

# **The Dynamics Of Poverty, Inequality and Economic Well-being: African Economic Growth in Comparative Perspective**

**Gary S. Fields  
Cornell University**

## 1. Introduction

Two hundred and fifty million Africans (about 45% of the population) are poor. In rural areas, where most Africans live, there is, alas, a 'poor majority'. Rural poverty rates range from 37% in Madagascar and 41% in Kenya to 88% in Zambia and 94% in Ghana (Table 1).

It is hard to imagine an issue in development economics that is of greater importance to humankind than the effects of economic growth on poverty and economic well-being. Yet there is remarkably little consensus on this vitally important issue, as illustrated by the following two polar positions:

New patterns of growth will need to be developed and sustained well into the 21st century - to prevent ever more extreme imbalances and inequalities in the world economy. (United Nations, 1996, p. 8)

In the extreme, the inequality of income may worsen fast enough at the outset of economic growth for poverty to increase; growth would be 'immiserizing' . . . . There is *no case* in which the effect of growth is offset by changes in inequality (contrary to the immiserizing growth hypothesis.) In short, growth reduces poverty. [Emphasis added.] (World Bank, 1990, pp. 46-7)

This paper provides a fresh look at these issues with particular reference to Africa. In so doing, the methodologies for analyzing changing income distribution in the course of economic growth are introduced. Data and methods are analyzed in much greater depth in Fields (2000), to which the interested reader is referred.

It has been my experience that a great many people are deeply concerned about the distributional effects of economic growth, but some have not given careful thought to the precise nature of these concerns. Regardless of which category you find yourself in, you may find the following examples revealing (Fields, 1980).

Consider, first, two hypothetical countries A and B which initially are identical. After a period of time, national income data reveal that country A grew by 9% (in real terms, adjusting for inflation) while country B grew by 18%. In the absence of distributional data, you might simply suppose that because country B grew faster than country A, the people in country B came to be better off faster than those in country A. This, however, assumes the answer to the question of whether the material standards of living of a country's people are improved by economic growth - it does not show it. So suppose that we collect data and find that the income share of the poorest 40% of the countries' income recipients was 0.363 in both countries, but that these shares fell to 0.333 in country A and to 0.307 in country B. Suppose too that we calculate a commonly used measure of income inequality, the Gini coefficient, and find that it rose from 0.082 to 0.133 in country A and from 0.082 to 0.162 in country B.<sup>2</sup> Thus, in this example, there are two key facts:

- 1) Both economies grew, but country B grew faster than country A.
- 2) Income inequality increased in both economies, but it increased by more in country B than in country A.

At this point, I invite you to decide whether in your view economic development has taken place by asking yourself: Which do I prefer: the initial situation, the situation of country A or the situation of country B?

Consider now a second example. Two hypothetical countries, C and D, initially start out with 10% of their people working in relatively high-wage jobs (paying a real wage of \$2 to each worker) and with 90% of their people working in relatively low-wage jobs (paying a real wage of \$1 to each)." After a certain period of time, we observe that 20% of the workers in country C are in \$2 jobs and 80% in \$1 jobs, while in country D, 30% are in the \$2 jobs and 70% in the \$1 jobs. Ask yourself again: Which do I prefer: the initial situation, the situation of country C or the situation of country D?

Let us take one final example. In two hypothetical economies E and F, the poorest 40% of the people initially receive an average income of \$40 each. We observe them later and find that the average income of the poorest 40% has remained at \$40 in both. There is no point in asking which is preferable, E or F, because no progress appears to have been made.

We come now to the punchline: all three examples come from the *same* underlying data. The initial situations were the same in all three examples; countries A, C and E are the same country, and countries B, D and F are the same country. Their respective income distributions are:

$$\begin{array}{l} \text{Initial: } (1, 1, 1, 1, 1, 1, 1, 1, 1, 2) \\ \qquad \qquad \qquad \underbrace{\hspace{10em}}_9 \quad \underbrace{\hspace{1em}}_1 \\ \text{A-C-E: } (1, 1, 1, 1, 1, 1, 1, 1, 2, 2) \\ \qquad \qquad \qquad \underbrace{\hspace{10em}}_8 \quad \underbrace{\hspace{2em}}_2 \\ \text{B-D-F: } (1, 1, 1, 1, 1, 1, 1, 2, 2, 2) \\ \qquad \qquad \qquad \underbrace{\hspace{10em}}_7 \quad \underbrace{\hspace{3em}}_3 \end{array}$$

The growth figures are obtained by noting that the total income goes from \$11 initially to \$12 in A-C-E (a 9% increase) to \$13 in B-D-F (an 18% increase). The income share of the poorest 40% is  $4/11 = 0.363$  initially,  $4/12 = 0.333$  in A-C-E and  $4/13 = 0.307$  in B-D-F. The percentages in high- and low-wage jobs are apparent. The average incomes of the poorest 40% in the third example are calculated assuming that \$1 is an hourly wage and that each worker works a 40 h week.

I would now ask you to consider one last time which you prefer: the initial situation, the situation of country A-C-E or the situation of country B-D-F? Did your answer change depending on how the data were presented?

I have used these examples and asked these questions to literally thousands of students and colleagues throughout the world and have found very few who gave the same answer in all three situations. This shows that one's view about economic growth - going so far as to question whether economic development takes place or not - depends on what one calculates.

These examples illustrate the three major approaches to income distribution analysis. The first is the *relative inequality approach*: the income share of the poorest 40% and the Gini coefficient measure how inequality in the distribution of income changes. The second example illustrates the *absolute income approach*: how many

people receive how much income (in real terms). A special case of the absolute income approach is the *absolute poverty approach*, in which a poverty line is drawn (at \$1.50, say) and a poverty measure is calculated (e.g., the percentage of people with incomes below the poverty line). The third example illustrates the *relative poverty approach*, because a group that is relatively the poorest (the poorest 40% in this case) is defined and their average incomes calculated.

These different ways of measuring changes in income distribution give quite different answers not only in the examples presented above but also in real-life data. This is because they actually are measuring quite different underlying phenomena. In much the same way that the raw data for any random variable can be processed to give information on distinct aspects of the distribution - location (mean, median, mode), dispersion (minimum, maximum, range, variance), skewness, kurtosis, etc. - the raw data on incomes can be processed to inform us about different aspects of the income distribution: mean growth, relative inequality, absolute poverty and the like. In the preceding examples, these different aspects of the income distribution change in different ways - the mean increases, inequality increases (at least, according to the measures presented), and poverty decreases. In actual countries' experiences as well, we find not only that these different measures *can* change in different directions but that in fact they *do* disagree about as often as not.

Three questions are taken up in what follows:

- 1) How has inequality changed?
- 2) How has poverty changed?
- 3) How has economic well-being changed?
- 4)

The answers to these questions require that the analyst decide how to measure inequality, poverty and economic well-being, and then make the necessary calculations from the available data. The rest of this paper is organized accordingly.

Section 2 deals with inequality, Section 3 with poverty and Section 4 with social welfare comparisons. The lessons are summed up in Section 5.

## 2. Inequality

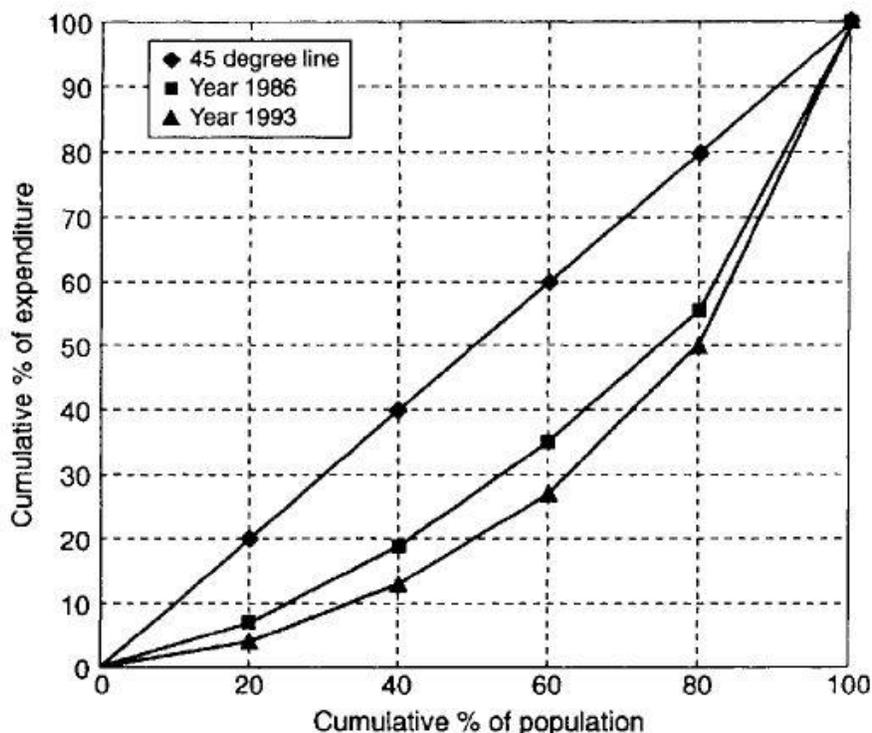
One of the leading figures in the development economics field is the late Simon Kuznets, who won a Nobel Prize for his work on modern economic growth. Kuznets was also a president of the American Economic Association, and he used the occasion of his presidential address in 1954 (published as Kuznets, 1955) to set the stage for decades of research still very much ongoing today. In that address, he asked how income inequality tends to change in the course of countries' economic growth and formulated the famous hypothesis that inequality tends to increase in the early stages of economic growth, stabilize for a time, then decrease in the later stages, producing what has come to be called the 'inverted-U curve' or the 'Kuznets curve' in his honour.

Kuznets's work had two important methodological influences. First, because he focused his analysis of income distribution on inequality as opposed to poverty, many development economists followed his lead, and it was not until 20 years after his original work that poverty moved to centre stage in the development economics field.

Second, Kuznets's measurement of inequality was on the basis of particular inequality measures - in his case, the income shares of particular percentile groups in the population - as opposed to more robust Lorenz curve comparisons.

Lorenz curves for Nigeria in 1986 and 1993 are shown in Figure 1. Each curve

Figure 1



plots the cumulative percentage of income received by the poorest  $p\%$  of the population, ordered from lowest income to highest, as a function of  $p$ . If the income distribution were *perfectly equal*, the Lorenz curve would lie along the 45° line. At the other extreme, if the income distribution were *perfectly unequal*, the Lorenz curve would lie along the bottom and right-vertical axes. We can use the following criterion to make inequality comparisons for two income distributions: if one income distribution lies everywhere closer to the 45° line than another (except at the corners), then the first distribution is said to *Lorenz-dominate* the second, and for that reason, to be *more equal*. This occurs in Figure 1, from which we can infer that Nigeria's income distribution became *more unequal* between 1986 and 1993.

It is possible that neither Lorenz curve dominates the other; in fact, it often happens that two Lorenz curves cross. In such cases, the Lorenz criterion cannot be used to rank the distributions' respective inequalities. If inequality comparisons are to be made, they must be done using an inequality measure (also termed a 'numerical inequality measure' or an 'inequality index'). Examples of inequality measures are the income share of the richest  $m\%$ , the income share of the poorest  $n\%$ , the Gini coefficient, Theil's two measures, Atkinson's index and the coefficient of variation.

Lorenz curves and inequality measures have been used in studies of quite a number of African countries. Africa has been shown to be a high-inequality region, second only to Latin America (Table 2).

African countries have been included in virtually all of the tabulations and regressions of the growth-inequality relationship ranging from the early multi-country studies of Adelman and Morris (1973), Paukert (1973) and Ahluwalia (1974, 1976) through to the very recent works of Deininger and Squire (1996a,b), Fishlow (1996) and Ali (1997). At first, these cross-country studies were viewed in causal terms. One of the most famous papers on the Kuznets curve (Ahluwalia, 1976, p. 307) led off as follows:

Table 2: *Average Gini Coefficients by Continent*

Continent	Average Gini coefficient
Sub-Saharan Africa	0.451
East Asia and Pacific	0.362
South Asia	0.343
Eastern Europe	0.263
Middle East and North Africa	0.408
Latin America	0.503
OECD and high-income	0.332

Source: Deininger and Squire (1996b, table 1).

The use of cross country data for the analysis of what are essentially dynamic processes raises a number of familiar problems. Ideally, such processes should be examined in an explicitly historical context for particular countries. Unfortunately, time series data on the distribution of income, over any substantial period, are simply not available for most developing countries. For the present, therefore, empirical investigation in this field must perforce draw heavily on cross country experience.

Later cross-sectional work abandoned any pretense of causality and viewed the cross-country regressions in a purely correlative sense. In this later literature, the question quite simply is whether middle-income countries have higher inequality than lower-income or higher-income countries do, with no causality implied.

Most of the literature has estimated the cross-country Kuznets curve using Ordinary Least Squares (OLS) estimation, and has typically found higher inequality in the middle-income countries than in either lower-income or higher-income countries (the exception is Anand and Kanbur, 1993). As it happens, though, nearly all the high-inequality countries that have been included in such estimations are Latin American (Fields and Jakobson, 1994), and these countries have their own peculiar histories. This means that it is not being middle-income *per se* that produces high inequality but, rather, the fact that Latin

American countries have highly unequal distributions of land, wealth and other assets compared with other developing countries. Consequently, when Latin American dummies have been added to the cross-country regressions, these terms are found to have a significant positive association with inequality, eliminating the cross-country Kuznets curve (Deininger and Squire, 1996b; Fishlow, 1996).

Does a cross-country Kuznets curve exist for Africa? Chen *et al.* (1993) provided data on income inequality in African countries, 11 of which were included in the cross-country work of Ali (1997). To see whether the Kuznets curve holds for African countries, I used two sets of data - the 11 data points used by Ali and the full 16 reported by Chen *et al.* - and estimated two models. In the first, the Gini coefficient is regressed on mean expenditure ( $\mu$ ) and its square ( $\mu^2$ ); in model 1, a positive coefficient on  $\mu$  and a negative coefficient on  $\mu^2$  would be consistent with the Kuznets inverted-U. In the second model, the Gini coefficient is regressed on  $\mu$  and its inverse ( $1/\mu$ ); in model 2, for the Kuznets inverted-U to hold, the coefficients on both  $\mu$  and  $1/\mu$  must be negative.

The findings are reported in Table 3. Nothing is statistically significant. This is because the data are a random scatter, as can be seen in Figure 2. From this, I conclude that the Kuznets curve is simply not there for Africa, at least in these data.

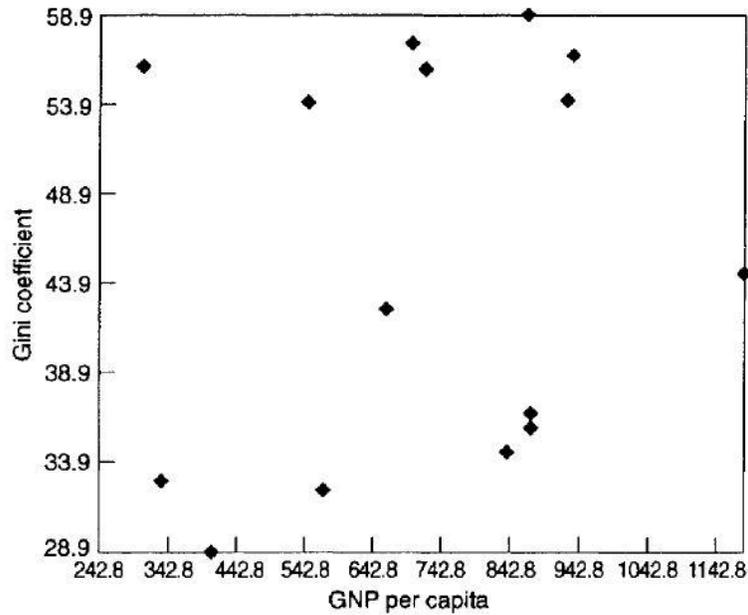
Another strand of the literature has challenged the traditional cross-sectional methodology, taking advantage of the fact that some of the newer data sets offer multiple years of data for individual countries. The Fields-Jakubson data set includes Gini coefficients for 35 developing countries; for some of them, there are only single observations, but for others, there are many as 9 years of data. The Deininger-Squire data set incorporated these data and added to them, resulting in a sample of 108 countries (both developing and developed), of which 32 offer eight or more observations. Such data enable a family of parallel curves to be fit with fixed effects estimation, allowing for some countries such as Zimbabwe to be on higher-than-average curves and others like Ethiopia to be on lower-than average curves. The

Table 3: A Kuznets Curve for Africa?

	Regression (1)	Regression (2)	Regression (3)	Regression (4)
$\mu$ (mean expenditure)	0.0437 (0.0559)	-0.000216 (0.0263)	0.0207 (0.0540)	0.0115 (0.0278)
$\mu^2$ (mean expenditure squared)	-0.0000252 (0.0000382)	-	0.00000931 (0.0000396)	-
$1/\mu$ (reciprocal of mean expenditure)	-	-2544.4 (7361.8)	-	991.7 (7922.5)
Constant	31.7 (19.8)	52.9 (30.5)	36.2 (17.0)	35.7 (32.8)
n	11	11	16	16
R <sup>2</sup>	0.0925	0.0572	0.0469	0.0440

The dependent variable is the Gini coefficient. Standard errors are given in parentheses.

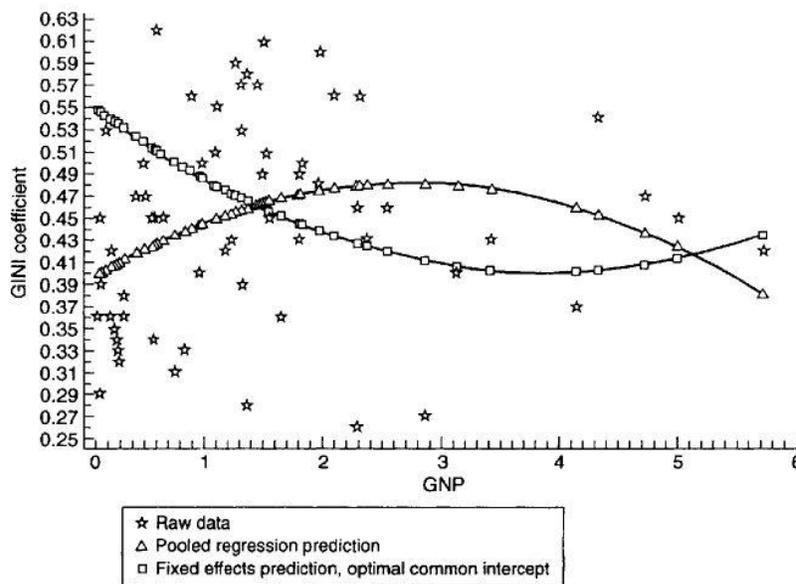
Figure 2



'central' curve - that is, the curve that would be predicted for an 'average' country - also comes out of such fixed effects estimation.

When this was done, both Fields and Jakubson (1994) and Deininger and Squire (1996b) found that the shape of the central Kuznets curve flips from a statistically significant inverted-U estimated by OLS to a statistically significant U with fixed effects estimation. Figure 3 shows this reversal in the Fields-Jakubson data. What this means

Figure 3



is that if we want countries' inequality levels to change in the way that 'typical' countries'

inequality in fact changed over time, the U pattern fits the data better than does an inverted-U pattern or any other quadratic function.

However, once we have a data set containing so many countries with multiple years of data, it is no longer necessary to maintain that any particular pattern is 'typical'. Instead, we can look within countries to see how the inequality in each changes with economic growth. Deininger and Squire have done this using their data set and have got striking findings:

1. In five of their 48 countries (Brazil, Hungary, Mexico, the Philippines, and Trinidad and Tobago), the Gini coefficient followed an inverted-U shape.
2. In four countries (Costa Rica, India, the USA and the UK), the Gini coefficient followed a U shape.
3. In the remaining 80% of the countries (including just Cote d'Ivoire and Tunisia in Africa), there was no statistically significant association between the Gini coefficient and national income.

These findings indicate that the growth process itself can produce varied inequality patterns. The key question to ask is why.

Several researchers have analyzed 'growth spells' - that is, periods from one household survey or census to another during which economic growth took place

Table 4: *Economic Growth and Changes in Inequality in African Countries*

	Q1	Change in inequality Cumulative quintiles			Lorenz comparisons	Mean income (in 1985 PPP\$)
		Q2	Q3	Q4		
<b>Côte d'Ivoire</b>						
1985	0.0569	0.1576	0.3067	0.5257	improvement	1545
1988	0.0678	0.1796	0.3374	0.5592		1419
<b>Ghana</b>						
1988	0.0694	0.1858	0.3470	0.5677	improvement	811
1992	0.0791	0.1987	0.3597	0.5779		956
<b>Mauritius</b>						
1986	0.0590	0.1720	0.3210	0.5430	improvement	4462
1991	0.0670	0.1830	0.3400	0.5660		5959
<b>Morocco</b>						
1984	0.0658	0.1765	0.3296	0.5385	worsening	1905
1991	0.0657	0.1702	0.3199	0.5370		2241
<b>Nigeria</b>						
1986	0.0696	0.1916	0.3523	0.5580	worsening	973
1993	0.0399	0.1292	0.2729	0.5070		978 <sup>a</sup>
<b>Uganda</b>						
1989	0.0852	0.2061	0.3658	0.5807	worsening	548
1992	0.0678	0.1709	0.3145	0.5187		547

Source: Deininger and Squire's unpublished data set.

<sup>a</sup>1992 value.

(Ahluwalia, 1974; Fields, 1991; Deininger and Squire, 1996b; Ravallion and Chen, 1997). Based on Kuznets's work, it might have been thought that whether inequality increased or decreased during these growth spells would have been related to the country's stage of economic development and to its rate of economic growth. But in these studies, no such effect was found. In half of these growth spells, inequality increased, and in the other half, inequality decreased. Furthermore, no pattern was discerned - that is, whether inequality increased or decreased was unrelated either to the rate of economic growth or to whether the country was at a relatively early stage of economic development or a relative late stage. From this, we reach the conclusion that it is not the rate of economic growth or the stage of economic growth that determines whether income inequality increases or decreases, but rather what matters is the kind of economic growth.

Unfortunately, at the present time, our ability to measure changing inequality in African countries and to relate it to the type of economic growth in individual countries is severely limited by lack of data. The Chen *et al.* (1993) data set includes inequality figures on 14 African countries collected from the mid-1980s to the early 1990s, while the Deininger and Squire data set includes 24 Sub-Saharan African countries and four North African ones. However, even in the Deininger-Squire data, which is the most recent and comprehensive, changes in quintile income or expenditure shares over time are available for only six African countries, often for periods no longer than 3 years.<sup>7</sup> These data, reproduced in Table 4, show three countries in which income grew and three in which it grew very little or not at all. In those with growth, inequality fell in two (Ghana and Mauritius) and rose in one (Morocco). In the three countries that did not grow, inequality rose in two (Nigeria and Uganda) and fell in one (Cote d'Ivoire). Thus far, then, we find no pronounced tendency for inequality to change any differently in the growing countries of Africa than in the non-growing ones.

Such data can and should be analyzed more deeply, and added to as more survey results become available. Here is where one research frontier lies.

### **3. Poverty**

'Poverty' has been defined as the inability of an individual or a family to command sufficient resources to satisfy basic needs. These basic needs include food, clothing, shelter, health care and the other necessities of life.

In the absolute poverty approach, these requirements are costed out and measured as a fixed number of units of a country's currency. The relevant unit (family or individual) is then classified as poor if its consumption (or income, if that is the chosen measure of economic well-being) is below the cut-off amount and non-poor if it is above that amount. This cut-off amount is called the 'poverty line' and will be denoted below by  $z$ .

Over time, the poverty line needs to be adjusted for changes in the cost of acquiring the basket of basic needs. When the poverty line is adjusted for inflation and only for inflation,  $z$  is said to define 'absolute poverty'.

Three groups of absolute poverty measures are used:

#### (i) The Poverty Headcount and Headcount Ratio

The poverty headcount ( $\mathcal{H}$ ) is defined as the number of people in a population who are poor, while the poverty headcount ratio ( $H$ ) is the fraction who are poor:

$$\mathcal{H} = q$$

and

$$H = q/n.$$

Because these are the simplest poverty measures and national statistical offices regularly publish such data, empirical researchers rely more on these than on any other poverty measures.

$\mathcal{H}$  and  $H$  have certain important limitations. Because they are concerned only with the number of people with incomes below the poverty line but not with their incomes, neither satisfies two properties that have been found desirable for poverty measurement. One is 'strong monotonicity', which is the idea that an increase in some poor person's income, holding the other poor persons' incomes constant, necessarily reduces poverty.  $\mathcal{H}$  and  $H$  violate strong monotonicity, because if a poor person receives an income gain but remains poor, these measures show no fall in poverty.

The other property which many analysts find desirable for poverty measures is 'distributional sensitivity', which is the idea that if, holding all other incomes the same, a poor person transfers an arbitrary sum of money to a richer person, then poverty increases. But when such a transfer is made,  $\mathcal{H}$  and  $H$  stay the same (if the recipient remains poor) or decrease (if the recipient escapes poverty).

It follows that if you find strong monotonicity and distributional sensitivity appealing, you should not use  $\mathcal{H}$  and  $H$  unless you have no choice about it (which may well be the case if you are forced to rely on published data). If you do have the choice, you might prefer the following classes of measures instead, both of which have been used in work on Africa.

### (ii) The Sen Index of Poverty

Sen (1976) suggested the following index of poverty. Let  $\bar{y}_p$  be the average income of the poor,

$$\bar{I} \equiv (z - \bar{y}_p)z$$

be the average (normalised) income shortfall among the poor and  $G_p$  be the Gini coefficient of income inequality among the poor. The Sen poverty index,  $P_{Sen}$  is defined as

$$P_{Sen} \equiv H[\bar{I} + (1 - \bar{I})G_p].$$

It can readily be verified that the Sen index satisfies both strong monotonicity and distributional sensitivity.

### (iii) The $P_\alpha$ Class

This class of measures was devised by Foster *et al.* (1984). It is most easily understood by considering the  $i$ th individual's percentage income shortfall

$$I_i \equiv (z - y_i)/z.$$

Consider a poverty measure which weights each individual's percentage income shortfall by itself. Thus, the income of an individual whose income is 10% below the poverty line is weighted by 10%, the income of an individual whose income is 50% below the poverty line is weighted by 50%, and so on. (For individuals with incomes at or above the poverty line, the shortfall is zero and the weight is zero as well.) Average these squared percentage shortfalls over the entire population. The resultant poverty measure is

$$P_2 \equiv \frac{1}{n} \sum_{i=1}^q [(z - y_i)/z]^2$$

The  $P_\alpha$  class generalizes this measure by replacing the exponent 2 by whatever exponent the researcher cares to specify:

$$P_\alpha \equiv \frac{1}{n} \sum_{i=1}^q [(z - y_i)/z]^\alpha$$

Besides the  $P_2$  measure, other members of the  $P_\alpha$  class have intuitive meaning as well. For  $\alpha = 1$ , we have

$$P_1 \equiv \frac{1}{n} \sum_{i=1}^q [(z - y_i)/z] = \frac{q}{n} \frac{1}{q} \frac{2}{n} \sum_{i=1}^q [(z - y_i)/z] = H\bar{I}$$

that is,  $P_1$  is the 'per-capita income gap' or the 'normalised poverty deficit'. And for  $\alpha = 0$ , we have

$$P_0 = \frac{q}{n} = H,$$

the poverty headcount ratio. We see too that as we progress from  $P_0$  to  $P_1$  to  $P_2$ , the  $P_\alpha$  measure gets more and more sensitive to extremely low incomes.

The three classes of poverty measures just presented are all absolute poverty measures, based on a fixed real poverty line,  $z$ . Some authors (e.g., Ali, 1997; Ali and Thorbecke, 1998; Ruggles, 1990) take exception to these measures, preferring to

measure relative poverty instead. Actually, 'relative poverty' embodies two separate ideas, and the relative poverty measures therefore fall into two categories.

In the first type of relative poverty measure, a group that is relatively the poorest (e.g., the poorest 40%) is defined, and the poverty measure used is then taken to be the average real income of this poorest group. Consider the example in Section I, in which the income distribution changes from

$$\text{Initial} = (\underbrace{1, 1, 1, 1, 1, 1, 1, 1, 1}_9, \underbrace{2}_1)$$

to

$$\text{A-C-E} = (\underbrace{1, 1, 1, 1, 1, 1, 1, 1}_8, \underbrace{2, 2}_2)$$

to

$$\text{B-D-F} = (\underbrace{1, 1, 1, 1, 1, 1, 1}_7, \underbrace{2, 2, 2}_3)$$

The average absolute income of the poorest 40% of the population shows no change in this process. If you agree that poverty is unchanged in this process, then this type of relative poverty measure might be a reasonable one for you. But if you judge that poverty has fallen, then you are assuredly not a relative poverty adherent, at least in this first sense.

There is, however, a second sense in which you might wish to move in the direction of relative poverty, and that is to use a higher poverty line the richer the country in which poverty is being measured. Ravallion *et al.* (1991) have found empirically that the poverty lines used in countries tend to increase with their per capita consumption levels, and Ali (1997) regards the desirability of raising the poverty line as the mean increases as 'obvious to us, Africans living amidst poverty'. While there are different ways of adjusting your poverty line  $z$  as a function of the mean income or consumption,  $\mu$ , the easiest such adjustment is to raise  $z$  in proportion to increases in  $\mu$ , producing a thoroughgoing relative poverty measure. This procedure applies either when  $z$  has been set 'scientifically' to begin with (e.g., as the cost of purchasing the minimal basket of goods and services) or when  $z$  has been set relatively from the beginning [e.g., at two-thirds of the median income, as is done by the Luxembourg Income Study (Atkinson *et al.*, 1995), or at two-thirds of the mean, as is done by the World Bank (1995b)].

Now let us examine what happens to poverty measures when the poverty line  $z$  increases proportionately with the mean  $\mu$ . We may start with a given income distribution  $X$  and then increase everybody's real income by the same proportion, producing the new income distribution  $\lambda X$ ,  $\lambda > 1$ . When  $z$  increases with  $\mu$ , the number with incomes

below the poverty line is unchanged. So too are the average (normalized) income shortfall of the poor  $\bar{I}$  and the Gini coefficient of income inequality among the poor. This means that the poverty headcount ( $\mathcal{H}$ ), the poverty headcount ration ( $H$ ), the Sen index of poverty ( $P_{sen}$ ) and the  $P_\alpha$  and the  $Pa$  class will all show no change in poverty when such a relative poverty measure is applied to a situation in which everyone's real income increases by the same percentage. If this is what you want, fine. But if you want poverty in a country to *fall* when everyone experiences a given percentage increase in income, then these relative poverty measures are not for you.

An alternative is to choose an absolute poverty line, relatively defined. That is, you can set your  $z$  higher in relatively rich countries like South Africa than in relatively poor ones like Ethiopia, but having set a higher  $z$ , you might then adjust these countries' poverty lines by their respective rates of inflation and nothing more. The best problem that any African country could have would be for its economy to grow so fast for so long that its current poverty line is rendered obsolete!

Turning now to empirical applications of these methods to Africa, as already noted, 250 million Africans are poor, and in rural Africa there is a poor majority. Poverty profiles have been compiled for many African countries. These include:

1. Studies done in the countries: Ghana (Boateng *et al.*, 1992), Ethiopia (Dercon and Krishnan, 1995; Dercon and Taddesse, 1996), Zambia (Alwang *et al.*, 1996), Mauritania (Coulombe and McKay, 1996), Tanzania (Wangwe, 1996), South Africa (Bharat *et al.*, 1995) and Kenya (Mukui, 1994; Kabubo and Kiriti, 1997).
2. Multi-country studies done by outside researchers (Lachaud, 1994; Sahn, 1996; World Bank, 1996d; Ali and Thorbecke, 1997; Hanmer *et al.*, 1997).
3. Poverty assessments of individual countries done by the World Bank for Ghana, Ethiopia, the Gambia, Uganda, Zambia, Benin, Mauritania, Cape Verde, Cameroon, Ghana, South Africa, Nigeria and Tanzania (World Bank, 1996c,d,e).

A review of poverty profiles (Lipton and Ravallion, 1995) reveals that the poor of the developing world are more likely to be characterized by:

- larger household size
- women
- elderly
- reliance on labor incomes
- low caloric intakes
- income variability
- rural

In turn, poverty in Africa is caused by (World Bank, 1996c, 1996d):

- inadequate access to employment opportunities
- inadequate physical assets, such as land and capital, and minimal access by the poor to credit even on a small scale
- inadequate access to the means of supporting rural development in poor regions
- inadequate access to markets where the poor can sell goods and services

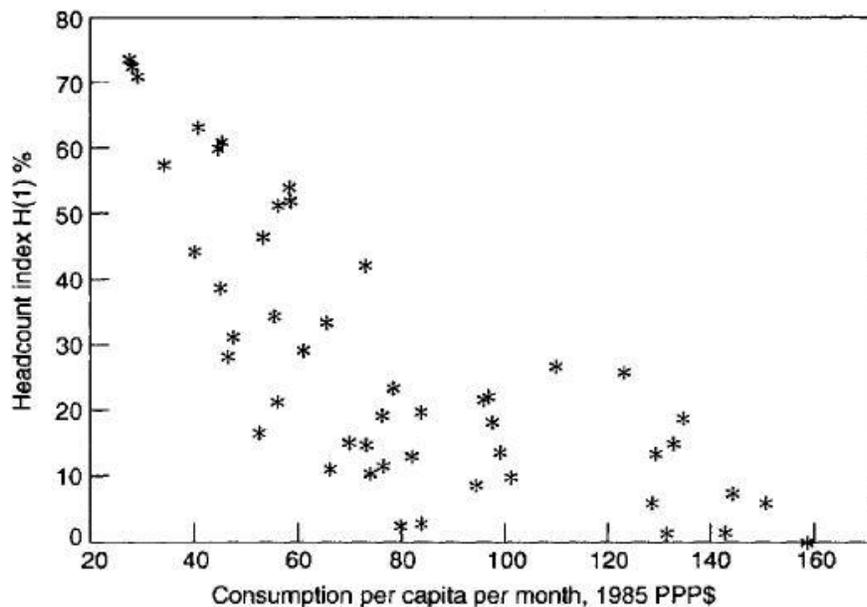
- low endowment of human capital
- destruction of natural resources leading to environmental degradation and reduced productivity
- inadequate access to assistance for those living at the margin and those victimized by transitory poverty
- lack of participation: failure to draw the poor into the design of development programs
- 

How does poverty relate to economic growth? Early studies claimed that economic growth either did not help the poor or actually made them poorer. Particularly influential was the work of Adelman and Morris (1973), who wrote (pp. 189 and 192):

Development is accompanied by an absolute as well as a relative decline in the average income of the very poor. Indeed, an initial spurt of dualistic growth may cause such a decline for as much as 60 percent of the population . . . . The frightening implication of the present work is that hundreds of millions of desperately poor people throughout the world have been hurt rather than helped by economic development.

This conclusion, if true, would be a damning indictment of economic growth. Fortunately, Adelman and Morris's own regression evidence offers no support for it (Adelman and Morris, 1973, pp. 222-3). Likewise, all subsequent studies which used this cross-section regression methodology also found that the richer the country, the higher the average absolute income of the poor. An important example is the influential paper by Ahluwalia (1976), based on a cross-section of 62 countries, both developed

Figure 4



Source: Ravallion (1995)

and developing. He showed that the incomes of the poor increase monotonically as per capita national income rises.

The most direct test of the poverty-national income relationship in the cross-section is to be found in the work of Ravallion (1995). Using an internationally comparable poverty line of \$1 of consumption per capita per day in 1985 purchasing power parity (PPP) dollars, he calculated the poverty headcount index for each of 36 developing countries, which he related to mean per capita consumption in the country, measured in the same units. The results, depicted in Figure 4, reveal a pronounced negative relationship between a country's income level and the extent of its poverty - a result confirmed by regression analysis (Lipton, 1996).

The evidence is unambiguous: the richer the country, the higher the absolute incomes of the poor and the lower the rate of poverty. The cross-sectional version of the absolute impoverishment hypothesis has been thoroughly discredited.

What about changes in poverty over time within countries? In the 1970s, data began to be available for individual countries, and these were drawn together by Ahluwalia *et al.* (1979) and Fields (1980). Ahluwalia *et al.* found, without exception, that the average real income of the poorest 60% rose over time in the 12 countries they examined. Fields, using country-specific poverty lines, found that absolute poverty fell in 10 of the 13 countries covered and rose in three. Two of the three countries in which poverty did not fall are ones in which economic growth did not take place. The only country in which poverty rose in the course of economic growth was the Philippines under Marcos. The apparent political economy explanation ('crony capitalism') is probably the right one.

Further multi-country studies were performed by Fields (1991), who analyzed 31 spells; Chen *et al.* (1994) (18 spells); and Bruno *et al.* (1998) (20 spells). In most but not all cases, growth reduced poverty and recession increased it. For African countries in the latter half of the 1980s, we find that the economic growth of Morocco and Tunisia brought about a fall in the share of people below the poverty line level of consumption; during the economic stagnation in Ghana, poverty remained constant; and Cote d'Ivoire's recession led to an increase in poverty.

In the 1990s, studies have been done on poverty change in individual African nations, with the following results. When growth took place, poverty fell. This was the case in Ghana from 1987-8 to 1991-2 (Ghana Statistical Service, 1995; World Bank, 1995a), in Nigeria from 1985 to 1992 (Canagarajah *et al.*, 1995) and in rural Ethiopia from 1989 to 1994 (Dercon *et al.*, 1994; Dercon and Krishnan, 1995). However, there were also negative results. In Kenya, lack of economic growth resulted in a constant poverty headcount ratio and continued poverty for an increasing number of people (Mukui, 1994; World Bank, 1996a). In Tanzania, real per capita income of the poorest 40% fell by 28% between 1983 and 1991 (Ferreira, 1993; cited in Wangwe, 1996). And in Cote d'Ivoire, poverty increased during the 1985-8 recession, using the poverty headcount ratio, the normalized poverty deficit ( $P_1$ ) and the squared poverty gap ( $P_2$ ) for two alternative poverty lines (Grootaert, 1994).

The change in poverty can be attributed to two sources. First, there is economic growth: holding the dispersion of income the same, the faster the rate of economic growth, the larger the reduction in poverty.

The second is changing dispersion: for any given growth rate, the more dispersive the distribution becomes, the smaller the reduction in poverty.<sup>9</sup> Ravallion and Datt (1992) set forth the following equation for dividing the poverty change in a country into a growth component, a redistribution component and a residual. Let poverty in a country at time  $t$  be denoted by

$$P_t = P(z/\mu_t, D_t)$$

where  $z$  is the poverty line,  $\mu_t$  is mean expenditure per capita and  $D_t$  is the inequality in the distribution of expenditure per capita. Then the change in poverty between a base year  $B$  and a terminal year  $T$  can be written as

$$P_T - P_B = \underbrace{P(z/\mu_T, D_B) - P(z/\mu_B, D_B)}_{\text{growth component}} + \underbrace{P(z/\mu_B, D_T) - P(z/\mu_B, D_B)}_{\text{redistribution component}} + \text{residual}$$

Applying this methodology to African countries, Demery and Squire (1996) found that poverty change was largely determined by economic growth, and that changes in inequality were always of secondary importance; see Table 5.

The large effect of economic growth on poverty is confirmed by Bruno *et al.* (1998). For a sample of 20 countries between 1984 and 1993, they regressed the rate of change in the proportion of the population below \$1 per day against the rate of change in the real value of the mean, and obtained a regression coefficient of -2.12, with a  $t$  ratio of -4.67. Thus, a 10% increase in the mean would produce roughly a 20% reduction in the proportion of people living on less than \$1 a day. Large as this effect is, changing income inequality has an even larger effect: in a multiple regression, these authors found that the elasticity of the poverty headcount ratio with respect to the mean was -2.28, while the elasticity with respect to the Gini coefficient was 3.86. From this, they conclude (pp. 138, 140):

The point is not that distribution [i.e., inequality] is irrelevant or that it never changes, but rather that its changes are generally uncorrelated with economic growth. . . . The upshot of all that we know is that promoting economic growth is good because it is a potentially, and, in most cases, an actually, important vehicle for improving the living standards at all levels . . .

It should be pointed out that in the preceding calculations, a constant real poverty line ( $z$ ) was used. As noted, in a previous paper presented at this forum, Ali (1997) objected to this procedure, preferring instead to increase the poverty line as the mean increases. Doing this has the effect of lowering the magnitude of the reduction in poverty and also of reducing the contribution of growth to poverty reduction. As a consequence, Ali gets a much larger relative share of inequality change in poverty reduction than do Bruno *et al*. In Ali's words:

If poverty reduction is adopted as an 'overarching objective' of development then a policy which would result in a one percent reduction in the Gini coefficient would lead to an equal percentage reduction in the headcount ratio, to twice the

percentage reduction in the poverty-gap ratio and to three times the percentage reduction in the squared poverty-gap ratio. On the other hand, a policy that leads to a one percent increase in per capita income would be expected to lead to a half a percentage reduction in all poverty measures.

From this, Ali concludes that the 'obvious' policy implication is to adopt measures to reduce inequality and thereby enhance the poverty-reducing effects of growth.

Regardless of whether one adopts a fixed poverty line as in Ravallion and Datt and Bruno *et al.* or a variable poverty line as in Ali, an important qualifier needs to be added. In countries' actual experiences, it has proved far easier to generate economic growth than to change the Gini coefficient. In low-income countries, GNP per capita grew by 60% between 1980 and 1993 (World Development Report, 1995), while Gini coefficients in the world barely changed over the same period (Deininger and Squire, 1996b, table 5). In a similar vein, Adelman and Robinson's simulation results for Korea showed that even huge changes in policy parameters (such as a doubling of the tax rate, increasing agricultural capital stocks by 30%, fixing all agricultural prices at world prices and subsidising the consumption of food, housing and medical services for the poorest 60% of households) would change the Gini coefficient by only one or two Gini points in most cases. The point is that in comparing the elasticities of poverty with respect to growth and with respect to inequality, one should not fall into the trap of thinking that it is as easy to lower inequality by 10% as it is to achieve 10% growth; the former is far more difficult than the latter.

#### 4. Economic Well-being

So far in this paper, we have examined ways of determining whether one income distribution is *more unequal* than another and whether one income distribution has *more poverty* than another. Here, we ask a different question: When is one income distribution *better* than another? Here, 'better' means that you would rather be born into one society than another or, if you were a social planner, you would choose one over the other.

Two types of approaches may be considered. The first combines the information on changes in inequality and poverty with information on GNP growth using what are called 'abbreviated social welfare functions'. The second is a kind of 'welfare dominance analysis'.

The term 'abbreviated social welfare function' was apparently introduced into the literature by Lambert (1989). A social welfare function is *abbreviated* if welfare is expressed as a function of statistics calculated from the income distribution vector, e.g.,

$$W = f(\text{GNP}, \text{INEQ}, \text{POV})$$

where GNP is a measure of income level such as gross national product (in real dollars per capita), INEQ is a measure of inequality and POV is a measure of poverty. When such functions are applied, it is usually with the stipulation that social welfare increases if GNP rises, INEQ falls or POV falls, and thus

$$f_1 > 0, f_2 < 0 \text{ and } f_3 < 0.$$

Such a welfare function underlies the many empirical studies of Africa in which the inequality and poverty effects of economic growth have been measured.

The alternative is to apply what are called 'welfare dominance methods'. If microdata on individual incomes are used, one income distribution  $X$  is said to *first-order-dominate* (equivalently, *rank-order-dominate*) a second distribution  $Y$  if the person who ranks poorest in each distribution has a higher income in  $X$  than in  $Y$ , and likewise for the second person, the third person and so on. Similarly, in aggregate data divided, say, into deciles, for one income distribution to first-order-dominate another, the income in the first decile of  $X$  must be higher than in  $Y$ , the income in the second decile of  $X$  must be higher than in  $Y$  and so on. Note what makes this different from Pareto-dominance: here, we are comparing the people who occupy particular positions in the income distribution regardless of their identities, whereas in testing for Pareto-improvements, we need to compare the before and after incomes for named persons.

If first-order dominance does not hold, welfare rankings may still be possible, using what is called *second-order dominance* (also called *generalized Lorenz curve dominance*). The generalized Lorenz curve is defined as the ordinary Lorenz curve multiplied by the mean. Suppose that the generalized Lorenz curve for distribution  $X$  is somewhere above and never below that for distribution  $Y$ . According to theorems derived by Kolm (1976) and Shorrocks (1983), distribution  $X$  will be judged to be *better* than distribution  $Y$  for all social welfare functions which are anonymous, increasing in all incomes and S-concave.<sup>11</sup> This tells us what is required to justify welfare comparisons using generalized Lorenz curves. But before using this criterion, you will have to think whether *your* social welfare function satisfies these three properties.

To the best of my knowledge, rank-dominance and generalized Lorenz-curve-dominance studies have not yet been carried out for any African country (though they have been used in Latin American and Asian countries). This remains to be done in future work.

## 5. Conclusions

Poverty, inequality and economic well-being are different aspects of income distribution and must be treated distinctly. This paper has presented methods for measuring each and reviewed the available empirical evidence for Africa. The principal lessons that have been learned from the available, admittedly limited evidence are:

- There is no Kuznets curve for African countries. Inequality has not tended to either increase or decrease in African economic growth.
- When economic growth has taken place in Africa, poverty has fallen. When poverty has not fallen, it is because economic growth has not taken place.
- Methods exist for measuring changes in social welfare and economic well-being, but these have not yet been applied in any African country.

It has not been the purpose of this paper to propose pro-poor development policies; other papers prepared in this series do that. I shall conclude merely by mentioning some key issues and some specific references for further reading on each:

- Overall development policy (Berthelemy, 1995; Ndulu and van de Walle, 1996; World Bank, 1996b; Wolgin, 1997)
- Structural adjustment policies (Cornia *et al.*, 1987; Bourguignon *et al.*, 1991; Jamal and Weeks, 1993; Thorbecke and Kone, 1995; Demery and Squire, 1996; Sahn, 1996)
- Labor-demanding growth (World Development Report, 1990, 1995; Turnham, 1993; Horton *et al.*, 1994; Jamal, 1995; ILO, 1997; Bigsten, 1997)
- Investing in the human capital of the poor (Schultz, 1988; World Development Report, 1990; Strauss and Thomas, 1995; United Nations, 1996)
- Agricultural development (Thorbecke and Morrisson, 1989; Timmer, 1991; Cleaver and Donovan, 1995; Tomich *et al.*, 1995; Delgado, 1996; Platteau and Hayami, 1996)
- Directed social spending (Ferroni and Kanbur, 1990; Anand and Ravallion, 1993; Grootaert, 1994; van de Walle and Nead, 1995; Demery *et al.*, 1995; Streeten, 1995)
- Targeted anti-poverty interventions (Besley and Kanbur, 1993; Lipton and Ravallion, 1995; World Bank, 1996b; Besley, 1997; van de Walle, 1997)
- Reducing inter-group inequalities (Haddad, 1991; Barker, 1992; United Nations, 1995; Anand and Sen, 1995; Mwabu and Schultz, 1996; Standing *et al.*, 1996)

## References

- Adelman, I. and C. Taft Morris (1973) *Economic Growth and Social Equity in Developing Countries*, Palo Alto: Stanford University Press.
- Adelman, I. and S. Robinson (1978) *Income Distribution Policy in Developing Countries: a Case Study of Korea*, New York: Oxford University Press.
- Ahluwalia, M. (1974) 'Dimensions of the Problem', in H.B. Chenery *et al.* (eds) *Redistribution with Growth*, New York: Oxford University Press.
- (1976) 'Inequality, Poverty, and Development', *Journal of Development Economics*.
- Ahluwalia, M., N. Carter and H. Chenery (1979) 'Growth and Poverty in Developing Countries', in H. Chenery, *Structural Change and Development Policy*, Oxford: Oxford University Press.
- Ali, A.A.G. (1996) 'Dealing with Poverty and Income Distribution Issues in Developing Countries: Cross Regional Experiences', paper presented at the AERC Bi-Annual Research Workshop, Nairobi, December (revised January 1997).
- Ali, A.A.G. and E. Thorbecke (1997) 'The State of Rural Poverty, Income Distribution and Rural Development in Sub-Saharan Africa', paper prepared for the African Economic Research Consortium Conference on Comparative Development Experiences in Asia and Africa, Johannesburg, November.
- (1998) 'The State and Path of Poverty in Sub-Saharan Africa: some Preliminary Results', paper presented at the AERC Bi-Annual Research Workshop, Nairobi, May.
- Alwang, J., P.B. Siegel and S.L. Jorgensen (1996) 'Seeking Guidelines for Poverty Reduction in Rural Zambia', *World Development*, November.
- Anand, S. and R. Kanbur (1993) 'The Kuznets Process and the Inequality-Development Relationship', *Journal of Development Economics*.
- Anand, S. and M. Ravallion (1993) 'Human Development in Poor Countries: On the Role of Private Income and Public Services', *Journal of Economic Perspectives*, Winter.
- Anand, S. and A. Sen (1995) 'Gender Inequality in Human Development: Theories and Measurement', Harvard University.
- Atkinson, A.B., L. Rainwater and T. Smeeding (1995) *Income Distribution in OECD Countries: Evidence from the Luxembourg Income Study LIS*, Paris: OECD.
- Barker, F. (1992) *The South African Labour Market: Critical Issues for Transition*, Pretoria: J.L. van Schaik, Ltd.
- Berthelemy, J. (ed.) (1995) *Whither African Economies*, Paris: OECD.
- Besley, T. (1997) 'Political Economy of Alleviating Poverty: Theory and Institutions', in *Annual World Bank Conference on Development Economics 1996*, Washington DC: World Bank.
- Besley, T. and R. Kanbur (1993) 'Principles of Targeting', in M. Lipton and J. van der Gaag (eds), *Including the Poor*, Washington DC: World Bank.
- Bhorat, H., M. Leibbrandt and I. Woolard (1995) 'Towards an Understanding of South Africa's Inequality', paper prepared for presentation at the African Economic Research Consortium workshop, Johannesburg, South Africa, November-December.

- Bigsten, A. (1997) 'Labour Market Models, Changing Conditions and Reform', presentation to the African Economic Research Consortium, Kampala, Uganda, August.
- Boateng, E.O., K. Ewusi, R. Kanbur and A. McKay (1992) 'A Poverty Profile for Ghana 1987-88', *Journal of African Economies*, March.
- Bourguignon, F., J. de Melo and C. Morrisson (1991) 'Poverty and Income Distribution During Adjustment: Issues and Evidence from the OECD Project', *World Development*.
- Bruno, M., M. Ravallion and L. Squire (1998) 'Equity and Growth in Developing Countries: Old and New Perspectives on the Policy Issues', in V. Tanzi and K. Chu (eds), *Income Distribution and High-quality Growth*, Cambridge MA: MIT Press.
- Canagarajah, S., J. Nwafon and S. Thomas (1995) *The Evolution of Poverty and Welfare in Nigeria 1985-92*, Washington DC: World Bank.
- Chen, S., G. Datt and M. Ravallion (1993) 'Is Poverty Increasing in the Developing World?: Unpublished Appendix', Washington DC: World Bank, April.
- (1994) 'Is Poverty Increasing in the Developing World?', *Review of Income and Wealth*, December.
- Cleaver, K.M. and W.G. Donovan (1995) *Agriculture, Poverty, and Policy Reform in Sub-Saharan Africa*, Washington DC: World Bank.
- Coulombe, H. and A. McKay (1995) 'An Assessment of Trends in Poverty in Ghana (1988-92)', PSP Discussion Paper 81, Washington DC: World Bank.
- Coulombe, H. and A. McKay (1996) 'Modeling Determinants of Poverty in Mauritania', *World Development*, June.
- Cornia, G.A., R. Jolly and F. Stewart (eds) (1987) *Adjustment with a Human Face*, Oxford: Oxford University Press.
- Delgado, C. (1996) 'Agricultural Transformation: the Key to Broad-based Growth and Poverty Alleviation in Africa', in B. Ndulu and N. van de Walle (eds), *Agenda for Africa's Economic Renewal*, New Brunswick: Transaction Publishers.
- Deininger, K. and L. Squire (1996a) 'A New Data Set Measuring Income Inequality', *The World Bank Economic Review* 10 (3).
- (1996b) *New Ways of Looking at Old Issues: Inequality and Growth*, Washington DC: World Bank.
- Demery, L. and L. Squire (1996) 'Macroeconomic Adjustment and Poverty in Africa: An Emerging Picture', *The World Bank Research Observer*, February.
- Demery, L., B. Sen and T. Vishwanath (1995) 'Poverty, Inequality and Growth', Discussion Paper, ESP, June.
- Dercon, S. and P. Krishnan (1995) 'A Consumption-based Measure of Poverty in Rural Ethiopia in 1989 and 1994', Annual Conference of Ethiopian Economic Association, Nazret, November.
- Dercan, S., P. Krishnan and A.B. Kello (1994) 'Poverty in Rural Ethiopia', Centre for the Study of African Economies, Oxford University.
- Dercon, S. and M. Taddesse (1996) 'A Comparison of Poverty in Rural and Urban Ethiopia', unpublished paper, September.
- Drèze, J., A. Sen and A. Hussain (1995) *The Political Economy of Hunger: Selected Essays*, Oxford: Clarendon Press.

- Ferreira, L. (1993) 'Poverty and Inequality During Structural Adjustment in Rural Tanzania', Transitional Economies Department Research Paper No. 8, Washington DC: World Bank.
- Ferroni, M. and R. Kanbur (1990) 'Poverty-conscious Restructuring of Public Expenditure', Social Dimensions of Adjustment in Sub-Saharan Africa Working Paper No. 9, Washington DC: World Bank.
- Fields, G.S. (1980) *Poverty, Inequality, and Development*, New York: Cambridge University Press.
- (1991) 'Growth and Income Distribution', in G. Psacharopoulos (ed.), *Essays on Poverty, Equity, and Growth*, New York: Pergamon.
  - (2000) *Distribution and Development: a New Look at the Developing World*, forthcoming.
- Fishlow, A. (1996) 'Inequality, Poverty, and Growth: Where Do We Stand,?', in *Annual Bank Conference on Development Economics 1995*, Washington DC: World Bank.
- Foster, J., J. Greer and E. Thorbecke (1984) 'A Class of Decomposable Poverty Measures', *Econometrica*.
- Ghana Statistical Service (1995) 'The Pattern of Poverty in Ghana 1988-92', Ghana Statistical Service, January.
- Griffin, K. and A.R. Khan (1978) 'Poverty in the Third World: Ugly Facts and Fancy Models', *World Development*, March.
- Grootaert, C. (1994) 'Poverty and Basic Needs Fulfillment in Africa During Structural Change: Evidence from Cote d'Ivoire', *World Development*, October.
- (1995) 'Structural Change and Poverty in Africa: A Decomposition Analysis for Cote d'Ivoire', *Journal of Development Economics*, August.
- Haddad, L. (1991) 'Gender and Poverty in Ghana', *IDS Bulletin*.
- Hanmer, L., G. Pyatt and H. White with the assistance of N. Pouw (1997), 'Poverty in Sub-Saharan Africa: What Can We Learn from the World Bank's Poverty Assessments?', paper presented at the African Economic Research Consortium Workshop, Kampala, Uganda, August.
- Horton, S., R. Kanbur and D. Mazumdar (1994) 'Labor Markets in an Era of Adjustment', Washington DC: World Bank.
- International Labour Office (1997) 'Adjustment, Employment, and Labour market Institutions in Sub-Saharan Africa: an Emerging Consensus on Consultative Policy Design?', Employment and Training Papers No. 3, ILO.
- Jamal, Vali (1995) 'Changing Poverty and Employment Patterns Under Crisis in Africa', in Gerry Rodgers and Rolph van der Hoeven (eds), *The Poverty Agenda: Trends and Policy Options*. Geneva: International Institute for Labour Studies.
- Jamal, V. and J. Weeks (1993) *Africa Misunderstood, or, Whatever Happened to the Rural-Urban Gap*, London: International Labour Organisation.
- Kaburo, J.W. and T.W. Kiriti (1997) 'Structural Adjustment, Poverty and Economic Growth: an Analysis for Kenya', paper presented at the African Economic Research Consortium Workshop, Nairobi, Kenya, May.
- Kolm, S.C. (1976) 'Unequal Inequalities I and II', *Journal of Economic Theory*.
- Kuznets, S. (1955) 'Economic Growth and Income Inequality', *American Economic Review*, March.

- Lachaud, J.-P. (1994) *The Labour Market in Africa*, Geneva: International Institute for Labour Studies.
- Lambert, P. (1989) *The Distribution and Redistribution of Income*, Oxford: Basil Blackwell.
- Lipton, M. (1996) 'Successes in Anti-poverty', Issues in Development: Discussion Paper Eight, Geneva: International Labour Organization.
- Lipton, M. and M. Ravallion (1995) 'Poverty and Policy', in J. Behrman and T.N. Srinivasan (eds), *Handbook of Development Economics*, Vol. 3, Oxford: Elsevier Science, North Holland.
- Mukui, J.T. (1994) 'Kenya: Poverty Profiles 1982-92', report prepared for the Ministry of Planning and National Development, Nairobi, Kenya.
- Mwabu, G. and T.P. Schultz (1996) 'Wage Premia for Education and Location by Gender and Race in South Africa', unpublished manuscript, January.
- Ndulu, B. and N. van de Walle (1996) *Agenda for Africa's Economic Renewal*, New Brunswick: Transaction Publishers.
- Paukert, F. (1973) 'Income Distribution at Different Levels of Development: a Survey of Evidence', *International Labour Review*, August-September.
- Platteau, J.-P. and Y. Hayami (1996) 'Resource Endowments and Cultural Endowments in Agricultural Development: Africa vs. Asia', paper presented at the International Economic Association Round Table Conference on the Institutional Foundation of Economic Development in East Asia, Tokyo, December.
- Ravallion, M. (1994) *Poverty Comparisons*, Chur: Harwood.
- (1995) 'Growth and Poverty: Evidence for the Developing Countries in the 1980s', *Economics Letters*.
- Ravallion, M. and S. Chen (1997) 'What Can New Survey Data Tell Us About Recent Changes in Distribution and Poverty?', *World Bank Economic Review*.
- Ravallion, M. and G. Datt (1992) 'Growth and Redistribution Components of Changes in Poverty Measures: a Decomposition with Application to Brazil and India in the 1980s', *Journal of Development Economics*.
- Ravallion, M., G. Datt and D. van de Walle (1991) 'Quantifying Absolute Poverty in the Developing World', *Review of Income and Wealth*.
- Rodgers, G. and R. van der Hoeven (eds) (1995) *New Approaches to Poverty Analysis and Policy. III. The Poverty Agenda: Trends and Policy Options*, Geneva: International Institute for Labour Studies.
- Ruggles, P. (1990) *Drawing the Line: Alternative Poverty Measures and Their Implications for Public Policy*, Washington DC: The Urban Institute.
- Sahn, D.E. (ed.) (1996) *Economic Reform and the Poor in Africa*, Oxford: Clarendon Press.
- Schultz, T.P. (1988) 'Education Investments and Returns', in H. Chenery and T.N. Srinivasan (eds), *Hand book of Development Economics*, Rotterdam: North Holland.
- Sen, A. (1976) 'Poverty: an Ordinal Approach to Measurement', *Econometrica*, March.
- Shorrocks, A.F. (1983) 'Ranking Income Distributions', *Economica*.
- Standing, G., J. Sender and J. Weeks (1996) *Restructuring the Labour Market: the South African Challenge*, Geneva: International Labour Office.

- Strauss, J. and D. Thomas (1995) 'Empirical Modeling of Household and Family Decisions', in J. Behrman and T.N. Srinivasan (eds), *Handbook of Development Economics*, Vol. 3, Oxford: Elsevier Science, North Holland.
- Strauss, J., G. Mwabu and K. Beegle (1998) 'Intrahousehold Allocations: a Review of Theories and Empirical Evidence', paper presented at the AERC Bi-Annual Research Workshop, Nairobi, May.
- Streeten, P. (1995) 'The Political Economy of Fighting Poverty', Issues in Development Discussion Paper One, Geneva: International Labour Office.
- Summers, R. and A. Heston (1991) 'The Penn World Table Mark 5: an Expanded Set of International Comparisons 1950-1988', *Quarterly Journal of Economics*, May.
- Thorbecke, E. and S. Kone (1995) 'The Impact of Stabilization and Structural Adjustment Programs on Performance in Sub-Saharan Africa', in J. Berthelemy (ed.), *Whither African Economies*, Paris: OECD.
- Thorbecke, E. and C. Morrisson (1989) 'Institutions, Policies and Agricultural Performance', *World Development*, September.
- Timmer, C.P. (1991) *Agriculture and the State*, Ithaca: Cornell University Press.
- Tomich, T.P., P. Kilby and B.F. Johnston (1995) *Transforming Agrarian Economies: Opportunities Seized, Opportunities Missed*, Ithaca: Cornell University Press.
- Turnham, D. (1993) *Employment and Development: a New Review of Evidence*, Paris: OECD.
- United Nations (various years) *Human Development Report*, Geneva: United Nations.
- Van de Walle, D. (1997) *Broad or Narrow Targeting?*, Washington DC: World Bank, April.
- Van de Walle, D. and K. Nead (eds) (1995) *Public Spending and the Poor: Theory and Evidence*, Baltimore: Johns Hopkins University Press.
- Wangwe, S.M. (1996) 'Economic Reforms and Poverty Alleviation in Tanzania', Employment Papers No. 7, ILO.
- Wolgin, J.M. (1997) 'The Evolution of Economic Policy-making in Africa', *American Economic Review*, May.
- World Bank (various years) *World Development Report*, Washington DC: World Bank.
- (1995a) 'Ghana: Promoting Growth, Reducing Poverty', Findings Report, Washington DC: World Bank, November.
  - (1995b) *Labor and the Growth Crisis in Sub-Saharan Africa*, Washington DC: World Bank.
  - (1995c) *Status Report on Poverty in Sub-Saharan Africa 1995: Incidence and Trends of Poverty*, Washington DC: World Bank.
  - (1996a) 'Assessing Poverty in Kenya', Findings Report, Washington DC: World Bank, January.
  - (1996b) 'Nigeria: Targeting Communities for Effective Poverty Alleviation', Findings Report, Washington DC: World Bank, August.
  - (1996c) 'Poverty in Sub-Saharan Africa: Issues and Recommendations', Findings Report, Washington DC: World Bank, October.
  - (1996d) *Taking Action for Poverty Reduction in Sub-Saharan Africa: Report of an Africa Region Task Force*, Washington DC: World Bank May.
  - (1996) *Tanzania - The Challenge of Reforms: Growth, Incomes and Welfare*, Report No. 14982-TA, Washington DC: World Bank, May.

