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## Poverty in Egypt: 1974-1996

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**Abstract:** This study examines changes in household and individual poverty levels in Egypt between 1974/75 and 1995/96. Changes in the poverty levels are decomposed into a component due to economic growth and a component due to distributional change.

### I. Introduction

The purpose of this study is to assess and measure changes in poverty levels in Egypt between 1974/75 and 1995/96. The study also attempts to investigate whether the changes are due to economic growth or the results of the distribution of consumption expenditure among the households and individuals. Furthermore, it endeavors to investigate the sensitivity of poverty

levels to the choice of the analysis unit (individuals vs. households), the choice of the poverty measure used (relative vs. absolute), and the choice of poverty lines. In addition, the study also provides a decomposition of the changes in poverty levels into their growth and distribution components.

The literature on poverty contains many approaches to measuring the level of household well being. The measurement of poverty involves the choice of an indicator of economic resources. These approaches differ from one another in terms of how much weight they assign to a household's judgment of its own well being and the range of inclusion of factors that can reflect such well-being. These factors range in tangibility from the household's command over commodities, which are relatively measurable, to factors such as human rights and political freedom, which are harder to measure. The choice of included variables can produce vastly different perceptions of the extent of poverty. Two of the most commonly used variables to measure poverty are current income or consumption, and the commonly used units of analysis are households and individuals.

Once a choice has been made about the unit of analysis, the next decision is whether the poverty line (which identifies whether a unit is poor or non-poor) is to be relative or absolute. An absolute poverty line is independent of income distribution and has a fixed real value over time and space. It is based on some concept of the (fixed) resources required to meet a set of "basic needs". The relationship between an absolute poverty measure and economic growth is usually negative [1].

The alternative to an absolute poverty line is a relative poverty line. A relative poverty line recognizes that "basic needs" may be a function of the standard of living. Relative poverty lines are based on the notion of "relative deprivation". Economists who favor the relative poverty line do so with an eye to international and overtime comparison. They argue what constitutes poverty in one society at a given time may not be the same for another society or even for the same society at different times. Sen (1997, 165) points out that distributional concerns can be important in the determination of a poverty line because the identification of a level of income at which people can be described as poor may depend on the pattern of affluence and deprivation

that others experience. Typically, relative poverty lines are defined as income (consumption) as a percentage deviation from the mean or median income (consumption). One of the potential problems with relative poverty lines is that households (individuals) may be defined as poor even though they do not feel poor subjectively.

Sen and Foster (1997, 165) raise a practical question in the choice of poverty lines. They ponder whether the choice made is to be viewed as a descriptive exercise or as a prescriptive one. Descriptive choice implies that a person who is regarded as poor has a level of income in which he is considered seriously deprived in a given society. A prescriptive choice implies that a person designated as poor has a level of income below which no one in the society should have to live. A society must determine its own ethical objectives in deciding whether or not to focus on the elimination of economic deprivation. To address this important literature issue, we compute poverty levels for a number of poverty measures using a wide range of absolute and relative poverty lines

The plan of the paper is as follows: In Section II we briefly review the existing Egyptian empirical literature and discuss issues with respect to the measurement of poverty. In Section III we present the poverty measures and decomposition methods used in this paper. The data are described in Section IV and the empirical results are presented in Section V, followed by conclusions in Section VI.

## **II. Empirical Literature**

Empirical literature dealing with poverty in Egypt is sparse. The existing papers dealing with poverty in Egypt use two different approaches for measuring the poverty lines. El-Laithy and Kheir-El-Din (1993) use a relative poverty measure set at two different levels-- one-third (ultra-poor) and two-thirds (poor) of the mean per capita expenditures. Those who command one-third of the mean expenditure are referred to as “ultra-poor” and those who are in charge of two-third of the mean expenditure are called “poor”. These two poverty lines are applied to both urban and rural data provided by the Egyptian household survey for the fiscal years 1974/75, 1981/82 and 1990/1991.

The second approach utilizes the caloric approach to set the poverty line. Korayem (1994) derived a poverty line based on expenses of the daily requirements of calories for an individual to be healthy, taking into consideration subsistence goods and services that may satisfy some nonmaterial needs. She uses the 1974/75 and 1981/82 Household Budget Surveys.

Following Korayem (1994), Cardiff (1995) also utilizes the caloric approach to poverty in Egypt for 1990 assuming an unchanged inflation rate and well as age and sex distribution of the household. In addition, Cardiff (1997) uses similar techniques to his, Cardiff (1995), paper and applies it to the data provided by the household surveys for the years 1990/91 and 1995/96. The poverty line chosen reflects the expenditure required to sustain the minimum standard diet. The expenditure amount was modified to reflect the average household size and the rate of inflation. The inflation rate was proxied by the food-only CPI index.

The overall findings of these papers are, poverty varied from region to region and by governorate. Poverty, which is mainly centered in urban areas of Egypt, is positively associated with being a wage earner in urban areas and with farming in rural areas. By the same token, poverty is inversely related to education; in fact, the illiterate household heads were found to have contributed most to national poverty. The poorest families were found to have either very old or very young heads of the household.

### **III. Properties of the Poverty Measures**

The literature is rich with many forms of aggregating poverty information into a measure of poverty. Foster, Greer, and Thorbecke (1984), FGT, proposed a class of poverty measures that is frequently used in empirical work. Foster, Greer, and Thorbecke (FGT) consider the  $P_\alpha$  class of poverty measures in the form of:

$$P_{\alpha} = \int_0^z \left[ \frac{z-x}{z} \right]^{\alpha} f(x) dx \quad \alpha \geq 0 \quad (1)$$

where  $x$  is household consumption expenditure,  $z$  is the poverty line and  $f(x)$  is the density function of household consumption expenditure. The  $P_{\alpha}$  measure is subgroup consistent and decomposable. In addition,  $P_{\alpha}$  satisfies the monotonicity axiom [2] for any  $\alpha \geq 1$  and the transfer sensitivity axiom [3] when  $\alpha \geq 2$ .

This measure incorporates three well-known poverty measures: the head count ratio, the income-gap, and the un-generalized FGT measure. Setting  $\alpha$  equal to zero, we obtain the head-count ratio, setting  $\alpha$  equal to one, we obtain the income-gap ratio measure, and setting  $\alpha$  equal to two we obtain the un-generalized FGT measure. The larger the value of  $\alpha$ , the greater the emphasis given to the poorest poor. Hence  $\alpha$  can be regarded as a measure of poverty aversion.

Much of the income (consumption) distribution data for individual or household are often given in grouped form. Each group provides an income (consumption) range, the number of individuals or households it contains, and the total income (consumption) of its constituents. Two approaches are used to construct poverty measures from such grouped data: simple interpolation methods and methods based on parameterized Lorenz curves. A common interpolation method is linear interpolation, which assumes that income (consumption) is equally distributed in each income (consumption) range. This method may lead to substantial underestimation of poverty and inequality levels. Another common interpolation method involves fitting a function to the income range by ordinary least squares and calculating the inequality and poverty measures from the fitted function. The difficulty of this approach is that there may not be a single function that fits the entire income (consumption) range (Kakwani 1976). Methods based on parameterized Lorenz curves base the poverty and inequality measures on estimated Lorenz curves, which are preferred to linear interpolation methods because of their relative accuracy (Datt 1998, 3).

Kakwani (1980) suggested the following form of Lorenz curve that can be estimated from grouped data:

$$L(p) = p - \theta p^\gamma (1 - p)^\delta \quad (2)$$

where  $p$  is the percentile of the population,  $L$  is their percentile share of aggregate consumption (or income), and  $\theta$ ,  $\gamma$ , and  $\delta$  are the parameters to be estimated. This form satisfies the properties of the Lorenz curve:  $L(P)$  is equal to one if  $p$  is equal to one, and  $L(P)$  is equal to zero if  $p$  is equal to zero. For convexity to the  $p$  axis, it is sufficient to have  $0 < \gamma \leq 1$  and  $0 < \delta \leq 1$ . This form is known as the beta Lorenz curve.

Arnold and Villasenor (1989) criticize Kakwani for relying on parametric families of Lorenz curves because it does not usually allow for explicit expression of both the Lorenz curves and the density of the corresponding size distribution. They argue that even when the sample Lorenz curves and the fitted Lorenz curves are in close agreement, serious shortcomings in the fit of corresponding densities are still observed. Instead, they suggested that segments of ellipses provide a flexible family of Lorenz curves whose corresponding unimodal densities are readily described and have proved to perform remarkably well in fitting data. The functional form they introduced is the generalize quadratic:

$$L(1 - L) = a(p^2 - L) + bL(p - 1) + c(p - L) \quad (3)$$

where  $p$  can represent the percentile of the population,  $L$  can represent their percentile share of aggregate consumption (or income), and  $a$ ,  $b$ , and  $c$  are the parameters to be estimated. Note that  $L(1-L)$  are two terms multiplied by each other,  $L$  multiplied by  $(1-L)$  where the whole equation describes an ellipse curve.

In this study, following Foster et al (1984) and Kakwani (1980), we construct a Lorenz curve for each data set to be studied. The methodology of this task is based on two functions: one function

represents the Lorenz curve and the other represents the poverty measure (Datt 1998). The Lorenz curve function is in the form of:

$$L = L(p; \pi) \quad (4)$$

and the poverty measure is in the form of:

$$P = P\left(\frac{\mu}{z}, \pi\right) \quad (5)$$

where L is the share of the bottom percent of the population in aggregate consumption, p is the percent of the population in aggregate consumption, P is the poverty measure,  $\pi$  is a vector of the estimated Lorenz curve parameters,  $\mu$  is the mean consumption and z is the poverty line.

Using equation (4) we derive three measures of poverty; namely, the head count ratio index, the income-gap index, and the un-generalized FGT index. The head-count index (H) is the slope of the Lorenz curve evaluated at the poverty line. The slope of the Lorenz curve is:

$$L'(p; \pi) = \frac{z}{\mu} \quad (6)$$

By solving for H in the following equation, we get the head-count index:

$$L'(H; \pi) = \frac{z}{\mu} \quad (7)$$

Solving for H, enables us to proceed with the calculation of the poverty-gap index. Rewriting the FGT poverty measures as:

$$P_{\alpha} = \int_0^H \left[ 1 - \left( \frac{\mu}{z} \right) L'(p; \pi) \right]^{\alpha} dp \quad \alpha \geq 0 \quad (8)$$



and evaluating this form at  $\alpha=1$  we get the poverty-gap (PG) index. Evaluating equation (8) at  $\alpha=2$  yields the un-generalized FGT index. Two different forms of Lorenz curves are estimated using ordinary least squares for each data set, the general quadratic and the beta curves. Each curve is then checked for validity [4].

In addition, following Datt and Pavallion (1992), we decompose the changes in absolute poverty levels, as indicated by a given poverty measure, into their growth and distribution components [5]. The poverty measure for a period  $t$  is written as:

$$P_t = P\left(\frac{z}{\mu_t}, L_t\right) \quad (9)$$

where  $P_t$  represents the poverty measure at time  $t$ ,  $z$  is the poverty line,  $\mu_t$  is the mean income, and  $L_t$  is a vector of the parameters that describe the Lorenz curve at period  $t$ .

The absolute poverty level may vary due to a change in the mean income relative to the poverty line or due to a change in relative inequalities. Datt and Ravallion (1992) defined the growth component of a change in the poverty measure as a change in the poverty due to a change in the mean while holding the Lorenz curve constant at a reference level  $L_r$ . They defined the redistribution component as a change in poverty due to a change in the Lorenz curve while keeping the mean income constant at a reference level  $\mu_r$ . Datt and Ravallion (1992) decomposed the change in poverty between two dates  $t$  and  $t+n$  as follows:

$$P_{t+n} - P_t = G(t, t+n; r) + D(t, t+n; r) + R(t, t+n; r) \quad (10)$$

The growth component is given as follows:

$$G(t, t+n; r) \equiv P\left(\frac{z}{\mu_{t+n}}, L_r\right) - P\left(\frac{z}{\mu_t}, L_r\right) \quad (11)$$

and the distribution component is:

$$D(t, t+n; r) \equiv P\left(\frac{z}{\mu_r}, L_{t+n}\right) - P\left(\frac{z}{\mu_r}, L_t\right) \quad (12)$$

$R(t, t+n; r)$  represents the residual that occurs when the poverty measure is not additively separable between  $\mu$  and  $L$ . That is, the marginal effects on the poverty index of changes in the mean (Lorenz curve) depend on the precise Lorenz curve (mean). The residual in that sense will always exist. When  $r = t$ , the residual is interpreted as the difference between the growth (redistribution) components evaluated at the terminal and initial Lorenz curves (mean incomes). When  $r = t$ , the residual can be written as:

$$\begin{aligned} R(t, t+n; t) &= G(t, t+n; t+n) - G(t, t+n; t) \\ &= D(t, t+n; t+n) - D(t, t+n; t) \end{aligned} \quad (13)$$

It is possible to make the residual vanish by averaging the components obtained and by using the initial and final years as the reference. This is true because  $R(t, t+n; t) = -R(t, t+n; t+n)$ . However, such a choice is arbitrary [6].

When performing decomposition between two different time points (for example, 1974/75 and 1981/82), the growth component was obtained by deriving the poverty levels for 1974/75 using the mean of the 1981/82 distribution deflated by the consumer price index. This simulated the change in poverty that may have occurred if the distribution of 1974/75 had remained the same (i.e., the estimated parameters of the Lorenz curve did not change between 1974/75 and 1981/82). The obtained poverty levels were subtracted from the original ones and the outcome was the contribution to change in poverty due to growth (the growth component). The distribution component was derived by obtaining the poverty levels using the deflated mean of

1974/75 in the poverty analysis of the 1981/82 data. Thus, real mean was kept constant while the Lorenz curve parameters were not. The poverty levels resulting were subtracted from the originals and the outcome was the contribution to the poverty changes resulting from a change in the consumption expenditure distribution.

#### **IV. Data**

Household surveys represent the most important data source for the purposes of measuring poverty. Egyptian household surveys are available for the years 1974/75, 1981/82, 1990/91, and 1995/96. The reason that each period is written as two years is that each survey starts in mid-year of the first period and ends in mid-year of the second one. The surveys are not identical and their techniques in setting the samples have evolved through the years. The title of the surveys for 1974/74 and 1981/82 was “The Family Budget Survey”; the title for the survey of 1990/91 was “Income, Consumption and Expenditure Research,” and the title of the 1995/96 survey was “The Research of Consumption and Expenditure in Egypt.” We will refer to those studies as the household surveys throughout this paper. All household surveys are produced by the Egyptian Central Agency of Statistics.

This study utilizes both relative and absolute concepts of setting poverty lines. Since the four surveys contain consumption expenditure information for households and individuals but not all of them provide income information, this study will use consumption expenditure as a reflection of an individual’s or a household’s well-being. In all cases, we rely on consumption expenditure data to consistently compare poverty between different years.

Economists sometimes disagree about what to use as a reference for an individual’s well-being. Both income and expenditure have been used extensively in empirical work. However, the most commonly used indicator is the consumption expenditure, which has been generally accepted as a better welfare indicator than income [7].

There are other reasons consumption expenditure may be preferred to income as a welfare indicator. Many reported incomes in third-world countries might be far less than real incomes. For example, Egyptian taxi drivers are required by law to operate their taxi meters when picking up passengers. However, the fares charged are usually higher than the ones indicated by the meters and are generally accepted by the public; therefore, the reported income of those taxi drivers is usually much lower than their real incomes. Another reason may also be that income data is often limited in third-world countries by one major shortcoming: people often don't report secondary sources of income. Moonlighting and transfers are common in some developing countries.

The household surveys treat urban areas separately from rural areas [8]. The data used in this study is the grouped consumption expenditure data. For each consumption group, the number of households and individuals within the group is given. Both the level of consumption within each group and the number of households (or individuals) within that group is transformed into percentages from their total. Those percentages are then transformed into cumulative proportions to provide the  $P_s$  and  $L_s$  that are required for the estimation of the Lorenz curves and for deriving the poverty and inequality indexes.

There always exist concerns about the statistical integrity of the household surveys. The sample should be selected at random so that each household has an equal probability of being selected. In addition, households should be selected independently of one another. Those two rules form the statistical basis of the household surveys. In all cases there will be errors in survey data simply because a sample can never fully duplicate a population. The later Egyptian household surveys tend to be more reliable than the earlier ones. The recent years have witnessed a development of standardization of the sampling and processing techniques of household surveys.

The relative poverty lines are set as percentage deviations from the mean expenditure for each data set. Several poverty lines are set for each data set to check the sensitivity of the results to the choice of the poverty line. There are seven poverty lines for each group starting at 55% of the mean consumption expenditure and moving the poverty line upward by 5% intervals till it reaches 85% of that mean. This is done for both urban and rural data sets for households as well

as individuals. Deflating the relative poverty lines obtained for the year 1981/82 by the urban and rural consumer price indexes sets the absolute poverty lines for the years 1974/75, 1990/91, and 1995/96.

There is always a degree of arbitrariness in the choice of the poverty lines. Since one of the objectives of this study is to examine the sensitivity of the poverty levels to the choice of the poverty lines, multiple lines are used. The range for the lines is determined by two main factors. First, is that it should include some of the poverty lines that have been used in previous research or lie where poverty lines are generally suggested (based on a caloric approach, for example). The second factor is the admissible range allowed by the distribution functions underlying the Lorenz curves estimates.

## **V. Results**

In this section we first discuss the results for urban households and urban individuals presented in Tables 1-3. We then discuss the results for rural households and rural individuals presented in Tables 4-6.

### **Urban Households and Urban Individuals**

The results suggest that for urban regions, poverty levels decreased across all poverty lines and over all poverty measures between 1974/75 and 1981/82. Those results are not sensitive to the choice of the unit of analysis (households vs. individuals) or the concept of poverty lines used (absolute vs. relative). They are also not sensitive to the choice of the poverty line.

[See Table 1]

Between 1981/82 and 1990/91, values given by the head-count index when applied to urban households using relative poverty lines suggest a robust but slight increase in the percentage poor of urban households (with the exception of the lowest poverty line). However, values given by both the poverty-gap and the FG2 indexes point to a decrease in the poverty gap and the severity

of poverty among urban households for the same period (with the exception of the poverty line of 75% of the mean). The results obtained by applying the poverty measures to urban individuals using absolute and relative poverty lines and to urban households using absolute poverty lines are all consistent. They all point to an increase in the percentage of poor households and individuals in urban areas, an increase in their poverty gap, and an increase in the severity of poverty among them between 1981/82 and 1990/91. Consequently, with exception of the relative head-count index the results suggest poverty decreased between 1981/82 and 1990/91.

Results obtained by applying relative poverty lines to urban households suggest an increase in the percentage poor of urban households, their poverty gap, and the severity of poverty among them between 1990/91 and 1995/96. The exception occurs only at the poverty line of 75% where the values given by both the head-count and the poverty-gap indexes point to a slight decrease for the comparison period and by that display a sensitivity to the poverty line. For the same period, results obtained by applying relative poverty lines to urban individuals indicate a decrease in all poverty levels across all measures and all poverty lines, with the exception of the values given by the head-count index at the highest two poverty lines. The analysis of the changes in relative poverty levels is sensitive to both the unit of analysis (urban households vs. urban individuals) and the choice of the poverty line.

The results obtained by applying absolute poverty lines to urban households suggest a relatively high increase in all poverty levels over all poverty lines and across all poverty measures between 1990/91 and 1995/96. The results obtained by applying absolute poverty lines to urban individuals point to a different change in the poverty levels. Results suggest a decrease in the poverty gap and the severity of poverty among urban individuals. Results also suggest a decrease in the percentage of poor individuals at the lower two poverty lines and an increase in that percentage at higher ones. Again, the analysis of the changes in the absolute poverty levels is sensitive to the choice of the unit of analysis and to the choice of poverty lines.

The results of the decomposition of poverty changes for urban households in Table 2 suggest that both the growth and distribution components shared the same direction in reducing the poverty

levels between 1974/75 and 1981/82. Between 1981/82 and 1990/91, results suggest that the growth and the distribution components shared in increasing the percentage of poor urban households, with the growth component having the dominant role. The growth component also had the dominant role in increasing the poverty levels indicated by the poverty-gap and FG2 indexes. However, the distribution component indicates a slightly opposite force to that of the growth component. Between 1990/91 and 1995/96, both the growth and distribution components contributed to increasing the poverty levels indicated by all poverty measures and over all the poverty lines with the growth component contributing in relatively higher magnitude.

[See Table 2]

The decomposition of changes in the poverty levels indicated by the results obtained when applying absolute poverty lines suggests that for urban individuals in Table 3, both the growth and distribution components contributed to the reduction of the poverty levels between 1974/75 and 1981/82, with the growth component contributing more to this reduction.

[See Table 3]

The decomposition results for the changes in the poverty levels between 1981/82 and 1990/91 suggest that both the growth and distribution components contributed to the increase in poverty levels for urban individuals (Table 3) with the growth component contributing the most to this increase. These results are robust across all poverty measures and over all poverty lines

The decomposition results for the changes in the poverty levels between 1990/91 and 1995/96 suggest that for urban individuals (Table3), the growth component exercised an upward push on the poverty levels across all poverty measures and over all poverty lines. Results also suggest that the distributional changes exercised a downward pull on the poverty levels indicated by both the poverty-gap and the FG2 indexes and resulted in the decrease of the poverty gap and the severity of poverty among urban individuals. Moreover, distributional changes reduced the percentage of poor urban individuals at the lower poverty lines but contributed to their increase at higher ones.

Decomposition results for changes in the poverty levels among urban individuals and urban households indicate that the direction of the effects exercised by the growth component for each given analysis period is the same, whereas the direction of the effects of the distribution component may differ. This difference may stem from the choice of the unit of analysis.

### **Rural Households and Rural Individuals**

Results (Table 4) obtained by applying relative and absolute poverty lines to rural households and by applying absolute poverty lines to rural individuals suggest a robust decrease in poverty levels between 1974/75 and 1981/82. However, the results obtained by applying relative poverty lines to rural individuals displays sensitivity to the choice of the poverty lines for the same period; poverty levels decreased at all poverty lines with the exception of the lowest one of the head-count index and the lowest three of the poverty-gap index.

[See Table 4]

The results obtained by applying relative and absolute poverty lines to rural individuals suggest that poverty levels increased over all poverty lines and across all poverty measures between 1981/82 and 1990/91. However, the results obtained by applying relative and absolute poverty lines to rural households indicate otherwise. The values given by the head-count index indicate an almost stagnant percentage of poor rural households, whereas the values given by the poverty-gap and the FG2 indexes point to a decrease in the poverty gap and the severity of poverty among rural households. Conclusions about the changes in poverty levels between 1981/82 and 1990/91 are sensitive to the choice of the unit of analysis (rural households vs. rural individuals).

Results of the analysis of the change in poverty levels in rural areas between 1990/91 and 1995/96 differ according to the choice of the concept of poverty (relative vs. absolute), the poverty line, and the unit of analysis (rural households vs. rural individuals). The results obtained by applying relative poverty lines to rural households suggest a slight increase in the percentage of poor households over all the poverty lines, an increase in the poverty gap at the



lowest three poverty lines, an increase in it at higher ones, and an increase in the severity of poverty at all poverty lines. The results obtained by applying absolute poverty lines to rural households suggest a relatively high increase in all poverty levels over all the poverty lines and across all the poverty measures. The results of applying relative poverty lines to rural individuals suggest an increase in all poverty levels at the poverty lines available (80% and 85%) and across all poverty measures. The results obtained by applying absolute poverty lines to rural individuals suggest an increase in the percentage of poor individuals over all poverty lines available for comparison (with the exception of 65%, where the percentage of poor decreased). They also suggest a decrease in both the poverty gap and severity of poverty over all poverty lines available for comparison.

The results of the decomposition of the changes in the poverty levels for rural households (Table 5) suggest that both the growth and distribution components contributed to the decrease of poverty levels between 1974/75 and 1981/82 with the share of the growth component in that reduction being relatively higher. Between 1981/82 and 1990/91, the percentage of poor households did not significantly change. However, the poverty gap and the severity of poverty did change. Results suggest that the decrease in the values given by both the poverty-gap and the FG2 indexes for this period is in general a result of both the distribution and the growth components driving the poverty levels down with the distribution component playing the dominant role. Between 1990/91 and 1995/96, all rural poverty levels increased across all measures and over all poverty lines. Decomposition results suggest that this increase contributed to a powerful growth component that pushed poverty levels upward and was opposed by a rather minor distribution component.

[See Table 5]

The decomposition of changes in the poverty levels indicated by the results obtained when applying absolute poverty lines to rural individuals' data (Table 6) suggests that both the growth and distribution components contributed to the reduction of the poverty levels between 1974/75 and 1981/82, with the growth component contributing more to this reduction.

[See Table 6]

The decomposition results for the changes in the poverty levels between 1981/82 and 1990/91 suggest that both growth and distribution components contributed to the increase in poverty levels for rural individuals (Table 6), with the distributional changes contributing the most to this increase. These results are robust across all poverty measures and over all poverty lines and contradict those obtained from the decomposition of the changes in the poverty levels of rural households. This difference may stem from the choice of the unit of analysis (individuals vs. households).

The decomposition results for the changes in the poverty levels between 1990/91 and 1995/96 suggest that for rural individuals the growth component exercised an upward push on the poverty levels across all poverty measures and over all poverty lines. In addition, results suggest that the distributional changes exercised a downward pull on the poverty levels indicated by both the poverty-gap and the FG2 indexes and resulted in the decrease of the poverty gap and the severity of poverty among rural individuals. Moreover, distributional changes reduced the percentage of poor individuals at the lower poverty lines but contributed to their increase at higher ones.

## **VI. Conclusions**

Poverty has always been a major concern to the Egyptian policy makers. Since October 1974, this concern has attained greater momentum. To alleviate poverty the Egyptian government attempted some economic reforms and implemented a number of five-year plans. However, success in alleviating poverty has been extremely modest.

Since, there are no comprehensive studies on poverty in Egypt, we have attempted to assess and measure changes in poverty levels between 1974/75 and 1995/96 using two measures of poverty (absolute and relative) and seven poverty lines. We have applied these measures to urban and rural individuals and households. In addition, we have also decomposed the changes in poverty levels to their growth and distributional components. In general, results of this study suggest that for some comparison periods, conclusions about poverty levels are sensitive to the choice of the

concept of poverty (relative vs. absolute), the choice of the poverty measure, and the choice of the poverty line.

Poverty declined between 1974/75 and 1981/82 for rural and urban household, as well as, urban and rural individuals. Both growth and distribution changes contributed to reducing poverty where the growth component tended to be the dominant factor.

Among urban households and individuals poverty declined between 1981/82 and 1990/91 (with the exception of the head-count ratio based on relative poverty lines for urban households). In this case both growth and distribution changes increased poverty levels with the growth component playing a dominant role.

Among rural household poverty declined based on the poverty-gap and FGT2 measures between 1981/82 and 1990/91. Both growth and distributional changes decreased poverty levels with the distributional component being dominant. In contrast, among rural individuals poverty increased over this time period. Growth and distributional changes increased poverty rates with the distributional component being the dominant factor.

Among urban and rural household poverty tended to increase between 1990/91 and 1995/96. In this case growth changes lead to increases in poverty; however, distributional changes increased urban household poverty but decreased rural household poverty. Among household growth was the dominant factor.

Among urban individuals poverty decrease between 1990/91 and 1995/96; whereas, poverty increased among rural individuals (at least based on a relative measure). In both cases, growth changes lead to an increase in poverty while distributional changes reduced the percentage of poor urban individuals at the lower poverty lines but contributed to their increase at higher ones.

In a broad sense, the results obtained in this study are in line with the changes experienced by the Egyptian economy for the periods analyzed. The results provide a more complete picture about poverty in Egypt. We hope that our empirical results will assist policy makers to make robust

comparisons based on many approaches to calculating poverty and poverty lines. The determination, of who is poor and who is not, is then up to the society, which is represented by the policy makers.

### **Endnotes:**

\*We wish to thank Carl Campbell III for comments. All remaining errors are the sole responsibility of the authors.

[1] However, if the distribution of income changes with economic development then the relationship is not necessarily negative. To address this issue we decompose the absolute measures used in this paper into their distribution and growth components.

[2] Proposed by Sen (1976). with other things being equal, a reduction in income of a person below the poverty line must increase the poverty measure.

[3] Proposed by Sen, with other things being equal, a transfer in income from a person who is below the poverty line to anyone who is better off than that person must increase the poverty measure. See Sen (1976).

[4] The share of 0% of the population in expenditures should be zero. Similarly, the share of 100% of the population in expenditures should be 100%. A Lorenz curve by definition should also be monotonically increasing; hence its slope is greater than or equal to zero. In addition, it has to be convex.

[5] Decomposition is confined to poverty measures that can be represented in terms of a poverty line, mean income of distribution, and a Lorenz curve that represents the structure of the relative income inequalities.

[6] The Kakwani and Subbarao (1990) decomposition of poverty measures in India did not have a residual over time. The reason stems from their identification of the redistribution component as the difference between the actual change in poverty and the growth component; hence, allocating the residual to the redistribution component. This may give the false impression that the decomposition is exact.

[7] Huppi and Ravallion (1991, 1653) point out one limitation of consumption expenditure as a welfare indicator; that is, consumption expenditure may reveal little of the adverse welfare effect of a decline in the quality of publicly provided social services.

[8] All data were converted into real 1981 terms. For urban data the urban CPI was used; for rural data the rural CPI was used.

**Table 1**  
**Urban Households and Urban Individuals**

**Relative Poverty Lines Results**

**Absolute Poverty Lines Results**

Head-Count Index (Urban Households)								Head Count-Index (Urban Households)							
55%	60%	65%	70%	75%	80%	85%		55%	60%	65%	70%	75%	80%	85%	
1974/75	27.01	31.41	35.85	40.26	44.6	48.81	52.84	33.9	38.97	43.95	48.77	53.35	57.66	60.11	
1981/82	20.46	24.52	28.9	33.57	38.43	43.39	48.33	20.46	24.52	28.9	33.57	38.43	43.39	48.33	
1990/91	-20.1	-24.98	-29.97	-34.96	39.2	44.19	49.08	-29.03	-34.85	39.91	45.71	51.32	56.63	61.53	
1995/96	22.92	27.4	32.06	36.8	37.08	46.27	50.82	44.13	50.62	56.71	62.26	67.19	71.51	75.25	

Poverty-Gap Index (Urban Households)								Poverty-Gap Index (Urban Households)							
55%	60%	65%	70%	75%	80%	85%		55%	60%	65%	70%	75%	80%	85%	
1974/75	8.39	10.13	11.93	13.8	15.71	17.65	19.6	11.14	13.25	15.42	17.63	19.86	22.09	24.54	
1981/82	6.3	7.64	9.11	10.69	12.37	14.16	16.02	6.3	7.64	9.11	10.69	12.37	14.16	16.02	
1990/91	-5.01	-6.47	-8.08	-9.83	11.46	13.35	15.03	-7.77	-9.79	11.73	13.95	16.25	18.61	20.99	
1995/96	6.32	7.89	9.57	11.34	11.45	15.12	17.09	14.23	17	19.82	22.66	25.46	28.21	30.87	

FG2 and GINI (Urban Households)								FG2 and Gini (Urban Households)								GINI
55%	60%	65%	70%	75%	80%	85%		55%	60%	65%	70%	75%	80%	85%		
1974/75	3.6	4.5	5.47	6.49	7.56	8.66	9.8	5.04	6.18	7.39	8.65	9.95	11.29	13.09		35.86
1981/82	2.81	3.47	4.2	4.98	5.83	6.73	7.68	2.81	3.47	4.2	4.98	5.83	6.73	7.68		31.75
1990/91	-2	-2.6	-3.29	-4.07	4.71	5.64	6.64	-3.15	-4.05	4.84	5.94	7.12	8.37	9.68		30.46
1995/96	2.44	3.18	4	4.89	4.94	6.85	7.91	6.38	7.86	9.42	11.05	12.73	14.44	16.17		32.84

Head-Count Index (Urban Individuals)								Head Count-Index (Urban Individuals)							
55%	60%	65%	70%	75%	80%	85%		55%	60%	65%	70%	75%	80%	85%	
1974/75	13.03	20.87	28.44	35.60	42.27	48.37	53.88	28.69	37.11	44.81	51.69	57.73	63.03	67.59	
1981/82	5.08	10.08	17.15	24.30	31.96	39.82	47.51	5.08	10.08	17.15	24.30	31.96	39.82	47.51	
1990/91	(5.35)	(12.85)	21.21	29.29	37.07	44.36	(50.17)	19.34	28.74	37.77	(45.42)	(53.60)	60.15	65.77	
1995/96	(0.11)	(2.06)	(10.99)	(23.29)	(35.17)	(45.60)	(54.43)	(10.46)	(24.92)	(38.57)	(50.10)	(59.46)	(66.91)	(72.88)	

Poverty-Gap Index (Urban Individuals)								Poverty-Gap Index (Urban Individuals)							
55%	60%	65%	70%	75%	80%	85%		55%	60%	65%	70%	75%	80%	85%	
1974/75	0.97	2.30	4.03	6.03	8.22	10.55	12.94	4.09	6.50	9.15	11.95	14.81	17.66	20.47	
1981/82	0.24	0.87	1.87	3.21	4.87	6.81	8.98	0.24	0.87	1.87	3.21	4.87	6.81	8.98	
1990/91	(0.27)	(1.00)	2.15	3.80	5.76	7.95	(10.25)	1.82	3.67	5.95	(8.52)	(11.29)	14.14	17.02	
1995/96	(0.003)	(0.06)	(0.52)	(1.70)	(3.54)	(5.85)	(8.46)	(0.48)	(1.91)	(4.22)	(7.10)	(10.29)	(13.60)	(16.92)	

FG2 and GINI (Urban Individuals)								FG2 and Gini (Urban Individuals)								GINI
55%	60%	65%	70%	75%	80%	85%		55%	60%	65%	70%	75%	80%	85%		
1974/75	0.10	0.34	0.75	1.34	2.09	2.97	3.97	0.77	1.49	2.43	3.55	4.82	6.20	7.67		27.73
1981/82	0.02	0.10	0.28	0.59	1.03	1.61	2.33	0.02	0.10	0.28	0.59	1.03	1.61	2.33		23.32
1990/91	(0.02)	(0.11)	0.29	0.65	1.19	1.87	(2.74)	0.23	0.63	1.24	(2.11)	(3.08)	4.25	5.54		24.54
1995/96	(0.0002)	(0.003)	(0.04)	(0.18)	(0.49)	(1.00)	(1.70)	(0.03)	(0.21)	(0.62)	(1.31)	(2.27)	(3.44)	(4.79)		(23.33)

**Table 2**  
**Urban Households Decomposition**

Urban Households (1974/75-81/82)					Urban Households (1981/82-90/91)				Urban Households (1990/91-95/96)			
Head-Count Index					Head-Count Index				Head-Count Index			
Poverty Lines	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual
55%	-13.45	-6.89	-6.95	0.4	8.57	11.26	0.84	-3.52	15.1	8.63	2.22	4.25
60%	-14.45	-7.56	-6.79	-0.1	10.33	12.27	1.32	-3.26	15.77	8.98	1.9	4.89
65%	-15.04	-8.1	-6.27	-0.68	11.01	13.01	0.75	-2.75	16.8	9.15	2.41	5.24
70%	-15.2	-8.5	-5.43	-1.27	12.14	13.52	0.8	-2.19	16.55	9.07	2.08	5.4
75%	-14.92	-8.75	-4.38	-1.8	12.89	13.78	0.73	-1.63	15.87	8.82	1.7	5.35
80%	-14.28	-8.85	-3.22	-2.2	13.24	13.81	0.58	-1.14	14.89	8.44	1.31	5.14
85%	-11.78	-7.26	-0.52	-3.99	13.2	13.62	0.37	-0.79	13.72	7.97	0.93	4.82
Poverty-Gap Index					Poverty-Gap Index				Poverty-Gap Index			
Poverty Lines	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual
55%	-4.84	-2.74	-2.68	0.59	1.47	4.56	-1.09	-1.99	6.46	3.81	1.46	1.2
60%	-5.6	-3.12	-3.04	0.55	2.15	5.17	-0.91	-2.11	7.21	4.21	1.51	1.48
65%	-6.31	-3.48	-3.31	0.48	2.62	5.73	-0.93	-2.19	8.09	4.6	1.73	1.76
70%	-6.94	-3.83	-3.49	0.37	3.26	6.27	-0.81	-2.21	8.71	4.92	1.77	2.02
75%	-7.48	-4.15	-3.58	0.25	3.88	6.77	-0.7	-2.19	9.21	5.19	1.78	2.24
80%	-7.93	-4.44	-3.6	0.11	4.46	7.21	-0.61	-2.14	9.6	5.41	1.76	2.43
85%	-8.52	-4.94	-3.79	0.21	4.97	7.59	-0.55	-2.07	9.88	5.57	1.72	2.58
FG2 Index					FG2 Index				FG2 Index			
Poverty Lines	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual
55%	-2.24	-1.44	-1.17	0.38	0.35	2.42	-0.9	-1.18	3.23	2.13	0.66	0.45
60%	-2.71	-1.68	-1.44	0.41	0.58	2.82	-0.91	-1.33	3.81	2.42	0.79	0.59
65%	-3.2	-1.92	-1.7	0.42	0.64	3.2	-1.12	-1.44	4.58	2.72	1.12	0.74
70%	-3.67	-2.16	-1.93	0.42	0.96	3.59	-1.08	-1.55	5.11	3.01	1.21	0.9
75%	-4.13	-2.4	-2.14	0.41	1.3	3.97	-1.04	-1.63	5.61	3.27	1.28	1.06
80%	-4.56	-2.63	-2.32	0.38	1.65	4.34	-0.99	-1.7	6.07	3.52	1.34	1.21
85%	-5.41	-3.29	-2.91	0.79	2	4.69	-0.95	-1.74	6.49	3.74	1.38	1.36

**Table 3**  
**Urban Individuals Decomposition**

Urban Individuals (1974/75-81/82)					Urban Individuals (1981/82-90/91)					Urban Individuals (1990/91-95/96)				
Head-Count Index					Head-Count Index					Head-Count Index				
Poverty Lines	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual		
55%	-23.61	-15.67	-11.30	3.36	14.26	13.71	4.11	-3.56	-8.88	1.36	-10.10	-0.14		
60%	-27.04	-16.25	-11.16	0.37	18.67	14.27	5.08	-0.68	-3.82	1.38	-5.04	-0.16		
65%	-27.66	-16.37	-9.66	-1.63	20.62	14.42	4.95	1.25	0.80	1.35	-0.50	-0.05		
70%	-27.39	-16.09	-7.29	-4.01	21.12	14.22	3.20	3.69	4.68	1.30	3.40	-0.02		
75%	-25.76	-15.46	-4.56	-5.75	21.64	13.73	1.57	6.35	5.86	1.22	5.50	-0.86		
80%	-23.22	-14.67	-2.01	-6.54	20.34	13.04	1.09	6.21	6.76	1.13	5.45	0.18		
85%	-20.08	-13.71	0.16	-6.52	18.26	12.22	-0.21	6.25	7.10	1.04	5.79	0.28		
Poverty-Gap Index					Poverty-Gap Index					Poverty-Gap Index				
Poverty Lines	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual		
55%	-3.85	-3.12	-2.18	1.45	1.58	2.63	0.29	-1.34	-1.34	0.34	-1.65	-0.02		
60%	-5.63	-4.19	-2.94	1.51	2.80	3.58	0.65	-1.43	-1.76	0.42	-2.15	-0.04		
65%	-7.28	-5.13	-3.53	1.37	4.08	4.41	0.99	-1.32	-1.74	0.49	-2.19	-0.04		
70%	-8.74	-5.92	-3.88	1.07	5.31	5.12	1.22	-1.04	-1.43	0.55	-1.93	-0.05		
75%	-9.93	-6.58	-4.02	0.67	6.42	5.71	1.30	-0.60	-1.00	0.60	-1.50	-0.11		
80%	-10.85	-7.11	-3.97	0.24	7.33	6.19	1.41	-0.27	-0.54	0.64	-1.16	-0.02		
85%	-11.49	-7.53	-3.79	-0.16	8.04	6.57	1.35	0.12	-0.10	0.66	-0.76	0.00		
FG2 Index					FG2 Index					FG2 Index				
Poverty Lines	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual		
55%	-0.76	-0.68	-0.48	0.40	0.21	0.55	0.01	-0.34	-0.19	0.09	-0.26	-0.02		
60%	-1.40	-1.15	-0.82	0.58	0.53	0.96	0.08	-0.51	-0.42	0.13	-0.53	-0.02		
65%	-2.15	-1.68	-1.18	0.71	0.96	1.41	0.19	-0.64	-0.62	0.18	-0.78	-0.03		
70%	-2.96	-2.21	-1.53	0.78	1.52	1.87	0.36	-0.72	-0.80	0.23	-1.00	-0.03		
75%	-3.79	-2.73	-1.84	0.79	2.05	2.33	0.48	-0.77	-0.82	0.27	-1.09	0.00		
80%	-4.59	-3.23	-2.11	0.75	2.63	2.77	0.57	-0.71	-0.81	0.32	-1.10	-0.03		
85%	-5.34	-3.70	-2.31	0.67	3.21	3.19	0.66	-0.63	-0.75	0.36	-1.08	-0.03		

**Table 4**  
**Rural Households and Rural Individuals**

**Relative Poverty Lines Results**

**Absolute Poverty Lines Results**

	Head-Count Index (Rural Households)							Head Count-Index (Rural Households)						
	55%	60%	65%	70%	75%	80%	85%	55%	60%	65%	70%	75%	80%	85%
1974/75	24.7	28.81	33.09	37.48	41.9	46.28	50.57	38.17	43.85	49.42	54.76	59.74	64.31	68.43
1981/82	18.35	21.91	25.85	30.12	34.69	39.47	44.37	18.35	21.91	25.85	30.12	34.69	39.47	44.37
1990/91	17.66	21.57	25.82	30.39	35.19	40.15	45.15	17.49	21.37	26.88	30.12	34.89	39.82	44.8
1995/96	16.74	20.33	24.33	28.72	33.44	38.42	43.55	30.81	37.23	43.95	50.69	57.18	63.17	67.59

	Poverty-Gap Index (Rural Households)							Poverty-Gap Index (Rural Households)						
	55%	60%	65%	70%	75%	80%	85%	55%	60%	65%	70%	75%	80%	85%
1974/75	8.27	9.81	11.43	13.13	14.9	16.73	18.59	13.41	15.71	18.09	20.52	22.97	25.41	27.82
1981/82	6.12	7.28	8.56	9.94	11.44	13.04	14.74	6.12	7.28	8.56	9.94	11.44	13.04	14.74
1990/91	4.75	5.98	7.34	8.83	10.42	12.12	13.92	4.69	5.92	7.29	8.74	10.32	12.01	13.79
1995/96	4.99	6.11	7.36	8.73	10.21	11.82	13.54	9.38	11.43	13.67	16.08	18.6	21.2	24.25

	The FG2 and the Gini Index (Rural Households)							FG2 and Gini (Rural Households)							GINI
	55%	60%	GINI	70%	75%	80%	85%	55%	60%	65%	70%	75%	80%	85%	
1974/75	3.92	4.74	5.61	6.53	7.49	8.5	9.55	6.68	7.94	9.26	10.65	12.08	13.55	15.04	34.7
1981/82	3	3.59	4.23	4.92	5.67	6.46	7.31	3	3.59	4.23	4.92	5.67	6.46	7.31	29.32
1990/91	1.82	2.39	3.02	3.72	4.48	5.3	6.18	1.8	2.36	3.06	3.68	4.43	5.25	6.12	28.17
1995/96	2.17	2.71	3.31	3.96	4.67	5.44	6.26	4.27	5.25	6.33	7.51	8.78	10.12	11.64	27.69

	Head-Count Index (Rural Individuals)							Head Count-Index (Rural Individuals)						
	55%	60%	65%	70%	75%	80%	85%	55%	60%	65%	70%	75%	80%	85%
1974/75	(0.27)	(2.31)	7.62	16.03	29.40	33.87	42.54	15.20	26.44	37.70	48.24	57.54	65.37	71.75
1981/82	(0.63)	(1.18)	(2.29)	2.99	9.40	17.74	28.01	(0.63)	(1.18)	(2.29)	2.99	9.40	17.74	28.01
1990/91	12.43	15.97	20.02	24.60	29.68	35.18	40.96	17.42	22.24	27.72	33.76	40.22	46.84	53.37
1995/96	NA	NA	NA	NA	NA	10.55	27.13	NA	NA	14.11	34.65	52.62	66.20	75.68

	Poverty-Gap Index (Rural Individuals)							Poverty-Gap Index (Rural Individuals)						
	55%	60%	65%	70%	75%	80%	85%	55%	60%	65%	70%	75%	80%	85%
1974/75	(0.01)	(0.09)	0.29	1.11	3.19	4.08	6.09	1.01	2.66	4.92	7.64	10.67	13.38	17.07
1981/82	(0.12)	(0.18)	(0.29)	0.06	0.46	1.24	2.53	(0.12)	(0.18)	(0.29)	0.06	0.46	1.24	2.53
1990/91	2.73	3.68	4.78	6.03	7.44	9.00	10.71	4.08	5.39	6.89	8.59	10.48	12.55	14.76
1995/96	NA	NA	NA	NA	NA	0.22	1.31	NA	NA	0.38	2.10	4.89	8.32	12.02

	The FG2 and the Gini Index (Rural Individuals)							FG2 and Gini (Rural Individuals)							GINI
	55%	60%	GINI	70%	75%	80%	85%	55%	60%	65%	70%	75%	80%	85%	
1974/75	(0.0008)	(0.01)	0.01	0.10	0.47	0.66	1.17	0.09	0.36	0.86	1.61	2.58	3.75	5.09	18.50
1981/82	(0.05)	(0.07)	(0.09)	0.001	0.03	0.13	0.33	(0.05)	(0.07)	(0.09)	0.00	0.03	0.13	0.33	12.82
1990/91	0.86	1.24	1.68	2.19	2.78	3.43	4.17	1.39	1.93	2.55	3.26	4.07	4.97	5.96	23.85
1995/96	NA	NA	NA	NA	NA	0.01	0.08	NA	NA	0.01	0.17	0.59	1.32	2.33	11.73



**Table 5**  
**Rural Households Decomposition**

Rural Households (1974/75-81/82)					Rural Households (1981/82-90/91)				Rural Households (1990/91-95/96)			
Head-Count Index					Head-Count Index				Head-Count Index			
Poverty Lines	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual
55%	-19.82	-13.47	-7.35	1.00	-0.86	-0.18	0.31	-0.98	13.32	14.95	-1.69	0.05
60%	-21.93	-15.04	-7.06	0.16	-0.55	-0.21	0.59	-0.93	15.86	16.65	-1.75	0.97
65%	-23.58	-16.33	-6.38	-0.87	1.03	-0.23	1.32	-0.05	17.07	18.03	-2.21	1.25
70%	-24.64	-17.29	-5.39	-1.96	0.00	-0.26	0.82	-0.57	20.58	19.03	-1.39	2.95
75%	-25.06	-17.85	-4.23	-2.97	0.20	-0.27	0.78	-0.31	22.29	19.59	-1.04	3.74
80%	-24.84	-18.03	-3.04	-3.77	0.35	-0.29	0.68	-0.05	23.35	19.74	-0.66	4.28
85%	-24.06	-17.87	-1.92	-4.27	0.43	-0.30	0.55	0.18	22.79	19.50	-0.30	3.59
Poverty-Gap Index					Poverty-Gap Index				Poverty-Gap Index			
Poverty Lines	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual
55%	-7.29	-5.14	-3.24	1.09	-1.42	-0.07	-1.10	-0.25	4.69	5.73	-0.12	-0.92
60%	-8.43	-5.90	-3.57	1.05	-1.36	-0.08	-0.97	-0.31	5.51	6.57	-0.25	-0.80
65%	-9.53	-6.66	-3.81	0.94	-1.27	-0.09	-0.64	-0.54	6.38	7.40	-0.57	-0.45
70%	-10.58	-7.39	-3.96	0.77	-1.20	-0.10	-0.73	-0.38	7.34	8.20	-0.45	-0.41
75%	-11.53	-8.07	-4.02	0.56	-1.12	-0.11	-0.62	-0.38	8.28	8.94	-0.50	-0.16
80%	-12.37	-8.69	-4.00	0.31	-1.03	-0.12	-0.54	-0.37	9.20	9.61	-0.52	0.11
85%	-13.09	-9.23	-3.91	0.05	-0.95	-0.13	-0.47	-0.34	10.46	10.20	-0.52	0.78
FG2 Index					FG2 Index				FG2 Index			
Poverty Lines	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual
55%	-3.67	-2.76	-1.64	0.72	-1.20	-0.04	-1.20	0.04	2.47	3.07	0.23	-0.83
60%	-4.34	-3.20	-1.92	0.78	-1.23	-0.04	-1.18	-0.02	2.89	3.57	0.16	-0.84
65%	-5.03	-3.66	-2.18	0.81	-1.18	-0.05	-1.04	-0.09	3.27	4.07	-0.01	-0.79
70%	-5.72	-4.12	-2.42	0.82	-1.25	-0.05	-1.09	-0.11	3.83	4.59	0.02	-0.78
75%	-6.41	-4.59	-2.62	0.80	-1.24	-0.06	-1.03	-0.14	4.35	5.10	-0.04	-0.71
80%	-7.09	-5.05	-2.79	0.75	-1.22	-0.07	-0.98	-0.17	4.87	5.61	-0.10	-0.64
85%	-7.73	-5.49	-2.93	0.69	-1.19	-0.07	-0.92	-0.19	5.52	6.10	-0.15	-0.43

**Table 6**  
**Rural Individuals Decomposition**

Rural Individuals (1974/75-81/82)					Rural Individuals (1981/82-90/91)				Rural Individuals (1990/91-95/96)			
Head-Count Index					Head-Count Index				Head-Count Index			
Poverty Lines	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual
55%	-14.56	-14.93	-12.72	13.09	16.79	3.83	21.68	-8.72	NA	NA	NA	NA
60%	-25.26	-24.13	-15.77	14.64	21.06	9.42	19.92	-8.28	NA	NA	NA	NA
65%	-35.40	-30.08	-15.71	10.39	25.43	13.90	15.68	-4.16	-13.61	14.25	-19.93	-7.93
70%	-45.25	-32.22	-12.20	-0.84	30.78	15.58	9.04	6.15	0.88	14.74	-6.75	-7.11
75%	-48.14	-32.65	-6.64	-8.86	30.82	16.56	1.56	12.71	12.40	14.34	3.28	-5.22
80%	-47.63	-31.51	-1.32	-14.79	29.10	16.70	-4.61	17.01	19.36	13.27	9.12	-3.03
85%	-43.73	-29.23	2.38	-16.89	25.35	16.07	-8.38	17.66	22.31	11.82	11.64	-1.14
Poverty-Gap Index					Poverty-Gap Index				Poverty-Gap Index			
Poverty Lines	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual
55%	-0.89	-1.00	-0.96	1.07	3.96	0.17	5.86	-2.08	NA	NA	NA	NA
60%	-2.48	-2.56	-2.09	2.18	5.21	0.54	7.12	-2.46	NA	NA	NA	NA
65%	-4.63	-4.64	-3.16	3.17	6.59	1.57	7.96	-2.94	-6.51	2.63	-9.14	-0.01
70%	-7.58	-6.54	-3.95	2.91	8.53	2.52	8.29	-2.28	-6.49	3.49	-9.43	-0.55
75%	-10.21	-8.27	-4.32	2.38	10.02	3.42	8.09	-1.49	-5.59	4.23	-8.89	-0.93
80%	-12.15	-9.30	-3.83	0.98	11.31	4.25	7.47	-0.42	-4.23	4.83	-7.93	-1.13
85%	-14.54	-10.98	-4.00	0.44	12.23	4.97	6.64	0.62	-2.74	5.28	-6.84	-1.18
FG2 Index					FG2 Index				FG2 Index			
Poverty Lines	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual	Change	Growth	Dist.	Residual
55%	-0.04	-0.09	-0.09	0.14	1.34	0.01	2.14	-0.81	NA	NA	NA	NA
60%	-0.29	-0.35	-0.32	0.38	1.86	0.04	2.84	-1.02	NA	NA	NA	NA
65%	-0.77	-0.85	-0.66	0.74	2.46	0.20	3.54	-1.29	-2.53	0.54	-3.72	0.64
70%	-1.61	-1.51	-1.07	0.97	3.26	0.46	4.18	-1.38	-3.09	0.89	-4.50	0.51
75%	-2.55	-2.27	-1.47	1.19	4.04	0.78	4.70	-1.45	-3.48	1.27	-5.10	0.35
80%	-3.63	-3.09	-1.81	1.28	4.84	1.15	5.08	-1.39	-3.65	1.67	-5.51	0.18
85%	-4.76	-3.93	-2.08	1.24	5.64	1.55	5.31	-1.22	-3.63	2.06	-5.72	0.03

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