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Attempts by van der Berg et al
to measure changes in
poverty and inequality

by
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Recommended citation
Meth C (2007) Flogging a dead horse: Attempts by van der Berg et al to measure changes in poverty and inequality. A Southern Africa Labour and Development Research Unit Working Paper Number 9. Cape Town: SALDRU, University of Cape Town

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Flogging a dead horse:
Attempts by van der Berg *et al*
to measure changes in poverty and inequality

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Abstract[1]

This paper seeks an explanation for the large differences in the extent and severity of poverty published respectively in van der Berg *et al* (2005: 2007a) and Meth (2006b). Headcounts in 2004 suggested by van der Berg *et al* (2007a) exceed by five million, those reported by (Meth, 2006b).

Household survey respondents often under-report income (and expenditure). To address this, it is common (if not necessarily wise) to scale household survey income means until the grossed-up survey income totals are approximately the same as those yielded by the national accounts. The apparent reason for the differences between our respective poverty estimates lies in the poor quality of the income estimates in the surveys used by van der Berg *et al* as primary data source for estimating income distributions (by race). Scaling these survey estimates to make them consistent with the national accounts, it is argued, causes them to under-estimate the extent and severity of the poverty problem.

As part of their analysis of changes in the welfare of Africans in South Africa since the advent of democracy (and in support of their claim that poverty has fallen), van der Berg *et al* attempt to measure changes in the racial shares of remuneration. The present paper ends with a brief examination of some of the problems of doing so using Statistics South Africa household surveys (the Labour Force Surveys) as primary data source.

Welcomed by government because of the apparent progress they report in the fight against poverty, the possible consequences for anti-poverty policy (and for the poor) of the van der Berg *et al* figures being wrong are non-trivial.

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[1] I am grateful to Murray Leibbrandt in the School of Economics in the University of Cape Town, who read and commented critically on this paper (the third in a series of papers on the topic). From the outset, he has been immensely supportive of a project that has tried to extract credible poverty estimates from Statistics South Africa's Labour Force and General Household Surveys. It should go without saying, of course, that any errors in the present paper are my responsibility.

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Introduction

In 2005, Professor van der Berg and his colleagues in the University of Stellenbosch published a set of poverty estimates which have proved to be enormously influential, not least because they posit a substantial reduction in the severity of poverty in the period 2000-2004 (van der Berg *et al*, 2005). Reworking the estimates has led to the publication of a set estimates that register even lower headcounts (van der Berg *et al*, 2007a). In response to the claims made in the 2005 paper, I have written two papers (Meth, 2006a and 2006b), the first of which uses the expenditure estimates in the Labour Force Surveys (LFSs). The second makes use of the income figures in the LFSs. Both efforts discover higher poverty headcounts and lower rates of poverty reduction than those reported by van der Berg and his co-authors.

In my 2006b paper, using the same poverty line as van der Berg *et al* (2005), I estimated that there were about 18 million people below the poverty line in 2004. Of them, I argued:

> "… 14 million lived in workerless households (most containing working age people, but in which nobody had employment). These zero-income (from employment, that is) households survived on a mix of social grants and/or remittances. Among them were about 1.8 million people in households receiving no incomes at all in the survey reference period, subsisting, we know not how. The remaining four million people below the poverty line were located in households containing about 800 000 workers. Although the bulk of poverty is caused by unemployment, the problem of the working poor still looms fairly large." (Abstract)

With a poverty line of R250 per capita per month in 2000 prices, the original paper by van der Berg *et al* that made use of the AMPS (All Media and Products Study) data, had headcounts of 16.2, 18.5 and 15.4 million in 1993, 2000 and 2004 respectively (2005, Table 2, p.17). In the most recent offering, headcounts in the same three years fall to 13.4, 16.3 and 13.1 million (2007a, Table 2, p.19). The increase in the headcount between 1993 and 2000 is slightly higher, but expansion of the social grant system (and whatever job and real income growth there was) has roughly the same absolute impact as before, knocking about 3.1 million off the headcount between 2000 and 2004. The poverty line is the same (p.19). As noted below, apart from a short reference to 'small improvements' in the technique for estimating the distribution of wage income, there is no explanation for the substantial differences between their 2005 and 2007a headcount estimates.

So, not only do they repeat the claim that poverty dropped by three million between 2000 and 2004; their latest estimates of the headcounts for 2000 and 2004 are now some two million lower than their 2005 estimates. In academic terms, of course, the fact that my estimates are higher than theirs is neither here nor there – my figures could equally well be wrong. A problem arises, though, if they are not. The van der Berg *et al* poverty findings have attracted a huge amount of attention (and publicity) – government has made frequent use of them to show that anti-poverty policies are succeeding, they almost certainly form an important part of the basis for the government assertion (made on numerous occasions) that the goal of halving poverty by 2014 will be met. Treasury officials have tried to dismiss the (previous) differences between our findings as trivial – these new lower headcounts make that stance even less defensible than before – the difference between our estimates of the poverty headcount in 2004 is now almost five million!

By their own admission, their latest estimates of the poverty levels are "artificially low" (van der Berg *et al*, 2007a, Abstract). This admission marks a shift from their earlier stance, where they claimed that:

> "The assumptions used throughout the study are those likely to yield *the lowest estimates of poverty reduction that the national accounts data support.* Thus our estimates are also purposely biased towards recording the least rather than the most likely estimates of income growth for the black

population, since this group contains the majority of the poor. Also, despite reservations that we have about some spikes in the data obtained from official surveys (in particular the high levels of wages recorded for particularly the black population in 1995 and the low levels recorded for 2000), we do not adjust for these and instead use the most conservative estimates of black wages. Thus our estimates probably overstate poverty compared to estimates that also adjust data to be commensurate with the national accounts." (van der Berg *et al*, 2005, p.4, emphasis in original)

Recognising, as they could hardly fail to do, the essentially arbitrary character of poverty lines, the van der Berg *oeuvre* is replete with references to the need to uncover trends, presumably in preference to a concentration on absolute levels *per se*. They cite, for example, an argument in defence of the adjustment of survey means using national accounts data, which speaks of the need to select methods of treating data which:

"… minimizes errors, especially errors in trends, because that is an important variable of interest." (van der Berg *et al*, 2007a, p.9)

As I have pointed out elsewhere (Meth, 2006a, p.2), and as they themselves recognise, talk of trends is somewhat misleading. In their own words, "… social assistance is nearing the boundaries of its ability to alleviate poverty." (van der Berg *et al*, 2005, p.3). The South African government is firmly set against extension of the social grant system (the major cause of such poverty reduction as has taken place since 2000) beyond its present limits (Meth, 2007b, pp.17ff). Unless rapid job-creating growth among the poor takes place, the trend they uncover will soon be no more.

In previous encounters with the van der Berg *et al* results, although I have hinted, in personal communications, in a seminar setting,[2] and in my own writings on the topic (see Meth, 2006a, pp.55-56), at a potentially fatal flaw at the heart of their workmanship, I have steered clear of any detailed engagement with their method. The release of their latest figures, means that it is no longer advisable simply to treat the causes of the differences between our results as if they were no more consequential than a debate about how many angels could dance on the head of a pin. Accordingly, therefore, the present paper attempts to get to the heart of the differences between our results.

The paper commences with a quibble about the way in which van der Berg *et al* (2007a) attempt to smooth over these differences. The central section of the paper is devoted to an exposition of that part of their methodology within which the problem is suspected to lie. The investigation closes in on the relevant bits of the AMPS survey questionnaire for the year 2004, analysis of which suggests that it is the form the income question takes that explains the differences between us. In passing, comment is offered on the difficulties of estimating racial mean incomes at a national level. Since van der Berg *et al* make great play of rising African shares of remuneration, some attention is paid in the final section of the paper to the difficulties of creating reliable estimates of the relative magnitudes of the shares of the different race groups.

Whistling in the dark

One of the hallmarks of academic endeavour is the frequent invocation of authority – with few exceptions, we stand on each other's shoulders to peer into the misty depths of social reality. Appeals to authority are, however, not always legitimate. An example of an illegitimate appeal, one made to

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[2] At a workshop held in the HSRC offices in Pretoria on 17th February 2006, at which our respective results and methodologies were aired and critically evaluated by Professors Lam (my work) and Leibbrandt (that of van der Berg *et al*). Neither of the sets of estimates on offer (I presented the results and method in Meth, 2006a) was accepted by the workshop participants as definitive.

bolster their weak case, may be found on the last page of the van der Berg *et al* (2007a) paper. The authors state that:

> "Critics of an earlier version of this paper now acknowledge that the broad conclusions are probably correct (Seekings 2006; Meth 2006)." (2007a, p.26)

How Seekings would respond to this claim has yet to be ascertained. My response is to dismiss it as 'spin'. From the outset, I have acknowledged that throwing an increasing amount of money at the poor in the form of (i) an expansion of the child support grant system, (ii) an explosion of the number of disability grant recipients, and (iii) a modest but far from insignificant increase in the number of state old age pensions (most of which went into poor households), must have had the effect of alleviating poverty – see Meth, 2006b, pp.51ff, the paper to which they refer, and the earlier paper, Meth, 2006a, p.72, to which they do not. The disagreement between us is not over the question of whether or not poverty declined, it is over the extent of the decline. As we saw above, both the 2005 and the 2007a van der Berg *et al* papers put that decline at about 3.1 million between 2000 and 2004; I think it may have been about 1.2-1.5 million (Meth, 2006b, pp.37-38). The most, therefore, that van der Berg *et al* can say about my findings in relation to their own, would read something along these lines:

> "One critic of an earlier version of this paper (Meth 2006) also finds that poverty has declined over the period 2000-2004. The decline he reports is, however, much smaller."

As I pointed out above, attempts to dismiss the differences between our findings as trivial are not defensible. Errors of the magnitude suggested by our respective findings in both the headcount and impact on it over time of measures intended to counter poverty, could lead to gross over-estimation of the effectiveness of anti-poverty policy. Complacence in the fight against poverty could have disastrous consequences.

On that sombre note, let us commence.

The van der Berg et al method of correcting for under-reporting of income

Measuring poverty at a national level is bedeviled by the fact that the necessary data are either not available, or become so, infrequently. National accounts are an example of the former – they contain no distributional information. Population censuses are an example of the latter – in South Africa they are supposed to be conducted every five years. The last census was in 2001 – the next will not be until 2011. The quality of the census data leaves a great deal to be desired. Income estimates are riddled with problems[3] – there are many implausible zero-incomes and significant under-reporting of income.

As a consequence, researchers tend to make do with whatever household survey they can lay their hands on. As everybody knows, household surveys that attempt to capture information on income and expenditure (not all do), are somewhat less than wholly successful in the endeavour. When compared with national accounts estimates of the grossed-up totals of both, household surveys often under-report each, sometimes by substantial amounts. In their work on poverty, van der Berg *et al* go to some lengths to show just how extensive under-reporting is. Their current solution to this problem is to scale income means derived from the AMPS surveys, using means derived from national accounts.[4] Estimates of total income derived from the surveys are then (roughly?) equal to the national accounts figures. The

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[3] See Ardington *et al* (2005) for an account of the ways in which some of these problems have been addressed.
[4] To their credit, their 2007a paper points out in the Abstract, the bit most likely to be read, that the method of scaling survey data by national accounts means is controversial (van der Berg *et al*, 2007a).

AMPS surveys, as will be seen below define income earners in such a loose way that those 'earning' property incomes or transfers, cannot be distinguished from those earning salaries and wages.

The approach I use is different – I scale only the incomes earned (remuneration) by those the surveys say are employed.[5] This is done by applying a correction factor to survey income estimates until the same result as that sought by van der Berg *et al* (2005, 2007a) is achieved (equality of survey and national accounts total income estimates). A possible location of the explanation of the differences in our respective estimates thus lies in the method used to compensate for under-reporting errors in the survey data we use.

The review of the literature on under-reporting in van der Berg *et al* (2007a) provides a useful introduction to what the great and the good have said about the problem. It is, however, inconclusive, as it must be, because as it is unable to tell us what adjustments would be appropriate in the South African case. The problem van der Berg and his co-authors, begins with the selection of primary unit of analysis – race. The means the authors estimate from the national accounts, and the distributions they extract from survey data, are done so by race. This is not a good idea – race has its uses when deployed at the level of the household or the individual. Used at a highly aggregated level (for example, the income of the African population group, or that of the white group) it is problematic, for reasons that will become clear below.[6]

Their goal of making income distribution estimates 'consistent with the national accounts' entails 'correcting' survey mean income estimates to the point where the total income reported in a survey corresponds to the national accounts estimate for that year.[7] The method used to correct for under-reporting is to be found in Appendix 1 of van der Berg *et al* (2005, p.28). In the 2007a paper, it is referred to thus:

> "The methodology followed in this paper for scaling survey means with national accounts data is described more fully in Van der Berg et al. (2005). It has remained largely the same, with the exception of small improvements in the technique used to estimate the distribution of wage income. A brief explanation of the methodology follows below." (2007a, p.16)

The 'brief explanation' is non-technical, so the interested reader has to refer back to the 2005 paper. In the compass of a working paper one can afford, indeed, one is obliged to explain, in whatever detail is necessary, how one arrives at one's conclusions. Since the authors have laid out the method in an earlier paper, it is not only legitimate to refer to that exposition, it also saves the reader's time, unless, that is, said reader is bent on understanding the process in detail. A couple of gaps in the 2005 paper

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[5] Assuming that all workers are identified by the surveys, under-reporting of incomes in the LFSs and GHSs is only possible among those households into which 'earned' incomes of one sort or another flow (wages or salaries of household members, interest, rent or profit and migrant remittances). If households into which social grants flow are correctly identified by the surveys, then income from this source cannot be under-reported – the precise values of the grants are known and fixed. Neither condition holds, of course, so ways have to be found to deal with (a) implausible zero-income households, and (b) mis-reporting of social grant income. Once this has been done (and the zero-income problem is less severe in the LFSs and the GHSs than in the other Statistics South Africa sources of which the authors are critical), then adjustment for under-reporting can take place.
The LFSs and GHSs do a poor job of measuring 'property' income (surplus).
[6] Apart from the obvious (but not necessarily useful) political interest in the question of how the welfare of the different race groups has changed since 1994, the authors do furnish a rationale for their use of race as an identifying category. It occurs is the context of the discussion of differential under-reporting errors. The use of racial means for scaling, if scaling factors differ, implies that "both the shape of the aggregate income distribution and its mean are affected by the adjustment." (van der Berg *et al*, 2007a, p.10).
[7] There is a discussion in van der Berg *et al* (2007a, p.6) of the differences between the survey and national accounts concepts of income are not the same, with some speculation on possible implications of the differences.

make it difficult, however, for readers to make an informed assessment of its merits. We begin to get stuck in what feels like an infinite regress – the 2005 paper says:

> "Regarding methodology, this paper extends the work done in Van der Berg and Louw (2004), and as such largely follows the methodology employed in that study."

That paragraph (in the 2005 paper) continues thus:

> "We first arrive at a distribution of household income across race groups using a number of data sources including national accounts data series, employment data from the Standardised Employment Series and Labour Force Surveys, and social grant data from fiscal incidence studies. The mean racial per capita incomes obtained through these calculations are then applied to intra-racial distribution data obtained from household surveys (the annual All Media and Products Survey) to arrive at estimates of the income distribution that maintain the household survey distribution information but accord with national accounts current household income magnitudes. In other words, we trust national accounts data for aggregate household income, while we trust survey data for the distribution of such income between households." (van der Berg *et al*, 2005, pp.10-11)

Instead of going backwards to their 2004 paper (which used, *inter alia*, Bureau of Market Research data), we turn instead to the AMPS survey questionnaire – it is, after all, the use of the AMPS data that is the big innovation in the 2005 work.

Like all poverty researchers, van der Berg and his colleagues have to face the fact that generally speaking, the surveys with which they work are not designed specifically for the measurement of poverty. In this regard, the data pumped out by the AMPS surveys are no different – I have argued that the AMPS data are, in fact, inferior to the data available from the Statistics South Africa household surveys. The validity of this claim will be demonstrated below.

Before looking at the way income is treated in the AMPS survey (at least, the 2004 survey), let us glance at their discussion on scaling, as much to be sure of what means are being scaled, as to understand the scaling process.

Scaling the survey mean income estimates

In Appendix 1 of their 2005 paper, van der Berg *et al* begin the description of the process of scaling survey means with the expression:

"$Y_i = R_i + T_i + P_i$"

where i is the ith population group, and "… Y is total current income from the national accounts and the three income components are Remuneration Income R, Transfer Income T, and Income from Property P." The sums of the income of each type going to each of the four population groups, equals total current income, Y. Our concern is with R. Very properly, the authors set out to allow only the survey means for remuneration to be scaled (2005, p.28).[8] Because, however, of the poor quality of the AMPS 'earned income' figures, van der Berg and his co-workers are unable (as we shall see below) to restrict the scaling operation to remuneration.

Having extracted national means by race (or as some would prefer to say, by population group), a process on whose intricacies we reflect a little below, the next step is to compare them with those

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[8] Let us not concern ourselves here with what they do about transfers and property income.

extracted from the survey data. The need for a scaling factor ('a') arises because the sum of the product of mean wage (W) and aggregate employment (E) for each group derived from surveys, does not equal total remuneration (R) (van der Berg *et al*, 2005, p.28).

Readers may become a little confused about the sources of the survey means that have to be scaled. This is probably because the scaling operation is performed on both Statistics South Africa data (the OHSs and LFSs), as well as on the AMPS data.[9] The former are used, *inter alia*, for tracking changes in remuneration, whereas the latter are the backbone of the poverty estimates. Appendix 1 in the 2005 paper (pp.27-28), 'Estimating racial shares of remuneration income and racial trends in employment and wages', (which contains the expression reproduced above), is given over to a description of the process by which extraction of information from the Statistics South Africa data takes place.

Appendix 2 in the 2005 paper (pp.29-30) 'Moving from per capita data to poverty and distribution data', describes how the AMPS data are pummeled into a shape which allows for the making of poverty estimates. Central to this is a scaling process apparently similar to that performed on the Statistics South Africa data. To clear the way for making the poverty estimates, plausible distributions had to be constructed. In their words:

> "Only once the distribution curve was obtained, could an estimate of the underlying mean income be calculated. These distributional means were then proportionally adjusted to bring them in line with the per capita estimates already calculated. Put differently, the distribution curve was shifted to be compatible with the per capita racial distribution data that we had obtained and anchored on the national accounts." (van der Berg *et al*, 2005, p.29)

The Statistics South Africa data discussed in Appendix 1 makes it appearance in the 2005 paper to make the point that particularly after 2000, African incomes and remuneration (in absolute and relative terms) were rising faster than those for whites (2005, p.13), a 'fact' used to bolster the conclusion that poverty was falling rapidly. We will return later to their claim about the 'rise in the black share of employment'. As far as the poverty and inequality estimates are concerned, it is the AMPS data discussed in Appendix 2 that is of relevance.

Let us pause for a moment to reflect on two aspects of the process described above, namely, the estimation of mean incomes, by race, at the national level, and the validity (or otherwise) of the scaling process.

For national-level estimates of remuneration (R) by race, the data sources used by the authors are spelled out in a passage cited above (these include "… national accounts data series, employment data from the Standardised Employment Series and Labour Force Surveys, and social grant data from fiscal incidence studies"). A great deal of effort must have gone into uncovering the national means – it would be interesting to see how well their estimates stand up to scrutiny.[10]

Remuneration data (salaries and wages) by population group, at various SIC levels, from 1-digit (major division) downwards, used to be collected and published by Statistics South Africa (when it was still called the Central Statistical Service). Then, in 1985, the mining sector refused to supply remuneration figures by population group, possibly because the continuing high differentials would have provided

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[9] To make matters a little less easy for readers to follow, the 2007a paper (p.20) offers a chart containing AMPS-based and IES (Income and Expenditure Surveys)-based poverty counts. The counts are based on raw (unadjusted) and on scaled data (in line with national accounts). For 2000, the IES gives slightly lower poverty counts on both raw and adjusted (scaled) figures.

[10] Furnishing detailed descriptions of the way in which magnitudes such as these national means are estimated, makes for tiresome reading (and lengthy papers!). It may well be the case that most readers do not want to know about the details. For those that do, however, the failure to provide sufficient information can be irksome in the extreme.

ammunition to 'troublemakers'. From that point onwards, national estimates of remuneration by race could not be presented as they had been in the past (see *South African Statistics 1993*, p.7.7 and pp.7.16-7.17).[11] The source of the remuneration data in *Statistics 1993* was the old Survey of Total Earnings and Employment (STEE). Remuneration data published in the labour section in later issues of *South African Statistics* came from its replacement, the more modestly named quarterly Survey of Earnings and Employment (SEE), and the Survey of Average Monthly Earnings (AME) – (see, for example, *South African Statistics 2001*, Section 7). There is no information in the latter publication on remuneration by population group, nor is there any in *South African Statistics 2003*, to which the authors refer (see Section 9 of *South African Statistics 2003*).[12]

Depending on one's purpose, dropping the racial categories was either a blessing or a curse. All is not lost, however, for those who cling to race as a meaningful variable – the SAMs (Social Accounting Matrixes) publish remuneration data by race. Although the most recent SAM could not be, and could not have been the source of the van der Berg *et al* estimates for 2004, it could possibly be used as a benchmark. It could not be the source because it refers to the year 2003 (Report 04-03 (2002)). It could not have been used for the 2005 paper because it only appeared in September 2006.[13] It could, however, as suggested above, have been used as a benchmark on their 2003 figures. Given the critical job that racial mean incomes have to do in their work, it would be good to have an inkling of how reliable they consider their estimates to be.

As far as the scaling factors used to render survey incomes consistent with national accounts estimates are concerned, van der Berg and Louw refer, for example, in their 2003 article, to the criticisms of the:

> "… very strong and unlikely assumption that survey underestimation of actual income is distribution-neutral, i.e. that the income of the rich and the poor is underestimated to the same degree… "

They continue with the observation that:

> "However valid their criticism may be, this leaves no way of dealing with inequality where surveys clearly underestimates (*sic*) incomes (as is the case in South Africa), other than waiting for more perfect surveys, because their argument implicitly acknowledges that distributional data from surveys cannot be trusted." (van der Berg and Louw, 2003, p.5)

In short, since (for them) there is no feasible alternative to (a) adjusting incomes equi-proportionally for under-reporting, and (b) scaling survey means using national accounts means, an unwillingness to resort to both practices would mean giving up the hope of having anything useful to say about poverty and inequality. As far as the last-named of these imperatives is concerned, there is a bit more leeway than is implied by the work of van der Berg and his colleagues. If one drops the not-terribly-meaningful concentration on race, and focuses, as I have done on estimates of earnings from employment only, then the awkward business of estimating national means (by race), before (b) can be attempted, disappears. Around the first of the problems (a), there is at present, no means of navigation. After engaging in a little speculation about the possibilities of simulating different distributions of under-reporting errors, I conceded defeat, arguing that:

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[11] The earlier poverty paper by van der Berg and Louw refers to this break in the series (2003, pp.6-7).

[12] The statistical release containing the national accounts (P0441) is now also innocent of any reference to race. It contains only the total remuneration (R) for all races by major division and for the economy as a whole (see, for example, P0441, 30 November 2004, pp.64-65, or 28 November 2006, pp.50-51).

[13] As part of the process of making statistics less incoherent, the Labour Accounts for South Africa (LAS), as part of the SAM, have been subjected to a rigorous overview. See Statistics South Africa Discussion document 0403, October 2005.

"With no mechanism to guide selection among alternatives, we would flounder in a sea of simulations – for better or for worse, it has been decided to stick with the assumption of uniform error… " (Meth, 2006b, p.28)

On that somewhat chastening note, let us rejoin the main stream of the argument by taking a look at the definition of income that emerges from the AMPS questionnaire.

Defining income earners the AMPS way

Defining income is relatively straightforward, measuring its magnitude, not so. The conceptual basis for the identification of different forms of income is the ancient economic tradition of identifying the returns to (the value added by) the four factors of production, land, labour, capital and entrepreneurship, where lands earns rent, labour, a wage, capital receives interest, and entrepreneurs are rewarded with profits (or losses!). In the olden days, after salaries and wages (remuneration) had been deducted from value added (GDP at factor incomes), the residual (interest, rent and profits) was lumped together in the national accounts under the heading 'operating surplus' (see, for example, *Statistics South Africa 1993*, pp.21.10-21.13). With the passage of the 1993 SNA (System of National Accounts) definitions have become more rigorous. The spirit, however, remains the same. [14]

There is an even older tradition in economics that referred to earned and unearned income – operating surplus from whatever source, in this approach, falls into the 'unearned' category. In practice, the distinction between earned and unearned income is a bit blurred. It is conventional to think of 'earnings' as a return to current effort of some sort, most commonly, work. The fruits of this effort, wages and salaries, are commonly referred to as 'remuneration'. [15] It is only the remuneration component of total income which van der Berg *et al* (2005 and 2007a) set out to scale, i.e., adjust for under-reporting (their attempt to do so, as will be seen below, is unsuccessful). Although investments of one sort or another also generate 'earnings' – rather obviously, (some) pensions are the 'earnings' of past saving and investment activity – it is not standard practice to refer to recipients of income from investments as 'income earners'.

As a glance at the AMPS questionnaire reveals (the relevant questions are reproduced in the Appendix at the end of this paper), this convention is not adhered to in their survey instrument (or at least it was not in 2004). Questions PD 11 and PD12 are the only sources in the AMPS of information on earnings and earners. For both the respondent and for others who bring income into the household, all sources of income except children's part-time earnings, are treated alike, i.e., as earned income. Since the AMPS questionnaire defines 'earnings' in such a way as to include all pensions (and presumably all other social grants), it cannot be used to distinguish between workers earning a wage or salary (remuneration), as opposed to those 'earning' money from other sources. [16] A great deal of effort is devoted by van der

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[14] The official definitions of the various forms that income can take (forms that is, that are recognised in official statistics) are to be found in the SNA (System of National Accounts), the most recent version of which was published in 1993 version (and is amended from time to time). Remuneration (income payable to an employee of an enterprise for work done) is defined in paragraph 7.21. Operating surplus (or mixed income) is defined from paragraphs 7.80 onwards

[15] Workers in unincorporated enterprises (which range enormously in earning capacity) present difficulties for official statistics gatherers because of the problems involved in measuring the costs of the production of their incomes. Many informal economy workers in South Africa fall into this category – accurate measurement of their net earnings is no simple task. Their net incomes must be at least as likely to be under-reported as the earnings of the employed. In my work, whatever correction for under-reporting I make to wages and salaries, applies to the incomes of informal economy workers as well.

[16] The exclusion of 'children's part-time earnings' should not deter 'earners' from reporting the child support grant as 'earnings', because the grant is received not by the child, but rather by the child's caregiver.

Berg and his colleagues to collecting information on social grant income (see, for example, van der Berg *et al*, 2007a, p.17). Since the AMPS income data apparently includes some or all of the social grant income going to the poor, it is not obvious how double-counting is avoided when transfer income (T_i in the expression above) comes to be allocated.

The way in which the income questions are posed effectively prevents poverty researchers from gaining access to a piece of information that is vital to any poverty study, namely, how many people in the household perform paid work, and how much they are paid for doing it.[17] If the survey respondent is the only person 'earning' an income in the household, and they describe themselves as either working full-time or part-time, a piece of information that meets this description of 'vital' will have been generated. In all other cases (multiple earners, respondent not employed), part or all of the nature of the 'earnings' is indeterminate.

There is no explanation in the papers on poverty by van der Berg and his colleagues, using the AMPS data, of how income earners who are remunerated for work done are distinguished from all of the other 'earners' detected by the Questions PD11 and PD12.[18]

Tucked away in the bottom corner of AMPS question PD13 is a space for an interviewer estimate of personal income, to be filled in if the respondent refuses to supply the relevant information. That (potentially) enables the boast to be made that zero-incomes (a problem that bedevils most survey instruments seeking information on income) are not a problem issue in the AMPS surveys. Such a boast, however, does not deserve much attention until (a) the number of refusals is known, and (b) the quality of the interviewer's estimates can be ascertained. There is no reference in the van der Berg *et al* (2005) paper to this problem. Unlike the Statistics South Africa surveys of which I have made use (the LFS and GHS), the AMPS surveys do not collect estimates of total household consumption. Expenditure estimates are useful not only as a check on income estimates, they also provide a reasonably good basis for simple imputation, where income estimates are missing. Of course, this advantage does not count for much when the interviewer is required to eliminate the 'missings', 'don't knows', and 'refuses' by estimating income (expenditure).[19]

Information collected on the age distribution (question PD10) in the AMPS is skimpy. It is not possible, for example, to determine whether anyone else other than the respondent is 'retired' (question PD2). It is also not possible to distinguish migrant remittances (an important source of income in workerless households) in the AMPS surveys. By comparison with the AMPS surveys, therefore, the Statistics South Africa household surveys (the GHS and LFS) are a model of rectitude, and hence, a potentially more reliable source of data on poverty.

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[17] Describing pensioners as 'earners' may not be problematic for the ordinary users of the AMPS data (subscribers? members of SAARF, the South African Advertising Research Foundation). The same is not true, however, for poverty researchers. Most pensions in South Africa are transfers (unrequited payments) from the state to individuals who meet specific (poverty) criteria.

[18] By contrast, the LFSs and GHSs produced by Statistics South Africa distinguish carefully between income earned from employment (remuneration), social grant income, and in the case of the LFS, migrant remittances.

[19] Two papers on the poverty question, of which I am aware, have been published so far this year by the van der Berg stable. The 2007a paper (p.14) refers to the "comprehensive information" on the AMPS available in van der Berg *et al* (2007b). Turning to that source, one finds about 50 words devoted to the income data in the AMPS surveys. Here they are:

"… the information on household income, … is collected through showing respondents cue cards divided into 28 or more categories (surveys in more recent years include up to 32 income categories). Where a respondent withholds such information, SAARF imputes household income on the basis of household expenditure implied by the product questionnaire." (van der Berg *et al*, 2007b, pp.7-8).

There is no reference to the problems of definition of income earner discussed above.

An indication of the extent of the differences between the van der Berg *et al* estimates of the extent of poverty in South Africa, and those that I have produced, in particular, those in Meth (2006b), was given in the introduction of the present paper. Absolute headcounts, it may be recalled, are lower in van der Berg *et al* (2007a) than they are in their 2005 paper. At least part of the explanation for the differences between our respective results must lie in the distributions extracted from the surveys we use as basic data. Statistics South Africa surveys detect large numbers of workerless households. Their sole means of support is social grants and migrant remittances. It seems likely, if I have understood the van der Berg *et al* methodology correctly, that because of the sloppy way in which 'earnings' are defined in the AMPS surveys, there are proportionately too many income earners distributed among the households (it may be that the AMPS users are more interested in how much households have to spend, than in how the household acquired the income to do so).

It was argued above that using race as a primary variable was not a good idea. A moment's reflection on the differences between the 'structures' of total incomes of the various races or population groups makes it clear why this is so. With their much higher labour absorption rates (65.1 per cent in September 2004), a large proportion of white incomes is in the form of remuneration. Among the African population, the proportion of the working age population that is employed is much smaller (34.8 per cent in September 2004, if subsistence agricultural workers are included, 32.9 per cent if they are not).

Africans, by contrast, receive proportionately more income in the form of social grants. If these differences did not exist, then applying a scaling factor to income, loosely defined, would result in the same relative error being imposed on each income estimate. When, however, inter-racial differences such as those described above exist, then the scaling is biased – African incomes are raised by too much, relative to those of the whites. Since poverty in South Africa is overwhelmingly suffered by the African population, the result of this bias is to understate poverty in that population group.

There is no discussion in the van der Berg *et al* (2005) paper of this problem, nor is there any discussion of the need to reconcile estimates of the numbers of 'earners incomes' in the AMPS surveys with numbers of remunerated workers (which number, cannot be derived from AMPS surveys). In other words, the differences between our respective estimates probably arises from the existence of 'income earners' in the AMPS surveys whose income originates in the social grants (and property income), which are then scaled along with those of the genuine recipients of remuneration (W * E). Unless van der Berg and his co-authors have access to data collected on the basis of a different AMPS questionnaire for 2004[20] from that which I downloaded from the SAARF website, one which elicits information on income earners in a manner that would allow the problems described above to be overcome, said problems constitute an insurmountable barrier to the proper measurement of remuneration (R_j).

Whereas the AMPS surveys that van der Berg *et al* use probably have too many income 'earners', it is possible, as I have argued (Meth, 2006b, p.17), that the numbers of workers picked up by the Statistics South Africa surveys at the bottom end of the distribution are an understatement of the true employment level. This could happen because the reference period for reporting on work activities is the previous seven days. That this is a significant problem needs, however, to be demonstrated rather than merely suggested, as I have done.[21]

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[20] For the purposes of the argument presented here, it is not necessary to look at the questionnaires for any other year –2004 is a key year in both our analyses – the non-availability of the information required to make a 'proper' estimate of the extent and severity of poverty in that year would scupper their whole enterprise.
[21] If the LFSs and GHSs under-count the numbers who work (possibly because the reference period for reporting on work (the previous seven days), is too short, the surveys could miss people with sporadic employment (say, a few days each month). Neither the impact of this omission, nor that of the poor quality of property income data, on poverty estimates is unlikely to be significant.

Until such time as van der Berg *et al* offer a more detailed description of the method used to produce earned income (remuneration) distribution figures out of the AMPS data, and in particular, of the way in which the other problems described above are dealt with (the hallmark of good scholarship is replicability), their results cannot be accepted as anything more than an interesting set of speculations.

Changes in shares of remuneration by race

To end this paper, a quibble is raised. This time it concerns the shares of remuneration (by race) of those in formal sector employment. Poverty, as we all know, is heavily concentrated in the African population group. It does not, however, follow that poverty will fall if the share of total remuneration accruing to that groups rises – if it is the income increases of skilled workers that causes African mean and total incomes to rise relative to whites, then both the distribution of income and the severity of poverty among the African group could worsen. As noted above, demonstrating that African workers receive an increasing share of wage income is part of the argument used by van der Berg and his co-authors to draw a picture of generally rising prosperity in that population group.[22] Figure 3 in the 2007a working paper depicts:

> "… racial shares of income from main job earned in the formal sector, sourced from the OHS and LFS series." The authors ask us to note the "… steadily increasing black share of remuneration, which comes predominantly at the expense of the shrinking white share." (van der Berg *et al*, 2007a, p.18)[23]

To draw this conclusion, data on earnings and employment are required. The source for the latter is given as the Labour Force Surveys (van der Berg *et al*, 2005, Figure 2, p.31). Since the surveys under-report earned incomes, some method of adjustment for this problem, has to be devised.

Inconsistencies in the LFS series

Although the authors do not draw attention to it, the fact is that the LFSs are difficult sources to negotiate. Prior to 2005, a number of discontinuities existed in the LFS employment, unemployment and working age population (WAP) series. The reasons, the details of which do not much concern us here, had to do with the fact that the 'old' series under-estimated the size of the working age population (26.894 million instead of 27.807 million in September 2000). Those among us who were interested in the LFSs, were aware that a revised (reweighted) set of estimates was due to be released by Statistics South Africa – we waited for it with bated breath, suspecting that some or all of what we had concluded on the basis of the discontinuity-ridden series, could be overturned. Finally, in 2005, the revised set of estimates of some of the most important variables with the discontinuities removed (by benchmarking

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[22] In their 2005 paper, van der Berg *et al* report a substantial increase in inequality in the African population between 1993 and 2000. Between 2000 and 2004, it is said to fall slightly. Among the four population groups they identify, inequality among Africans is by far the highest (2005, Fig 15, p.38). The 2007a paper repeats this story in more detail (the 1993 Gini for Africans was 0.547 – by 2000 it had risen to 0.609, only to drop to 0.598 by 2004. Corresponding Theil indexes for those years were 0.584; 0.764 and 0.740. The Gini coefficient for the population group with next most unequal distribution of income in 2004, Coloureds, was 0.550 (van der Berg *et al*, 2007a, Table 3, p.22). Incidentally, although it is customary to present inequality measures to three decimal places (poverty measures are also sometimes reported thus), such 'precision' (in which most of us indulge at times) is almost certainly spurious – it is unlikely that the fragile data on which such figures are based could support such claims.

[23] A similar sentiment was expressed in the earlier paper, which referred to:
"… steadily increasing black share of remuneration, which comes predominantly at the expense of the shrinking white share." (2005, p.13). The relevant chart is numbered Figure 10 (2005, p.35) where the variable was described as "Racial shares of remuneration".

the whole series to the 2001 census) was published. Tables of employment by sector (Formal and informal) and main industry by sex (Tables 4.4.1; 4.4.2 and 4.4.3) are given. No tables of employment by sector by industry by population group were published, although these could be estimated using the revised weights that could be obtained on application from Stats SA.

The original paper on this topic (van der Berg *et al*, 2005), of which the 2007a paper is a follow-up, was published on 30th September 2005. The revised LFS figures were embargoed for publication until 26th September 2005. It is not possible, therefore, for van der Berg and his colleagues to have made use of the revised LFS figures in their original paper. For the 2000 estimates, they would have had to use the forerunner of the 'official' statistics now published in the LFSs. Released on 26th June 2001, the September 2000 labour force survey results was described by Statistics South Africa as 'Discussion paper 1', this being the designation of a set of figures that have not yet been accorded 'official statistics' status. The September 2004 LFS results, by contrast, which were published on 31 March 2005, and which have not had to be revised or reweighted, would have been available to van der Berg and his colleagues at the time of writing the 2005 paper. As may be seen in Table 1 below, the revisions to the LFS estimates for 2000 were substantial.

Table 1 Formal sector employment, 2000-2004

	African	Coloured	Indian	White	Total
Sept 2000, Original	4328	1038	376	1744	7509
% Share of employment	57.6	13.8	5.0	23.2	100.0
Sept 2000, Revised	4620	1027	363	1905	7932
% Share of employment	58.2	13.0	4.6	24.0	100.0
September 2004	4894	1111	382	1910	8318
% Share of employment	58.8	13.4	4.6	23.0	100.0
Increase - 2000 Original – 2004	566	73	6	166	809
Increase - 2000 Revised – 2004	274	84	19	5	386
% change 2000 Original – 2004	13.1	7.0	1.6	9.5	10.8
% change 2000 Revised - 2004	5.9	8.1	5.2	0.3	4.9

Source: 2000 Original: Statistics South Africa 2001

2000 Revised: Statistics South Africa website, Interactive data site

2004: P0210, 31 March 2005.

Note: Employment and changes in the numbers employed are in 1000s.

Although the authors must have been aware, at the time of writing the 2005 paper, that the use of the unrevised numbers could be problematic, there is no reference in that paper to the issue. Less forgivably, there is no mention of it in the 2007a paper.

Using the original figures for the year 2000, employment appeared to have increased by about 800 000 between that year and 2004. The number of Africans employed in the formal sector reportedly increased by 566 000. Employment of whites was also said to have increased substantially. The revised estimates reduce both. Total employment growth over the period was only 386 000, most of it among Africans. It

is quite possible that such job growth as was reported, occurred mainly in high-skilled jobs.[24] This would represent a gain for the burgeoning black middle-class, a phenomenon to which van der Berg *et al* make frequent reference. It would, however, do but little for the poor.

The claim that formal-sector remuneration for Africans was rising faster than that for whites, if true, is mildly interesting. Not all of the evidence, however, supports the generally upbeat report of conditions among Africans produced by van der Berg *et al*. Absorption rates, for example, (the number employed divided by working age population) for whites, are roughly constant (at about 65 per cent) over the period 2000-2004. The number of whites employed falls – so does the size of the working age population, and by a slightly larger proportion – the (slight upward) change in the absorption rate is probably not statistically significant. For Africans, the question of how to treat subsistence agricultural activities for purposes of measuring employment, has, as we have seen above, a significant impact on the absorption rate.   If one includes those performing such activities, the absorption rate falls dramatically between 2000-2004 (from 39.4 to 34.8 per cent).   If one excludes them, the fall is moderated (from 34.4 to 32.9 per cent).[25] Either way, the decline in the rate sits rather awkwardly with the relatively optimistic findings on the welfare of the African population group reported by van der Berg *et al*.

In addressing the question of changes in the racial shares of income, the same problem that makes the measurement of income poverty such an uphill struggle, namely, the extent and distribution of under-reporting errors by income class, or by race, or whatever other differentiation is used, presents itself. Even if it were possible to extract a reliable set of employment figures from the LFSs for September 2000 and September 2004, figures which provided estimates of the distribution of jobs by occupation or sector, by race, one would still be faced with the problem of trying to discover their incomes.

Since the extent of under-reporting of income in different years, by income category or by decile, or by race, or whatever other sub-division of the workers one dreams up, cannot be ascertained, one can only place one's trust, as the authors do with the AMPS data, in the distributions that emerge from the LFS data, and then scale the survey means using national accounts means. The inability to get around the problem of possible (probable?) differential under-reporting, [26] suggests that rather than making confident assertions about changes in the racial shares of remuneration, a little modesty is called for. We cannot be sure what the situation was when the original 2000 LFS estimates (i.e., the LFS results as-published in 2001) were compared with the 2004 figures. Because we cannot determine under-reporting at any level of disaggregation, shifting to the revised 2000 LFS estimates leaves us no wiser. Cautious researchers would bring this to the attention of their readers.

Conclusion

At a time when the debate over the success of anti-poverty policy, and the likelihood of the 'social objective' of halving poverty (spelled out in the Asgisa document, 2006), is hotting up, incorrect

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[24] The LFSs collect data on occupations and incomes (and race), so it is notionally possible to measure the changes that took place between 2000 and 2004. Whether the surveys are sufficiently reliable to justify the effort involved is a moot point. For what it is worth, I concluded that job growth between 2001 and 2004 appears to have benefited mainly those in the upper income groups. See Meth (2006b, pp.47-48). This, I noted, was consistent with the story about a growing middle class told by van der Berg *et al* (2005, p.19).

[25] In Meth (2007c) I argue that as far as subsistence agricultural workers are concerned, estimates of their numbers are not only barely credible, but the behaviour of the series is occasionally so erratic, that they should be excluded from estimates of changes in total employment. Subsistence agricultural obviously cannot be ignored. The problems involved in measuring this activity are so severe, that they require special treatment.

[26] As noted above, van der Berg and his co-authors have long been aware of this problem, and the absence of any feasible alternative to the use of uniform scaling.

measurement of both the current severity of poverty, and of the impact on poverty that the economic growth of the past few years, and the rapid expansion of particularly the numbers of child support grants dispensed, has had, could have severe consequences for the poor. Misplaced satisfaction (on the part of government) with the form that policy has taken up until now, could see a worsening of the already dire conditions of many millions of people.

Poverty estimates produced by van der Berg *et al* (2005: 2007a) have found great favour with government in recent times because of the apparently substantial progress in the struggle against poverty that they report. My estimates of poverty for roughly the same period are altogether more pessimistic (Meth, 2006b). The present paper looks into the reasons for the large differences between our respective poverty estimates.

Other than to hint at a possible explanation for the void between our estimates, my earlier work on poverty did not venture too deeply into the terrain occupied by van der Berg and his colleagues. Their most recent estimates, however, push the headcount for the year 2004 a further two million below the 15.4 million they found in the 2005 paper (my estimate for that year was about 18 million). A difference of almost five million is too much to ignore. Accordingly, the present paper works its way through the various presentations of their methodology, finally coming to land on the AMPS questionnaire which furnishes the raw data for the survey distributions (by race), whose values they scale upwards, until the means equal those extracted from the national accounts.

If my reading of the AMPS questionnaire is correct, the difference in our findings is largely to be explained by the poor quality (for poverty measurement purposes) of the income questions in the questionnaire. With few exceptions, anyone bringing income into a household is treated by the AMPS survey as an 'income earner'. As such, all of their mean incomes are apparently scaled upwards to eradicate the effect of under-reporting of income in the surveys. This, I argue, is inappropriate – the only incomes that should be scaled are those that represent a return to current effort (primarily wages and salaries). (And since we cannot know the extent of under-reporting by income class, or race, all such scalings represent a leap in the dark, one which I too, have been forced to make).

The AMPS definition of 'earned income' appears to include social grants (the big three being state old age pensions, disability grants and child support grants). Given the massive differences in labour absorption rates, and the major differences in the composition of income of the different race groups, the use by van der Berg *et al* of race as an organising category is argued to lead to an understatement of the extent and severity of poverty. The contribution of social grants to total household income is proportionately greater in African than in white households (among which group the labour absorption rate is twice as high as it is among African households). Since the value of social grants is known, their contribution to total income in any household reporting receipt of a social grant can, in principle, be determined with precision. That the Statistics South Africa household surveys do a less-than-perfect job of detecting the grant-receiving households in no way detracts from the serious error involved in taking no account at all of the source of income when the scaling process (as carried out by van der Berg *et al*) takes place. In short, it is their apparent failure to scale only incomes earned from employment (remuneration) that seems to account for the differences between our results.

The paper ends with a brief discussion of the difficulties of estimating racial shares of remuneration. Both employment and earnings are hard to estimate accurately, especially in an era when the main source of data, the Labour Force Surveys, was undergoing development. In a splendid essay, Joan Robinson refers to utility as "a metaphysical concept of impregnable circularity" (1981, p.48). While the work of van der Berg and his co-authors on poverty has not yet attained the dizzying heights of that of the neo-classical metaphysicians, there are elements of tail-chasing in it which suggest they are heading in that direction. Applying what is, by their own admission, a dubious technique to shaky data, they conclude that poverty has fallen. To bolster this assertion, they apply the same dodgy technology to

another data-set also known to be fraught with errors of under-reporting of unknown magnitude and distribution, and then use the outcome (racial shares of remuneration are moving in favour of the African population group) to support the first conclusion. This will not do. It is a pity that they do not abandon the search for the key to the scaling mystery, and stick instead to refining the results they reproduce in Figure 5 of their 2007a paper (see p.20). In that chart, the unadjusted AMPS figures suggest strongly that poverty is declining after 2000. If they can confirm this by solving the problems with the AMPS income data discussed above, they would then have earned the right to describe their work as unique. Disagreement over the extent of the fall in poverty will not disappear, but that issue, if it is going to be addressed at all, requires more than AMPS can reasonably be expected to provide.

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Appendix: Extract from AMPS 2004 Questionnaire

PD2. Which one of these statements best describes your working life?

Working full-time
Working part-time
Not working:
      - Housewife
      - A student
      - Retired
      - Unemployed

PD10. How many people, excluding domestic workers and household helpers, but including yourself, are there in each of the following groups, currently living in this household?

	Males	Females
Under 12 months		
12 - 23 months		
24 - 35 months		
3 - 6 years		
7 - 9 years		
10 - 11 years		
12 years		
13 - 14 years		
15 years		
16 - 34 years		
35 + years		

PD11. How many people in your household earn money? Please INCLUDE those who have an income from pensions and investments, but EXCLUDE children's part-time earnings.

PD12. Please give me the letter which best describes the TOTAL MONTHLY HOUSEHOLD INCOME of all these people before tax and other deductions. Please include all sources of income i.e. salaries, pensions, income from investments, etc. (See list in PD13)

PD13. Please give me the letter which best describes your PERSONAL TOTAL MONTHLY INCOME before tax and other deductions. Please include all sources of income i.e. salaries, pensions, income from investments, etc.

A	R 1	-	R 199
B	R 200	-	R 299
C	R 300	-	R 399
D	R 400	-	R 499
E	R 500	-	R 599
F	R 600	-	R 699
G	R 700	-	R 799
H	R 800	-	R 899
I	R 900	-	R 999
J	R 1 000	-	R 1 099
K	R 1 100	-	R 1 199
L	R 1 200	-	R 1 399
M	R 1 400	-	R 1 599
N	R 1 600	-	R 1 999
O	R 2 000	-	R 2 499
P	R 2 500	-	R 2 999
Q	R 3 000	-	R 3 999
R	R 4 000	-	R 4 999
S	R 5 000	-	R 5 999
T	R 6 000	-	R 6 999
U	R 7 000	-	R 7 999
V	R 8 000	-	R 8 999
W	R 9 000	-	R 9 999
X	R 10 000	-	R 10 999
Y	R 11 000	-	R 11 999
Z	R 12 000	-	R 13 999
ZA	R 14 000	-	R 15 999
ZB	R 16 000	-	R 19 999
ZC	R 20 000	-	R 24 999
ZD	R 25 000	-	R 29 999
ZE	R 30 000	-	R 39 999
ZF	R 40 000	+	

● No personal income (PD13)
REFUSED   INTERVIEWER ESTIMATE (PD12)

PD14. Are you the person who contributes most to the household income?

Yes
No

The Southern Africa Labour and Development Research Unit

The Southern Africa Labour and Development Research Unit (SALDRU) conducts research directed at improving the well-being of South Africa's poor. It was established in 1975. Over the next two decades the unit's research played a central role in documenting the human costs of apartheid. Key projects from this period included the Farm Labour Conference (1976), the Economics of Health Care Conference (1978), and the Second Carnegie Enquiry into Poverty and Development in South Africa (1983-86). At the urging of the African National Congress, from 1992-1994 SALDRU and the World Bank coordinated the Project for Statistics on Living Standards and Development (PSLSD). This project provide baseline data for the implementation of post-apartheid socio-economic policies through South Africa's first non-racial national sample survey.

In the post-apartheid period, SALDRU has continued to gather data and conduct research directed at informing and assessing anti-poverty policy. In line with its historical contribution, SALDRU's researchers continue to conduct research detailing changing patterns of well-being in South Africa and assessing the impact of government policy on the poor. Current research work falls into the following research themes: post-apartheid poverty; employment and migration dynamics; family support structures in an era of rapid social change; public works and public infrastructure programmes, financial strategies of the poor; common property resources and the poor. Key survey projects include the Langeberg Integrated Family Survey (1999), the Khayelitsha/Mitchell's Plain Survey (2000), the ongoing Cape Area Panel Study (2001-) and the Financial Diaries Project.

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