

Measuring poverty in South Africa

Methodological report on the development
of the poverty lines for statistical reporting



Technical Report

D0300

November 2008



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Foreword

This report presents the work of Statistics South Africa on piloting a monetary poverty measure in the form of poverty lines. The approach followed is that of absolute poverty measurement. In view of the multi-dimensionality of poverty, statistical agencies make deliberate choices to use one or other method. Generally, statistical agencies that attempt to measure poverty predominantly use money-metric measures because of their well-developed methodologies.

This work represents another step in creating an informed society. The development of these poverty lines will enable stakeholders and policy partners to focus on the dynamics of the poverty profile and to guide discussion and debates informed by a standard poverty measure. The poverty lines presented here, will be piloted in the period leading to 2014, when another review will be undertaken. During this period, Statistics South Africa will continue to engage with stakeholders on broader poverty measurement in various fora. Although, this is a technical report, it has been written with a lay audience in mind to ensure better accessibility. Further reports in the series “Measuring Poverty in South Africa” will present additional details on the subject-matter. We welcome comments and suggestions on this discussions on our website at www.statssa.gov.za.

We want to thank all participants in the various fora where preliminary reports were presented, including NEDLAC partners.

P J Lehohla
Statistician General

1. Introduction

Poverty alleviation and the elimination of inequalities created during apartheid lie at the centre of development policy in post-apartheid South Africa. This commitment is reflected in the various anti-poverty policies and programs developed, and implemented to meet the objectives of the Reconstruction and Development Program (RDP) of 1994. Under the RDP umbrella, poverty alleviation was addressed from a multi-dimensional perspective. This is in keeping with the understanding that poverty is multi-dimensional and, that those living in poverty are vulnerable to deprivation in several dimensions.

Since 2004, government has indicated its intention to establish a poverty line as the basis for presenting indicators of poverty in monetary dimensions (Government Programme of Action 2004, Budget Speeches 2005–2008). This technical report presents the methodology followed to develop a set of three pilot poverty to be used by Statistics South Africa (Stats SA) in reporting monetary poverty statistics. A poverty line is a monetary cut-off point below which a person is deemed to be poor. These pilot poverty lines are designed to assist the reporting of statistical information on poverty levels and poverty profiles for analytical work in a pilot phase leading up to 2014. As South Africa moves towards an integrated anti-poverty strategy, such statistics are required to understand the poverty situation and to assess progress in addressing monetary poverty.

In support of anti-poverty strategies, a poverty line measure provides statistical standards and a systematic approach to reporting monetary poverty indicators. These include indicators of poverty levels (e.g., the headcount index, poverty depth) and inequality indicators (e.g., decile shares, the Gini coefficient). When combined with non-monetary information on households and individuals (e.g., access to basic services, educational attainment), it is possible to obtain statistical profiles of non-monetary indicators for various poverty groups – the poverty matrix is one such example.

The pilot poverty lines (PPL) presented in this report are designed for use alongside existing administrative poverty measures implemented by government departments and other public sector agencies. These include social grants, means-tested financial assistance, and access to no-fee government services. It is also important to emphasise that the PPL do not replace or affect existing criteria for other poverty alleviation programmes, nor can they be used to determine wages or remuneration of any kind. The primary purpose of the PPL is to report statistics on poverty levels and profiles. This purpose is dictated by the methodology followed in their construction, and by the limitations imposed by the household expenditure they are based on.

Structure of the report

The report consists of 5 sections. The Section 2 presents the context for the poverty line approach. Data sources and a methods overview are discussed in Section 3, and the detailed process for constructing the PPL is presented in Section 4. Section 5 concludes.

2. Overview of the poverty line approach

2.1 Background

Poverty is an important, universal human problem. This is evident from its position on the world development agenda (for instance, the Millennium Development Goals). To ensure credible, effective action in addressing poverty and inequality, information on the poverty situation is required on a regular basis. Information of this type is key to the policy development cycle when evidence-based decision-making is practised in setting poverty reduction strategies (see Box 1).

Box 1: The role of statistics in evidence-based policy-making

What is evidence-based policy-making?

Evidence-based policy-making exists when policy decisions are based on careful and rigorous analysis using sound and transparent data.

In recent years, the international community has focused increasingly on monitoring and evaluation as the areas where statistics should be used in support of policy-making. However, policy outcomes are crucially affected by the use of statistics and statistical procedures in 'upstream' stages of policy-making, such as issue recognition, programme design, policy choice and accurate forecasting – as well as monitoring and evaluation.

Sound and transparent statistics are essential for effective policy-making – a necessary part of the enabling environment for improving development outcomes. There is rarely a simple link between statistics and the adoption of a particular policy. Policy-makers often draw different policy conclusions from the same set of data, owing to differences in the type of analysis undertaken and /or to difference in value judgments about policy objectives.

Why is evidence-based policy-making desirable?

Evidence-based policy-making is the only way of taking public policy decisions which are fully consistent with a democratic political process characterized by transparency and accountability.

Source: Chris Scott (2005)

2.2 Determining poverty status

In a typical evidence-based policy planning cycle, various types of information are used to support all phases: diagnostics; design and development of interventions; implementation and monitoring of policies and programmes; and evaluation processes. Therefore, to monitor and evaluate the collective impact of all poverty and inequality reduction programmes, it is necessary to capture changes in the circumstances of potential beneficiaries – both the general population and groups that known to be deprived. This can be achieved by monitoring the poverty status of individuals, vulnerable groups, communities and society as a whole.

Central to determining poverty status is the identification question. Ravallion (1994: 3) illustrates the point:

How do we assess ‘economic well-being’? At what point do we say that a person is not poor? And: How do we aggregate this information into a measure of poverty? The first two questions are sometimes referred to as the ‘identification problem’ (which individuals are poor, and how poor are they?) while the third is called the ‘aggregation problem’ (how much poverty is there?).

The identification question is the basis for numerous debates. This is not surprising, given the multiplicity of poverty dimensions. For instance, how do we identify the poor: is it by lack of resources; or by lack of capabilities; or by hunger; or by the absence of basic services; or by deprivation of human rights; or by individual perception of poverty status? The wide range of possible answers to this question translates into different approaches to poverty measurement. The different approaches to poverty concepts and definitions are well established in the literature and their discussion is beyond the scope of this report. Suffice to say that with so many approaches to poverty measurement, the identification of the poor tends to differ by approach, because different approaches capture different aspects of poverty. There are numerous contestations around what dimensions of poverty to measure and equally (potentially) polarizing debate regarding measurement techniques, ranging from objective to subjective considerations and their application to quantitative or qualitative approaches (Ravallion, 2001). As various researchers have noted: all

approaches are equally useful, but depending on the research situation, some may work better than others (Babbie, 2008; Bausch, 1996; Shaffer, 1996).

For evidence-based decisions in public policy, this kind of imprecision (in establishing poverty status) is useful for some scenarios but not in others. There are clear advantages to obtaining definitions that identify different kinds of poverty status when planning service delivery and targeted interventions. A broad range of definitions ensures a comprehensive diagnosis of the poverty situation. However, to assess overall progress in achieving the goal of poverty reduction (in, say, a particular dimension), explicit poverty status is required.

A further consideration for pro-poor planning is that regardless of the approach followed, reactions will vary depending on the impact on interest groups – implementing agencies, potential beneficiaries and lobby groups. Therefore, to ensure accountability and transparency, decisions on poverty measurement must be anchored in the relevancy of approaches to the purpose of measurement. As argued by Woolard and Leibbrandt (2006: 18): “A poverty line will always be an imperfect construct, but for purposes of analysis one frequently has to draw the line *somewhere* in order to go forward in understanding the nature of poverty”. And following Greeley (1994:11): “An absolute and objective poverty line is a form of information that empowers the poverty reduction agenda and encourages appropriate resources allocation”. The development of the PPL is in response to the need for standardised statistical information on poverty indicators.

2.3 The poverty line approach

The Statistics Division of the United Nations (UNSD) tasked a number of expert groups (called city groups) to research good practice on a series of statistical topics common to UN members. The United Nations Expert Group on Poverty Statistics was convened as the Rio Group and in 2006 produced a compendium of best practices in poverty measurement. According to the Rio Group (2006: 25), three basic approaches to the establishment of the poverty line can be identified:

- The absolute poverty line

- The relative poverty line
- The subjective poverty line

An explanation of absolute and relative poverty lines is best presented in the words of J. Lanjouw (see Box 2), and by the Rio Group on subjective poverty lines (see Box 3).

Box 2: Relative and absolute poverty lines

There are two main types of poverty lines. The first, a *relative* poverty line, is simply determined from a cut-off point in the welfare distribution, such as the income or consumption level below which, say, 30 per cent of the population is located. Alternatively, it might refer to a cut-off point such as one-half the median income. This approach to setting the poverty line is attractive in that it is both simple and transparent, and it is quite functional in terms of identifying a population sub-group upon which to focus attention.

There are two principal disadvantages to this approach, however. First, a relative poverty line is not terribly useful if one wants to monitor poverty over time or space. There is always a bottom 30 per cent of the population, even if living standards for the whole population have risen over time.

Similarly, this approach does not allow for comparisons of poverty across regions. Second, the relative poverty is essentially quite arbitrary. It is not clear why poverty should be defined in terms of one percentage point instead of another – and what percentage point is settled upon can have a bearing on the characteristics of the population subgroup designated poor.

The second type of poverty line, an *absolute* poverty line, is explicitly linked to a specific welfare level. Anchoring the poverty line in this way allows one to make comparisons over time or across groups. Most countries that have officially recognized poverty lines define these in an absolute sense, interpreting them as a fixed standard of living. Particularly in developing countries, the notion of some level of living below which one can be considered poor in an absolute sense (as opposed to being disadvantaged relative to the rest of society), would seem to have some empirical relevance.

Source: Lanjouw J (2001:2)

Box 3: Subjective poverty lines

Subjective lines

The subjective poverty approach differs from the previous two in that it considers that people's perception of what constitutes the minimum necessary household budget is the best standard of comparison for actual incomes or expenditures. In this approach, a survey of a representative sample of the population is carried out to gauge the opinion of the population in order to define the poverty line.

Source: Rio Group (2006: 36)

In brief, absolute poverty lines define the poor on the basis of an absolute standard applied to income or expenditure, whereas relative poverty lines define poverty according to the prevailing relative situation in society. On the other hand, subjective poverty lines depend on individual perceptions of poverty status. In light of these conceptual differences, the choice of the poverty line approach has to be considered in relation to the purpose of measurement and sustainable use.

In current practice, the absolute poverty line approach is the most common approach in situations where absolute poverty is a key problem. This is typical of low-income countries (e.g., in Sub-Saharan Africa), and middle-income countries where inequality is high (e.g., South Africa and some Latin America economies). With regard to relative and subjective poverty lines, Greeley(1994:11) argues that: "...whilst the ethical basis for policy prescription based on analysis of absolute poverty lines is reasonably clear, this is not so for either subjective or relative poverty lines. Whilst subjective and relative assessments have uses, it is absolute and objective poverty lines that provide relevant information for poverty reduction policy."

Furthermore, absolute poverty lines are well suited for long-term statistical use because they are easy to maintain in the absence of annual consumption expenditure data. This is possible because base period values can be projected retrospectively or prospectively depending on analytical purpose. Such projections are performed using customized inflation factors derived from Consumer Price Index series. In contrast, relative and subjective poverty lines are exclusively dependent on survey data for updates, and present difficulties for regional comparisons.

Greeley (1994:1) notes that the absolute poverty line approach "attracts criticism on the basis that it fails to capture important dimensions of poverty and does not reflect subjective perceptions of well-being." Similar sentiments were echoed by local stakeholders during consultation discussions. In response, Greeley offers this explanation (ibid: 11): "... the notion of an 'objective' poverty line is sometimes challenged on the grounds that it is epistemologically invalid because it implies a single 'reality' and is merely an attempt to imply scientific rigour about something

which is only somebody's value judgment. In fact, no great claims are actually being made when the term 'objective' is used; the purpose is to establish that the line is not locally determined on a subjective basis but reflects a set of needs that are universal. This implies detachment from any specific individual's assessment; it also implies quantifiable measurement, reproducibility, systematic comparison and validation (Patton, 1990)".

Finally, given our understanding that poverty is multi-dimensional, it follows that information on all dimensions is equally important for understanding and responding to the poverty problem. Therefore, in keeping with Stats SA's mandate for objective, quantitative measurement, the responsibility for providing information on additional dimensions is shared with other government partners. Government departments that are responsible for policy development and implementation are better placed to provide information on other dimensions of poverty, using methods appropriate to their mandates.

3. Data and Methods

3.1 Data sources

The data used to aggregate expenditure on goods and services – the consumption aggregate¹ – on which the poverty lines are based, come from two Stats SA surveys conducted in 2000. The first is the Income and Expenditure Survey of 2000 (2000 IES) and the other is the second round of the bi-annual Labour Force Survey September 2000 (Sept 2000 LFS). Each survey is nationally representative with a design sample of approximately 30 000 households.

Until 2005, the IES was conducted every five years among participants of a concurrent household survey such as the October Household Survey² or, as happened in 2000, the Labour Force Survey. During 2005/06 a new IES with an explicit focus on obtaining data for the design of the Consumer Price Index was introduced. Two other major changes were implemented in the 2005/06 IES:

- (1) introduction of the diary data collection method for frequent purchases in conjunction with the recall method for less frequent purchases – in the past, the IES used recall methods to report all types of household expenditure; and
- (2) introduction of a year-long data collection process to capture seasonal trends in income and expenditure patterns.

Ideally, the 2005/06 IES would have been used to construct a new poverty line. However, the change in survey methodology represents a potential break in the comparability of the data series. At the time of writing it was too early to ascertain the factors driving drastic changes in expenditure on some goods and services, for instance: the share of food expenditure in total household expenditure. Until the impact of the new methodology on expenditure patterns is understood, the PPL will be based on the 2000 IES data³, and updated using inflation data. Although there are

¹ The components of the consumption aggregate are listed in Appendix B.

² The October Household Survey was discontinued after 1999.

³ Many of the problems associated with the early releases of the 2000 IES data (e.g. sampling weights, sloppy post-processing edits etc.) have been addressed in later versions. While some issues remain, they do not affect the design of the poverty line.

some similarities between the 2000 IES and 2005 IES data, additional time series data and further research are needed to understand the differences⁴.

The data used to obtain the cost of the food basket and to adjust the poverty line for inflation are derived from the monthly price surveys conducted by Stats SA. The Consumer Price Survey collects information for the production of the monthly Consumer Price Index (CPI) using a reference set of goods and services called the CPI basket. The CPI reflects changes in the price levels of consumer goods and services. The basket and weights are re-designed every five years based on the Income and Expenditure Survey. From January 1997, the coverage of the CPI was increased to 14 metropolitan areas and 39 other urban areas throughout all nine provinces of South Africa⁵. This (Metropolitan and Urban) CPI is used to adjust the poverty line for inflation during the period 2000 – 2002. Coverage of shopping centres close to predominantly rural areas was implemented in 2002 to provide a more geographically varied CPI for the entire country. This CPI series is called the CPI Total Country and was used to adjust inflation for the period 2003–2008.

3.2 Methods Overview

In the literature on poverty measurement, three basic steps are identified for poverty analysis. The first step is to determine the relevant dimension and indicator of well-being; the second is the construction of a poverty threshold to distinguish the poor and non-poor, whilst the third is the production of aggregate poverty measures. The scope of this report is limited to the second step: developing poverty thresholds in the form of pilot poverty lines. The first step of determining the welfare indicator and the constructing the consumption aggregate are covered in previous⁶ reports. Forthcoming reports in the Stats SA series “Measuring Poverty in South Africa” will provide details on poverty aggregation measures and statistics on poverty trends.

In the absolute poverty line approach, welfare is associated with consumption of goods and services (Lanjouw, 2001). Those with sufficient resources to purchase a minimum basket of goods and services implied by the value of the poverty line are

⁴ For further details on the 2005/06 IES see the statistical releases at www.statssa.gov.za.

⁵ Previously the CPI covered (historically) Metropolitan areas only.

⁶ See Appendix B; Hoogeveen and Ozler (2005)

regarded as non-poor, and those with insufficient resources are counted as poor. In the simplest terms, an absolute poverty line consists of two components – food and non-food – combined in various ways. This report follows the ‘cost-of-basic-needs’ approach presented by Ravallion (1998). This approach consists of two key steps: the setting of the food poverty line, and the addition of non-food expenditure to obtain two additional poverty lines– a lower poverty line and an upper poverty line (sometimes called total poverty lines to distinguish them from the food poverty line). In this report, both food and nonfood components are derived from data on South African households obtained through official, nationally representative Stats SA surveys. These are 2000 IES and the Sept 2000 LFS (as described above).

The process followed in deriving a food poverty line, a lower poverty line and an upper poverty line was designed to create statistical thresholds for poverty status, in rand per capita, per month. However, in the 2000 IES, expenditure is reported on a household basis, and since households differ in size and composition, a per capita (per person) measure is required in order to compare households. The per capita measure used in this case refers to total household expenditure divided by the number of people in the household. The assumption is that household resources are equally shared among household members. In reality, division of household resources may differ by age, gender or by spousal status (e.g. in some polygamous settings). But in the absence of specific or authoritative information on such intra-household allocation, the per capita measure is the easiest to adopt. If the poverty lines presented in this report are used for any purpose other than the statistical or analytical purposes they are designed for, then a number of additional computations must be considered – adult equivalence scales, household economies of scale, reference family or household structure and so forth⁷. For the statistical purposes outlined above, the per capita approach was considered the simplest and most transparent form of the absolute poverty line.

The cost of the food component alone is usually referred to as the food poverty line. For statistical purposes, those falling below this line are regarded⁸ poor since they cannot afford the minimum food-energy intake on which the food line is

⁷ For a detailed discussion in a South African setting, see Woolard and Leibbrandt (2006).

⁸ Sometimes the food poverty line is also used to determine indigence.

based. The main poverty line can be either of two lines: the lower bound or the upper bound poverty line. Following Ravallion (1998), the lower and upper poverty lines obtained in this way are regarded as upper and lower bounds for a range of possible poverty lines. This report presents all three poverty lines for use during the pilot phase.

3.3 Comparison with previous discussion documents

Research on constructing poverty lines started in 2002 as part of an internal Stats SA exploratory research project with technical assistance from the World Bank. The initial research was undertaken to explore how Stats SA data could be used to establish an information base in support of pro-poor policy research. Stats SA distributed a discussion document drawing on this research in February 2007 to support the stakeholder consultation process initiated by National Treasury during that year.

The Stats SA discussion document presented in February 2007 was a working document designed to initiate discussion and debate. Following discussions with a wide range of stakeholders, Stats SA undertook a review of the initial research to revise and adapt the design of the PPL for long-term statistical use. This was achieved by considering alternative techniques and newly available data on historical food prices. The revised design produced a basic food basket representing foods common to all expenditure-ranked household groups, and a price structure for a national poverty line that is amenable to CPI inflation-based updates. This technical report and the PPL presented here replace all previous discussions documents.

4. Constructing the poverty lines: the process

4.1 The Food Poverty Line

Consideration of adequate nutrition is a key factor in the design of the food poverty line as noted by the The Rio Group (2006: 54) : “Adequate nutrition is one of the most basic human needs, and it is therefore a central element in the construction of absolute poverty lines”. Hence, the first component of a cost-of-basic-needs poverty line is based on the cost of a food basket that fulfills at least one nutritional standard. There are several nutritional requirements, usually published as recommended dietary requirements for various age and gender combinations, and sometimes for occupational groups. But, despite the centrality of food in poverty line construction, the purpose of food component should not be confused with nutritional status as cautioned by Ravallion (1998: 20):

“One should be clear about the role of data on nutritional or other capabilities in (these) various versions of the cost-of-basic-needs methods. That role is essentially to provide an anchor for setting the reference utility level. Nutritional status is not itself the welfare indicator. Thus there is nothing to guarantee that someone who can afford the resulting poverty line at every place or date will actually reach the nutritional requirement.”

There are several ways to set the food component. Lanjouw (2001:5) identifies two typical approaches – least-cost and expenditure-based – and notes that most methods integrate elements of both approaches. A key characteristic of the least-cost approach is the selection of a food basket from a range of baskets in order to fulfil the minimum energy requirement at the least cost. However, the least cost criteria rarely reflects actual consumption patterns, and when the process entails the use of complex, linear programming, the process becomes ‘non-transparent’ (ibid:6).

In the expenditure-based approach, the food basket is designed to reflect actual consumption patterns as represented by expenditure data. In consideration of local conditions, and the history⁹ of setting poverty lines in this country, this report follows

⁹ See Studies in Poverty and Inequality (2007); Budlender (1985)

the expenditure-based approach. This approach is preferred because it allows the design of a food basket that is informed by people's preferences, and can be anchored in broadly representative consumption patterns.

The minimum food-energy requirement

In constructing poverty lines, the convention is to use food-energy intake requirements for the food component. This standard refers to the minimum food-energy intake required to maintain a human body at rest (Ravallion 1998: 17). Energy requirements are usually presented in kilojoules (kj) or kilocalories (kcal). The food-energy requirements used in this report are based on the dietary requirements cited by Rose, Bourne and Bradshaw (2002) in a South African Medical Research Council (MRC) report study on nutrient availability (see appendix A). To obtain a national per capita energy requirement, the relevant age and gender food-energy requirements were applied to Census 2001 household data, taking into account age and gender composition. Total household energy was then divided by the number of people in the household to obtain a per capita¹⁰ caloric requirement. The average national energy requirement came to 2261 kcal per capita, per day.

The reference food basket

After obtaining the energy-intake requirement, the next major data item required to determine the monetary value of the food poverty line was a reference 'cost-per-kilocalorie' (for easy reference: cost-per-cal). In order to derive the reference cost-per-cal a reference food basket was required. The need for a reference food basket arose due to the numerous possible combinations of foods consumed by diverse South African households. Although food is a universal human need, food varieties may differ by climatic or economic region and, a number of other factors such as culture, religion and income may affect personal preferences and tastes. The food basket was constructed in two stages to ensure that contents were representative of broad consumption patterns and anchored in representative consumption levels. In the first stage, the most common foods at national household level were identified, and at the second stage, the level and pattern of consumption (of stage 1 foods) by a reference

¹⁰ All expenditure computation in this report is on a per capita basis.

group of households were the basis for determining the final reference basket and its cost.

To obtain nationally representative food items, a combined criteria¹¹ of item food-expenditure-share and the number of households reporting item expenditure¹² were applied. The threshold for food-expenditure share per item was 0.6%, and the minimum number of households was set at 10%. At the end of the first stage, 39 food items¹³ were selected out of 133 IES food items.

At the second stage, the main objective was to determine a reference set of households for consumption patterns and levels. For this purpose, households were differentiated on the basis of expenditure levels and ten groups obtained. These were national deciles of households ranked by per capita (total) household expenditure. Households with the lowest expenditure were grouped under decile 1, and those with the highest expenditure fell under decile 10. Ranking by expenditure was a proxy for income level, which is recognised as key determinant of food preferences. This expenditure-based ranking created household groupings with a clear progression of key characteristics related to food preferences and cost-per-cal.

In particular, food consumption among high-income households (or in this case, high-expenditure households) tends to reflect what are known as ‘expensive calories’. Rose, Bourne and Bradshaw (2002:8) explain this very well: “Households with higher incomes typically spend more on food to purchase the same kilocalories than those with lower incomes. Their funds go to purchasing other characteristics besides calories, such as taste, convenience, or simply high-end brand names.” Conversely, an examination of the lowest (2000 IES) decile reveals a relatively small food basket, dominated by high consumption levels of foods that fit the description of ‘survival-foods’¹⁴ – an extreme example of ‘cheap calories’.

¹¹ These criteria are broadly comparable to the criteria for selecting the CPI food basket.

¹² In strict terms, IES reports expenditure on purchases, however, for this report, we assume that all purchases represent consumption.

¹³ For data collection purposes, the 2000 IES listed some foods as single items, while others were grouped.

¹⁴ See Ravallion (1998) on ‘survival-food-needs’.

For purposes of the ‘cost-of-basic-needs’ poverty line the range for a reference group of households is usually in the lower to middle distribution of the welfare indicator (consumption expenditure in this case). Reference households in this case refer to households whose expenditure levels are expected to reflect fairly typical, average consumption levels at common prices. This ensures that the cost of the reference food basket is not distorted by expenditure on expensive, luxury items or dominated by extreme consumption levels of ‘survival-foods’. Hence, the choice of households in deciles 2 to 4 (inclusive) as the reference for the food basket.

After determining reference households for the food component, item food-expenditure-shares¹⁵ for the 39 food items were averaged in deciles 2 to 4, and only foods with at least 0.6% share were retained. This left 33 food items as the reference food basket – shown in Table 1. The second stage criteria ensured plausible expenditure levels for the reference basket.

Although it is possible to base the food basket on all food items as covered by the survey, this was considered unsuitable for two reasons. First, is the observation by the Rio Group (2006: 56) that: “this would result in an enormous variance in the basket structure”. And second, no household reported consumption of all 133 IES food items. Therefore, selecting a basket common to all households was considered a better reflection of typical consumption patterns.

The reference basket has another dimension of representivity. It contains food items from a broad range of foods that are usually recommended for a balanced diet. These include cereals, meat, fish, poultry, dairy, fruit and vegetables. Although the criteria for costing the basket are based on a single nutritional standard (food-energy), this variety of food items shows how the basket represents other essential nutrients. That is said, it is important to emphasise that the basket is not presented for use as a recommended food plan in practical terms, but as a tool for analysis. To obtain nutritionally balanced diets, the relevant health authorities have to be consulted.

¹⁵ That is, food item shares in total (all) food expenditure at household level.

Deriving cost-per-cal and the food poverty line

After constructing the reference food basket, the next step was to determine its cost-per-cal based on the consumption levels of reference households. For this purpose, median¹⁶ quantities of the reference food basket as purchased by reference households were derived from household-level food expenditure using CPI food data of September 2000. These quantities were then multiplied by food energy values with adjustments for edible portions were necessary¹⁷. Taking the average of various caloric inputs, the total energy content of the reference food basket was 54199 kcal, at a total cost of 11848 cents. Based on these two data items, the reference cost-per-cal came to 0.2186 cents per kcal.

To obtain the value of the food poverty line, the reference cost-per-cal was multiplied with the monthly (30 days) equivalent of the daily per capita energy requirement. The result was a monetary value of 14828 cents, representing the cost of purchasing a food basket that fulfils the minimum food-energy requirement described earlier. Therefore, the pilot food poverty line in Sept 2000 prices becomes R148 per capita, per month.

¹⁶ Based on statistical characteristics of quantity distributions.

¹⁷ Food energy content and edible portion factors were obtained from various sources including MRC, USDA and FAO.

Table 1: The Reference Food Basket

Group	Food item
Beverages	Instant coffee
	Ceylon tea
	Rooibos & herbal teas
	Aerated cool drinks
Dairy products and Eggs	Fresh milk
	Milk powder & whiteners
	Buttermilk, maas/sour milk
	Eggs
Fats and Oils	Margarine
	Cooking oils
Fish, Meat, Poultry and their products	Beef
	Mutton
	Chicken
	Boerewors
	Canned fish
Grain products	White bread
	Brown bread
	Cake flour
	Bread flour
	Rice
	Mealie-meal
	Samp
Fruits and Vegetables	Apples
	Bananas
	Oranges
	Onions
	Tomatoes
	Cabbage
	Fresh potatoes
Miscellaneous	White sugar
	Brown sugar
	Salt
	Soup powders

4.2 Deriving Upper and Lower Poverty Lines

To obtain upper and lower bounds to a range of possible (total) poverty lines, a common variation of Ravallion's cost-of-basic-needs approach (1998) was followed. In this method, two different sets of non-food expenditure are obtained from two separate reference households and added to the food poverty line to yield two sets of poverty lines: an upper line and a lower line. These two lines are regarded as the lower and an upper bound to a range of possible 'total' poverty lines.

Unlike food consumption, there are no universal standards for consumption of non-food good and services (such as shelter, clothing, transportation and so forth). Although it is possible to determine a specific bundle of non-food goods and services, Ravallion (1998:17) questions "whether it would gain wide acceptance or maintain material relevance over time".

In fact, in the South African context, some normative standards of this nature were used in the past to establish lower living standards for some population groups¹⁸. Internationally, Canada is one example where a comprehensive set of normative standards for non-food items has been established (Rio Group, 2006) but not for poverty measurement. Given the diversity of markets for goods and services in South Africa, as well as major differences in family and household structures, it was not practical or desirable to specify a basket of non-food goods. The cost-of-basic-needs approach solves this problem by anchoring the non-food component of a total poverty line on reported consumption expenditure (Ravallion, 1998; Lanjouw, 2001).

A key assumption behind the cost-of-basic-needs approach is that in cases where food expenditure is equivalent to the food line, households are considered able to meet basic foods and basic non-food needs. Therefore by adding the non-food expenditure of such households to the food poverty line an upper bound poverty line is obtained. Hence, the reference households for the upper poverty line were households with food expenditure equal or close to R148 (per capita, per month). Average non-food expenditure of these households was R175 (per capita, per month). This value was

¹⁸ See Budlender (1985)

added to the food poverty line to obtain an upper poverty line of R323 (per capita, per month).

The lower poverty line is obtained in a similar way, but with a different set of reference households. The choice of reference households in this case is based on the assumption that households whose total expenditure is close to the poverty line subsist on ‘survival food-needs’ (Ravallion, 1998), and therefore sacrifice fulfillment of basic food-needs in order to meet their non-food needs. This implies that the non-food expenditure of such households represents minimum expenditure on non-food basic needs. Therefore reference households for the lower poverty line were households whose total expenditure was equal or close to R148 (per capita, per month). Within these households the average non-food expenditure was R71 (per capita, per month). By adding their non-food expenditure to the food line, a lower poverty line of R219 (per capita, per month) was obtained. The components of the three pilot poverty lines are shown in Table 2.

Table 2: Components of the three poverty lines

Type of Poverty line	Value: Food component	Value: Non-food component	Total value: Rand per capita, per month (Sept 2000 prices)
Food poverty line	148	None	148
Lower poverty line	148	71	219
Upper poverty line	148	175	323

A practical difficulty arises when – as often happens – very few households have equivalent food line expenditures. The non-parametric approach presented in Lanjouw (2001) was followed to solve this problem. The reference households were determined by considering an interval around the food poverty line, starting with 1% of the food line, and gradually increasing the interval in successive intervals of 1% up to a maximum of 5%. The median non-food expenditures of households in these intervals were averaged using a simple mean to obtain the average non-food expenditure of reference groups.

4.3 Updating absolute poverty lines

The methodology followed in the construction of the poverty lines presented in this report produces period-specific poverty lines. To maintain relevance in long-term statistical use, regular updates are required.

The cost of goods and services and their consumption patterns are key drivers in the design of an absolute poverty line. Both are expected to change over time, although in different ways, and at different rates. The cost of food, goods and services tends to change more rapidly than consumption patterns¹⁹. As time goes on, changes in the cost of living affect the purchasing power or value implied by the poverty lines. To maintain the integrity of absolute poverty lines, two types of updates are practiced: adjustment by means of an inflation index or construction of new poverty lines (Ravallion, 1998).

When an inflation index is used to update an absolute poverty line, the changes in the cost of living are usually based on a Consumer Price Index (CPI) series. Such updates are usually performed on an annual basis. Stats SA publishes a comprehensive CPI, thus making it possible to follow this approach in updating the poverty lines in periods when new consumption data are not available.

On a monthly basis, Stats SA publishes an overall CPI, a CPI for food and a CPI excluding food (non-food). The food and non-food CPI are combined in various ways to obtain a range of CPI instruments²⁰ – such as the CPIX, the Core CPI and many others. An inflation instrument for the poverty line can be derived in a similar way. After testing various scenarios, it was decided to inflate each portion of the poverty line by the relevant CPI component. Since food and non-food prices hardly move in tandem (that is: in the same direction, with the same magnitude), this approach ensures that price movements in each component are adequately captured. The poverty lines presented in this report will be updated in this manner, on an annual basis, with January as the reference month.

¹⁹ Changes in consumer patterns in response to changes in the cost of living, are usually gradual, unless they are accompanied by significant changes brought about by social, economic, political or environmental factors.

²⁰ For the full range of CPI instruments visit www.statssa.gov.za

As discussed earlier (under data sources), the CPI series with the most comprehensive geographical coverage in each period is used to update the poverty lines. As Table 3 shows, for the period 2000–2002, the Metropolitan (Metro) and Urban CPI is the most comprehensive, while for 2003–2008, it is the Total Country CPI. When deflation and inflation factors derived from Table 3 CPI components are applied to the Sept 2000 PPL, an annual series of inflation-derived PPL are created as presented in Table 4.

Table 3: Food and Non-food CPI series, Jan 2000 – Jan 2008

Period Year/month	CPI Series	CPI: Food	CPI: Non-food
2000 Jan	Metro & urban	96.9	97.1
2000 Sept	Metro & urban	101.4	101.6
2001 Jan	Metro & urban	101.5	104.0
2002 Jan	Metro & urban	113.9	107.7
2002 Jan	Total country	114.2	108.5
2003 Jan	Total country	135.2	119.1
2004 Jan	Total country	136.9	119.4
2005 Jan	Total country	138.5	123.7
2006 Jan	Total country	143.9	128.2
2007 Jan	Total country	156.0	135.1
2008 Jan	Total country	178.0	145.3

Table 4: Annual inflation-adjusted pilot poverty lines, Jan 2000 – Jan 2008

Period Year/month	Food Poverty Line	Lower Poverty Line	Upper Poverty Line
2000 Jan	141	209	308
2000 Sept	148	219	323
2001 Jan	148	221	327
2002 Jan	166	241	352
2003 Jan	197	280	401
2004 Jan	199	282	403
2005 Jan	202	288	413
2006 Jan	209	298	428
2007 Jan	227	321	458
2008 Jan	259	360	507

The second type of update requires the construction of new poverty lines using new consumption expenditure data. This type of update is performed to capture changes –

if any – in the underlying structure of the poverty line. As this report demonstrates, this type of update requires detailed data on household income and expenditure which are rarely available on an annual basis. Therefore, this type of update is usually undertaken at intervals ranging from 1, 3 or 5 years, depending on the survey program of the implementing institution, and the dynamics of the local economy. In South Africa, the equivalent survey series is the Stats SA Income and Expenditure Survey series on which the CPI basket is based. Construction of the CPI basket has some similarities to the derivation of the poverty line, in that CPI food items are selected to represent commonly consumed foods, and CPI prices are used to cost the basket. Since the update of the CPI basket is undertaken every five years, it would be reasonable to review the structure of the poverty line at the same time. However, a number of factors can affect such a decision, most notably data adequacy.

The adequacy of consumption expenditure data for poverty line construction becomes an important consideration when survey methods change. If changes are introduced abruptly, this may lead to a break in the time series data when consumption patterns appear inconsistent with past trends. In such cases, it may be better to wait for a new survey series to establish trends before they are used as the sole design base for a poverty line. This is the current situation regarding the 2005/06 IES data, and so the current poverty lines will be updated for inflation only until the next review period, when more data is expected to be available.

5. Concluding Remarks

1. This report presents the methodology for constructing the three pilot poverty lines shown in Table 5. The international (purchasing parity power) US\$1/day and US\$2/day are included for comparison.

Table 5: The three poverty lines

Poverty line	Rand per capita, per month (Sept 2000 prices)
Food poverty line	148
Lower poverty line	219
Upper poverty line	323
PPP US\$1/day (2000 prices): R87 per capita, per month	
PPP US\$2/day (2000 prices): R174 per capita, per month	

2. By applying CPI – inflation based updates, it is possible to update the pilot poverty lines annually as presented in Table 6.

Table 6: Inflation-adjusted poverty lines (Rand, per capita, per month)

Year (Jan)	Food poverty line	Lower poverty line	Upper poverty line
2000	141	209	308
2001	148	221	327
2002	166	241	352
2003	197	280	401
2004	199	282	403
2005	202	288	413
2006	209	298	428
2007	227	321	458
2008	259	360	507

3. These pilot poverty lines are experimental in nature and will be piloted in the period leading to 2014, when a review is planned to coincide with the Millennium Development Goals review period. The three poverty lines are presented for use in statistical reporting of monetary poverty only, and are designed for use alongside existing administrative poverty measures. The international poverty lines of US\$1 per day and US\$2 per day in purchasing power parity (PPP) terms are internationally determined and will be estimated whenever poverty statistics are presented.

4. This report marks the conclusion of the technical process undertaken by Stats SA as mandated by government. However, it also represents a key contribution to the dialogue between government and policy stakeholders on broader poverty measurement and poverty reduction strategies. Appendix C presents a note by the Statistician General on possible considerations beyond the presentation of the poverty lines.

5. Stats SA conducts regular reviews of information products and undertakes annual stakeholder consultations. These processes enable Stats SA to monitor the utilisation of official statistics and to get critical feedback from users of information products across all spheres of government, the private sector, civil society and the general public. Through this process, Stats SA will continue to engage with stakeholders on the pilot poverty lines leading to the review in 2014 when more data is expected to be available.

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Appendix A

Table 1: Recommended daily energy allowances

	Males	Females
Age group (years)	Average energy allowance (kcal)	Average energy allowance (kcal)
0 – 0.5	650	650
0.5 – 1	850	850

1 – 3	1300	1300
4 – 6	1800	1800
7 – 10	2000	2000

11 – 14	2500	2200
15 – 18	3000	2200
19 – 24	2900	2200

25 – 50	2900	2200
51 +	2300	1900

Source: Rose, Bourne and Bradshaw (2002)

Appendix B

Constructing the consumption aggregate

The approach followed in building a consumption aggregate for welfare analysis was based on guidelines by Deaton and Zaidi (2002), Ravallion (2001), Hentschel and Lanjouw (1996), and Lanjouw et al (1996). The original²¹ consumption aggregate consists of the following expenditure categories:

- food and beverages (excluding home production, cigarettes and alcohol);
- housing (imputed rental value of residence) and utilities;
- compensation for domestic workers;
- personal care, household services, and other household consumer goods;
- fuel;
- clothing and footwear;
- transport (excluding cost of purchased vehicles);
- communication;
- education;
- reading matter, licences and other rental charges; and
- insurance.

During stakeholder discussions, concerns were raised about obtaining a consumption aggregate that reflects comprehensive consumption, and designing a national poverty line amenable to inflation updating. To address these two issues, additional expenditure components were added to the consumption aggregate (listed below), and the regional (provincial) numeraire approach was dropped when new data on 2000 food prices was made available.

- Water expenses (when stated separately from other utilities)
- Firewood
- Medical aid contributions

²¹ Based on Babita, Ozler, Shabalala and Thema (2003), and other discussion documents on the early versions of 2000 IES data.

Appendix C

Poverty: On the Line and Beyond the Line

PJ Lehohla²²

October 2008

Poverty as a social concern has been deliberated over a number of centuries. However, its definition and characterization as a multi-dimensional phenomenon at the center of development of policy, only gained currency in the past few decades.

The advent of internationally agreed programs such as the Millennium Development Goals (MDG) and the Poverty Reduction Strategies for Highly Indebted Countries have driven a new generation of poverty measurement techniques and reportage. Requirements for these processes have increased pressure on countries to report on poverty, and to roll-out poverty reduction programs within a framework of integrated poverty reduction strategies. This has seized policy makers.

Measurement choices

In order to know whether there is progress or not, measurement has become an integral part of implementing poverty reduction strategies, and as a consequence, countries have coupled these strategies with tools for measurement. Policy debates accentuate the desirability of not only the significance of poverty but also an increasing need for thoroughness in measurement, and by extension, choice of methods.

The aim of determining a poverty line is to meet a specific objective. A common objective is to determine the level and extent of poverty using the poverty line approach. In measuring absolute poverty, the poverty line is anchored to basic food and non-food needs. In other instances, it is about measuring comparative levels of well-being, such as is done for relative poverty or indeed looking at measures that

²² PJ Lehohla is the Statistician – General, Statistics South Africa.

relate to association and participation. In this case we would be looking at social inclusion or exclusion.

Poverty on the Line

While the importance of a poverty line is undisputed, simply having a poverty line neither makes the poor poorer nor richer. What is important is for the relevant bodies, namely policy groups, to take steps to address poverty based on the knowledge presented through poverty statistics. So for policy, the question is about what is being done about poverty, while for those measuring, the issue is to maintain accurate, relevant and timely measurement.

Usually governments employ a battery of instrument to address poverty, including: social security measures and social relief; employment creation; free basic services such as water; subsidized or free housing; and free education as means of assisting those trapped in poverty. The presence of a poverty line assists in providing an aggregate result around a plethora of poverty reduction instruments. In the absence of such a line, individual outputs presented as the results of policy interventions are produced in an environment that is potentially rife with competition and may mask the aggregate value of all interventions. With a poverty line, a single aggregate result can be consistently measured across time and space.

Poverty on the Line: Beyond the Line

What policy does about poverty is part of a discussion we had with Prof Banerjee²³ (Poverty Action Lab). The main issue arising out of our discussion was that inherent in poverty measurement is a level of inertia and static representation of phenomena that is dynamic and requires dynamic solutions. Poverty prognosis and “prescriptions” demand moving from the solely static concept of the line, to a more dynamic process of what we do about it. The Poverty line should not necessarily be the point that seizes the imagination of society, but what is being done about it more important. Once again, the observation that knowing about a poverty line does not make one poorer or richer is applicable.

²³ Personal discussion, May 2008

Statistics are crucial information products for creating an understanding of phenomena, such as poverty. This is a key function of statistical offices, and the presentation of a poverty line is in fulfillment of that role. What policy does with knowledge is a subject for deliberation between policy partners and other public stakeholders.