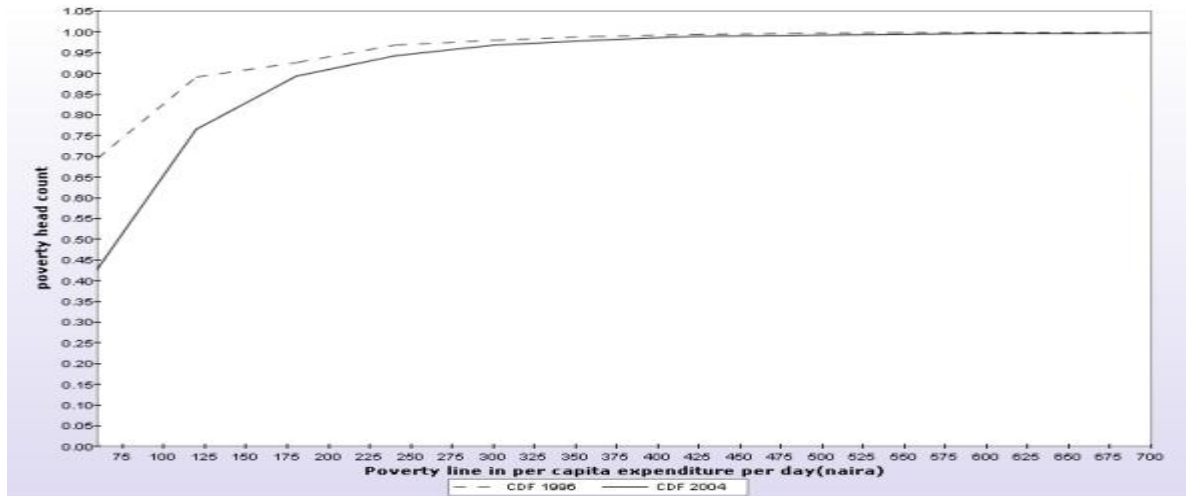
- To eliminate the effect of price changes over time, the 1996 total expenditure was scaled up to 2004 prices dividing 1996 expenditure by 0.05 derived as follows. First we derived the inflation rate between 1996 and 2004 using the consumer price index (CPI) for both years. Second we added 1 to the inflation rate and arrived at 0.05 for the whole country and rural area and 0.04 for urban area. Third we used these values to scale 1996 expenditure to 2004 prices. These temporal adjustments allowed us to use a fixed absolute poverty line to compute poverty changes for the two periods.

**Table: 1 Poverty estimates for 1996 and 2004 by cost living adjustments and without**

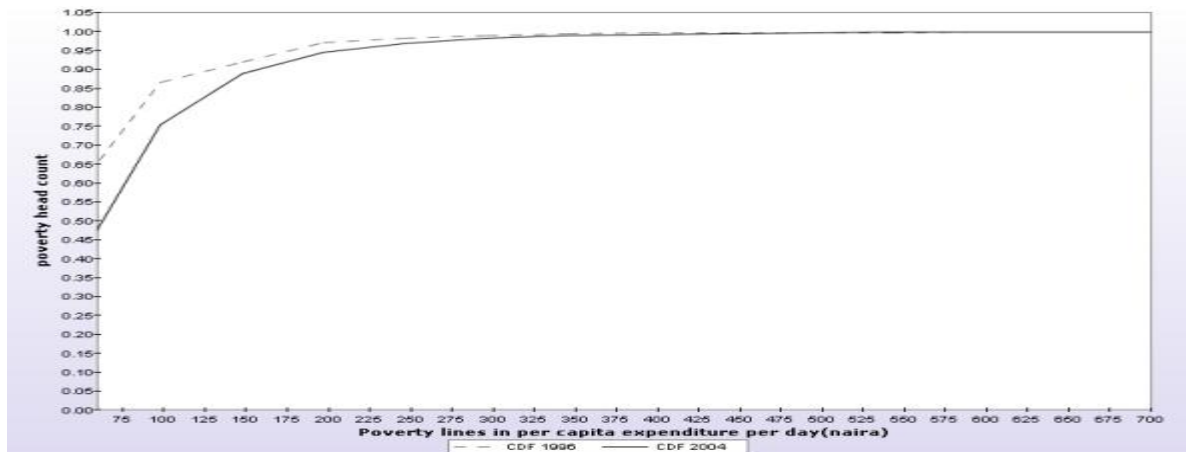
	Poverty estimates without cost of living adjustment		Poverty estimates with cost of living adjustment	
	1996	2004	1996	2004
<b>Pooled</b>	<b>NBS estimated absolute poverty line of N30128 per annum</b>			
Head count index	0.71(0.00)	0.56(0.00)	0.79(0.00)	0.59(0.00)
Poverty gap	0.33(0.00)	0.25(0.00)	0.42(0.00)	0.26(0.00)
Squared poverty gap	0.20(0.00)	0.14(0.00)	0.27(0.00)	0.15(0.00)
<b>Rural</b>	<b>NBS estimated absolute poverty line of N30128 per annum</b>			
Head count index	0.75(0.01)	0.64(0.00)	0.84(0.01)	0.67(0.00)
Poverty gap	0.36(0.00)	0.29(0.00)	0.45(0.00)	0.31(0.00)
Squared poverty gap	0.22(0.00)	0.17(0.00)	0.30(0.00)	0.18(0.00)
<b>Urban</b>	<b>NBS estimated absolute poverty line of N30128 per annum</b>			
Head count index	0.57(0.02)	0.47(0.01)	0.63(0.02)	0.49(0.01)
Poverty gap	0.21(0.01)	0.19(0.00)	0.30(0.01)	0.20(0.00)

Squared poverty gap    0.13(0.01)                    0.11(0.00)                    0.18(0.01)                    0.11(0.00)

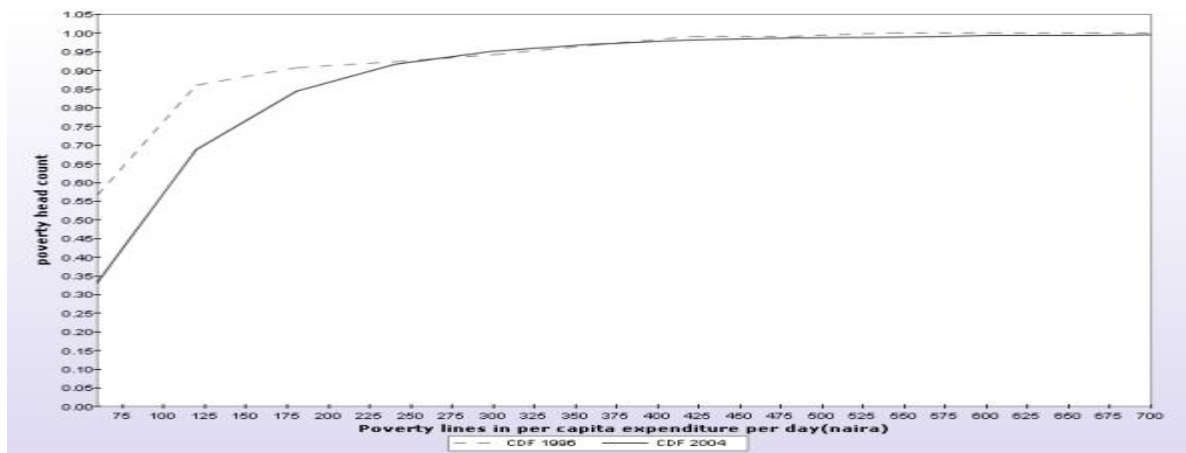
Source: Estimated from National household survey data sets for 1996 and 2004



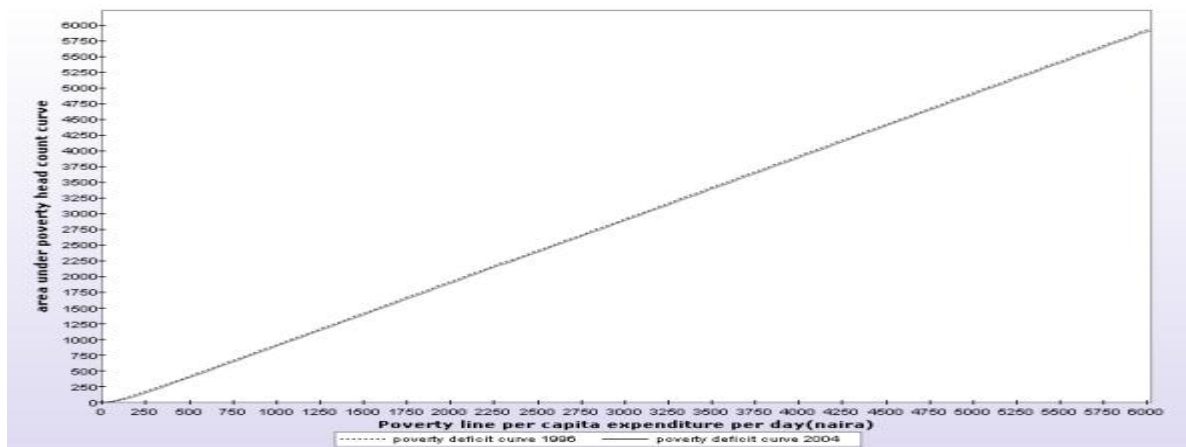
**Fig: 1 Dominance test for the whole country at first order**



**Fig: 2 Dominance test for rural area at first order**



**Fig: 3 Dominance test for urban area at first order**

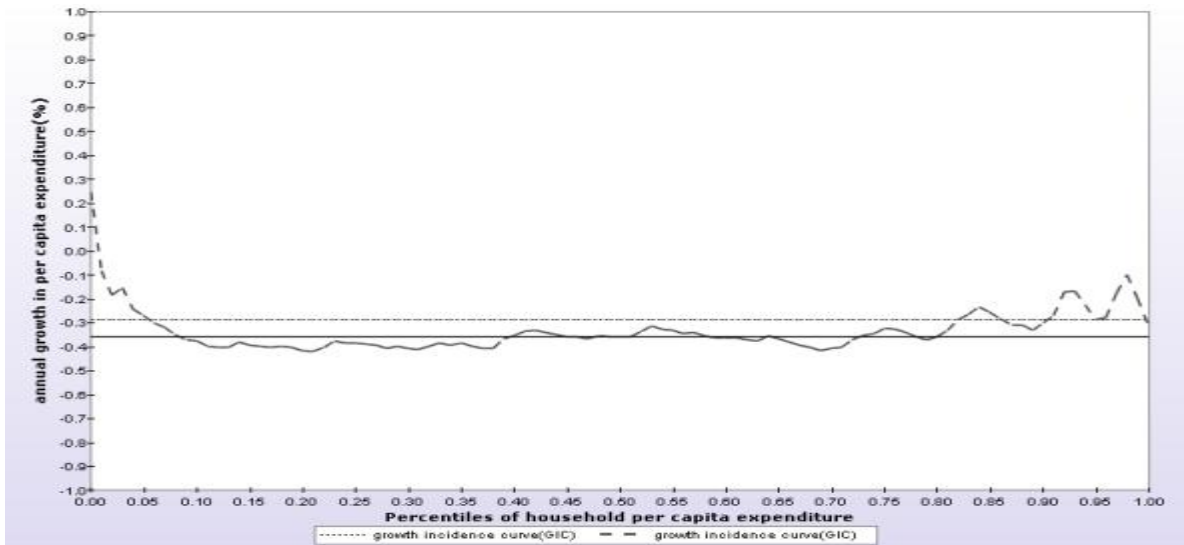


**Fig:4 Dominance test analysis at second order for urban area.**

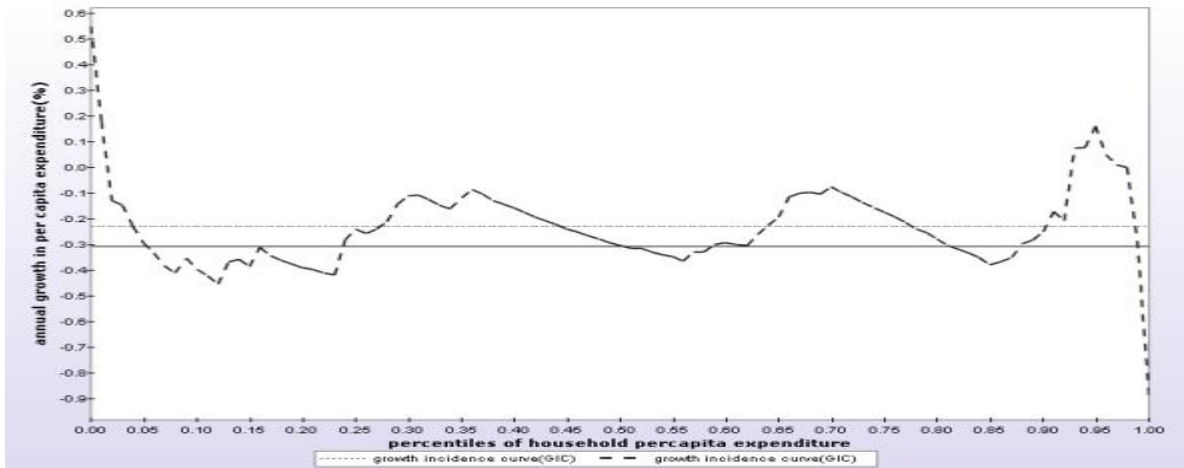
**Table: 2 Relative contributions of income growth and distribution shift components**

Poverty indicator	Components	of Estimates
<b>The whole country</b>		
P0	Growth	-0.16
	Redistribution	-0.05
<b>Rural</b>		
P0	Growth	-0.10
	Redistribution	-0.07
<b>Urban</b>		
P0	Growth	-0.10
	Redistribution	-0.04

Source: Estimated from National household survey data sets for 1996 and 2004



**Fig: 5 Growth incidence curve for the whole country, 1996 - 2004**



**Fig: 6 Growth incidence curve for urban area, 1996 - 2004**

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