

POVERTY AND INEQUALITY IN SOUTH AFRICA AND THE WORLD

By P Govender, N Kambaran, N Patchett, A Ruddle, G Torr and N van Zyl

ABSTRACT

This article begins with a discussion of various definitions and concepts of poverty and inequality. It then distinguishes between objective and subjective concepts of poverty, temporary versus chronic poverty, and absolute versus relative poverty. The concept of inequality is discussed and compared with that of poverty. Specific measures of poverty and inequality are considered next.

The measurement of poverty requires the choice of a welfare measure, a benchmark welfare level for identifying those in poverty (a poverty line), and the selection of one or more appropriate poverty indicators. The mathematically desirable features of a poverty or inequality measure are discussed, and the most commonly used measures are described. Some of the special considerations that arise when measuring poverty and inequality at the world level are then investigated, and this is followed by a discussion of the datasets available for producing these. Finally, actual estimates of poverty and inequality in South Africa and the world are examined, with a particular focus on trying to assess the trend in recent years.

It seems fairly certain that the proportion of people in the world living in absolute poverty has declined significantly and consistently over the last few decades, and this trend is continuing. There is less agreement about trends in inequality. Progress against poverty has been very uneven across regions: there have been dramatic declines in Asia, but the situation in Africa has worsened. There is an ongoing debate about poverty and inequality trends in South Africa.

KEYWORDS

Poverty; inequality; South Africa; world

CONTACT DETAILS

Mrs Natalie van Zyl, Department of Statistics and Actuarial Science, University of Stellenbosch, Private Bag X1, Matieland, 7602. Tel: +27(0)21 808 3526; Fax: +27(0)21 808 3830; E-mail: nataliev@sun.ac.za

1. INTRODUCTION

This paper presents the results of some of the most prominent recent research into the extent and trend of poverty and inequality in South Africa and the world. To place the debate in context, a brief overview of the theory and practice of poverty and inequality measurement is also provided. The paper is structured as follows. In section 2, various definitions of poverty and inequality are explored. Section 3 considers measures of poverty in more detail and section 4 does the same for inequality. A brief introduction to some of the issues involved with the finding of appropriate data is given in section 5. Section 6 then considers the way that the data are combined to consider world poverty and inequality and the issues that arise when comparing different countries. This is followed in section 7 with a discussion of the actual results arising from the different measures for the world. Section 8 looks at the results specifically for South Africa.

2. CONCEPTS OF POVERTY AND INEQUALITY

Broadly speaking, poverty refers to different forms of deprivation (e.g. income, basic needs and human capabilities) whilst inequality is concerned with the distribution of well-being within a population group (Lok-Desallien, unpublished). Although there are inherent links between the two (*ibid.*), they are discussed separately in the sections below.

2.1 POVERTY

2.1.1 DEFINITION OF POVERTY

2.1.1.1 As a point of departure for this discussion, it is useful to consider a conception of poverty readily accessible to a layperson. From the *Concise Oxford Dictionary* definition of ‘poverty’, combined with the definitions of those terms therein, the following concept can be derived: poverty is the state of lacking adequate means to live comfortably and the want of things or needs indispensable to life (Pearsall, 1999).

2.1.1.2 This immediately exposes three of the most important dichotomies in the concept of poverty. Firstly, it covers both the more tangible concept of ‘things indispensable to life’ and the broader, more subjective concept of ‘needs indispensable to life’. The latter can refer to biological needs and needs that are socially determined (Boltvinik, unpublished). Secondly, being an overall poverty definition, it does not, however, distinguish between the concepts of temporary and chronic poverty. The dimension of time is nevertheless an important part of our everyday understanding of poverty. Thirdly, the concepts of relative and absolute poverty are also alluded to. Living comfortably is different to sustaining life or achieving a minimum, socially acceptable level of well-being. The remainder of this section expands on these three dichotomies:

2.1.2 OBJECTIVE VERSUS SUBJECTIVE IDENTIFICATION

2.1.2.1 The determination of the extent or level of poverty (in whichever forms of deprivation it occurs) requires ‘a comparison between an observed and a normative condition’ (Boltvinik, *op. cit.*). This comparison can be made objectively or subjectively.

2.1.2.2 Objective comparisons are generally associated with quantitative measures. Economic, educational and some forms of biological deprivation can be objectively identified. A person can be in economic deprivation from any of three perspectives, namely: their income, their expenditure or consumption, or their asset possession. These three perspectives are evident in the discourse on poverty. Some commentators use education enrolments and achievements as a poverty indicator (Baulch & Masset, 2002). Biological deprivation could mean suffering from malnutrition (Woolard & Leibbrandt, 1999), a chronic disease or a disabling condition (Citro & Michael, 1995).

2.1.2.3 Subjective comparisons are generally associated with qualitative measures and often involve participatory identification techniques (Bigsten & Levin, 2001). In contrast to objective comparisons, they place a premium on individual preferences and utility (Lok-Desallien, op. cit.). Such subjective indicators of poverty may include experiences (e.g. stress), livelihood issues (e.g. lack of jobs or arduous, often hazardous work), social conditions and political issues (Bigsten & Levin, 2001). Chambers, as quoted in Woolard & Leibbrandt (1999), identifies five dimensions of poverty. Two are objective (corresponding to economic and biological deprivation) and three are subjective. The three subjective poverty dimensions identified are as follows:

- physical or social isolation due to peripheral location, lack of access to goods and services, ignorance or illiteracy;
- powerlessness within existing social, economic, political and cultural structures; and
- vulnerability to a crisis or the risk of becoming even poorer.

2.1.2.4 A mix of both objective and subjective indicators is given when a population's perception of poverty is elicited. In the South African context,

“Poverty is perceived by the poor to include alienation from the community, food insecurity, crowded houses, usage of unsafe and inefficient forms of energy, lack of jobs that are adequately paid and/or secure, and fragmentation of the family.”

May, unpublished

In practice, however, poverty is most commonly measured in money-metric terms (that is, with reference to economic deprivation), whilst social indicators (generally subjective in nature) are monitored alongside these. This is the approach followed by the World Bank (Boltvinik, op. cit.).

2.1.2.5 A real understanding of the different concepts and indicators of poverty is necessary. Not only do different concepts and indicators give rise to different anti-poverty strategies (Lok-Desallien, op. cit.), but they give different measurement results in practice. A study was conducted covering living standards in two villages in India over two periods: from 1963 to 1966, and from 1982 to 1984. Objective (income) and subjective (quality-of-life) indicators were used. Income data revealed that 38% of households in the village had become poorer and that the incidence of poverty had increased from 17% to 23%. By contrast, quality-of-life indicators for those households whose income declined revealed overwhelmingly that their standard of living had improved (Lok-Desallien, op. cit.). A common approach used in addressing such contradictory results is to restrict the

definition of poverty to human needs that are economically based (Boltvinik, op. cit.). This approach can be used to distinguish the concept of poverty from that of well-being (where ‘well-being’ is used to capture the overall condition of the person) (Citro & Michael, 1995). Under this distinction, a lonely affluent person cannot be considered poor (Boltvinik, op. cit.).

2.1.3 TEMPORARY VERSUS CHRONIC

2.1.3.1 Poverty is not a static condition (May, op. cit.), and a more nuanced understanding of it must consequently include the dimension of time. It is possible, for example, for a wealthy person to suffer a financial reversal or for a poor person to rise out of poverty.

2.1.3.2 The discourse on poverty distinguishes between temporary and chronic poverty (Carter & May, 2001). Temporarily poor entities (individuals, families or households) move between poor and non-poor over time. Conversely, chronically poor entities are observed as being poor at each successive observation. In the South African context, the persistence of poverty in rural areas is seen to be due to ‘poverty traps’, that is a lack of complementary assets and services resulting in ‘poverty of opportunity’ (May, op. cit.).

2.1.4 ABSOLUTE VERSUS RELATIVE

2.1.4.1 Key to understanding any indicator of poverty is an appreciation of the distinction between the concepts of absolute and relative poverty.

2.1.4.2 Absolute poverty is determined without reference to the relative level of wealth of peers. It is claimed to be an objective, scientific determination as it is based on the minimum requirement needed to sustain life (Woolard & Leibbrandt, 1999). As such, it is usually based on nutritional needs and essential goods. These may exclude goods considered essential by the relatively wealthy (Lok-Desallien, op. cit.).

2.1.4.3 Relative poverty is a

“more subjective or social standard in that it explicitly recognizes that some element of judgement is involved in determining the poverty level.” Alcock, 1997

An individual is classified as poor relative to the living standards of a society. This definition of poverty has led to two interpretations of those classified as relatively poor.

2.1.4.4 The first interpretation is that the poorest $x\%$ of the population is poor. This percentage is commonly set as 10% or 20% of the population (deciles or quintiles). The percentage that is classified as poor does not change under this definition, regardless of whether or not their circumstances have improved. This means that, if only this interpretation is used, it is not possible to measure the impact of policies implemented to address poverty.

2.1.4.5 The second, and most common, interpretation is that poor persons are defined as such if their living standard (as measured by consumption or income) is below a percentage of that of their contemporaries (e.g. 50% of mean consumption or income). The percentage of poor is not preset under this minimum acceptable standard of living

definition. However, neither is the level of this standard of living. A society tends to alter their view as to what constitutes a minimum acceptable level as their mean income rises (Ravallion, 2003).

2.1.4.6 Relative poverty levels can be determined within a country or between countries. Poverty is judged very differently in developed and developing countries. It may be argued that a poor entity needs a higher level of consumption when living in a developed country than when living in a developing one.

2.1.4.7 Sen (1983) summarised a portion of the poverty debate well with his question:

“Should poverty be estimated with a cut-off line that reflects a level below which people are, in some sense, ‘absolutely impoverished’, or a level that reflects (minimum) standards of living ‘common to that region’ in particular?”

This debate has yet to come to a close (Boltvinik, *op. cit.*). The fact that absolute and relative poverty can move in opposite directions (Lok-Desallien, *op. cit.*) only serves to fuel the discussion.

2.1.4.8 Consider a situation where the income gap between the relatively rich and poor narrows because the relatively rich are getting poorer. Relative poverty, as set out in the second definition given above, will decrease as the mean level of consumption or income has dropped. However, absolute poverty may increase if a greater percentage of the population falls below the poverty line (the level below which a person is classified as poor). Conversely, the relatively rich could become poorer, but still stay above the poverty line. In this case, absolute poverty would stay the same. It is useful to consider both absolute and relative poverty levels as these concepts highlight different aspects of poverty.

2.1.4.9 It has been said that, when monitoring poverty within countries, it is best to let each indicator speak for itself (Lok-Desallien, *op. cit.*).

2.2 INEQUALITY

2.2.1 DEFINITION OF INEQUALITY

‘Inequality’ refers to variations in the standards of living across a whole population or region. In its broadest sense, it refers to any aspect of deprivation. These may include, for example, deprivation in terms of income, assets, health and nutrition, education, social inclusion, power and security. In the simplest case, using income as the aspect of deprivation, no inequality would exist if everyone had the same income and maximum inequality would exist if only one person had all the income. Inequality is not the same as poverty but is closely related to poverty. Higher levels of inequality in a country usually imply higher levels of absolute and relative poverty in that country.

2.2.2 ABSOLUTE VERSUS RELATIVE INEQUALITY

2.2.2.1 Relative inequality depends on the ratios of individual incomes to the overall mean. Thus, if all incomes grow at the same rate, then relative inequality is unchanged. Conversely, absolute inequality depends on absolute differences in the levels of income.

2.2.2.2 An example will help illustrate the difference. Consider two households, one with an income of R1000 and the other with an income of R10 000. The mean income of the two households is R5500. The absolute level of inequality between the two households is R9000. If we look at the relative inequality of the two households then the first household's income is 82% below the mean income and the second household's income is 82% above the mean income.

2.2.2.3 If both household incomes grow at a real rate of 100% over a period, the household incomes will be R2000 and R20 000 respectively (in the money terms existing at the commencement of that period). The mean income of the two households is now R11 000. The absolute level of inequality between the two households is now R18 000. The first household's income is still 82% below the mean income and the second household's income is still 82% above the mean income. Absolute inequality has risen while relative inequality has stayed the same.

2.2.2.4 Relative inequality is the concept most commonly used in literature dealing with the analysis of inequality.

3. MEASURES OF POVERTY

In order to measure poverty, there are a number of steps to be followed. Firstly, the concept of poverty being measured needs to be defined. Secondly, a poverty line—relative to the concept of poverty adopted—needs to be specified. Finally, the appropriate poverty measurements need to be selected. This section of the paper focuses on these three steps.

3.1 CHOOSING THE CONCEPT OF POVERTY

As can be seen from the previous section, the concept of poverty is not an uncontested one. There is indeed a wide range of opinion on what best defines a situation one would call 'poverty'. This diversity of opinion leads naturally to a diversity of approaches in the measurement of poverty.

3.1.1 CHOOSING THE POVERTY MEASURE

Most empirical studies tend to focus on money-based measures—either income or consumption expenditure—when assessing the level of poverty. However, while these two money-based measures do provide an intuitively appealing view of poverty, it is important to realise that they do not necessarily capture the full, often nuanced, picture of poverty, not all of which can easily be reduced to a single measure. Nevertheless, they do provide a useful feel for the level of poverty of the geographical areas or communities that is observed at a point in time and across time. The assumed link between the distribution of income or expenditure and the distribution of welfare has a theoretically coherent underpinning. This link, although it will not be delved into here, is generally accepted by those involved in the measurement of poverty. It is thus money-based measures of poverty that are the focus of this paper.

3.1.2 INCOME VERSUS EXPENDITURE

3.1.2.1 Having acknowledged such money-based measures as acceptable measures of poverty, the debate moves into the consideration of the relative merits of the income and expenditure methods. The aim of such measures is to assess the level of consumption of market goods, and thus an individual's or household's level of welfare.

3.1.2.2 Expenditure is often the preferred measure, and indeed the World Bank officially measures poverty in these terms (Woolard & Leibbrandt, 1999). There are many reasons for this, the most important of which are:

- Expenditure is a more direct measure of consumption than income, reflecting more directly the degree of commodity deprivation. It is thus often regarded as being a better indicator of household welfare (Samson et al, unpublished).
- Income tends to vary more over time, while expenditure is usually smoothed, and thus gives a more reliable picture of the actual consumption of the individual or household (Samson et al, op. cit.).
- Income tends also to be a more delicate topic, and is thus less reliably reported in surveys, than expenditure (Samson et al, op. cit.; Woolard, unpublished).

There are, however, those who argue that income provides a more sensitive measure of the exposure to deprivation. This is grounded in the idea that deprivation should be considered relative to both actual consumption and consumption security or wealth. The relatively more variable nature of income over time, as observed above, adds to its appeal as a measure of poverty. The main advantage of an expenditure approach, under this argument, lies in its relative reliability in surveys.

3.1.3 UNITS OF MEASURE

3.1.3.1 Poverty can be measured at an individual or at a household level. In general the household level is preferred for the following reasons (Samson et al, op. cit.):

- Income and expenditure data are usually derived from household surveys and are therefore difficult to break down further to an individual level. This is particularly the case with expenditure.
- The household is often considered to be the level at which economic decisions are taken. Income from individuals within a household is often pooled, especially in the case of the poor.

There are a number of methodological and practical issues that arise when using the household as the unit of measurement. These are caused by the fact that households differ in both size and demographic composition, making a straightforward comparison of consumption of households very difficult to interpret (Woolard & Leibbrandt, 1999).

3.1.3.2 To address these methodological issues, it is common practice to use some form of normalisation. This involves adjustments to household income or expenditure using household equivalence scales, which allow direct comparison between households of different size and composition. Such household equivalence scales generally have two types of adjustment to income or expenditure in common (Samson et al, op. cit.):

- Household income or expenditure is multiplied by a factor to allow for economies of scale.
- Different ‘weights’ are applied to different household members (for example, children vs. adults) to allow for the different consumption requirements of households of differing composition.

3.2 POVERTY LINES

3.2.1 Having defined the concept of poverty to be used, we must then determine the level of the concept that must be attained in order for the entity not to be considered poor. This level is the poverty line.

3.2.2 A poverty line is the welfare level below which people are regarded as being poor, for example the level of income or expenditure. Any poverty line is either absolute or relative in nature. An absolute poverty line is defined relative to the level of income or expenditure consistent with a minimum standard of living. For example, an absolute poverty line could be the level of income needed to purchase a defined basic basket of food that would provide adequate nutrition. A relative poverty line is defined by reference to others in the population, so that the line could increase in line with an increase in the average income of the population. A simple relative poverty line would be that level of income or expenditure below which 40% of the population falls. While the idea of a relative poverty line is in one sense intuitively appealing, absolute poverty lines tend to be used in general. This is because, as discussed in the previous section, relative poverty lines often predetermine the extent of poverty, thus making it difficult to assess the impact of interventions designed to alleviate poverty (Woolard, *op. cit.*).

3.2.3 There is always an element of arbitrariness in poverty lines, despite the science that appears to exist in the determination of an appropriate level (e.g. through a calorie norm), and particularly in view of the essentially political nature of the definition of a level below which people are considered to be poor. The main use of poverty lines should thus be to assess changes in levels of poverty over time, rather than the absolute extent of poverty at a particular time (Deaton, 2004; Samson et al, *op. cit.*).

3.2.4 Given the impossibility of drawing up a single poverty line that meets all requirements, most researchers argue that it is useful to use multiple poverty lines (both absolute and relative), or a poverty critical range (a range of income or expenditure within which poverty levels are assessed). This allows for the testing of the sensitivity of measures to small changes in the setting of the poverty line (Ravallion, 1992).

3.3 POVERTY MEASUREMENT TOOLS

Finally, having decided which concept of poverty to use and the critical level of this concept, as expressed in a poverty line, it is necessary to consider the actual tools required to provide an indication of the level of poverty in the population under consideration.

3.3.1 PRINCIPLES IN DEFINING A POVERTY MEASUREMENT TOOL

There are certain generally accepted principles for a sound measurement tool or index. These provide a good benchmark against which to assess any potential poverty

measurement tool under consideration. Four key principles, put forward by Sen (1976) that should be aimed for are:

- the monotonicity axiom:
If the income or expenditure of a poor individual falls (rises), the index must rise (fall).
- the transfer axiom:
If a poor individual transfers income or expenditure to someone less poor than herself (whether poor or non-poor), the index must rise.
- the population-symmetry axiom:
If two or more identical populations are pooled, the index must not change.
- the proportion-of-poor axiom:
If the proportion of the population which is poor grows (diminishes), the index must rise (fall).

3.3.2 FGT FAMILY OF MEASUREMENT TOOLS

3.3.2.1 The most commonly used and quoted poverty measurement tools are the headcount index and the poverty gap index. The headcount index is defined as the proportion of the population under consideration that is poor. The poverty gap provides a reflection of the depth of poverty among the poor—i.e. the average distance over the whole population that those who are poor are from the poverty line (Woolard, op. cit.). Both these indices are special cases of the class of measures put forward by Foster, Greer & Thorbecke (1984). This grouping of measures is generally referred to as the FGT class of poverty measures. A generic formulation of the FGT class of measures can be given as (Woolard & Leibbrandt, 1999):

$$P_{\alpha} = \frac{1}{n} \sum_{i=1}^q [(z - y_i / z)^{\alpha}] \text{ for } \alpha \geq 0;$$

where: z is the poverty line;

y_i is the welfare measure or indicator of the i th individual or household for which

$$y_i < z;$$

α is the ‘aversion to poverty’ parameter;

n is the total number of individuals or households in the population; and

q is the number of ‘poor’ individuals or households, i.e. where $y_i < z$.

When $\alpha = 0$, the FGT class yields the headcount index. When $\alpha = 1$, the outcome is the poverty-gap index. Higher-order values of α simply increase the sensitivity of the measure to the welfare of the poorest person in the population. At the extreme (an α value approaching infinity), the FGT class would yield an indicator reflecting the welfare of the poorest person alone.

3.3.2.2 One of the advantages of the FGT class of poverty measures is that total poverty can be decomposed into additive sub-group poverty shares. Suppose that the population of n individuals is split into m mutually exclusive and exhaustive subgroups that we index by $\in \{1, 2, \dots, m\}$. Let n_g be the size of group g . The FGT index can be decomposed additively as:

$$F = \sum_{g=1}^m \frac{n_g}{n} F_g;$$

where F_g is the FGT index for group g . The contribution of subgroup g to overall poverty is:

$$\frac{n_g}{n} F_g.$$

This property allows for flexibility in the measurement of poverty, in particular the changes in poverty over time and the relative contribution of individual subgroups to the level of poverty. This is because if we change the level of income or expenditure in subgroup g so that we reduce poverty in this subgroup and leave the other subgroups unchanged, then total poverty in the population should decrease.

3.3.2.3 The headcount index does not meet the monotonicity axiom, as the measurement is not necessarily affected by shifts in the distribution of income or expenditure among the poor. Thus, a policy that only results in making the poor even poorer would not affect the headcount index (May & Woolard, unpublished). It also does not meet the transfer axiom, as a transfer from a poor person to someone less poor does not result in a rise in the headcount index. In fact, the index would fall if there were a net redistribution from the very poor to the just-poor that results in the just-poor being lifted out of poverty. This treatment of poverty as a discrete condition fails to capture the fact that one does not acquire or shed the things associated with poverty merely by passing a particular income or expenditure line (Woolard & Leibbrandt, 1999). Social-welfare policy based purely on the headcount index can thus clearly lead to undesirable actions, as it gives no indication of the severity of poverty with regard to income or expenditure (May & Woolard, *op. cit.*). The index does, however, meet the population-symmetry axiom—its additive decomposability ensures this—and, by its very definition, meets the proportion-of-poor axiom.

3.3.2.4 The poverty-gap index meets the monotonicity axiom as it is strictly decreasing in the living standards of the poor (May & Woolard, *op. cit.*). If the income of a poor individual falls, the poverty gap will rise, and vice versa. It also meets the population-symmetry axiom—its additive decomposability ensures this. It does not, however, meet the transfer axiom, as the poverty gap is not affected by transfers among the poor that make for greater inequality in income or expenditure distribution (May & Woolard, *op. cit.*). It also does not always meet the proportion-of-poor axiom; as it does not depend on the actual number of poor people, it will not necessarily change when the number or proportion of poor people is increasing or decreasing.

3.3.3 COMPOSITE INDICATORS

3.3.3.1 There are a number of widely quoted poverty or development indicators in use. These are based on a variety of different combinations of welfare measures and poverty lines. Two of the best known are the United Nations Development Programme (UNDP) Human Development Index (HDI), and the Sen Index.

3.3.3.2 The HDI, used since 1993 by the UNDP, measures welfare in a standard

way across countries. It uses objective or quantitative information to measure the average achievements in a country in three basic dimensions of human development (Vella & Vichi, 1997; Borat, Poswell & Naidoo, 2004):

- a long and, by implication, healthy life, as measured by life expectancy at birth index;
- knowledge, as measured by an education index, measuring both adult literacy and the general enrolment in primary, secondary or tertiary education; and
- a decent standard of living, as measured by an index of gross domestic product (GDP) per capita.

3.3.3.3 Another composite index proposed by Amartya Sen, hence known as the Sen Index, is a combination of the headcount index, the poverty gap index, and the Gini coefficient (discussed in more detail in the next section on measuring inequality) (May & Woolard, op. cit.). It is an attempt to reflect the degree of inequality in the distribution of income or expenditure among the poor, and is calculated as the average of the headcount index and poverty-gap index weighted by the Gini coefficient of the poor. As a formula it is:

$$S = HG + P(1 - G);$$

where: H is the population headcount index;
 P is the population poverty-gap index; and
 G is the Gini coefficient of the poor.

It can thus be seen that if $G = 0$ (i.e. no inequality among the poor), the Sen Index is simply the same as the poverty-gap index. Likewise, if $G = 1$ (i.e. one household among the poor had all the income), the Sen Index would simply be the same as the headcount index. In other words, the Sen Index takes into account the number of poor, their shortfall in income or expenditure relative to the poverty line, and the degree of inequality in the distribution of their income or expenditure.

4. MEASURES OF INEQUALITY

Income inequality relates to the distribution of income in a population. There are many ways to measure inequality, although most simply yield summary statistics of the income distribution. For example, one could measure the share of the poorest 10% or 20% of the population in total income, the ratio of the income of the richest 10% or 20% of the population to that of the poorest 10% or 20% of the population or the variance of income in a population. Two of the most common measures of relative income inequality are discussed in this section: the generalised entropy class of measures and the Gini coefficient. As previously discussed, the focus is on income inequality in particular.

4.1 DESIRABLE FEATURES OF AN INCOME INEQUALITY INDEX

There are many ways to measure inequality. However, some measures that are mathematically and intuitively very appealing can produce misleading results. For example, the variance, which must be one of the simplest measures of inequality, is not independent of the income scale. The simple doubling of all incomes would lead to a

fourfold increase in the estimate of inequality. Hence, inequality measures should generally meet the following set of axioms (Litchfield, unpublished¹):

– the Pigou–Dalton transfer principle:

An income transfer from a poorer person to a richer person should register as a rise (or at least not as a fall) in inequality and an income transfer from a richer to a poorer person should register as a fall (or at least not as an increase) in inequality.

– income scale independence:

The inequality measure should not depend on the magnitude of total income; i.e. if everyone's income changes by the same proportion, the measure of inequality should not change.

– the principle of population:

The inequality measure should not depend on the number of income receivers.

– anonymity:

It should only be affected by the incomes of the individuals. No other characteristics of the individual should affect the index.

– decomposability:

This requires overall inequality to be related consistently to constituent parts of the distribution, such as population sub-groups. For example, if inequality is seen to rise amongst each sub-group of the population then one would also expect overall inequality to increase. Some measures are easily decomposed into intuitively appealing components of within-group inequality and between-group inequality, while other measures can be decomposed but the two components of within-group and between-group inequality do not sum to total inequality.

Any measure that satisfies all these axioms is a member of the generalised entropy (GE) class of inequality measures.

4.2 INCOME INEQUALITY MEASURES

4.2.1 GE CLASS OF MEASURES

4.2.1.1 Members of the GE class of measures have the following general formula (Litchfield, op.cit.):

$$G(\alpha) = \frac{1}{(\alpha^2 - \alpha)} \left\{ \frac{1}{n} \sum_{i=1}^n \left(\frac{y_i}{\bar{y}} \right)^\alpha - 1 \right\};$$

where:

n is the number of individuals in the sample;

y_i is the income of individual i ;

$i \in \{1, 2, \dots, n\}$;

$\alpha \geq 0$; and

$\bar{y} = \frac{1}{n} \sum_{i=1}^n y_i$ is the arithmetic mean income.

1 Source: Inequality: Methods and Tools World Bank, www1.worldbank.org/prem/poverty/inequal/methods/litchfie.pdf, 2006

The value of $G(\alpha)$ ranges from 0 to ∞ , zero representing an equal distribution (i.e. all incomes identical) and higher values representing higher levels of inequality. The parameter α represents the weight given to distances between incomes at different parts of the income distribution, and can take any real value. For lower values of α , $G(\alpha)$ is more sensitive to changes in the lower tail of the distribution, and for higher values it is more sensitive to changes that affect the upper tail. The most commonly used values of α are 0, 1 and 2. The value $\alpha = 0$ gives more weight to distances between incomes in the lower tail, $\alpha = 1$ applies equal weights across the distribution and $\alpha = 2$ gives proportionately more weight to gaps in the upper tail. Putting $\alpha = 0$ and $\alpha = 1$ in the above formulae will result in indeterminate values. The values can only be determined as limits using l'Hopital's rule. The GE measures with parameters 0 and 1 become two of Theil's measures of inequality, the mean logarithm deviation and the Theil index respectively (Litchfield, op. cit.); i.e.:

– the mean logarithm deviation:

$$G(0) = \frac{1}{n} \sum_{i=1}^n \log \frac{\bar{y}}{y_i}; \text{ and}$$

– the Theil Index:

$$G(1) = \frac{1}{n} \sum_{i=1}^n \frac{y_i}{\bar{y}} \log \frac{y_i}{\bar{y}}.$$

Both of these measures are widely used because of their property of decomposability. In this manner, total group inequality can be split into within-sub-group inequality and between-sub-group inequality. The mathematics of this is outside the scope of this paper.

4.2.1.2 The point of this decomposition is to separate total inequality in the distribution into a component of inequality between the chosen groups (I_b), and the remaining within-group inequality (I_w). Two types of decomposition are of interest: firstly the decomposition of the level of inequality in any one year, i.e. a static decomposition, and secondly a decomposition of the change in inequality over a period of time, i.e. a dynamic decomposition.

4.2.1.3 When total inequality, I , is decomposed by population subgroups, the GE class can be expressed as the sum of within-group inequality, I_w , and between-group inequality, I_b . Within-group inequality I_w is defined as:

$$I_w = \sum_{j=1}^k w_j G_j(\alpha);$$

where:

$$w_j = v_j^\alpha f_j^{1-\alpha};$$

f_j is the population share and v_j the income share of each partition $j, j=1, 2, \dots k$. In practical terms, the inequality of income within each sub-group is calculated and then these are summed, using weights of population share, relative incomes or a combination of these two, depending on the particular measure used. Between-group inequality, I_b , is measured by assigning the mean income of each partition j, \bar{y}_j to each member of the partition and calculating:

$$I_b = \frac{1}{(\alpha^2 - \alpha)} \left\{ \sum_{j=1}^k f_j \left(\frac{\bar{y}_j}{\bar{y}} \right)^\alpha - 1 \right\}.$$

Cowell & Jenkins (1995) show that the within-group and between-group components of inequality, defined as above, can be related to overall inequality in the simplest possible way (Litchfield, op. cit.):

$$I_b + I_w = I.$$

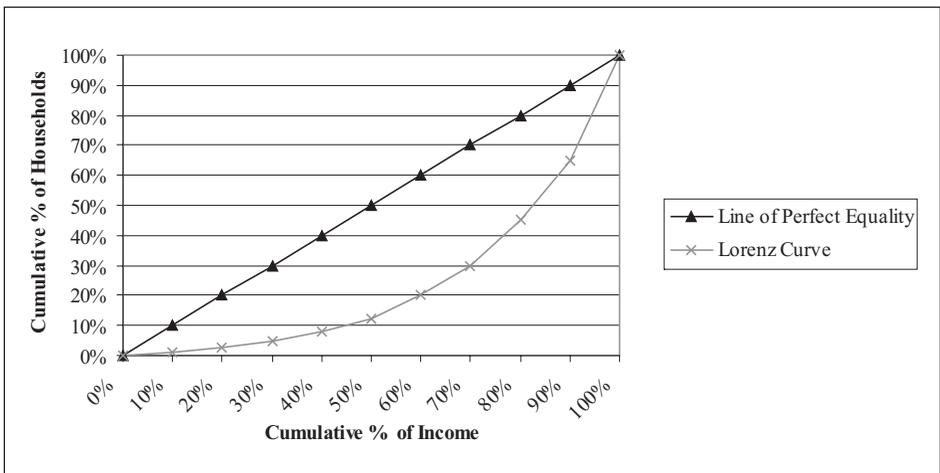
4.2.2 GINI COEFFICIENT

4.2.2.1 The Gini coefficient is the most widely used measure of income inequality. It is a summary statistic of income inequality, which varies from 0 (when there is perfect equality and all the individuals earn equal income) to 1 (when there is perfect inequality and one individual earns all the income and the other individuals earn nothing).

4.2.2.2 The Gini coefficient is calculated from the Lorenz curve. The Lorenz curve plots the cumulative percentage of households against the cumulative percentage of household incomes, households being ordered in increasing order of income. Figure 4.1 provides a hypothetical example of a Lorenz curve. The Gini coefficient measures the area between the Lorenz curve and the hypothetical line of absolute equality, expressed as a fraction of the area under the line.

4.2.2.3 In a situation of perfect equality the Lorenz curve would coincide with the line of perfect equality and the Gini coefficient would equal zero. In the theoretical situation of one household earning all the income, the Lorenz curve would coincide with the horizontal axis and the Gini coefficient would equal 100%. The Gini coefficient satisfies the transfer principle, the income-scale-independence feature and the anonymity principle. However, it is not easily decomposable.

Figure 4.1. Lorenz Curve



5. DATA

5.1 USING HOUSEHOLD SURVEYS TO MEASURE POVERTY & INEQUALITY

In order to estimate poverty or inequality, the distribution of income or expenditure over the population needs to be estimated. The data for estimating this distribution come from household surveys, in which random samples of households are visited and asked questions about their income or expenditure. The results of these random samples can then be used to estimate the distribution of the population as a whole, e.g. the Lorenz curve. The quality of the data captured by the survey is affected by many different factors some of which are discussed below (Deaton, op. cit.):

- Questionnaire design and the manner of posing questions can influence survey answers.
- The period over which the survey is conducted may not allow appropriately for seasonality of income and expenditure.
- In a survey, a single member of a household tends to be interviewed, and the survey is reliant on such individuals' ability to recall the consumption or income over a period.
- Items such as implicit rent for owner-occupiers are often not included in surveys, whilst questions regarding illegal items may give rise to misleading responses.

In particular, surveys tend to underestimate household consumption and income particularly at higher incomes as richer households are both less likely to respond to surveys and more likely to under-report their incomes. The level of adjustment needed to bring survey incomes back to actual incomes tends to be minimal for the lower deciles but can be as much as 30 to 50% for the richest decile (Ravallion, 2003).

5.2 USING NATIONAL ACCOUNTS TO ADJUST MEASURES OF POVERTY AND INEQUALITY

5.2.1 The average consumption or income measured by surveys does not generally equal that measured by the national accounts of countries. Some researchers believe that the average as measured by the national accounts is more accurate and that the mean of the distribution from the household surveys should be scaled up to match the mean from the national accounts. Although average consumption is in fact often scaled up, the actual distribution must still be taken from the surveys.

5.2.2 National accounts do not fully reflect average consumption either, as they are not produced with the aim of measuring poverty or inequality; they are designed to measure macro-economic aggregates. While they do not capture all non-market income and expenditure, own production, gifts and wages in kind, they usually include items not consumed by households. Any estimation involved in producing the final numbers is structured to capture large transactions and not small ones (Deaton, op. cit.).

5.3 WHICH DATA SOURCE IS BETTER

5.3.1 Neither household surveys nor national accounts can provide accurate estimates of poverty and inequality. Household surveys tend to show a pessimistic view of poverty while national accounts show a more optimistic view. In addition to this, household surveys are increasingly capturing smaller proportions of national-accounts income and, as a result, the trends over time are diverging. This may in part be because

richer households are less likely to participate in surveys. The true answer probably lies somewhere between the two views. It is impossible for many countries to make appropriate adjustments to the national accounts to make them comparable with survey totals. In such cases, both types of data should be used but not necessarily combined, as it is almost impossible to compare and pull the results together (Deaton, op. cit.).

5.3.2 Until 1990 most of the World Bank's poverty work used national accounts to scale up the means derived from surveys. In the early 1990s the World Bank switched to using the results derived directly from the surveys both for the world estimates and for the work on individual countries.

5.3.3 Some researchers measuring world poverty still think it is better to scale up the mean incomes using national accounts. In general, their results tend to show far greater reduction in world poverty—see section 7 for a detailed discussion of the different results.

5.4 COMPARISON OF RESULTS FROM NATIONAL ACCOUNTS AND HOUSEHOLD SURVEYS

Table 1 shows the average unweighted ratio of survey consumption to national accounts consumption for a range of countries. The results shown were taken mostly from World Bank surveys and cover 127 countries from 1979 to 2000. In that table, the ratio for Sub-Saharan Africa probably says more about underestimation in national accounts than it does about true differences between the different types of data.

Table 1. Average unweighted ratio of survey consumption to national accounts consumption²

Countries	Ratio
All countries	0,86
OECD countries	0,78
Sub-Saharan Africa	1,00

6. ANALYSIS OF WORLD POVERTY AND INEQUALITY

So far, it has been unnecessary to be specific about the group of people whose poverty or inequality is being measured. Most of the concepts and measures that have been discussed could just as easily be applied to all the people in a town, country and so on. Most often, poverty and inequality measurements tend to be carried out for a particular country or sub-groups within a country (e.g. urban vs. rural areas). This is usually the level at which policy is formulated and economic progress measured. In recent years, however, increasing attention has been focused on worldwide poverty and inequality. While the basic concepts and measures apply equally well, there are specific problems that arise in trying to calculate world poverty and inequality rates that simply do not arise at the local or national levels. This section discusses these issues.

2 Deaton (op. cit.)

6.1 CONVERTING INTO A COMMON CURRENCY

6.1.1 Income and expenditure data for each country will be expressed in that country's own currency. In order to be able to compare these amounts across countries, or to produce aggregate figures for the world as a whole (e.g. a world Gini coefficient), it is necessary to express the data in a common currency.

6.1.2 The obvious way to do this is to use market exchange rates. This is problematic though, as converting currencies at market exchange rates can introduce serious distortions in the comparison of living standards in different countries. In particular, it makes poor countries seem even poorer than they are in reality because, when converted into a common currency at market exchange rates, many goods and services in poor countries are significantly cheaper than they are in rich countries. For example, a United States of America (USA) dollar converted into Indian rupees at market exchange rates can buy much more in India than it would be able to buy in the USA.

6.1.3 The solution used by almost all researchers is to convert at a different set of exchange rates, called purchasing-power parity (PPP) exchange rates. These are designed to convert currencies in a way that preserves purchasing power. Under PPP exchange rates, a dollar would be converted into the number of rupees required to be able to purchase in India whatever a dollar can purchase in the USA.

6.1.4 Differences between incomes or expenditures converted at market versus PPP exchange rates can be substantial. For example, calculations based figures in Profile Books (2006) show that the ratio of market-rate GDP to PPP GDP was around 5:1 for China and India and around 3:1 for South Africa, Brazil and Indonesia in 2005. Clearly, such large differences would have a massive effect on calculations of world poverty and inequality (calculations based on market exchange rates showing much higher poverty and inequality). One of the first questions to ask, then, when analysing world poverty and inequality figures, is whether they are based on market or PPP exchange rates.

6.1.5 While almost everyone agrees that using PPP exchange rates gives a much more comparable measure of living standards in different countries than is achieved by using market rates, the procedure is not without its problems. PPP rates generally used are not constructed with the purpose of measuring poverty, so they will not necessarily accurately convert living standards of the poor from one country to another. Also, PPP rates are not always updated frequently and are not even calculated for every country. Possibly inaccurate interpolations and imputations are thus often required to fill in the gaps.

6.2 MEASURING POVERTY – WHAT IS THE APPROPRIATE POVERTY LINE?

6.2.1 One way of estimating the number of poor people in the world would be to simply add up the poverty counts from each country (assuming these exist). This estimate would not really be of much use as different countries use a variety of different poverty lines. The adding together of poverty counts based on completely different levels of poverty would have little meaning. For example, Deaton (2004) reports that according to the USA Census Bureau there were 32,9 million poor people in the United States in 2001. The Indian government estimates that there were 260 million poor people in India at roughly the same time. As Deaton says,

“there are few people who take a strong enough relativist view of poverty so as to argue that these poverty counts are commensurate and simply add them up.”

The use of national poverty lines, which are generally higher the richer the country, is therefore inappropriate for the calculation of world poverty.

6.2.2 By far the best known and most widely used international poverty line is the ‘\$1 a day’ line used by the World Bank. Part of the appeal of this measure is the fact that it is simple and memorable. It is important to be aware, however, that different estimates of world poverty and inequality are often based on slightly different definitions of ‘\$1 a day’. This is not surprising because \$1 a day is not enough to fully define a poverty line. Two further factors need to be specified: the base year and the PPP conversion factors to be used. The original \$1-a-day line was defined by the World Bank to mean a (USA) \$1 a day in 1985 prices, converted to local currencies using 1985 PPP factors, and scaled up or down for other years using local price indices. The definition was changed in the late 1990s to become \$1–08 in 1993 prices and converted to local currencies using the revised 1993 PPP factors. Other researchers often use different base years and PPP factors.

6.3 DIFFERENT CONCEPTS OF WORLD INEQUALITY

To understand what is happening to inequality on a global level, it is necessary to distinguish between three very different concepts of world inequality:

6.3.1 Concept 1 is concerned with inequality across countries. Mean incomes of the individual countries of the world are combined to calculate the desired measure of world income inequality, such as the world Gini coefficient. Concept-1 measures, such as the ratio of the per-capita GDP of the world’s richest and poorest countries, are often used as the justification for claims that world inequality has dramatically increased in recent decades. While they do have their uses, such measures do not tell us much about inequality among the world’s individuals because different countries have different population sizes. Using concept-1 measures, a fast increase in the average income of a small poor country such as Swaziland will have a similar impact on world inequality to that of an equivalent increase in the average income of China, even though China has more than 1000 times as many people.

6.3.2 Concept-2 measures of world inequality overcome this problem by weighting the mean income of each country by its population size. This simple adjustment can make a dramatic difference to the estimate of the trend in world inequality. Whereas unweighted concept-1 measures have shown a clear divergence in average incomes across countries in recent decades, population-weighted measures equally clearly indicate convergence. This is discussed further in section 7. For now, it is worth simply noting that the conceptual difference between the two measures makes such a finding entirely plausible. A few large and populous Asian countries have experienced very rapid growth, while Africa, with its large number of relatively small countries, has stagnated.

6.3.3 Concept-2 inequality still does not represent the true inequality between all the individuals of the world, however, because it takes no account of inequality within

countries. It is effectively assumed that everybody within a country has the same level of income (the national average income). Concept-3 inequality abandons this assumption and refers to the inequality between all the individuals of the world, regardless of where they happen to live. It consists of the population-weighted inequality between the average incomes of individuals in the different countries of the world and the inequality between the individuals within those countries.

6.3.4 Despite the fact that concept-3 inequality is probably the most natural and theoretically correct concept of world inequality among individuals, it was not until recently that researchers began to pay a great deal of attention to it. The probable reason for this is the complexity of the data requirements for calculating concept-3 inequality. Whereas the calculation of concept-2 inequality requires knowledge only of the average income and the population size of each country, the calculation of true world inequality requires knowledge of the full income distribution of each country. It may be possible to gain a deeper understanding of world inequality by breaking the overall estimate into the components that represent inequality between countries (this is effectively concept-2 inequality) and those that represent inequality within countries. Decomposable inequality measures (see section 4) are capable of showing this breakdown.

6.3.5 Finally, it is worth mentioning a common pitfall that arises in the discussion of inequality on a global level. This is the assumption that if unweighted inequality between countries (concept 1) is increasing, and inequality within countries is generally increasing, then world inequality among individuals must also be increasing. This is incorrect, because it is population-weighted (concept-2) inequality that matters for the between-country component of concept-3 inequality. It is possible for inequality to be increasing in every single country in the world and for unweighted inequality among countries to be increasing, while world inequality among individuals remains constant or decreases. All that is required is for a number of populous, relatively poor countries to grow faster than the world average, so that population-weighted inequality between countries decreases. In fact, as seen in section 7 below, this is almost exactly what has actually been happening.

6.4 DATASETS AVAILABLE TO MEASURE WORLD POVERTY

6.4.1 Before 1980 there were very little data available to measure global poverty and to determine how the poor were faring as economic circumstances changed. In the early 1980s the World Bank established the Living Standard Measurement Survey (LSMS) to remedy this lack of data (Deaton, *op. cit.*).

6.4.2 The situation is completely different in 2006. PPP exchange rates are well defined and many internationally comparable national accounts are now available (Deaton, *op. cit.*). There are upwards of 400 household surveys available, covering 100 countries (Ravallion, 2003). The World Bank has laid out minimum criteria that must be met for them to use the results of a household survey. Amongst other things, such surveys must be nationally representative and must include own production (Ravallion, 2003).

6.4.3 Despite the wealth of datasets available it is not always easy to compare the results of surveys across countries or to develop an overall picture of world poverty.

Some surveys measure income and others measure expenditure. Survey protocols also differ across countries and over time (Ravallion, 2003; Deaton, op. cit.).

7. ESTIMATES OF WORLD POVERTY AND INEQUALITY

In this section, the findings of some of the most prominent research into the extent and trend of poverty and inequality in the world are presented and key aspects of the global debate are highlighted.

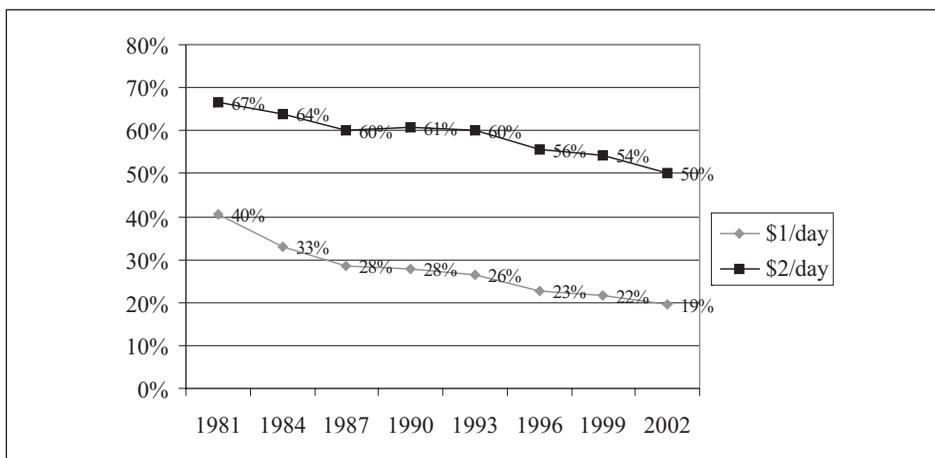
7.1 WORLD POVERTY

7.1.1 LATEST WORLD BANK POVERTY ESTIMATES

7.1.1.1 Figures 7.1 and 7.2 show the World Bank's latest estimates of the percentage and number of people living on less than \$1 a day and \$2 a day, between 1981 and 2001. Figure 7.1 presents a clear picture of declining absolute poverty rates in the world since the start of the 1980s. In fact, according to the World Bank, the proportion of people living on less than \$1 a day fell by more than half between 1981 and 2002. The rate of poverty decline against the \$1-a-day benchmark was particularly steep in the early and mid-1980s, faltered in the late 1980s and early 1990s, and then returned to a consistent downward trend. This trend is very likely to have continued, and perhaps even accelerated, since 2002, due to the continued strong economic growth in developing countries.

7.1.1.2 Despite the fact that the developing-world population increased by more than 1,5 billion over the period in question, the fall in poverty rates was large enough to ensure that the absolute number of people in the world living on less than \$1 a day fell by 467 million. The percentage of people living on less than \$2 a day (the poverty line

Figure 7.1. Percentage of population living on less than \$1 a day and \$2 a day, between 1981 and 2001³



3 Source: World Bank (2006) Table 2.7

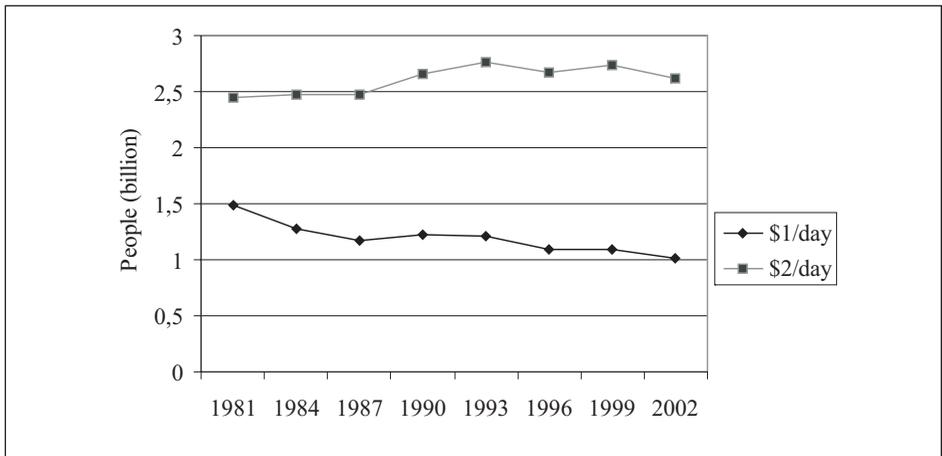
thought to be more appropriate for middle-income countries) has not been declining rapidly enough to offset population growth. As a result, the number of people living on less than \$2 a day actually increased by 164 million. This reflects the fact that the world income distribution is quite tightly bunched around the \$1-a-day level. The fact that so many people escaped from extreme poverty inevitably gave rise to quite a dramatic increase in the number of people living on more than \$1 a day, but still less than \$2 a day.

7.1.1.3 The above example illustrates the potential sensitivity of estimates of poverty trends to the poverty line chosen, and hence the importance of using more than one poverty line. Similarly, it is good practice to consider other poverty measures, apart from the headcount percentage, in order to determine whether observed trends are robust to the poverty measure chosen. Figure 7.3 shows the World Bank's estimates of the \$1- and \$2-a-day poverty-gap indices between 1981 and 2001. These measures also show a consistent downward trend, indicating that the depth of poverty in the world has fallen by about the same amount as the incidence of poverty.

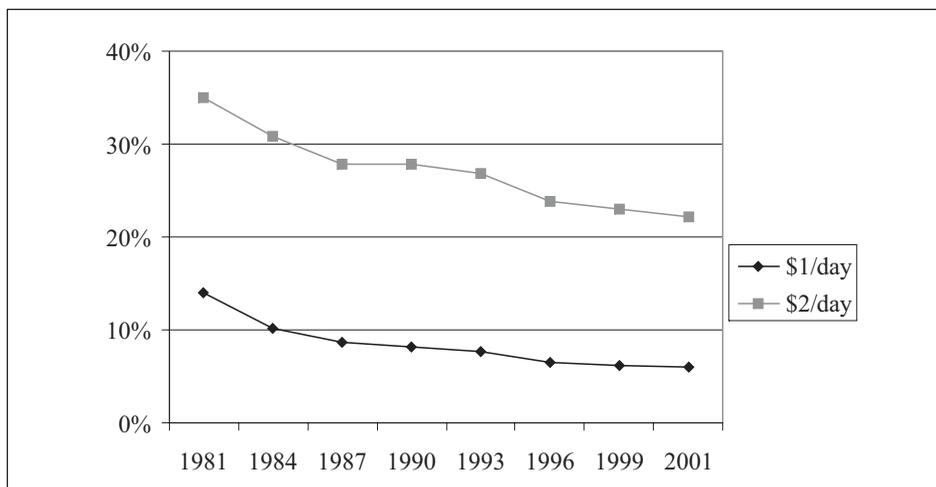
7.1.2 PROGRESS TOWARDS MILLENNIUM DEVELOPMENT GOALS

The latest World Bank estimates also indicate that the Millennium Development Goals poverty target (to “halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day”) will in all likelihood be achieved. By 2002 (slightly less than halfway through the measurement period) the proportion of people below the \$1-a-day line had fallen by just over 30% from its 1990 level of 28%. The World Bank (2005) forecasts that by 2015 the proportion of people living on less than \$1 a day will in fact have fallen to 10,2%—a 63% fall from the level in 1990.

Figure 7.2. Number of people living on less than \$1 a day and \$2 a day, between 1981 and 2001⁴



4 Ibid.

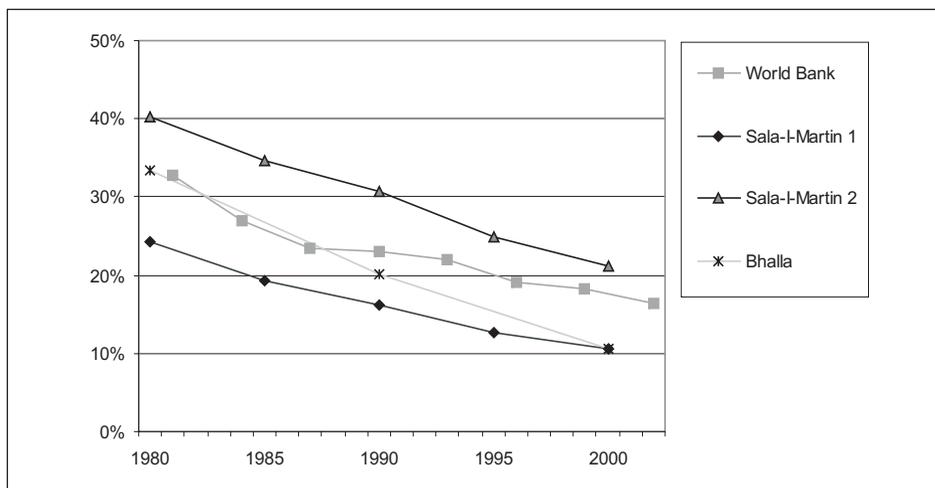
Figure 7.3. \$1- and \$2-a-day poverty-gap indices⁵

7.1.3 COMPARISON WITH OTHER PROMINENT ESTIMATES OF WORLD POVERTY

7.1.3.1 The calculation of poverty rates using a number of different methods is one way of trying to grasp the reliability and robustness of the estimates (especially estimates of trends, since one has to accept that estimates of poverty levels will always be, to a certain extent, arbitrary). This has its limitations, however, if the estimates are still calculated by the same researchers using the same data, as is the case for the World Bank numbers discussed above. Perhaps an even more useful way of trying to assess the robustness of the estimates is to compare them with results obtained by other researchers. This has the added advantage that different studies use datasets and methodologies that differ in many important respects.

7.1.3.2 Figure 7.4 compares the World Bank's estimate of the percentage of the world's population living in extreme poverty with the estimates contained in two other prominent recent studies (Sala-I-Martin, 2006 and Bhalla, 2003). In that figure, the World Bank and Bhalla estimates have been adjusted to show the percentage of the world population below the poverty line (rather than the developing world population only) to ensure consistency with the Sala-I-Martin estimates. The World Bank estimate is the percentage of the world population whose consumption is less than \$1–08 a day in 1993 prices; currencies are converted using World Bank consumption PPP rates and mean consumption is estimated from household surveys. The Sala-I-Martin estimate 1 is the percentage of world population whose income is less than \$2 a day in 1996 prices; currencies are converted using Penn World Table GDP PPP rates and mean income is estimated from national accounts. The Sala-I-Martin estimate 2 is the same as

⁵ Source: Chen & Ravallion (2004) Table 6

Figure 7.4. Prominent estimates of world poverty⁶

Sala-I-Martin 1, except that the poverty line is \$3 a day. The Bhalla estimate is the percentage of world population whose consumption is less than \$1–50 a day in 1993 prices; currencies are converted using World Bank GDP PPP rates and mean consumption is estimated from national accounts.

7.1.3.3 There are a number of differences between the three studies, which make it difficult to directly compare their estimates of poverty headcount percentages using a common poverty line. Some adjustments can be made to ensure greater comparability between the figures. For example, all the figures have been adjusted to represent the percentage of the whole world's population living in poverty, rather than developing-world population only (this is why the World Bank figures do not match those presented earlier).

7.1.3.4 It is more difficult to make allowances for other differences between the studies. For example, Bhalla and Sala-I-Martin both take mean consumption or income from national accounts, and only use surveys to estimate the distribution around the mean. The World Bank, on the other hand, uses surveys to estimate the entire distribution. A rough method of attempting to allow for this difference is to use a higher poverty line when the national-accounts mean is used (because surveys tend to underestimate the mean, and because national accounts consumption figures include items that are not consumed by households, as discussed in section 6). Bhalla uses a poverty line of \$1–50 a day, believing this to be roughly equivalent to the World Bank's \$1-a-day figures. Sala-I-Martin's figures need to be assessed against an even higher poverty line because his study estimates income (rather than consumption) poverty. Figure 7.4 shows Sala-I-Martin's estimates of

6 Sources: World Bank (2006), Bhalla (2002), Sala-I-Martin (2006)

the percentage of people below \$2 and \$3 a day in 1996 prices. The Bhalla and Sala-I-Martin studies confirm the World Bank finding of a significant and sustained fall in world poverty since 1980. The main difference is that their estimates (especially Bhalla's) show a faster fall since the late 1980s.

7.1.4 THE CHANGING REGIONAL BREAKDOWN OF WORLD POVERTY

7.1.4.1 So far, we have concentrated on the level and trend of poverty for the world as a whole. To gain a deeper understanding of world poverty, however, it is very instructive to look at the regional breakdown and how it has changed over time. The number and percentage of people below the \$1-a-day and \$2-a-day international poverty lines for each of the six developing country regions used by the World Bank highlight a number of salient facts about the regional breakdown of world poverty.

7.1.4.2 Perhaps most noteworthy are the differences between regions in the changes in poverty rates over the last few decades. Whereas East Asia succeeded in dramatically reducing its \$1-a-day poverty rate from 58% in 1981 to less than 12% in 2002, and South Asia from 52% to 31%, Latin America saw little change and the situation in Sub-Saharan Africa actually deteriorated from 42% to 44%. These differences mean that there has been a huge change in the geographical distribution of poverty in the world. It was largely concentrated in Asia in 1981, but has increasingly become an African phenomenon. As economist Sala-I-Martin (2006) says,

“The welfare implications of finding how to turn around the growth performance of Africa are so staggering that this has probably become the most important question in economics.”

Extreme poverty is well on the way to being eradicated for good in the populous countries of East Asia (note that East Asia has already achieved the Millennium Development Goal poverty target). These changes are reflected in Figure 7.5. At current rates of progress, East and South Asia are the only two regions that will meet the Millennium Development Goals target of halving extreme poverty by 2015.

7.1.5 WORLD POVERTY OVER THE VERY LONG RUN

7.1.5.1 Much current research on world poverty trends focuses on the last two or three decades, for the simple reason that it was only from this time onwards that a sufficient quantity of reliable data for poverty measurement became available. A study by two World Bank economists (Bourguignon & Morrisson, 2002) contains estimates of the trend in world poverty over the last two centuries. While the data for earlier periods is obviously very limited, and the authors had to make a number of quite heroic assumptions in order to take the analysis back to 1820, this is probably nevertheless the most authoritative study of world poverty with such a long term perspective.

7.1.5.2 Figure 7.6 illustrates the study's findings on world poverty over the period. That figure shows that there has been a steady long-term decline in the incidence of poverty in the world from 1820 (when it was the norm, affecting over 80% of the world's population) to the early 1990s. It is clear that progress temporarily halted around

Figure 7.5. Percentage of population living on less than \$1 a day (by region)⁷

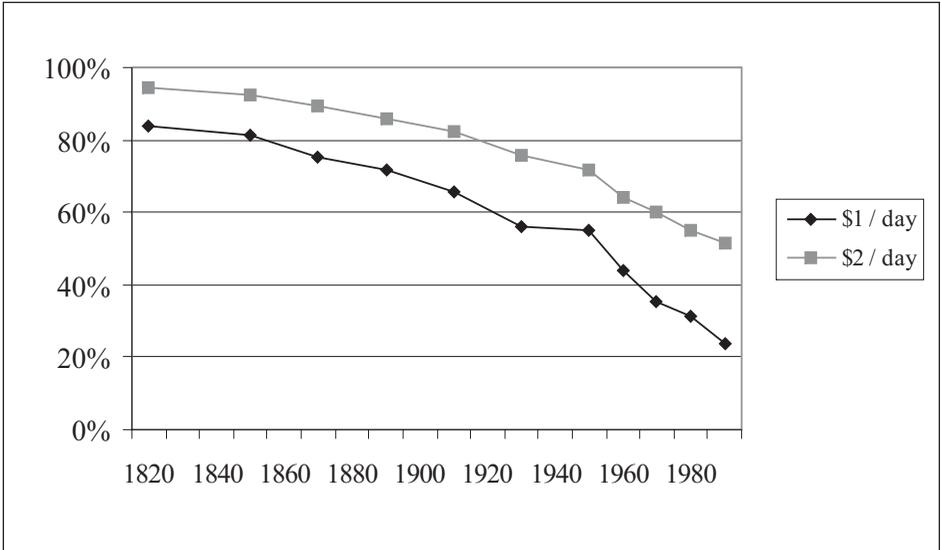
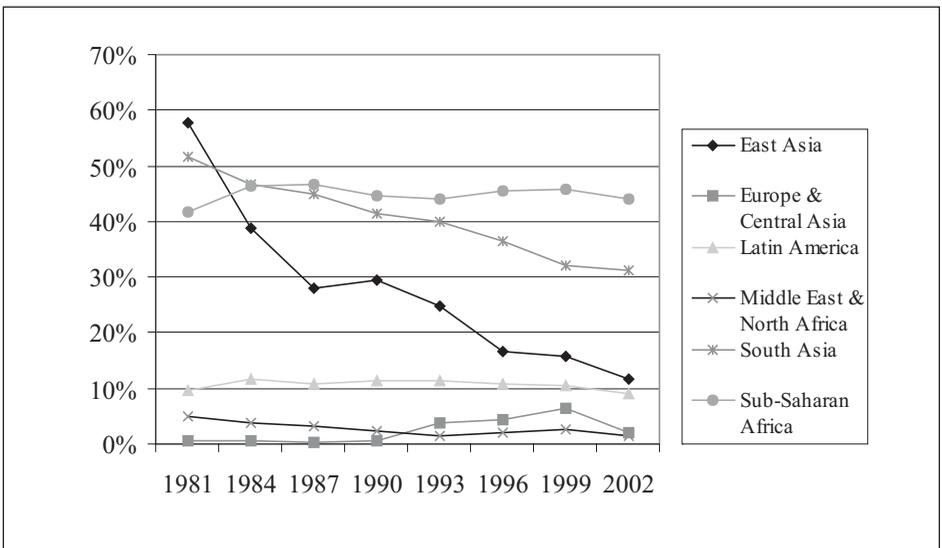


Figure 7.6. Percentage of people living on less than \$1 and \$2 a day (1985 PPP)⁸



7 Source: World Bank (2006) Table 2.7

8 Source: Bourguignon & Morrison (2002)

the time of the Great Depression and the Second World War, but accelerated considerably thereafter. This was arguably the period that saw the greatest historic reduction in the proportion of humankind living in poverty.

7.2 WORLD INEQUALITY

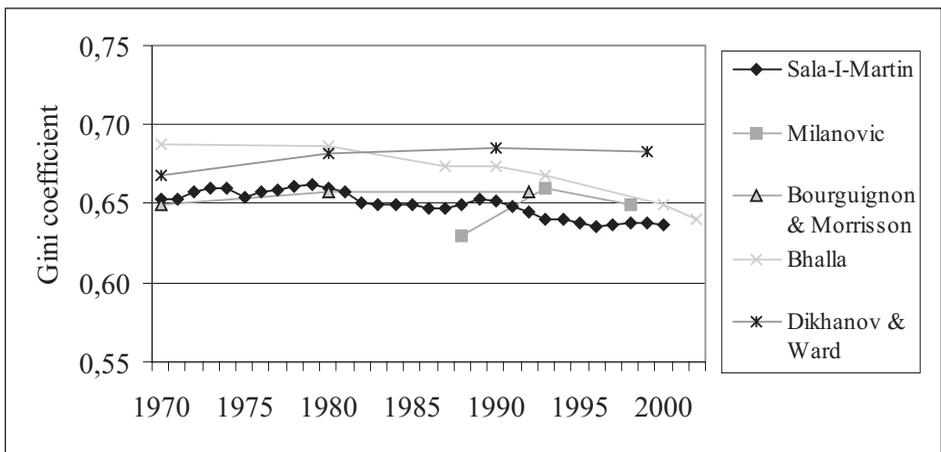
7.2.1 ESTIMATES OF WORLD INEQUALITY AMONG INDIVIDUALS

The World Bank does not publish regular estimates of world inequality, as it does for poverty. Figure 7.7 presents estimates of world inequality among individuals (i.e. Concept 3 inequality) since 1970, as measured by the Gini coefficient, according to five recent independent studies. There is a remarkable degree of consensus about the overall level of world inequality—the difference between the highest and lowest estimate of the Gini coefficient is not more than 5% at any time. It seems reasonable to conclude that about the turn of the century the world Gini coefficient was around 65%. This represents an exceptionally high level of inequality. It is higher than the level of inequality that exists within the most unequal countries of the world. It is difficult to interpret Gini coefficients intuitively, but the following examples give a rough idea: assuming a lognormal distribution of income, a Gini coefficient of 0,65 implies that the top 10% get about half of the total income while the bottom 10% get less than 1%. As can be seen from Figure 7.7, however, there is no consensus about the recent trend of world inequality.

7.2.2 DECOMPOSITION OF WORLD INEQUALITY AMONG INDIVIDUALS

7.2.2.1 World inequality among individuals is made up of population-weighted inequality between countries and inequality among individuals within each country.

Figure 7.7. Estimates of world inequality among individuals (Gini coefficient)⁹



9 Sources: Sala-I-Martin (2006); Milanovic (2005); Bourguignon & Morrisson (2002); Bhalla (2002); Dikhanov & Ward (unpublished)

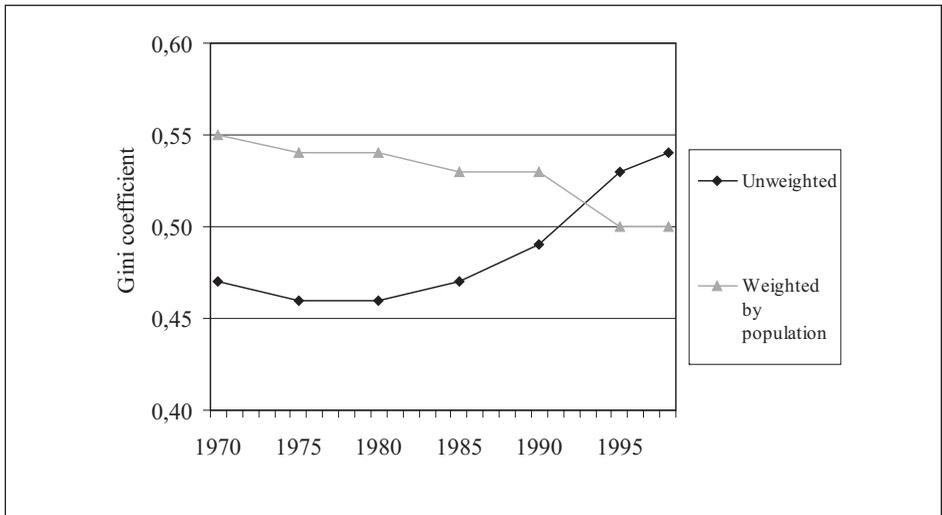
Figure 7.8 shows that unweighted (concept-1) inequality between countries has been increasing (i.e. the richest countries have been pulling away from the poorest), but when population weights are taken into account, (concept-2) inequality between countries has been decreasing. This has been caused by the rapid economic growth experienced by a number of poor countries that make up a significant proportion of the world’s population, notably China and India.

7.2.2.2 If world inequality between individuals has remained broadly unchanged (or at least shows no clear trend), and population-weighted inequality has unambiguously decreased, then inequality among individuals within countries must have increased, and the proportion of world inequality accounted for by within-country inequality must have increased. Figure 7.9 shows that this is indeed the case—a finding confirmed by all recent studies.

7.2.3 INEQUALITY WITHIN COUNTRIES AND REGIONS

Figure 7.10 presents estimates of the levels of inequality among individuals within major world regions. Africa has the highest level of inequality among individuals, followed by Latin America. Inequality is relatively low in South Asia and the high-income countries of the OECD. According to the latest World Bank estimates of within-country inequality (measured by the Gini coefficient), the countries of Southern Africa were found have the highest levels of inequality in the world (Namibia is the highest; Lesotho, Swaziland, Botswana and South Africa are all in the top 10).

Figure 7.8. Inter-country inequality (Gini coefficient)¹⁰



10 Source: Milanovic (2005)

Figure 7.9. Percentage of world inequality accounted for by inequality within countries (mean log deviation & Theil index)¹¹

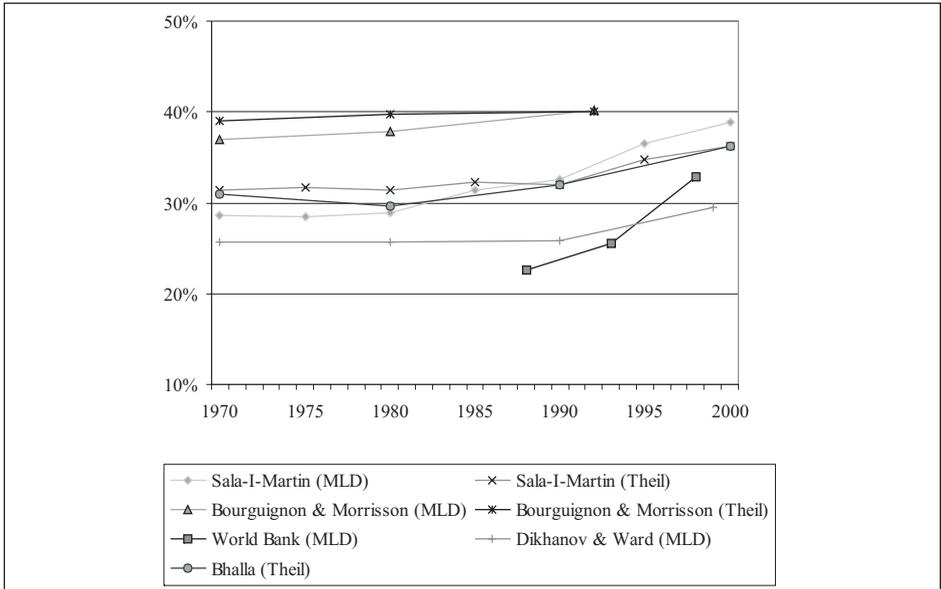
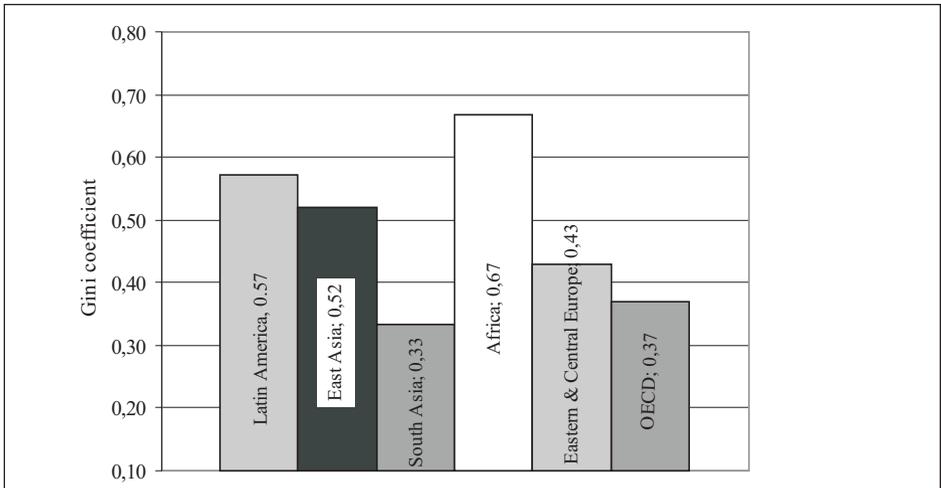


Figure 7.10. Inequality among individuals within regions in 2000 (Gini coefficient)¹²



11 Sources: Sala-I-Martin (2006); Bourguignon & Morriison (2002); World Bank (2005); Dikhanov & Ward (op. cit.); Bhalla (2002)

12 Dikhanov (unpublished)

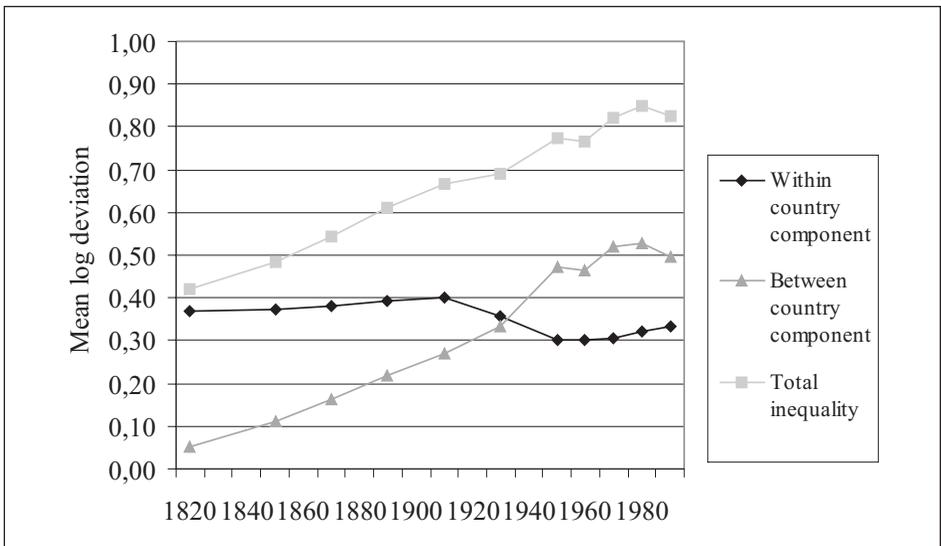
7.2.4 WORLD INEQUALITY OVER THE VERY LONG RUN

Figure 7.11 presents the inequality estimates contained in Bourguignon & Morrisson’s (2002) study of world poverty and inequality since 1820 (the poverty figures are discussed in section 7.1.5). World inequality has increased steadily over the past 200 years, reversing trend only in the last few decades. This increase has been almost entirely due to an increase in inequality between countries. As we have already seen, within-country inequality has remained at roughly the same level, decreasing somewhat between the world wars, and increasing over the last few decades. Two hundred years ago, almost all inequality among individuals was accounted for by within-country inequality. The rapid growth in between-country inequality means that it now accounts for a greater proportion of the total. In 1820 it mattered what class you were born into, not where you were born; in the modern world, where you are born is all-important.

8. ESTIMATES OF SOUTH AFRICAN POVERTY AND INEQUALITY

As outlined in the sections above, it takes a considered process to decide first on appropriate indicators of poverty and inequality and then to choose and quantify appropriate measures of these indicators. Data considerations add to the complexity of the process. This section of the paper considers this process as it applies specifically to South Africa.

Figure 7.11. Decomposition of world inequality among individuals (mean logarithmic deviation)¹³



13 Source: Bourguignon & Morrisson (2002)

8.1 DATASETS AVAILABLE TO MEASURE POVERTY IN SOUTH AFRICA

There are several datasets that are commonly used by researchers to measure poverty in South Africa. A brief description of each dataset, as well as any problems associated with the collection of the data, is given below. In most cases the data tend to be adjusted before they are used.

8.1.1 STATISTICS SOUTH AFRICA OCTOBER HOUSEHOLD SURVEYS (OHS)

These annual household surveys have been run since 1993 by Statistics South Africa (Stats SA). The survey collects a variety of household information, excluding income and expenditure data, and statistical data about individuals. However, the main aim of the surveys has been to collect the information required for labour-force statistics (May & Woolard, *op. cit.*). The October Household Survey (OHS) ran from 1994 to 1999. It was then replaced in 2000 by the Labour Force Survey (LFS) which focused on labour market information, and which is still run twice a year. In 2002, Stats SA reintroduced the OHS but changed the name to the General Household Survey (GHS). As, in addition to changing their names, the surveys were continually modified in the 1990s, any observed changes in the data could simply be driven by data dynamics (Roberts, 2004). This, together with some evidence of sloppy fieldwork, makes it difficult to use the data without appropriate adjustments (Simkins, unpublished).

8.1.2 1995 AND 2000 INCOME AND EXPENDITURE SURVEYS

8.1.2.1 In 1995 and 2000, Income and Expenditure Surveys (IESs) were run in conjunction with the 1995 OHS and September 2000 LFS, respectively. The intention in both years was to use exactly the same households for both surveys, so that variables from one survey could be merged with data from the other. 95% of the households in both surveys are the same.

8.1.2.2 The main purpose for collecting the information for the income and expenditure surveys was to compile a list of goods to use in a CPI basket. However, the quantity of goods included in the survey means that the data can be used to measure poverty and inequality (Woolard, *op. cit.*).

8.1.2.3 The main criticisms of the IESs have been around the sampling weights used. In general, before the datasets are used, they are adjusted by revised weights provided by Stats SA, using information from the population census (Hoogeveen & Özler, 2004). Alternative weights derived by Simkins and Woolard are also used, but these tend to undercount upper-income African households (Seekings, Leibbrandt & Natrass, 2004).

8.1.2.4 Despite these problems, the IESs combined with the Household Surveys provide the most comprehensive database of living conditions and poverty for South Africa to date. Almost all researchers, including the World Bank, use the data from these surveys. The 2005 IES is being performed as a one-year rolling survey, but the field work is not yet completed.

8.1.3 1996 AND 2001 POPULATION CENSUS

Population censuses were undertaken in 1996 and 2001. The main point of the exercise was to determine the population of South Africa, and not to measure levels of poverty and inequality. However, the census data are used to determine the weights to be used in many other surveys, including the IESs. The population censuses undertaken in 1996 and 2001 asked questions about income. However, the income information was incomplete. In order to use these data, income needs to be imputed to the missing households, e.g. old age income is imputed to households with zero reported income but old-age pensioners living in them (Simkins, op. cit.).

8.1.4 PROJECT FOR STATISTICS ON LIVING STANDARDS AND DEVELOPMENT SURVEY (1993)

8.1.4.1 The Project for Statistics on Living Standards and Development Survey (PSLSD) was undertaken in late 1993. Technical assistance was provided by the World Bank and the survey questionnaire loosely followed the Living Standards Measurement Survey questionnaires used by the World Bank in other countries (Woolard, op. cit.).

8.1.4.2 The aim of the survey sampling was to include all types of households and to approximate the racial and geographic breakdown of the nation, including the independent homelands. Some of the households originally chosen had to be replaced by other households as a result of their inaccessibility due to violence (Woolard, op. cit.).

8.1.4.3 Other than the IESs, this is the only other survey that is used by the World Bank when calculating country figures for South Africa.

8.1.5 ALL MEDIA AND PRODUCTS SURVEY

The All Media and Products Survey (AMPS) is a household survey conducted once or twice a year by the South African Advertising Research Foundation. It has been carried out since 1993 and its main objective is to collect information of use to advertisers. However, it also collects extensive demographic data including household income and these data can be used to look at changes in income distribution over time.

8.1.6 NATIONAL PANEL STUDY

In 2006, the Office of the Presidency commissioned a national panel study to be undertaken over the following three years. The initial survey will provide a baseline of poverty information as it will be a nationally representative household survey. After the baseline three-year period, some of the households will be regularly interviewed. This will provide the first truly comparable national study of changes in income and poverty over time.

8.2 ESTIMATES OF SOUTH AFRICAN POVERTY

8.2.1 POVERTY IN SOUTH AFRICA OVER THE LATE 1900S

8.2.1.1 A comprehensive attempt to trace the trends in South African poverty over the past few decades was carried out by Van der Berg & Louw (2003). They obtained their income-based poverty estimates by breaking down current income from

national-accounts data into three components, namely: remuneration, state transfers and income from property. As acknowledged by the researchers, some of the data used were far from perfect as the research involved the combination of datasets that had been obtained using differing methods and definitions. (Further discussion of this aspect may be found in their paper itself). However, as the income estimates agree with national accounts magnitudes, they have some legitimacy.

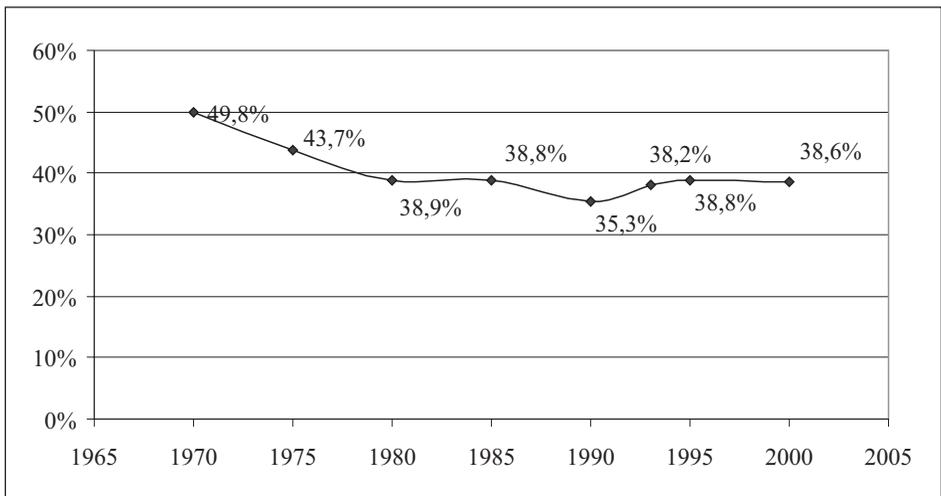
8.2.1.2 Figure 8.1 presents the results of their investigations for the headcount ratio over the period from 1970 to 2000. A decline over the entire period in the proportion of South Africans classified as poor is evident, although some of the decline over the 1970s and 1980s appears to have been reversed in the 1990s.

8.2.2 POVERTY IN SOUTH AFRICA IN THE LATE 1990S

8.2.2.1 Most of the poverty measurement research in South Africa has been conducted in respect of the second half of the 1990s. These estimates of poverty are mainly based on data from the following sources: IESs in 1995 and 2000, OHSs or GHSs and the LFS. Some of the work done has also used the other datasets described in 8.1 above, especially the census data in 1996 and 2001 (Fedderke, Manga & Pirouz, unpublished).

8.2.2.2 The most important factors in explaining the varying estimates of poverty over this period, even for a particular poverty line, are the manner in which all these datasets have been combined and the adjustments that have been made to the data (in an attempt to correct for the inherent data inadequacies).

Figure 8.1. Headcount ratio based on R3000 per capita per annum in 200 currency terms¹⁴

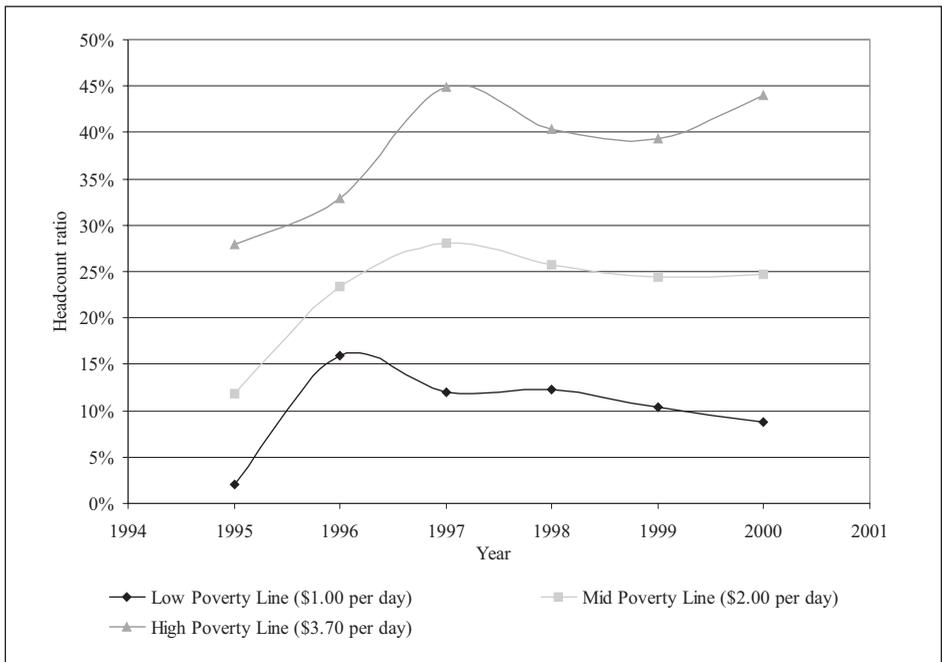


14 Source: Van der Berg & Louw (2003)

8.2.2.3 It is easier to find consensus in the trends of these poverty estimates over this period than it is to find consensus on the absolute extent of poverty implied by them at any particular time. In this regard, the estimates based on these data show (almost without exception) that poverty in South Africa (both absolute and relative) increased over the period from 1995 to 2000. Nevertheless, the extent of the increase has not been agreed and as the government has pointed out, these measures make no allowance for the improvement in provision to the poor of basic services such as health care, education, housing, water and electricity. Their pronouncements on poverty trends have increasingly sought to place the emphasis on these elements, rather than pure income and expenditure poverty measures.

8.2.2.4 Fedderke, Manga & Pirouz (op. cit.) conducted a study on the subject in 2003, using household survey information from the IES, OHS and LFS. They derived headcount ratio estimates for all the years from 1995 to 2000 inclusive, based on low, medium and high poverty lines. The low and medium poverty lines were equivalent to the \$1-a-day and \$2-a-day poverty lines. The high poverty line was based on a lower bound of ‘cost of basic needs’ approach to determining a poverty line, and is equivalent to a \$3–70 per day poverty line. Figure 8.2 shows the estimated trend in poverty for each of these levels over the period from 1995 to 2000.

Figure 8.2. Trend in headcount ratio from 1995 to 2000 for different poverty lines¹⁵



15 Source: Fedderke, Manga & Pirouz (op. cit.)

8.2.2.5 The shapes of the three curves suggest that most of the increase in poverty from 1995 to 2000 occurred in the years immediately after the first democratic elections. For the low and medium poverty lines, there appears to have been a levelling-off in the poverty rate towards the end of the millennium, while at the same time the poverty rate for the high poverty line appears to have been on the increase.

8.2.3 POVERTY IN SOUTH AFRICA SINCE THE TURN OF THE MILLENNIUM

8.2.3.1 There is much less literature available on the movement in poverty since the start of the millennium. In 2005, Van der Berg led a collaborative research effort that considered poverty in South Africa over this period (Van der Berg et al., 2005). As for Van der Berg & Louw's (2003) poverty research into trends since 1970, (see section 8.2.1), the methodology bases the mean income estimates on national-accounts data while using survey data to determine the distributions of income around this mean. A difference from the earlier work is that this study includes data from AMPS, which is conducted once or twice a year.

8.2.3.2 The results of this study suggest that the headcount ratio (based on R3 000 per capita per annum in 2000 currency terms, which is roughly equivalent to a \$3-a-day poverty line) dropped from 41,3% (18,5m people) in 2000 to 33,2% (15,4m people) in 2004. This decreasing trend was also tested for sensitivity to the chosen poverty line, using R500 increments from R2000 to R4000. The conclusion was that the trend was independent of the poverty line chosen.

8.2.3.3 The reduction is not just in the proportion of people classified as poor, but also in the actual numbers of poor people, and may be attributed to the slowing of population growth in South Africa. Further results from this study suggest that the poverty-gap ratio (for the poverty line of R3000 per capita per annum) has also declined over the same period from 0,23 to 0,17. These trends in estimated poverty levels are attributed to the dramatic increase in social spending by the government via its social grant payment bill (an increase of some R22 billion over the period in 2000 currency terms).

8.2.3.4 Van der Berg et al. (op. cit.) argue that these trend results are more credible than those from other studies. This is because there are more time points and hence the results are less dependent on values at just the start and end of the periods under consideration. They do, however, state that they may be at risk of overestimating the poverty reduction over this recent period. They further state that more rapid job creation is required to fight poverty further, since the effect of the revamped social grant system will have mostly run its course.

8.2.3.5 While the results produced by Van der Berg et al. (op. cit.) have been widely accepted in government circles as showing the success of its various poverty alleviation measures, the accuracy of the results has been questioned by several academics. In particular, Meth (2006) questions the way in which Van der Berg et al. adjusted for under-reporting in the AMPS surveys. Meth also questions the way in which Van der Berg et al. allocated all disability grant payments to the lowest income grouping.

8.2.3.6 In Meth's (op. cit.) opinion it is more likely that the headcount ratio was closer to 38% of the population being below the R3000 per capita per annum poverty line in 2004, i.e. that Van der Berg et al. (op. cit.) did indeed overestimate poverty reduction over this period.

8.3 INEQUALITY IN SOUTH AFRICA

8.3.1 Published inequality statistics are not always consistent with one another, even when they are a measure covering the same year and based on the same data. This is as a result of various measurement and data issues. For this reason, there does not appear to be a narrow consensus on the extent of income inequality in South Africa. For example, Gini coefficients for 1995 based on IES data vary from 0,59 to 0,73 (May, op. cit.). Despite this, there is very little debate on the relative severity of the inequality. South Africa is consistently placed in the top range of the most unequal countries in the world, irrespective of the measure used and the data on which it is based.

8.3.2 The main sources of data used for calculation of inequality statistics for South Africa are the two IESs and the national census data. As the measures derived from these surveys ignore (non-income) social transfers e.g. housing provision and electrification, the measures are considered by some commentators to show higher inequality than the real picture.

Table 8.1. Gini coefficients for South Africa with and without social transfers¹⁶

Source	Year	Gini excl. social transfers	Gini incl. social transfers
Van der Berg & Burger (unpublished)	1995	0,68	0,44
StatsSA	2002	0,59	0,35

8.3.3 The two sets of data used in the above estimates of the Gini coefficient for 1995 and 2002 respectively are not directly comparable, as the method of calculation and base data are not identical. However, they do illustrate the marked impact that social transfers in South Africa have on income inequality.

8.3.4 To give some perspective to the Gini coefficient of 0,59 shown in Table 8.1, the data that it is based on yield the following statistics: the lowest quintile (20%) of SA households shared 2,8% of the total national income, while the highest quintile (20%) shared 64,5%.

8.3.5 It is important to note that these South African inequality figures including the effect of social transfers are not directly comparable with data from other countries. Without similar methodologies for the measurement of inequalities in the other countries, it is difficult to say if these levels of social transfer contribute to a decrease in the inequality in South Africa relative to that in the rest of the world or not.

16 Based on Statistics SA (unpublished). A poverty profile of SA, 2005

8.3.6 While inequality between race groups is still very high, it has been declining of late, while inequality within race groups has been increasing. (Seekings, Leibbrandt & Nattrass, 2004)

8.4 POVERTY AND INEQUALITY IN SOUTH AFRICA – A MONEY-BASED COMPOSITE INDEX

8.4.1 The Sen Index (detailed in section 3.3.3) is an often-used composite index, which illustrates the degree of inequality among the poor themselves. Table 8.2, taken from the Development Bank of Southern Africa’s 2005 Development Report, shows a comparison of the Sen Index with the headcount index and the poverty gap. They are based on a poverty line that is the Household Subsistence Level (HSL). Each year the University of Port Elizabeth estimates the HSL: what an average family of five needs to “maintain a defined minimum level of health and decency in the short term.” This poverty line is roughly equivalent to \$4–70 a day in 2000.

Table 8.2. Different poverty measures based on the HSL poverty line in 1995 & 2000¹⁷

	1995	2000
Headcount Index	0,32	0,49
Poverty Gap	0,12	0,22
Sen Index	0,24	0,39

8.4.2 As explained above, the Sen Index is the average of the headcount and the income-gap measures weighted by the Gini coefficient of the poor in South Africa. Table 8.2 illustrates that, as the Sen Index in both years (1995 and 2000) is closer to the headcount index, there is considerable inequality among the poor in South Africa (at least as defined by the HSL). In fact, as the Sen Index has moved relatively closer to the headcount index in 2000, this suggests that the inequality among the poor in South Africa increased over this period.

8.5 POVERTY AND INEQUALITY IN SOUTH AFRICA: A COMPOSITE INDEX INCLUDING NON-MONEY-BASED ELEMENTS

The HDI (detailed in section 3.3.3) combines measures of life expectancy, school enrolment, literacy and income to give a more comprehensive view of a country’s development than purely income-based measures. Thus, while South Africa was ranked 52nd in the world in terms of GDP per capita in 2003 alone, it was ranked 120th out of 177 countries when the measures for life expectancy and education were included in the assessment. This was mainly driven by its rank of 150 out of 177 countries for life expectancy at birth (48,4 years) in 2003, which in turn is probably mostly explained by

17 Source: May & Woolard (unpublished)

the AIDS pandemic in South Africa. Overall, South Africa has fallen in rank from 93rd in 1992.

8.6 POVERTY AND INEQUALITY IN SOUTH AFRICA: SOME NON-MONEY-BASED MEASURES

8.6.1 As mentioned above, a more holistic and nuanced picture of poverty and inequality emerges when one considers aspects of deprivation other than those that are directly related to income. The findings from the work of Leibbrandt et al in 2005 about the changes in access poverty and inequality in South Africa from 1996 to 2001 are therefore summarised below in Table 8.3.

Table 8.3. Changes in access poverty in South Africa from 1996 & 2001

Percentage of people who:	1996	2001
lived in formal dwelling	65,2%	67,6%
had access to piped water	80,0%	82,2%
used electricity for lighting	57,7%	69,5%
used electricity for cooking	47,2%	50,6%
had access to a flush or chemical toilet	50,3%	53,4%
had access to regular refuse removal	51,3%	54,2%

8.6.2 When considering these improvements by quintile, evidence suggests that the poorest quintile is experiencing the greatest gains. This is in contrast with the evidence for an increase in poverty (as measured by income) over a similar period (see section 8.2).

9. CONCLUSION AND SUMMARY

9.1 Poverty and inequality are multifaceted and complex concepts. It is therefore important that any discussion or analysis clearly identifies the precise concept or measure of poverty or inequality being referred to. It is also usually desirable to use a number of different measures so that the conclusions drawn are not unduly influenced by the characteristics of the particular measure chosen. Poverty measures, in particular, can be sensitive to the level of the poverty line (which is often essentially arbitrary), so it is good practice to test the robustness of the result to the poverty line chosen. A sophisticated theory exists on the desirable features of a poverty or inequality index, and only a limited number of measures possess all these features. In practice, however, these measures are seldom used. The most commonly used measures are the headcount index for poverty and the Gini coefficient for inequality.

9.2 Apart from the measure, a number of other factors can affect the reported poverty or inequality estimates. The underlying data for calculating the measures are clearly of

critical importance. Almost all estimates of poverty or inequality are based on household survey data of some sort. The quality of this data is highly variable, both across countries and over time (although the situation has improved dramatically in recent decades). Some researchers adjust survey data to tie up with aggregates in national accounts, while others do not. There are also a number of additional factors that can influence estimates of poverty and inequality at world level, such as whether PPP or market exchange rates are used or whether individuals or countries are used as the unit of analysis.

9.3 Recent research suggests that about one fifth of the world's population—more than a billion people—live in extreme poverty on less than \$1 a day. Half of all the people in the world live on less than \$2 a day. However, the proportion of the world's population living in poverty has almost certainly fallen quite significantly over the last few decades. It is possible that the proportion of the world's population living in extreme poverty has halved since 1980, and the Millennium Development Goal of halving world poverty between 1990 and 2015 looks well on the way to being met. These recent falls in the proportion of the world's population living in poverty represent a continuation of a long-term trend that started around the time of the industrial revolution. Only in recent decades, however, has the fall in percentage of people living in poverty been fast enough to offset population growth—resulting in a likely fall in the actual number of people living in extreme poverty.

9.4 The key driver of the fall in world poverty in recent decades has been the rapid economic growth experienced by a number of large Asian countries, particularly China. Apart from driving the overall figures, this growth has caused a dramatic change in the regional breakdown of world poverty. A few decades ago, world poverty was concentrated in Asia. However, the spectacular success of Asia in reducing its poverty rates, coupled with stagnation in Africa, means that extreme poverty is increasingly becoming an African phenomenon. The depth of poverty in Africa is such that it is probable that, in a few years' time, the continent will have an almost complete monopoly on extreme poverty in the world.

9.5 The rise of Asia, particularly China, and the stagnation of Africa are also the key factors explaining recent trends in world income inequality. While differences between the average incomes of the poorest and richest countries continue to grow, population-weighted income inequality between countries has been declining in recent decades. Inequality within countries, however, has generally been rising. The net result is that overall inequality between all the individuals of the world shows no conclusive trend. In contrast to poverty, these recent trends in world inequality represent a departure from the trend of the last 200 years, resulting in rapidly rising inequality between individuals, driven by huge increases in (both weighted and unweighted) inequality between countries. The product of this long-term trend is today's highly unequal world—world inequality among individuals is even higher than the inequality that exists within famously unequal societies such as Brazil and South Africa. The highest levels of

inequality in the world are to be found in Latin America and Africa, particularly Southern Africa.

9.6 The situation in South Africa is somewhat confused, with a number of contradictory estimates of the levels and trends of poverty and inequality. One of the reasons for this is that there is no official national poverty line. Different researchers have tended to use different lines, resulting in a wide range of reported figures for the percentage of people living in poverty. Perhaps more importantly, poverty measurement in South Africa is held back by the relatively poor quality of the data available from income and expenditure surveys. Data quality problems and inconsistencies between surveys lead to divergent poverty estimates as different researchers try to get around the problems in different ways. Inconsistencies in survey design over time have caused particular problems for researchers trying to establish the poverty trends. Until these data problems are resolved, uncertainty about whether poverty in South Africa is getting better or worse will remain.

9.7 Most recent attempts to analyse South African poverty and inequality trends have focused on the period between 1995 and 2000, and almost all studies have found that income and expenditure poverty worsened over this period, and inequality widened. Government has however pointed out that these measures make no allowance for the improvement in provision to the poor of basic services such as health care, education, housing, water and electricity. Their pronouncements on poverty trends have increasingly sought to place the emphasis on these elements, rather than pure income and expenditure poverty measures. The limited research that has so far been done on the post-2000 period suggests that poverty rates have started to decline, probably because of the wide expansion in cash grants from government. Appendix A shows a table of the poverty measures for South Africa at different points in times using some of the different poverty measures mentioned in this paper.

9.8 One fact that is uncontroversial is that inequality is extraordinarily high. South Africa's Gini coefficient is almost certainly amongst the highest in the world (not the highest though, as is commonly reported). A consequence of this high inequality is that South Africa has higher poverty rates than many other countries with comparable average income levels.

REFERENCES

- Alcock, P (1997). *Understanding Poverty*. 2nd edn. Trans-Atlantic Publications
- Bhalla, S (2003). *Imagine there's No country: Poverty, Inequality and Growth in the era of Globalization*. Penguin, New Delhi
- Baulch, B & Massett, E (2002). Do monetary and non-monetary indicators tell the same story about chronic poverty? A study of Vietnam in the 1990s. *World Development* 31 (3), 441–53
- Bhorat, H, Poswell, L & Naidoo, P (2004). Dimensions of Poverty in Post-Apartheid South Africa 1996–2001. A Poverty Status Report, Development Policy Research Unit, University of Cape Town
- Bigsten, A & Levin, J (2000). *Growth, Inequality, and Poverty – Prospects for Pro-Poor Economic Development*. Oxford University Press, Oxford
- Boltvinik, J (unpublished). Poverty Measurement Methods – An Overview. Unpublished article, United Nations Development Programme. www.undp.org/poverty/publications/pov_red/Poverty_Measurement_Methods.pdf, 2006
- Bourguignon, F & Morrisson, C (2002). Inequality among world citizens 1820–1992. *American Economic Review* 92, 727–44
- Carter, M & May, J (2001). One kind of poverty: poverty dynamics in post-apartheid South Africa. *World Development* 29 (12), 1987–2006
- Chen, S & Ravallion, M (2004). How have the world's poorest fared since the early 1980s? *The World Bank Research Observer* 19 (2), 141–69
- Citro, CF & Michael, RT (1995). *Measuring Poverty: A New Approach*. National Academies Press, Washington, D.C.
- Deaton, A (2004). Measuring poverty in a growing world (or measuring growth in a poor world). *The Review of Economics and Statistics* 87 (1), 1–19
- Dikhanov, Y (unpublished). Trends in global income distribution 1970–2000, and scenarios for 2015. Unpublished occasional paper, UNDP Human Development Report Office
- Dikhanov, Y & Ward, M (unpublished). Evolution of the global distribution of income 1970–99. Unpublished paper presented at 5th Conference on Globalisation Growth and (In)equality held in Warwick, England, March 15–17, 2002, www.eclac.cl/povertystatistics/documentos/dikhanov.pdf, 2006
- Fedderke, J, Manga, J & Pirouz, F (unpublished). Challenging Cassandra: household and per capita household income distribution in the October Household Surveys 1995–1999, Income and Expenditure Surveys 1995 & 2000, and the Labour Force Survey 2000. Unpublished mimeograph, University of the Witwatersrand, 2003
- Hoogeveen, JG & Özler, B (2004). Not Separate, Not Equal – Poverty and Inequality in Post-Apartheid South Africa. William Davidson Institute Working Paper No 739. Ann Arbor, University of Michigan
- Human Sciences Research Council (unpublished). Poverty in South Africa: HSRC Fact Sheet. Human Sciences Research Council, 2004, www.sarpn.org.za/documents/d0000990/index.php, 2006
- Leibbrandt, M, Poswell, L, Naidoo, P, Welch, M & Woolard, I (2005). Measuring Recent Changes in South African Inequality and Poverty using 1996 and 2001 Census Data. Centre for Social Science Research Working Paper No 84. Cape Town, University of Cape Town
- Litchfield, J (unpublished). Inequality: Methods and Tools. World Bank, 1999

- Lok-Desallien, R (unpublished). Review of Poverty Concepts and Indicators. United Nations Development Program, 1999, www.undp.org/poverty/publications/pov_red/Review_of_Poverty_Concepts.pdf, 2006
- May, J (ed.) (unpublished). The Poverty and Inequality Report in South Africa. Unpublished report prepared for the Office of the Executive Deputy President and the Inter-Ministerial Committee for Poverty and Inequality, 1999 <http://www.polity.org.za/html/govdocs/reports/poverty.html>, 2006
- May, J & Woolard, I (unpublished). The State of Underdevelopment in South Africa, 1995–2005. Unpublished paper prepared for the Development Bank of Southern Africa, School of Development Studies, University of KwaZulu-Natal, 2005
- Meth, C (2006). What was the poverty headcount in 2004 and how does it compare to recent estimates by van der Berg et al? South African Labour and Development Research Unit Working Paper, University of Cape Town. Hard copies are available; website: www.saldru.uct.ac.za/saldru_pubs.html
- Milanovic, B (2005). *Worlds Apart: Measuring International and Global Inequality*. Princeton University Press, New Jersey
- Pearsall, J (1999), Editor, *Concise Oxford Dictionary*. 10th edn., Oxford University Press, Oxford
- Profile Books (2006). The Economist Pocket World in Figures, 2006 Edition, London
- Ravallion, M (1992). *Poverty Comparisons: a Guide to Concepts and Methods Living Standards*. World Bank, Washington, D.C.; cited in Woolard & Leibbrandt, 1999
- Ravallion, M (2003). The debate on globalisation, poverty and inequality: why measurement matters. *International Affairs* 79 (4), 739–753
- Roberts, B (2004). Empty Stomachs, empty pockets: poverty and inequality in post-apartheid South Africa. In J. Daniel, R. Southall & J. Lutchman (eds). *State of the nation: South Africa 2004–2005*. HSRC Press, Cape Town
- Sala-I-Martin, X (2006). The world distribution of income: falling poverty and...convergence, period. *The Quarterly Journal of Economics* 121 (2), 351–397
- Samson, S, Babson, O, Haarman, C, Haarman, D, Khathi, G, Quene, KM & Van Niekerk, I (unpublished). Impact of the social security system on poverty in South Africa. Unpublished research paper, Economic Policy Research Institute, www.epri.org.za/rp19.htm, 2006
- Seekings, J, Leibbrandt, M & Nattrass, N (2004). Income Inequality after Apartheid. Centre for Social Research Working Paper 04/75, University of Cape Town, Cape Town
- Hard copies are available; website: www.cssr.uct.ac.za/wp75.html
- Sen, A (1976). Poverty: an ordinal approach to measurement. *Econometrica* 44 (2), 219–31
- Sen, A (1983), 'Poor, Relatively Speaking,' Oxford Economic Papers, No. 37, 669–76. Reproduced in Sen, Amartya K. 1984, 325–345
- Simkins, C (unpublished). What happened to the distribution of income in SA between 1995 & 2002? Unpublished paper, University of the Witwatersrand, 2005 www.polity.org.za/pdf/DistributionOfIncome95-2001.pdf, 2006
- Statistics South Africa and the Presidency (2005). SA Millennium Development Goals Country Report 2005
- Van der Berg, S & Louw, M (2003). Changing patterns of South African income distribution: towards time series estimates of distribution and poverty. *South African Journal of Economics* 72 (3), 546–72

- Van der Berg, S & Burger, R (unpublished). The stories behind the numbers: an investigation of efforts to deliver services to the South African poor. Unpublished report prepared for the World Bank, University of Stellenbosch, Stellenbosch, 2002 www.sarpn.org.za/documents/d0000846/P913_Stories-behind-numbers_vdBerg_Nov2002.pdf, 2006
- Van der Berg, S, Burger, R, Burger, R, Louw, M & Yu, D (2005). Trends in poverty and inequality since the political transition. Stellenbosch Economic Working Papers, No. 1/2005, University of Stellenbosch, Stellenbosch
- Vella, V & Vichi, M (1997). Identification of Standards of Living and Poverty in South Africa. World Bank and University of Chieti, World Bank Development Sources
- Woolard, I & Leibbrandt, M (1999). Measuring Poverty in South Africa. Development Policy Research Unit (DPRU) Working Paper 99/33, University of Cape Town, Cape Town
- Woolard, I (unpublished). Income Inequality & Poverty: Methods of Estimation and Some Policy Applications for South Africa. Unpublished PhD thesis, University of Cape Town.
- Woolard, I (2002). An Overview of Poverty and Inequality in South Africa. Working Paper prepared for DFID (SA), 2002
- World Bank (2005). *World Development Report 2006: Equity and Development*. World Bank
- World Bank (2006). *World development indicators 2006*. World Bank

APPENDIX A

POVERTY ESTIMATES IN SOUTH AFRICA

Table A1 shows estimates of poverty in South Africa during the period from 1993 to 2004.

Poverty Measure	Effective Date	Poverty Estimate	Comment	Reference
headcount index (HSL)	1995	32%	IES 1995 data reweighted by Simkins.	May & Woolard, (unpublished)
	2000	49%	IES 2000 data cleaned by Global Insight and Woolard and reweighted by Simkins.	
headcount index (\$2 a day)	2000	34,4%	Based on StatsSA and the Presidency (2005) using the 1995 and 2000 IES, the 1995 OHS and the September 2000 LFS. PPP equivalents in 2000 prices (US\$, and rands). The target is to halve this by 2015.	StatsSA and the Presidency (2005)
	2000	22,7%	40,9% of people, if based on pre-2000 World Bank revision of rand PPP calculation.	Woolard (2002)
headcount index (\$1 a day)	1993	12%	Calculated in terms of per capita or per adult equivalent scales with allowance for economies of scale.	May & Woolard (op. cit.)
	2000	19,8%		
	1995	7,7%	Actually stated as more than one in ten individuals.	Hoogeveen & Özler (2004)
	2000	10%		
	2000	6,2%		18,2% people, if based on pre-2000 World Bank revision of Rand PPP calculation.
	2000	11,3%	Target of 5,7% by 2015.	StatsSA and the Presidency (2005)
unknown	1997	13,9m people	Based on the October Household Survey (OHS) and the General Household Survey (GHS) expenditure data.	May & Woolard (op. cit.)
	2002	17,4m people		

headcount index (R800 per month in 1999 rands)	2000	37%		Woolard (op. cit.)
headcount index (R1000 per month in 2002 rands)	2000	55%		Woolard (op. cit.)
headcount index (R3000 per capita per annum in 2000 terms)	1970	49,8% 11,3m people	See section 8.2.1 for a more detailed description.	Van der Berg & Louw (2003)
	1980	38,9% 11,4m people		
	1990	35,3% 13,3m people		
	2000	38,6% 17,2m people		
	1993	40,6% 16,2m people	See section 8.2.3 for a more detailed description.	Van der Berg et al., (2005)
	2000	41,3% 18,5m people		
	2004	33,2% 15,4m people		
relative poverty level of 40% of population (~19m people)	1998	Implied poverty line of R353 p.m.	Per adult equivalent. Based on 1995 IES.	May (unpublished)
poverty gap (based on 40% relative poverty line)	1995	R28bn		
poverty gap (R323–R587 pp per month)	1996	R56bn	Based on a poverty line that varies by household size e.g. R323 for a 4-member household and R587 for a 1-member household.	Human Sciences Research Council (unpublished)
poverty gap (R323–R587 pp per month)	2001	R81bn	Based on a poverty line that varies per household size e.g. R323 for a 4-member household and R587 for a 1-member household	