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I INTRODUCTION

One of the largest policy debates in South Africa currently revolves around the issue of whether or not poverty and inequality have been reduced since political transition. When it initially came into power in 1994, the new government was tasked with alleviating widespread poverty within the context of high unemployment rates and – at that time – a stagnant economy. Much of the research conducted on household survey data collected by Statistics South Africa has shown increasing poverty and inequality during the second half of the 1990s (see for instance Hoogeveen & Özler 2004; Leibbrandt, Levinsohn & McCrary 2005; UNDP 2003).

Since the turn of the century, however, an expanded social grant system and improving labour market prospects have had major impacts on poverty reduction. During the past four years, government has increased grant payments by R22 billion in 2000 Rand values: an increase of more than 70 per cent in real terms. While this is impressive and particularly good news for the poor, social assistance is nearing the boundaries of its ability to alleviate poverty. Job creation is an alternative poverty reduction device, and one that appears to have brought rewards in the last few years – particularly for the black population. Even though many of the poorest are unskilled, expanding jobs would bring much more income to those who are presently poor, raising them above the poverty line and allowing them to shift into higher income deciles. As will be shown later in this paper, jobs are surprisingly well targeted at the poor, assuming that present characteristics of employed workers fairly represent the characteristics that are sought by potential employers. However, if the skill content of jobs continues to rise, the beneficial impact of new jobs on those presently poor may be reduced. Naturally, further expansion of jobs and social grants is made more likely if there is high economic growth, which however also tends to increase the size of wage and property income. This benefits those individuals who already have access to such income sources. Consequently economic growth has considerable poverty-reducing potential in the South African context, though the direction of its impact on income inequality is uncertain.

This study tracks trends in the South African income distribution over the past decade and a half, with a particular focus on poverty trends in the post-transition period. It builds on

previous work by Van der Berg and Louw (2004) and so also constructs time series estimates of the income distribution using a number of data sources, including both household surveys and national accounts data. The aim of this exercise is to arrive at estimates of recent trends that are as reliable as the available data permit, to enable us to make a confident contribution to the current literature on the path of poverty and inequality in modern South Africa. 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. It is also possible that we only record a downward trend in poverty a little later than it actually commenced. This may partly account for the steepness of this trend we find.

II THE POST-APARTHEID SOUTH AFRICAN CONTEXT

When it took over the reins of power in South Africa just over a decade ago, the ANC-led government was faced with a daunting economic reform task. Isolation from the world economy had resulted in a stagnating economy characterised by poor and sometimes even negative growth, while almost a century of racist legislation had left deep clefts in the socio-economic structure of the country. The government was thus faced with a double transformation challenge: a predominantly social one concerned with removing the gross inequalities that apartheid had wrought on South African society, with a particular focus on the upliftment of many millions of people living in poverty, and an economic one directed at simultaneously pulling the economy out of its recessionary slump in order to be able to finance any redistribution required by the former imperative. In response to its economic policy challenge, government adopted the GEAR framework aimed at achieving macroeconomic stabilisation and rapid export-led growth. However, per capita GDP grew by an average of only 0.6 per cent over 1994-1999, accelerating to a still modest 1.6 per cent later in 2000-2004[1]. While GDP grew only marginally faster in the second period[2], population growth slowed due to the progression of the HIV/AIDS pandemic, emigration and declining fertility.

A recent track record of seemingly stable aggregate macroeconomic performance featuring modest growth gains masks the large structural changes that the South African economy has undergone since political transition. Given that South Africa is a relatively open economy by international standards[3], it is unsurprising to discover that opening borders to international trade and shifting incentives to remove the persistent anti-export bias evident in previous trade policy have caused significant shifts in production. Once an exporter of predominantly primary goods, South Africa is increasingly moving towards exporting relatively skill-intensive manufactures and thus diversifying its aggregate export base. Between 1994 and

[1] Note that these figures are derived from Reserve Bank data. A larger estimate of population growth is used for these calculations than in the calculations that we perform later in this paper, since we estimate slightly larger per capita growth in income.
[2] Reserve Bank data indicates that GDP growth increased from 2.7 per cent to 3.4 per cent.
[3] Trade as a percentage of GDP grew from 42% in 1994 to 54% in 2004; the 1999 average for non-oil middle-income countries was 46 per cent (Tsikata 1999: 3).

2002, merchandise exports rose from 65 to 76 per cent of total exports (UNDP 2003: 14). In contrast to the recently flourishing manufacturing sector, the primary sector continues to decline in economic performance. Agriculture accounts for only 3.4 per cent of GDP, while mining contributes 7 per cent[4].

These structural shifts in the economy have had important consequences for the structure of the labour market. The contraction of primary sector and labour-intensive manufacturing activity has resulted in a declining demand for unskilled workers; their share in the labour force fell from 31 per cent in 1995 to 27 per cent in 2002 (Bhorat 2003: 11-12). By contrast, the rapidly growing more technology-intensive parts of the manufacturing sector have absorbed mostly additional semiskilled and skilled labour[5]. These shifts in labour demand – as well as rapidly increasing wages and high levels of labour market rigidity – have been reflected in rising unemployment rates and a formal sector employment structure that is increasingly skewed towards the middle to high end of the labour skill spectrum. In 1995, the narrow and broad unemployment rates were 17 and 30 per cent respectively (based on the 1995 October Household Survey). By 2004, the corresponding figures were 26 and 41 per cent (based on the Labour Force Survey of September 2004). Such high unemployment rates should be seen in the context of a country that has an unusually small informal sector by international standards[6] and very little peasant agriculture, leaving unemployed workers with few alternative income earning opportunities and thus a real possibility of falling into poverty. Indeed, research has shown that 61 per cent of unemployed people live in the poorest households (Meth & Dias 2004: 65).

While recent trends in the labour market are likely to have contributed to poverty, welfare policy has become increasingly proactive in efforts to alleviate poverty through the provision of social grants. The current government has expanded the social grants system considerably, notably through introducing the child support grant (CSG) for impoverished households containing children less than 15 years of age. Another important development has been the de-racialisation of the relatively large means-tested social old age pension. Research by Case and Deaton (1998) has indicated that this grant is well targeted, and the UNDP (2003: 89) argues that it is the most effective grant in terms of reducing the proportion of poor South Africans. The CSG – while being significantly smaller than the pension – is also very important for poverty relief, given that children are amongst the most economically vulnerable individuals in South African society (World Bank/RDP Office 1995). However, it should be remembered that many poor people in this country do not qualify for social grants, underscoring the importance of private income earning capacity for economic upliftment.

The discussion above has outlined a broad picture where the employment of its members largely determines whether or not a household falls below the poverty line, and where various sources of income differentially contribute to inequality between income-earning households. Leibbrandt, Bhorat and Woolard (2001: 30-31) have shown that of all the major income sources, wages make the largest contribution to overall income inequality in South Africa. To examine poverty and inequality in more detail, we turn to a review of studies concerned with

[4] Own calculations based on Reserve Bank data.
[5] It should been borne in mind that the manufacturing sector is not as labour-intensive as the primary sector is, so that an increase in demand for manufactures often results in a less than proportional increase in hiring.
[6] Fallon and Lucas (1998: 1) argue that South Africa is the only medium-sized country in which there are more unemployed people than informal sector workers. Indeed, Rama (referred to in Hoogeveen & Özler 2004) estimates that only 15 per cent of the total labour force operates in the informal sector.

the recent evolution of the income distribution. The review is followed by a discussion of the reliability of data sets employed in these studies.

III LITERATURE REVIEW

Since the turn of the century, a growing literature has sprung up attempting to answer the burning question of whether the South African income distribution has improved – in terms of a reduction in poverty and inequality – since political transition. These studies have analysed data from the 1995 and 2000 Income and Expenditure (IES) household surveys (together with the linked 1995 October Household Survey (OHS) and September 2000 Labour Force Survey (LFS)) as well as income data from the Population Censuses conducted in 1996 and 2000. The majority of work suggests that the income distribution has worsened on both counts, although this paper will raise cautions regarding inference about trends made on the basis of comparisons at two points in time using existing post-transition household datasets. Firstly, however, a brief overview of the findings in some of the major quantitative studies on the topic is presented.

Interestingly – given government's objection to claims that its first-term efforts to reduce poverty have failed (ANC Today 2003) – the first study to suggest that poverty had worsened since 1994 came in the form of an official report published in 2002 by Statistics South Africa. This report compared IES data sets for 1995 and 2000, and found that household incomes had declined since transition, thus resulting in an increase in poverty. Findings on income inequality were less conclusive, with evidence of only a small increase in the Gini coefficient[7] from 0.56 to 0.57 (Statistics South Africa 2002). Other recent studies that corroborate Statistics South Africa's claims regarding the path of poverty include those by Hoogeveen and Özler (2004), Leibbrandt, Poswell, Naidoo, Welch and Woolard (2004), Leibbrandt, Levinsohn and McCrary (2005) and Meth and Dias (2004).

Hoogeveen and Özler (2004) analyse the income distribution using the IES/OHS1995 and IES2000/LFS2000:2 (i.e. September 2000 LFS). They apply three poverty lines, namely the international $1 and $2 a day poverty lines (R87 and R174 respectively in 2000 prices) and the lower bound of a "cost-of-basic-needs" poverty line, i.e. R322 per month in 2000 prices. Applying these poverty lines to household per capita incomes, the authors find evidence of a particularly large increase in extreme poverty: the number of people living on incomes of less than $1 a day increased by 1.8 million over 1995-2000. 2.3 million people were added to the poor during the period using the $2 a day line, while the proportion of people living below the lower bound of the "cost-of-basic-needs" poverty line remained the same (this implies an increase in the number of people living in poverty as a result of population growth). They also find that the depth and severity of poverty increased for any poverty line below R322 (Hoogeveen & Özler 2004: 10-11). Hoogeveen and Özler (2004) note that the rise in poverty is predominantly due to rising poverty amongst blacks, since Indian, white and especially coloured poverty appears to have declined. They suggest that the dynamic behind the numbers is changing returns to household endowments rather than changes in the quantities of endowments held by households; there are increasing rates of return to education only for highly educated individuals in urban areas, of which blacks constitute a small proportion.

The authors also report that income inequality increased over the period, a finding that is predominantly attributed to an observed increase in the size of the increasingly highly unequal

[7] Gini coefficients are calculated on the basis of Lorenz curves, which plot the cumulative income distribution for a population in a space where the cumulative percentage of households or individuals forms the horizontal axis and the cumulative percentage of income forms the vertical axis. The Gini is calculated by dividing the area lying between the Lorenz curve and a 45 degree diagonal by the area lying under the Lorenz curve. A value of 0 indicates complete equality, while a value of 1 indicates the maximum degree of inequality possible.

black population. The observed change in the Gini coefficient is small – i.e. 0.56 to 0.58 (Hoogeveen & Özler 2004: 15) – although this is attributed to the Gini coefficient being most sensitive to changes in the middle of the income distribution. Employing an inequality measure that is sensitive to changes at the lower end of the income distribution, i.e. the mean logarithmic deviation, Hoogeveen and Özler (2004) find evidence of a greater rise in inequality.

Leibbrandt, Levinsohn and McCrary (2005) utilise the same datasets as Hoogeveen and Özler (2004). However, they focus on individual incomes (based on the sample of individuals aged 18 and older) rather than on household per capita incomes or expenditures, as other studies do. Leibbrandt, Levinsohn and McCrary (2005) find that the distribution of real income shifted to the left over the period, resulting in a drop in real income of 40 per cent for income earners and thus an increase in poverty (Leibbrandt, Levinsohn & McCrary 2005: 4). The authors note that this large fall in income is inconsistent with trends in the national accounts, although they do not discuss the issue further (Leibbrandt, Levinsohn & McCrary 2005: 8). In the same vein as Hoogeveen and Özler, they argue that the main reason for the observed shift in the distribution is a change in the returns to endowments; in particular, there is evidence of falling returns to education for blacks, contrasted with rising returns to education for whites. One explanation for this finding is that whites collectively possess more of the type of education (i.e. tertiary) that has been rewarded by skill-biased technical change than blacks do. Furthermore it might be too early to expect affirmative action to have had much of an influence on racial restructuring of the labour market, particularly given the low rate of job creation. Youth and blacks appear to have borne the heaviest burden of income losses (Leibbrandt, Levinsohn & McCrary 2005: 35-37).

Section IV of this paper argues that the IES 1995 and 2000 datasets are particularly problematic for purposes of comparing the income distribution across years. Accordingly, attention turns to studies that do not rely on the IES datasets for inference. Leibbrandt, Poswell, Naidoo, Welch and Woolard (2005) analyse data from 10 per cent samples of the 1996 and 2001 censuses, focusing on both income and access poverty. These authors define poverty in terms of two poverty lines: the international $2 a day line, and the level at which Statistics South Africa first set the poverty line in its poverty-mapping work: R250 per month in 1996 Rand. Applying these poverty lines to household per capita incomes, they find that income poverty increased between 1996 and 2001, continuing an earlier trend noted by Whiteford and Van Seventer (2000). In contrast to Hoogeveen and Özler's (2004) claim, Leibbrandt et al. (2005: 11) argue that extreme poverty (defined in terms of the $2 a day line) has increased less dramatically than moderate poverty (defined in terms of the R250 poverty line), both in terms of the extent and depth of poverty.

At the same time as poverty rose, real household income in the uppermost quantiles increased, causing a rise in income inequality. The authors note that this is the first time that inequality for the total population has increased beyond the level it stabilised at in 1975: the Gini coefficient increased from 0.68 in 1996 to 0.73 in 2001 (Leibbrandt et al. 2005: 7). The driver of this increased inequality was increasing variation in incomes within race groups, rather than variation across race groups. The authors also highlight the fact that two trends that had been observed in the income distribution since the 1970s either stopped or reversed in 1996. There was no change in blacks' share of total income (i.e. 38 per cent) between 1996 and 2001, ending the long-term increase in this racial share that had been noted before (Leibbrandt et al. 2005: 9). Further, the gap between white and black mean per capita incomes widened over the period, reversing the prior trend.

Meth and Dias (2004) utilise the OHS1999 and LFS2002:2 and analyse poverty by focusing on the number of people living in households that fall into the two lowest household expenditure categories in each survey. They point out that in 2002 roughly 12 million individuals live in households that spend less than R400 per month, while 13.6 million individuals are poor but slightly better off, with household expenditures falling in the range of R400-R799 per month (Meth & Dias 2004: 64). These figures represent increases of 31 per cent and 11 per cent respectively in the 1999 proportions of the population falling into the lowest two survey expenditure categories (Meth & Dias 2004: 63). To formally identify the poor, the authors then apply a poverty line of R384 per month in 1999 prices, as used by Bhorat and Leibbrandt (2001: 80) in previous work. On the basis of this measure, Meth and Dias (2004: 79) find that 4.4-4.5 million individuals joined the ranks of the poor over the survey period (on the basis of money metric poverty), and argue that poverty has increased substantially over the post-apartheid period. However, Vermaak (2005: 6) points out that their decision to analyse household expenditures may be challenged, since in both surveys households report only a single figure for total monthly household expenditure. This is likely to exacerbate the extent of expenditure underreporting since households are unlikely to recall all of the goods and services purchased without being prompted further, making it appear that households are poorer than they truly are.

Having reviewed the studies that suggest poverty has increased, the focus of this review now turns to empirical work that suggests that poverty may have stabilised or declined since political transition. The UNDP's 2003 Human Development Report for South Africa (UNDP 2003) as well as research by Simkins (2004) and Van der Berg and Louw (2003) fall into this category.

The UNDP works with 3 poverty lines: the international $1 and $2 a day lines, as well as a national poverty line set at R354 in 1995 Rand in line with the UNDP's estimated cost of satisfying minimum dietary requirements. Contrasting data for 2002[8] with the IES 1995 and using the national poverty line, the report finds that the proportion of people living in poverty had fallen from 51.1 per cent to 48.5 per cent over the period (UNDP 2003: 41). Despite this decline, the absolute number of people living in poverty by this measure had increased from 20.2 million to 21.9 million as a result of population growth. The poverty headcount ratio[9] using the $2 a day poverty line also decreased slightly (from 24.2% to 23.8%), although disturbingly the headcount ratio for the most extreme poverty – measured on the basis of the $1 a day line – increased from 9.4% to 10.5% (UNDP 2003: 41). The UNDP reports that while the extent of poverty appears to have declined slightly, the depth of poverty (measured by the poverty gap) increased, particularly when using lower poverty lines. Commenting on the income distribution as a whole, the UNDP (2003: 43) claims that inequality is worsening: the Gini coefficient rose from 0.596 in 1995 to 0.635 in 2002.

Simkins (2004) performs analysis on the 1995 and 2000 IES surveys as well as the 1996 and 2001 censuses, in an attempt to arrive at robust conclusions regarding the paths of poverty and inequality in the post-transition period. He uses a poverty line set at household income of R800 per month. Before applying the standard distributional analysis techniques, the author

[8] Chapter 2 of the Human Development Report – in which the findings on poverty are presented – does not mention which dataset for 2002 is employed for purposes of analysis. We presume that one of the two LFS datasets for this year is used.

[9] The poverty headcount ratio measures the proportion of individuals in the total population living below a given poverty line. The poverty headcount is simply the number of individuals living in poverty.

adjusts the data where it appears incorrect or incomplete. His research indicates that inequality increased substantially between 1995 and 2001, although it provides less evidence of a trend in poverty. On the basis of known errors in the datasets, Simkins (2004: 10) suggests that poverty may have worsened somewhat over the period.

Van der Berg and Louw (2004) analyse the post-apartheid income distribution using the IES datasets for 1995 and 2000. However, they note that current household income rose over the period, which is inconsistent with the observed decline in household incomes using the IES survey data. Accordingly, the authors calculate mean incomes for each race group using national accounts and other sources of data, and then apply these to the intra-group distributions of income contained in the IES datasets[10]. Setting the poverty line at R250 per month in 2000 Rand (to be broadly consistent with Woolard & Leibbrandt 2001), Van der Berg and Louw (2004: 567) find that the poverty headcount ratio stabilised or even declined slightly over 1995-2000, although the number of people living in poverty increased due to population growth. There is evidence of a fairly small increase in inequality within race groups (Van der Berg & Louw 2004: 566). This apparent stability masks the substitution of inequality within race groups for inequality between race groups, a phenomenon which is driven by the gap between rising job prospects for highly skilled members of each race group and declining prospects for less skilled workers. Indeed, by 1996 intra-racial inequality accounted for 67 per cent of overall inequality in South Africa (Whiteford & Van Seventer 2000: 28).

Finally, it is important to qualify the findings of this review by noting that only results for money metric poverty analysis have been presented. However, income is only one dimension of wellbeing and poverty often involves deprivation on a number of levels. Considering the extent of deprivation of access to basic services rather than income, it can confidently be asserted that this aspect of poverty has been reduced since 1994. Comparison of census data for 1996 and 2001 show a notable decline in deprivation in terms of services (Burger et al. 2004; Leibbrandt et al. 2005). Household surveys show a strong increase in access to housing, electricity, water and sanitation (Burger et al. 2004), and the improvement in service delivery has particularly benefited the poorest households (Leibbrandt et al. 2005: 34). In addition to these encouraging findings, note that the proportion of South Africa's GDP allocated to social spending currently ranks amongst the highest in the world (Rama 2001 in Hoogeveen & Özler 2005: 29).

IV DEFICIENCIES IN THE DATASETS

Why would we have any reason to question the recent poverty and inequality findings? Firstly, both census data sets suffer doubly from a high number of households reporting zero incomes and a large number of missing observations for personal income. "Zero-income" households amount to 12.6 per cent of the total in 1996, and 23.2 per cent of households in 2001 (Simkins 2004: 6). In 1996, 11.8 per cent of households returned missing values for one or more members (Simkins 2004: 6), while in 2001 more than a quarter of individuals lived in households where some of the individuals have missing income data (Ardington et al. 2005: 7). Adjusting for the missing data in Census 2001 through income imputation, Ardington et al. (2005) find that estimates of mean income and inequality are higher, while estimates of poverty are lower; this is because non-response was higher for those in urban areas and amongst whites – groups which are more affluent on average (Ardington et al. 2005: 12).

[10] This technique is also utilised in the current study, and is explained in more detail in the Appendix.

Another problem with census data is that inequality levels are understated as a result of collecting income information in bands, although fortunately not by much (Ardington et al. 2005).

Issues that make comparability particularly difficult plague the IES1995 and 2000 datasets. Indeed, two years after publishing its report comparing the results of these surveys, Statistics South Africa admitted that the two surveys were not directly comparable. Benchmarked against population figures from Census 2001, the IES2000 under-represents the white population while over-representing the black population (Hoogeveen & Özler 2004: 41). As a result, there is large gap between the estimates of household income from the IES2000 and national accounts data (Vermaak 2005: 2). Attempting to correct for this problem is not an easy task. Hoogeveen and Özler (2004) re-weight the racial populations from the IES2000 in line with the estimates of racial shares from Census 2001. However, Vermaak (2005: 6) points out that this assumes that incorrect sampling occurs randomly across each racial population, rather than being a systematic problem for households of a certain expenditure range. If the assumption is incorrect, then "correcting" for incorrect sampling does not accomplish its purpose. Furthermore, Simkins (2004: 4) notes that the IES2000 measures property income poorly, resulting in understatement of this component of household income.

V METHODOLOGY AND PRELIMINARY FINDINGS

This study looks at the evolution of poverty and inequality in post-transition South Africa from a different perspective than those adopted in the studies referred to in Section III. The first important difference is that we consider changes in the income distribution over a longer time period, through extending analysis beyond the time at which previous work ends (i.e. 2000-2002, depending on the datasets utilised). Apart from the semi-annual LFS surveys, the next household survey to be released – that is, the IES – will only be available in a number of years' time. Even then, comparing this survey with previous IES surveys is likely to be problematic, given the issues referred to in Section IV. Secondly, our work is not as easily influenced by the vagaries of individual surveys, since we utilise a number of surveys in our attempt to extract trends. Thirdly – and perhaps most importantly – our distributional estimates are adjusted to be consistent with the national accounts series for aggregate household income[11]. Authors including Leibbrandt, Levinsohn and McCrary (2005: 8) have noted that the recent trends they pick up from analysis on survey data diverge from trends emerging from the national accounts, although they do not attempt to reconcile the two sets of household income trends.

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. 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

[11] Note that Simkins (2004: 1) adjusts national accounts current household income by reducing compensation of employees by an estimate of 10 per cent (for employer contributions to funds) and property income by 25 per cent (for imputed rent). The reason for this is that the IES and census questionnaires do not include employer contributions and imputed rent in their definitions of personal income. We do not make a similar adjustment here, and thus over-adjust survey data (i.e. raise per capita income means to reflect the full actual discrepancy between national accounts mean income and survey mean income), thus implicitly assuming a similar distribution of these income sources as for measured per capita income.

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. This methodology is not uncontroversial (opposition to it is voiced by Deaton 2003, amongst others), although underreporting of income is known to be a serious deficiency of household surveys (Deaton 1997). Indeed, the underestimation of income in survey data is particularly serious for inferring trends regarding the path of the income distribution, since research evidence reveals that the divergence between survey income and national accounts income may be growing over time in developing countries. This is true at least in India, a country that has had a large enough number of surveys to form the basis for such judgements (Deaton 2003).

While income data from survey datasets is often flawed, one cannot necessarily assume that national accounts data is free from errors, however. In particular, national accounts data is prone to non-sampling errors in the form of incompleteness or inconsistency, and methods of data collection are often changed arbitrarily. Furthermore, there is no transparency in the calculations used to estimate aggregates, and racial decompositions of totals are not provided (De Lange in Devereaux 1983: 6). In addition to such issues, it should be acknowledged that the decision to adopt income trends contained in the national accounts rather than those reflected in household survey data is not a trivial one since trends extracted from these data sources run in opposite directions during recent years. The current household income series contained in the national accounts reflects annual growth of 4.1 per cent over the period 1995 to 2000[12], while many of the studies referred to above have found evidence of declining household incomes and worsening poverty. For instance, Leibbrandt, Levinsohn and McCrary (2005) note that the two IES surveys imply a massive fall of about 40 per cent in real earnings between 1995 and 2000. The authors go on to argue that the fact that this contradicts national accounts may be a reflection on the accuracy of the latter rather than on the surveys. If such a drop in income truly occurred, it would imply a worse shock to output than that experienced during the Great Depression.

What evidence is there to judge claims of the sort made by Leibbrandt, Levinsohn and McCrary (2005) by? A sharp decline in incomes would be expected to lead to a comparable fall in petrol sales – but sales of petroleum products increased 9.0 per cent, petrol by 2.4 per cent, and paraffin by a miniscule 0.8 per cent (perhaps because growing access to electricity may have dampened paraffin demand). Another indicator of economic activity – electricity produced – increased by 12.9 per cent while electricity consumed by 15.0 per cent, the difference being partly accounted for by electricity imports. The volume of goods transported, mainly by road, increased by 12.2 per cent. Audited national revenue figures also provide a real and strong contradiction of the survey trends. Instead of strongly declining, as one would expect in response to a strong decline in incomes of the magnitude implied by the two IES surveys, overall tax revenue increased 23.9 per cent, largely driven by strong increases in VAT revenues (18.9 per cent), income tax revenues (26.0 per cent) and company tax revenue (32.6 per cent).[13] Improved tax administration is acknowledged to have contributed to this rise, but some economists believe GDP growth is under- rather than over-estimated, judged *inter alia* by the buoyancy of tax revenues. Data from surveys on economic

[12] This calculation is based on Reserve Bank data.

[13] Such revenue increased despite the fact that VAT rates remained unchanged, and that both income tax and company tax rates were adjusted downwards during the period.

activity conducted by Statistics South Africa that feed into national accounts data series indicate that many of the components of aggregate production and expenditure have grown substantially over the period 1995-2000. Retail and wholesale sales grew by 9.9 per cent and 4.8 per cent respectively, while there were also increases in expenditure on non-durables (4.8 per cent), semi-durables (33.9 per cent) and durables (8.4 per cent). In fact, the only two items that experienced negative growth were car sales (value of vehicles sold declined by 8.5 per cent) and buildings completed (value down 11.2 per cent), both of which are strongly cyclical types of expenditure (own calculations using Statistics South Africa 2003).

On the basis of this evidence, it appears implausible that household incomes have declined to the extent suggested by researchers' analysis of raw survey data. This also suggests that using the two IES surveys for comparison purposes, without taking cognisance of the sharp drop in incomes that such comparison implies, is likely to lead to erroneous conclusions regarding trends in poverty. We aim to address this problem by combining survey data with other sources of household income data. Before turning to our analysis of poverty and inequality, we evaluate trends in income over the post-transition period. Note that all amounts are in constant 2000 Rand, unless stated otherwise.

Trends in current household income:
Current household income is defined as the aggregate of three components: compensation of employees (i.e. remuneration), transfers from government, and other income ("property income") consisting of residual items. Of this residual category, the most important sources of income are:

- Profits, farm income
- Dividends
- Interest payments
- Other transfers

Current household income is determined by GDP in the long run, even though its growth may deviate from GDP growth in the short run as a result of cyclical variation. Over the last two years, current income has increased surprisingly rapidly, predominantly as a result of the growth of government transfers to households and of the wage bill. The CSG has expanded particularly rapidly, and disability grants have also expanded somewhat. This rise in transfers benefits the poorer race groups, and poorer segments of the population within each race group.

Figure 1 decomposes current income by its component income sources. Note the surprisingly large growth of property income over the period. This implies that the rich generally benefited more from the proceeds of economic growth than other groups did, since property income accrues to households on the basis of their asset holdings. In South Africa, wealth is far less equally distributed than income is, and there is a stronger racial bias in its distribution. The recently introduced sectoral charters are targeted at correcting this form of inequality.

Trends in remuneration income, employment and wages:
The methodology employed for deriving estimates of the racial share of remuneration income and racial wage and employment trends involves combining a number of data sources, including the Standardised Employment Series, OHS and LFS data. The need for combining these datasets arises because racial data for employment and wages is not available from the mid 1990s onwards. Once estimates of employment by race group are obtained, racial mean per capita incomes are obtained using the compensation of employee data series taken from

the national accounts. Interested readers are referred to Appendix 1 for further details of our methodology.

Figure 2 shows the total employment series constructed here in comparison with total employment estimates from the LFS, OHS and Van der Berg and Louw (2004). The rising employment numbers observed from OHS data for the late 1990s are likely to be the result of better capturing informal sector employment, rather than reflecting additional job creation. Figures 3 and 4 show similar information for black and white employment trends.

Figures 5 to 8 show the racial wage series constructed here, in comparison with wage trends derived from the LFS, OHS and Van der Berg and Louw (2004). The declining real mean wage for blacks evident in LFS estimates of wage levels is probably due to an improvement in the ability of Statistics South Africa to capture informal sector employment. Accepting this decline probably contributes to our estimates of black per capita income being overly low for 2000. However, our wage estimates for blacks bottom out in 2000 and thereafter show strong growth. It is unlikely that the overall growth shown in our estimate over-estimates black wage trends: rather, the time trend may be somewhat affected by accepting the recorded decline until 2000. Employed workers of all groups appear to be benefiting from wages that have been rising steadily since 2000[14], with Indian and then black workers gaining most. White workers have not benefited as much from this recent trend. Figure 9 uses our constructed wage series to show that real black wages have been rising steadily in more recent years.

Finally, we examine trends in remuneration accruing to members of the various race groups. Remuneration is determined as the product of mean wage levels and employment for each group. Figure 10 shows trends in the racial shares of remuneration income. Note the steadily increasing black share of remuneration, which comes predominantly at the expense of the shrinking white share. The coloured and Indian shares of remuneration remain roughly constant over the period. Figure 11 shows the evolution of the wage bill by race group, indicating that blacks are reaping substantial benefits as a result of increasing real wages and a rise in the black share of employment.

Trends in transfer income:
Under apartheid, the racial distribution of grant payments was available. Therefore, this data was utilised for estimating the racial share of transfer income during the early 1990s. Previous fiscal incidence research by Van der Berg (2001) provided the racial shares of transfer income for 1993, 1995 and 1997, while similar more recently conducted research by the same author – based in large part on the IES/OHS1995 and IES/LFS2000 – provided comparable information for 1995 and 2000 (Van der Berg 2005). The General Household Surveys (GHS) collected in 2002, 2003 and 2004 provide another source of data. Estimates of actual grant income received by each race group were arrived at by applying the racial shares of social grants obtained from each GHS to public expenditure on grants obtained from the 2005 Intergovernmental Fiscal Review. The results seem quite stable, as Table 1 indicates, with only the 1997 data point for blacks lying outside of the trend. For the few years where no direct data source was available, shares were interpolated.

[14] Note that in percentage terms, the recent rise in black wages apparent in our series is substantially larger than the rise in white wages.

Table 1: Transfers from government: Estimated racial shares, various years				
	Black	**Coloured**	**Indian**	**White**
Estimated racial shares used:				
1993	77.2%	12.5%	2.5%	7.8%
1995	78.8%	11.6%	2.3%	7.3%
1997	81.0%	10.4%	2.1%	6.5%
2000	77.0%	9.3%	3.4%	10.3%
2002	80.4%	10.4%	2.6%	6.7%
2003	84.4%	9.2%	2.3%	4.1%
2004	85.1%	9.5%	1.8%	3.6%
Racial shares applied to transfers from government transfer component of current income:				
1993	R23 970m	R18 514m	R2 988m	R594m
1995	R25 483m	R20 079m	R2 959m	R588m
1997	R32 934m	R26 693m	R3 418m	R680m
2000	R30 784m	R23 698m	R2 869m	R1 042m
2002	R33 071m	R26 588m	R3 431m	R851m
2003	R41 470m	R34 986m	R3 824m	R948m
2004	R53 301m	R45 351m	R5 087m	R945m
Sources: Van der Berg 2001 (for 1993, 1995 & 1997); Van der Berg 2005 (for 1995 & 2000); calculated from GHS2002, GHS 2003, GHS2004 for 2002, 2003 & 2004 estimates				

Trends in other (property) income:
As indicated before, this type of income is mainly comprised of income earned from assets and business profits. Since the asset (i.e. wealth) distribution is more highly skewed than the income distribution, income flows from assets are slow to change. The reason for this is that the lower ability of the poor to save implies that they cannot readily build up asset bases. While black economic empowerment, land redistribution and related policies may already have had an equalising impact on the asset distribution, it is unlikely to have been very large. Since we have few sources of data on property income[15], we make the simplifying assumption that the black share of property income has continued to grow slowly, increasing by 0.5 percentage points per year from a very low base.

Trends in total income accruing to blacks:
Figure 12 decomposes total black current household income by its components. There appears to be a fair degree of stability in two of the three major components of current income, with only transfer income visibly increasing since the mid 1990s. The sudden drop in the black share of remuneration income in the mid-90s and thereafter a step up seem to be counterintuitive. Given the observed wage increases, one would have expected a stronger rise in the black remuneration share, suggesting that recent estimates of the size of the black remuneration share are underestimates.

The finding that the three components of income contribute very different proportions of black income suggests that any changes in the relative importance of the three types of income have major implications for the overall distribution of income between the race groups. In particular, the trends in the types of income have impacted the black distribution as follows:

- The longer term rise in property income shifts resources away from blacks (if overall current income is unchanged).

[15] Simkins (2004) notes that the IES2000 in particular seriously understates household income from property.

- The very recent rise in the share of transfer income benefits blacks relative to other race groups, with their share in this source exceeding their population share. The reason for this disproportionately high share in transfer income is that most of the grants are available on the basis of a means test, and the vast majority of poor people who are eligible for grants in terms of this test are black.

Figure 12 shows the black share of the various components of current income and total current income. The observed increase in blacks' share of income over 2002-2004 is due to a combination of rising transfer incomes and rising remuneration incomes.

Trends in per capita income:
Per capita income is derived as total current household income divided by total population size. We used population estimates from Van Aardt and Van Tonder (1999) and Sadie (1993), as well as Statistics South Africa's 2005 mid-year population estimate. Annual growth rates by population group for 2001 to 2005 were applied to the 2000 population data to obtain population estimates for each of the intervening years. Population growth has recently fallen to very low levels; the black population in particular is experiencing a rapid decline in population growth as a result of fertility decline and AIDS. Population decline amongst whites (due to low fertility and emigration) has slowed, thus raising white per capita income growth rates for a given racial income share.

Figure 13 indicates that all race groups experienced per capita income growth over the period under study. In overall terms, this growth accelerated after the turn of the century due to more rapid economic growth, slowing population growth and current income growth sometimes far exceeding GDP growth. However, the spurts in current income growth rates are somewhat puzzling and, if artificially caused by errors in the data, may exaggerate per capita income growth for the last two years in particular.

Turning to racial per capita income performance, notice that the per capita incomes of whites have been growing rapidly since the mid 1990s as a result of this group maintaining a constant share of remuneration income, increasing their share of property income, and experiencing negative population growth. Black per capita income growth has been steady but not rapid since the political transition (the spurt in 1995 is probably an aberration caused by problems related to comparability issues concerning the 1995 IES/OHS and other data). However, the growth in black per capita incomes during the last two years has been very rapid. Because this growth is so important for the veracity of the overall poverty and distributional picture, it needs further investigation. Various factors appear to have contributed:

- An acceleration in black remuneration levels as a result of the improving performance of the economy in creating jobs;
- The rapid growth of transfer income from government which is known to be driven by the expansion of the CSG, increased uptake of other grants (particularly disability grants), and higher economic growth;
- This last factor is also combined with an increasing black share of transfer income, with the initially slow uptake of the CSG in rural areas having yielded to very rapid expansion;
- Slowing population growth amongst blacks has also meant that the gains from a growing overall income share of blacks have been spread amongst a smaller population, raising per capita incomes as a result.

Figure 14 shows the per capita income levels of the other race groups relative to white levels. Note that despite recent improvements in black per capita income levels, black per capita incomes remain well below 15 per cent of white per capita income levels.

The per capita income trends derived in this section form the basis for further analysis of poverty and inequality in Section VI.

VI RESULTS OF EMPIRICAL ANALYSIS

In order for us to be able to conduct income distribution analysis, it was necessary to combine data for intra-group distributions of income with the data for inter-group distributions of income. Datasets from the All Media and Products Survey (AMPS) series were employed for this purpose[16]. Once racial distributions had been obtained using the AMPS data, the per capita means were adjusted in line with inter-racial per capita means arrived at earlier in this study. In other words, the entire income distribution for each race group was shifted in line with "reliable" per capita mean incomes. Further details regarding the methodology employed for this exercise are contained in Appendix 2.

Before turning to analysis of poverty trends, we provide a brief overview of intra-racial inequality. Figure 15 indicates that the Gini coefficients show increasing inequality of incomes over the period as a whole for each of the four race groups, consistent with most findings of rising within-group inequality in the literature. However, all race groups show individual deviations from this broad pattern, with the most surprising deviation being the declining Gini coefficient of the black population since 2000. This decline together with the later but larger decline of the Gini for the coloured population are consistent with a scenario in which the expansion of grants and widening employment opportunities have benefited the poor more than proportionately. Since almost all of the poor belong to the black or coloured groups, these groups would have experienced the greatest inequality-reducing benefits of additional transfer income during recent years. The Gini coefficient measuring overall inequality (the net effect of both intra-group inequality and inequality between the race groups) is large and has risen over the period, reaching levels in excess of 0.70. Ardington et al. (1995) arrive at similar results using census data. It is well known by this stage that the intra-group aspect of inequality has been rising relative to the very high inter-group component.

Our focus now shifts to the major aim of this study, which is to determine with as much confidence as possible whether poverty has improved or worsened since political transition. The first step in poverty analysis is identifying the poor. Here two poverty lines are utilised: a lower one set at R250 household income per month or R3 000 per year in 2000 Rand, following Van der Berg and Louw (2004), and a higher one set at R281 per month or R3 371 household income per year, following Bhorat (2004)[17]. The lower poverty line is a conservative measure in the sense that it will identify those living in relatively deep poverty, although it is judged to be high enough to act as a relatively realistic identifier of poverty. The slightly higher poverty line includes some who are moderately poor. Apart from measuring poverty on the basis of these two poverty lines, we will test the sensitivity of our

[16] A study by Van der Berg and Louw (2004) that followed a similar methodology used the IES data to obtain the intra-group distribution.

[17] Bhorat (2004) bases his poverty line on one used by May, viz. R903 per month per household in 1995 Rand values. Adjusting for inflation and for the average household size of 4.44 found in the 1995 OHS, this converts to R3 371 per person per annum in 2000 Rand values.

poverty findings to a number of alternative poverty lines to check for the robustness of our findings. This is necessary because the choice of a poverty line is fairly arbitrary by construction. For purposes of measuring poverty, we use the Foster-Greer-Thorbecke measures: the poverty headcount (P_0) reflecting the extent of poverty, the poverty gap index (P_1) reflecting the depth of poverty, and the squared poverty gap index (P_2) reflecting the severity of poverty.

Table 2: Selected indicators of poverty, assuming AMPS intra-race distribution and own estimates of inter -race distribution			
	1993	**2000**	**2004**
Per capita income: Quintile 1	R855	R866	R1 185
Per capita income: Quintile 2	R2 162	R2 086	R2 770
Using poverty line of R3 371 per capita per year			
P_0 (Headcount ratio)	0.441	0.446	0.366
P_1 (Poverty gap ratio)	0.224	0.230	0.169
P_2 (Squared poverty gap/Poverty severity ratio)	0.144	0.146	0.100
Number of poor (million)	16.9	18.7	18.0
Number of non-poor (million)	23.0	26.0	28.4
Using poverty line of R3 000 per capita per year			
P_0 (Headcount ratio)	0.406	0.413	0.332
P_1 (Poverty gap ratio)	0.200	0.205	0.146
P_2 (Squared poverty gap/Poverty severity ratio)	0.126	0.127	0.085
Number of poor (million)	16.2	18.5	15.4
Number of non-poor (million)	23.7	26.2	31.0

Table 2 reveals a poverty trend that is robust to the choice of poverty line. The headcount poverty rate, poverty gap index and squared poverty gap index all increased slightly over the first part of the period covered, and declined to well below their starting levels towards the end of the period covered. (Because the AMPS data does not go back further, we confine ourselves to the 1993-2004 period.) The proportion of people living in poverty increased during 1993-2000, probably as a result of sluggish economic growth and poor labour market prospects. However, in more recent years the proportion of poor people appears to have declined substantially, possibly due to a combination of faster growth, better labour market prospects and large-scale expansion of the social grant system. A similar trend applies in terms of the poverty headcount (i.e. the absolute number of people living in poverty), although the number of people living in poverty in 2004 was roughly similar to the number of people living in poverty in 1993 as a result of population growth.

In addition to the observed reduction in poverty, Table 2 reveals that the per capita real incomes of individuals comprising the poorest two population quintiles rose by more than 30 per cent during 2000-2004. While this rise may at first seem implausibly large, it should be borne in mind that the total income received by the poorest two quintiles in 2000 amounted to R27 billion. Government subsequently increased its annual social grant payment bill by R22 billion (in constant 2000 Rand terms), most of which would have been received by individuals in the bottom 40 per cent of the income distribution. In the light of this information, the dramatic improvement in the incomes of the poor is believable. Lastly, note that the number of non-poor South Africans has increased steadily throughout the period.

Analysis performed on the raw AMPS data corroborates our findings from analysis performed on the combined data, as Figure 16 shows. In fact, the AMPS data reveals a downward trend in poverty incidence from as early as 1996 onwards, becoming steeper after 2000. This is an

encouraging finding, and it supports our argument cautioning against the use of recent other survey data sets for comparative purposes.

Figure 17 shows that the trends in poverty appear to be independent of which poverty line is selected from a broad poverty-relevant range. For all poverty lines ranging from R2 000 to R4 000 per capita income per annum, poverty seems to have been declining sharply since about 2002 after a modest rise at the end of the previous decade. The speed at which poverty appears to have declined since 2002 is striking, and may be challenged as being the result of quirks in our data. To answer such claims, we investigate the issue further:

- The impact of the recent expansion of social grants on the poor is likely to have been major, considering that real transfers from govt increased by some R22 billion in the last two years (in 2000 Rand), an amount well in excess of R1 000 per poor person. Bear in mind that poverty is defined as income of less than R3000 per capita per year in this paper. The grants are supposed to be targeted through the means test, thus most of the additional R22 billion flows into poor households. Considering that the income of the poor was only R27 billion in 2000, an increase in social grants of such magnitude makes a great difference to the poor and may lift many of them out of poverty, if it is well targeted.
- Real remuneration rose by R53 billion between 2002 and 2004, representing an exceptionally large increase by South African standards of 11.7% over this period. This effect, if accurately measured in the national accounts, must have had a strongly positive influence on the incomes of many of the poor, either through higher wages or through increased employment.
- Income distribution, particularly in the black population, is relatively clustered around the poverty line. This means that small shifts in the distribution could have large impacts on poverty. The poverty consequences of distributional shifts are particularly severe if black incomes change, given the size of this group and the observed clustering of black incomes near the poverty line. Thus, the impact of grants on poverty is strongest if grants contribute predominantly to black incomes.
- Hindsight may assist in determining whether at least part of the recorded decline in poverty we are seeing for 2004 may be an artefact of the data (in this case national accounts data). If part of what is shown here as a sharp increase in current income is a correction for under-recording on income in other years, then it may be the case that the poverty impact is showing with a lag. But on the basis of the available evidence we have no doubt that there has been a noticable decline in poverty in the last few years.

In summary, our analysis using both combined data and raw survey data show that there has been a marked decline in poverty since 2000. These results are broadly consistent with the UNDP's (2003) report that the extent of poverty declined slightly over the period 1995-2002. The direction of the trend in poverty over 1993-2000 that out data shows is consistent with the findings of other authors who have found that poverty increased during the second half of the 1990s (Hoogeveen & Özler 2004; Leibbrandt, Levinsohn & McCrary 2005; Leibbrandt et al. 2005; Meth & Dias 2004), although the magnitude of the increase that we find is not consistent with the massive income decline described by Leibbrandt, Levinsohn and McCrary (2005). Furthermore, it is likely that we have slightly over-estimated poverty here, given that we adopted conservative assumptions regarding the share of black income. Therefore, the true conclusion regarding the extent of poverty in South Africa may be even more optimistic than the one drawn here.

The flip side of the coin of falling poverty is also that more black people are joining the ranks of the affluent and the middle class. We arbitrarily use two boundaries to measure upward mobility of the black population, viz. a higher bound of R40 000 per capita income per annum in 2000 Rand (people in this group are here referred to as the higher middle class) and a lower bound set at R25 000, which separates the working and middle class from the rest of the population. The numbers above the higher middle class line, presently constituting just over ten per cent of the population, increased almost threefold from about almost 400 000 to almost 1 200 000 in eleven years over the period 1993-2004. The black share of this group – though still small – doubled to almost one quarter, whilst about half of the increase in numbers in this group occurred among the ranks of blacks (an increase of about 0.8 million, versus about the same number collectively for the other three groups). There was clearly also an increase in black penetration above the lower bound (including those who were above the higher middle class line), i.e. even the established working and lower middle class expanded. Perhaps widening inequality within the black population in the past decade has been partly the result of more people joining the ranks of the middle class.

Table 3: A growing middle class

	1994	**2004**
The higher middle-class (above R40 000 per capita):		
Blacks	397 987	1 193 780
Other (non-black)	2 826 092	3 635 405
All	3 224 079	4 829 184
% of whole population	8.1%	10.4%
% of blacks	1.3%	3.3%
Black share of higher middle class	12.3%	24.7%
The working and lower middle class (above R25 000 per capita):		
Blacks	1 137 367	2 553 998
Other (non-black)	4 240 358	5 105 222
All	5 377 724	7 659 220
% of whole population	13.5%	16.5%
% of blacks	3.7%	7.0%
Black share of working and lower middle class	21.1%	33.3%

Source: Own calculations

Note the relatively low level at which per capita income is defined as higher middle class. It is used in a relative sense here, i.e. the low cut-off reflects the fact that the vast majority of South Africans still live on much lower incomes.

Finally, we test for the sensitivity of our findings to the specification of the poverty line. The tool used for this purpose is estimation of cumulative density functions (CDFs). These show the proportion of the population below any given income level, i.e. the proportion that would be poor if the poverty line were drawn at that level. Thus, higher CDFs reflect greater poverty. If two CDFs do not cross or intersect over a broad poverty range, we can unambiguously conclude that poverty is higher for the group for whom the CDF lies above the other, irrespective of which poverty line is chosen or which poverty measure (poverty headcount ratio P_0, poverty gap index P_1, or poverty severity index P_2) is employed. This is referred to as poverty dominance, i.e. that the result in terms of the ranking of poverty holds irrespective of the measurement of poverty. In the accompanying graphs, we plot a vertical line at the level at which we have drawn our poverty line, i.e. R3000 per person per year. We

show the CDFs with alternately income and the log of income on the horizontal axis – the latter allows us to get a better overview of the whole distribution. As dominance holds so clearly, our choice of scale need not be influenced much by the actual data.

The first two graphs (Figures 18a and 18b) show that for 2004, poverty is much higher amongst blacks than in any other group. Poverty amongst coloureds is higher than for Indians, and it is higher for Indians than for whites. An increase in the average income of any group without a change in the distributional pattern within the group would shift the CDF curve downwards. This is equivalent in its effect to a shift leftwards of the poverty line. For the groups for which the slope of the CDF curve is steeper around the poverty line, shifts in per capita income would thus have a greater effect on the poverty headcount rate. In the case in point, blacks and to a lesser extent coloureds would gain most from an increase in their per capita incomes, which at least partly explains why the poverty measure has been so sensitive to the sharp increase in per capita black incomes in recent years. Moreover, the sources of much of this income – social grants and more jobs – are likely to also have ensured a more equitable distribution, thereby strengthening the net impact of rising per capita incomes on poverty.

The second set of graphs (Figures 19a and 19b) show that there is poverty dominance between 2004 and any other year shown, i.e. that poverty was less in 2004 than in 1993, 1995 or 2000. There is less certainty about which years of those selected showed the second least poverty – there is no clear dominance, although in the poverty relevant range surrounding the poverty line we have chosen it appears as if there is less poverty in 1995 than in either 1993 or 2000. Further analysis, not shown, indicates that poverty was also unambiguously less in 2003 than in any other year bar 2004. Thus the conclusion that poverty has declined in the last two years of the period studied (2003 and 2004) compared with poverty in earlier years is not dependent on the poverty line chosen. It is also independent of the poverty measure: the poverty dominance observed in recent years implies that not only the poverty headcount rate but also the poverty gap and the poverty severity ratios must have declined.

The kernel density curves shown in Figure 20 reflect the clear racial income hierarchy that still applies. The curves have the typical lognormal shape associated with distributional data; here they appear to have a normal shape because of the log scale employed for income on the horizontal axis. Although there are overlaps in racial income distributions, it is clear that the curves make distinctly different contributions to the overall income distribution. One can think of the impact of per capita income increases that leave the shape of the distribution unaltered as shifting distribution curves to the right, i.e. moving a number of people (especially black people) over the poverty line. The impact on poverty is similar if the amount at which the poverty line is set is reduced, i.e. as if the poverty line is shifted to the left. As can be seen in Figure 20, poverty amongst whites and Indians is limited and likely to remain so even in the event of a major income shock. By contrast, to sharply reduce large scale poverty amongst blacks requires more than just a distributional shift within the black population: growth of average incomes is imperative. Put differently, the issue is not so much how to change the shape of the black distribution (as reflected in the density curve), but rather how to shift this distribution to the right.

VII SCENARIO ANALYSIS

The impact of two of the major positive factors promoting poverty reduction – increased employment and an expansion of grants – can be approximated via comparative static

analysis. The approach employed here is crude, but the purpose is merely to estimate the magnitude of these influences. In both cases the IES2000 is used for analysis.

The first comparative static experiment considers the effect of the expansion of the value of grant spending – a real increase of R22 billion in 2000 Rand – that took place between 2000 and 2004. The assumption here is that this additional spending was distributed across deciles in the same proportion as the targeting of grants found by Van der Berg (2005). As can be seen, the large volume of these transfers, combined with their relatively good targeting at the poor, ensures a major impact that is largest in relative terms amongst the poorest three deciles. It should be considered, though, that the impact on the distribution is a little more complex, as those who receive such grants would often be moved to higher deciles as a result of their transfer income. These individuals' post-transfer income would then exceed the incomes of some individuals with larger pre-transfer incomes who do not receive grants.

Table 4: Potential impact of the actual expansion of social grants in the period 2000-2004, assuming expenditure is distributed as in 20000

Income deciles	Per capita income in 2000	Mean income after expansion of grants by R22 billion	Average % rise in income of original members of decile
1	R819	R 2 751	235.9%
2	R1 559	R 2 686	72.3%
3	R2 320	R 2 819	21.5%
4	R3 305	R 3 654	10.6%
5	R4 689	R 4 980	6.2%
6	R6 643	R 6 884	3.6%
7	R10 029	R 10 229	2.0%
8	R16 830	R 17 017	1.1%
9	R29 195	R 29 313	0.4%
10	R81 675	R 81 748	0.1%
Total	**R15 670**	**R 16 174**	**3.2%**

Source: Own calculation, IES 2000 & Van der Berg 2005

An alternative experiment considers the poverty impact of creating an additional one million jobs. The hypothetical (approximately) one million jobs were allocated according to the likelihood of employment based on a probit model of current employment. In calculating the income impact of such an expansion in jobs, the average unskilled wage was applied to the group who were additionally allocated jobs in our hypothetical scenario. As the tables below show, the bulk of the additional jobs would be allocated to the bottom five deciles of households, many of whom are currently without any wage earners. The rise in mean incomes is also considerably higher among the bottom five deciles. Using a R3000 per capita annual household income as a poverty line, 299 096 households are lifted out of poverty after the simulated increase in employment. This amounts to a 2.6 percentage point reduction in the percentage of the population that is poor. This last column also shows that the proportional income impact of the additional jobs is by far the greatest amongst households who are presently the poorest. Mean income of those presently constituting the poorest decile would increase by almost 46 per cent, whereas the mean incomes of the fourth poorest deciles and above only increase by less than 10 per cent, with the impact proportionately least at the top of the distribution.

Table 5: The redistributive impact of creating a million jobs, 2000						
Income deciles	**Additional jobs created**	**Jobs that would go to households presently without any employed workers**	**Total number of households**	**Per capita income before new jobs**	**Per capita income after new jobs**	**% increase in mean income due to new jobs**
1	181 644	124 770	1 149 669	819	1 193	45.7%
2	135 108	84 345	1 130 231	1 559	1 864	19.6%
3	122 336	54 593	1 127 061	2 320	2 614	12.7%
4	109 607	45 964	1 131 409	3 305	3 621	9.6%
5	112 705	33 956	1 137 514	4 689	5 012	6.9%
6	86 242	28 098	1 131 840	6 643	6 947	4.6%
7	85 351	22 813	1 143 424	10 029	10 286	2.6%
8	69 503	14 698	1 131 391	16 830	17 051	1.3%
9	57 245	14 966	1 129 312	29 195	29 424	0.8%
10	32 067	3 504	1 133 137	81 675	81 809	0.2%
Total	**991 808**	**427 707**	**11 344 988**	**15 670**	**15 946**	**1.8%**

Source: Own Calculations, IES 2000

Grants have already had and indeed are continuing to have a major impact on poverty reduction because of their unprecedented expansion in the last four years (an increase in real terms of R22 billion, more than 70 per cent). However, as a poverty reduction strategy, this method is nearing the boundaries of its effective use, given fiscal constraints. Job creation is an alternative poverty reduction device that also appears to have brought rewards in the last few years, particularly for the black population. Even though many of the poorest are unskilled, expansion of jobs would bring significantly more income to those who are presently poor, raising them above the poverty line and into higher deciles. Jobs are surprisingly well targeted at the poor, assuming that present characteristics of incumbents of jobs represent the characteristics that are sought by potential employers. However, if the skills content of jobs continue to rise, the beneficial impact of new jobs on those presently poor may be reduced. Both jobs and grants are more likely with high economic growth, which also tends to increase the other sources of income (wages and property income) of those who presently do have such incomes.

VIII CONCLUSION

We have used a multiplicity of sources to arrive at credible answers regarding what has been happening to poverty and income distribution in South Africa. The picture that emerges is more nuanced than the one found in some of the other poverty literature, particularly because we are less dependent on the values that emerge from two datasets that make up the start and endpoint of a period. Nevertheless, because of the strong trend in the last part of the period that we encountered, we may be at risk of overestimating the progress that has been made. We need additional data that will become available in the future to confirm our findings for the past two years.

Bearing this qualification in mind, we can nevertheless draw some fairly strong conclusions. While the trend in poverty rates over the first part of the period is not so clear, recently these rates have undoubtedly been declining. Poverty headcount numbers first rose, and then declined, as progress in combating poverty started making headway against population growth. More rapid job creation is required to make further progress in combating poverty,

since the social grant system – while having made a large contribution to the recently observed decline in poverty – is currently nearing the limits of its poverty alleviation capacity. In addition to the encouraging reduction in the poverty headcount ratio, the numbers of people living above the poverty line have been rising throughout the period. In the higher income brackets rapid expansion of the black middle class and affluent has helped to de-racialise South African consumption patterns. Blacks now make up about half of the growth in the upper end of the consumer market, even though they are still under-represented in this market.

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APPENDIX 1

Estimating racial shares of remuneration income and racial trends in employment and wages

To obtain mean wage levels, racial shares of remuneration income must be estimated and then divided by the number of workers of each race group who are employed. Obtaining trends in wages and employment is difficult due to survey differences in coverage of workers and capturing of those employed in the informal sector, domestic work and subsistence agriculture. As a result of these differences, survey estimates of employment and wages are often inconsistent.

In this study, three sources of employment data are utilised, namely:

- The Standardised Employment Series, derived from integrating data from a multitude of sources, but extending only to the mid-1990s (Roukens de Lange & Van Eeghen, 1984, 1990). From this time onwards, information relating to the racial composition of the workforce was no longer made publicly available. In fact, even by the time that the standardised employment series ended, estimates of racial composition were probably already weakening. This series formed the basis for most of the Van der Berg and Louw (2004) estimates of employment.
- Employment data from OHS datasets for 1995-1999. The employment series derived from these series seems to show evidence of over-estimating employment compared to other years, although the 1999 OHS may capture employment in the informal sector better than previous surveys do.
- Employment data from the LFS surveys that were taken twice annually from 2000 to 2004. This series apparently captures informal employment better than the employment series based on predecessor surveys, thus also leading to lower estimates of average wages for blacks than the other series produced.

Employment trends by race were estimated by piecing together the various datasets as follows. LFS employment levels were taken to be accurate for 2000-2004, and the rate of growth in employment for each race group was used to extrapolate employment levels for 1999. The employment growth rates taken from the OHS for 1995-1999 were then used to estimate employment levels for each of those years, using the 1999 employment level as a base. Once the 1995 employment estimate had been obtained in this manner, the employment growth rates of Van der Berg & Louw (2004) were used to estimate employment levels dating back to 1990.

The OHS and LFS were also used to calculate wages. For the first part of the period covered, wage estimates were derived in Van der Berg and Louw (2004) from a mixture of wage and employment data obtained from Statistics South Africa series, broken down by primary and non-primary sectors, and in some cases also distinguishing even further sectors. The wage series was combined with employment data and used to allocate remuneration income by race for the period. Dividing aggregate remuneration income as derived from national accounts for each race group by racial employment figures yields estimates of wage trends, the size of which cannot be compared with the equivalent figures drawn from survey data (wages in survey data usually capture only a portion of actual remuneration). Estimated wage levels were then used in a similar manner as for employment above to estimate wage trends. Note that due to black wages being so much lower in the LFS than in the OHS, the wage series probably underestimates black wage levels and therefore also impacts on the remuneration income, per capita income and poverty estimates for this group.

Multiplying wage and employment levels for each group yeilds an estimation of the racial shares of remuneration. This calculation, however, greatly underestimates overall remuneration. To estimate the actual racial shares of remuneration, the share of each race group in estimated remuneration was applied to the national accounts estimate of remuneration income.

Formally, our methodology for determining the income of the different groups can be written as follows:

Let $Y_i = R_i + T_i + P_i$

where 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.

If s_{ci} is the share of each of the four race groups i in income component c, then $\sum_{i=1}^{4} s_{ci} = 1$,

then $R_i = s_{ri} * R$, $T_i = s_{ti} * T$, and $P_i = s_{pi} * P$

s_{ri} and s_{ti} can be directly determined from survey data, or interpolated or projected as explained in the text.

For R, however, we only have available from survey data estimates of two separate series W_i and E_i, where W are mean wages and E aggregate employment.

But $\sum_{i=1}^{4} W_{i*} E_i$ is not equal to R, thus a scaling factor a is required, so that $R = a \sum_{i=1}^{4} W_i * E_i$

Alternatively, and equivalently, R_i can be determined from $s_{ri} * R$, where

$s_{ri} = (W_i * E_i) / (\sum_{i=1}^{4} W_i * Ei)$

APPENDIX 2

Moving from per capita data to poverty and distribution data

To obtain estimates of the distribution of income within race groups, we chose a data source that has been little used in economic research (as opposed to marketing research), the All Media and Products Survey (AMPS). This survey is conducted once or twice a year and we managed to obtain the unit data records for the variables we equired from 1993 to 2004. Each dataset contained approximately 25 000 observations, relating to one individual who provided data for each household sampled. This dataset provides us with a unique set of distributional estimates. However, because of the untested nature of this data, we had to first conduct fairly extensive tests to see whether the distributional data is stable across surveys.

The stability of the data is reflected in the fact that the per capita incomes calculated from the data for the race groups deviated only once in 48 cases (four race groups times 12 years in which growth rates could be calculated) by more than 10 per cent from that in the previous year, indicating that data differences were not driven by large fluctuations caused by sampling and fieldwork questions in different years. Gini coefficients calculated for each race group were even more stable.

The income data that we wished to use were not obtainable in actual recorded incomes, but rather recorded within income brackets. This is also the case with census data and many of the responses to Statistics South Africa's surveys. Such income brackets have particular difficulties attached to them. Fortunately, in terms of the distributional information contained in the data, the large number of brackets – around 30 brackets in all the datasets – makes it a relatively detailed source of income data.

Firstly, we were interested in estimates of per capita rather than total household income. However, not all households in an income category were of the same size. Applying household sizes to income band data in order to rank households by per capita income is problematic, as many different combinations are thus recorded. For instance, the household income band stretching from R1 to R99 per month is then transferred into a number of categories of per capita household income, i.e. R1-R99 for household size of 1, R0.5-R49.5 for household size 3, R0.33-R33 for household size 3, etc. Secondly, it is not possible to fit density curves to the data in the econometric programme Stata if household incomes are assumed to take on the value of the midpoints of income bands (as is convention when analysing income data provided in bands). The reason for this problem is that humps appear in the density curves at all midpoints.

To deal with these problems, households (weighted) within the same income band were assumed to be distributed equally across the range of per capita income covered by the band. The data within each income band were manipulated accordingly before density curves were applied to arrive at the underlying distribution in a relatively standard format. The method employed was to fit a Gaussian kernel density function using a half-bandwidth of 0.4 (following work earlier reported on in Van der Berg & Louw (2004), and evaluating the density at 1000 points, using Stata. 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. This is

essentially the same methodology applied by Sala-i-Martin (2002) and others to arrive at world income distributions, using distributions summarised in density curves for individual countries for different time periods and then adjusting the mean of these distributions to be in line with the national accounts per capita income data.

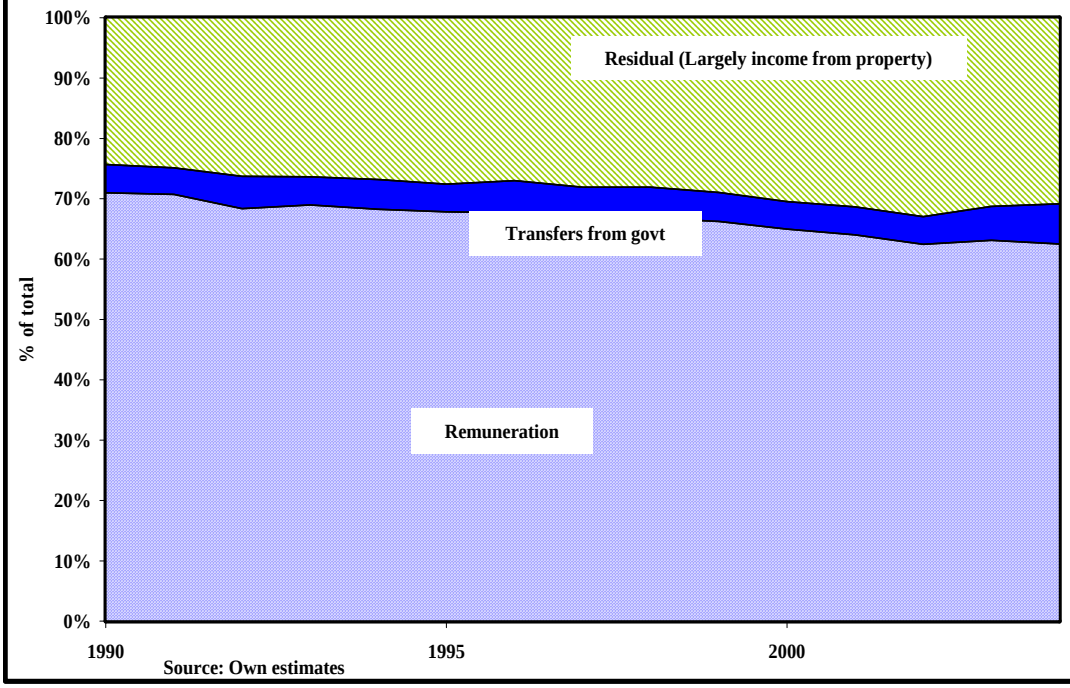
To determine the midpoint and upper bound of the open income interval, a Pareto function was fitted and the value for the midpoint estimated where this was possible. However, because the income category ranges that we dealt with were large (considering the 30 income brackets and household sizes ranging well above ten), there were many categories relating particularly to the smaller population groups where there were many empty cells. In such cases, a Pareto function was applied to the full household data set, ignoring household size, and this midpoint used for those groups for which the above problem occurred. Though this careful procedure was quite time consuming, it probably had very little impact on the accuracy of the results arrived at.

Taking a first look at the AMPS datasets, it appears that the data is relatively stable across surveys:

- Per capita income estimates by race (before adjusting the data for compatibility with our estimates) do not fluctuate greatly from year to year, and overall growth was only slightly slower than that found in the national accounts. Over the eleven years from 1993 to 2004, per capita black incomes rose by 2.4 per cent per year: a solid, but not spectacular achievement. For coloureds, the comparable rate was only 1.5 per cent, for whites 1.4 per cent and for Indians a more rapid 3.3 per cent;
- The trend of rapidly accelerating per capita black income over 2002-2004 reflected in our other data sources is not fully confirmed, but there is evidence of a strong and sustained rise in the last five years;
- Gini coefficients for each of the race groups do not fluctuate all that greatly, which is a pleasant surprise in view of the very large fluctuations often found in these coefficients from survey to survey (despite the fact that international evidence shows that such inequality is slow to change).

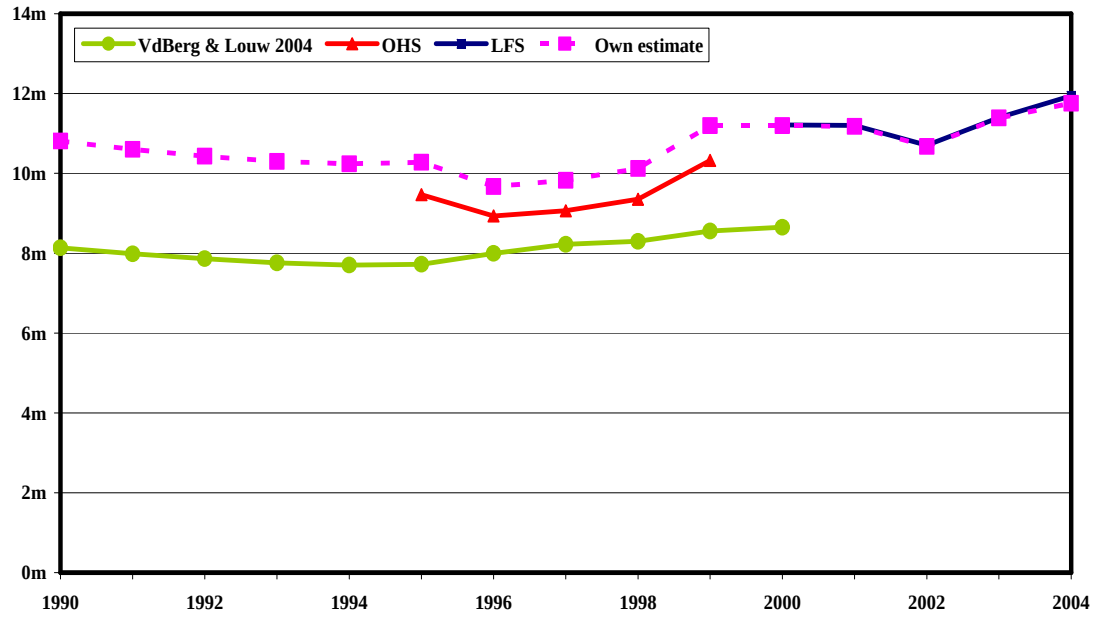
FIGURES

Figure 1: Composition of current income (% of total)



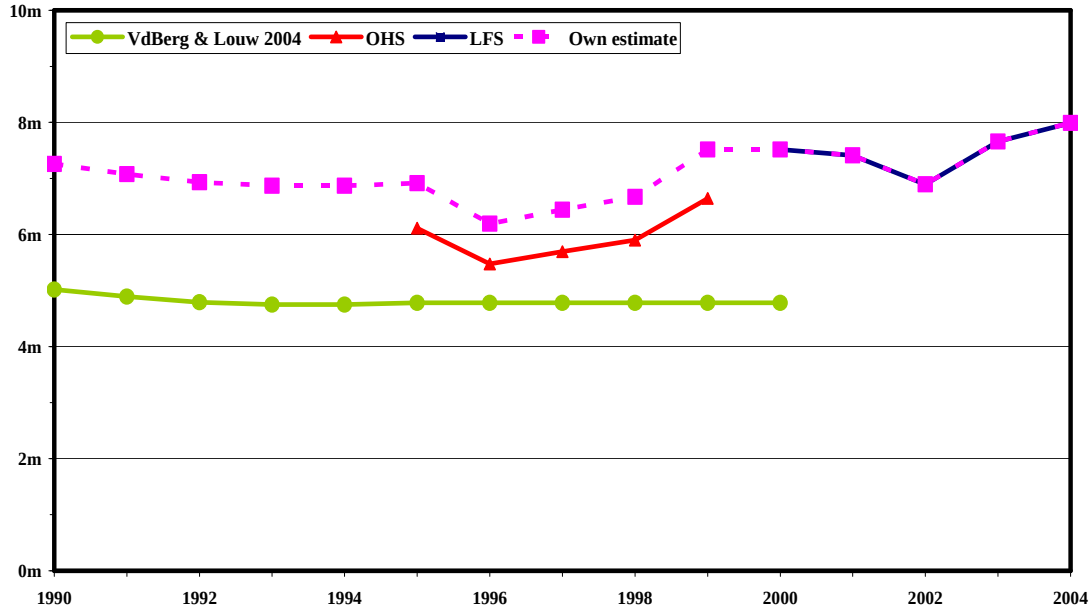
Source: Own estimates

Figure 2: Estimates of total employment, 1990-2004



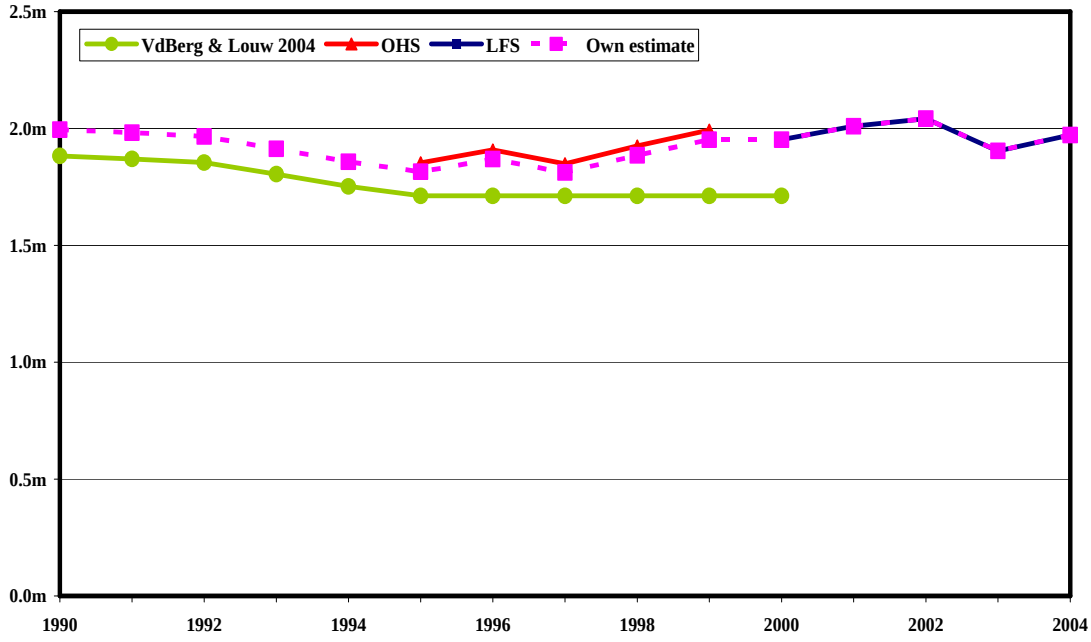
Source: Van der Berg & Louw (2004) and own calculations based on OHS & LFS data of various years

Figure 3: Estimates of black employment, 1990-2004



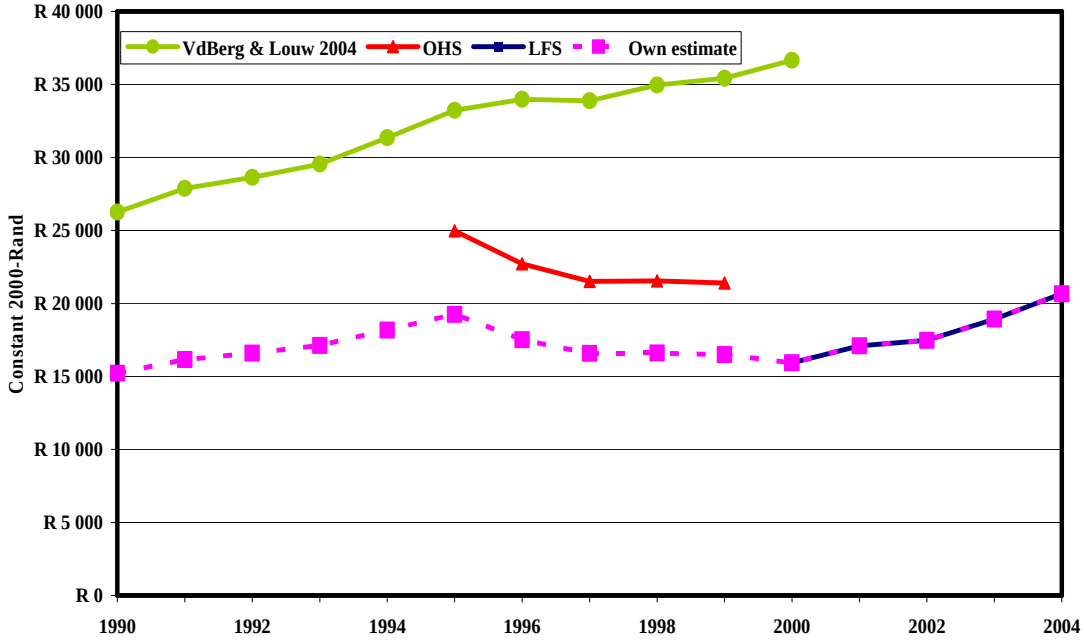
Source: Van der Berg & Louw (2004) and own calculations based on OHS & LFS data of various years

Figure 4: Estimates of white employment, 1990-2004



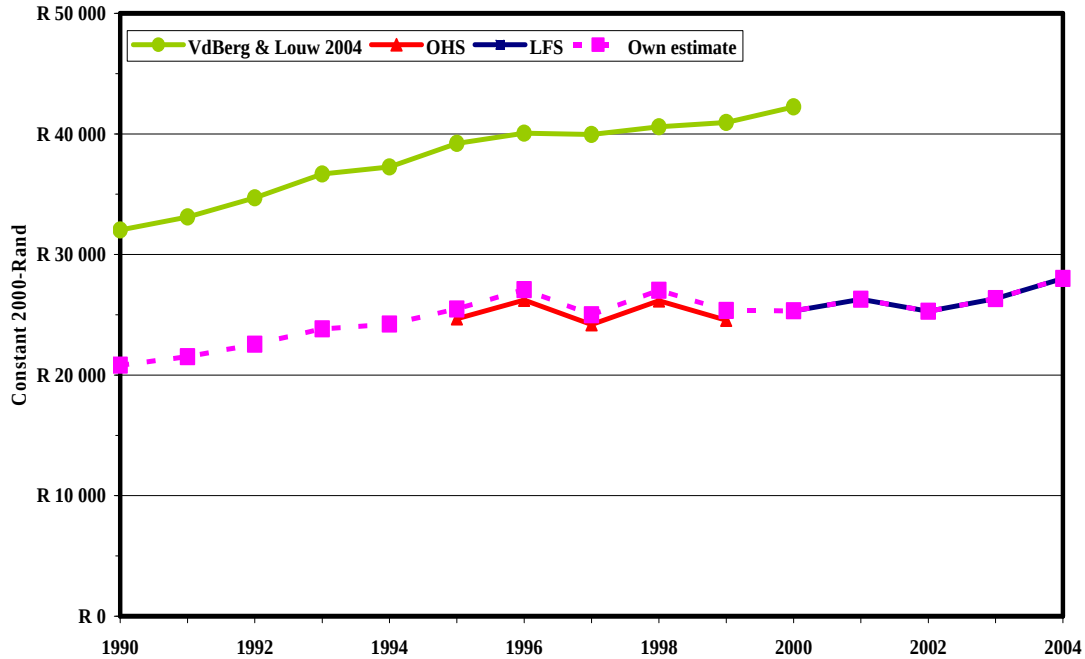
Source: Van der Berg & Louw (2004) and own calculations based on OHS & LFS data of various years

Figure 5: Estimates of black wages, 1990-2004



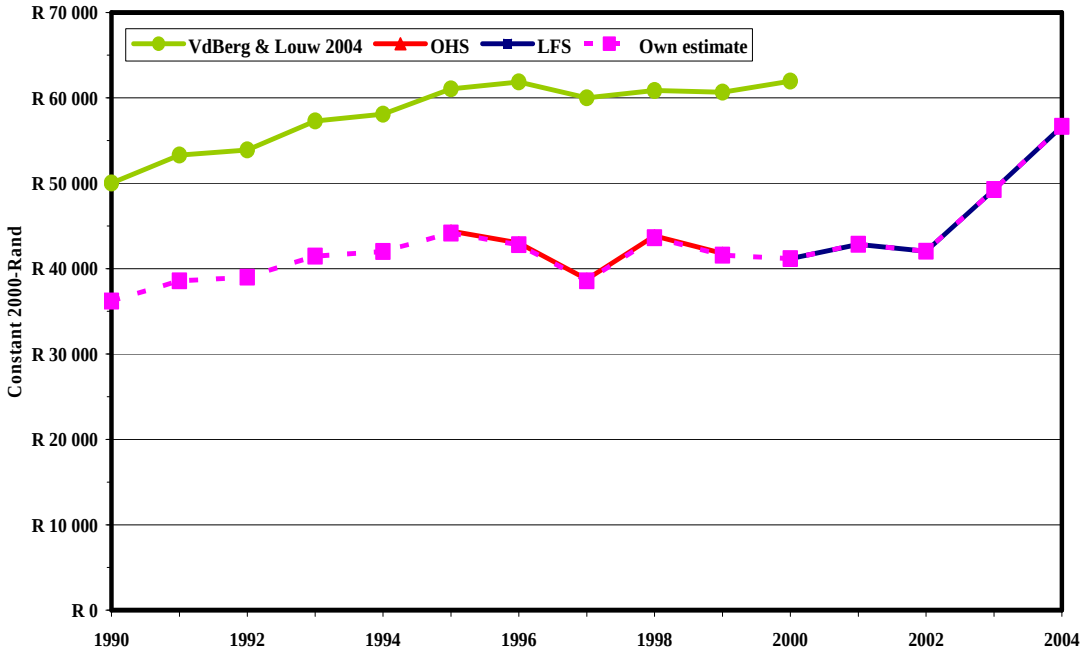
Source: Van der Berg & Louw (2004) and own calculations based on OHS & LFS data of various years

Figure 6: Estimates of coloured wages, 1990-2004



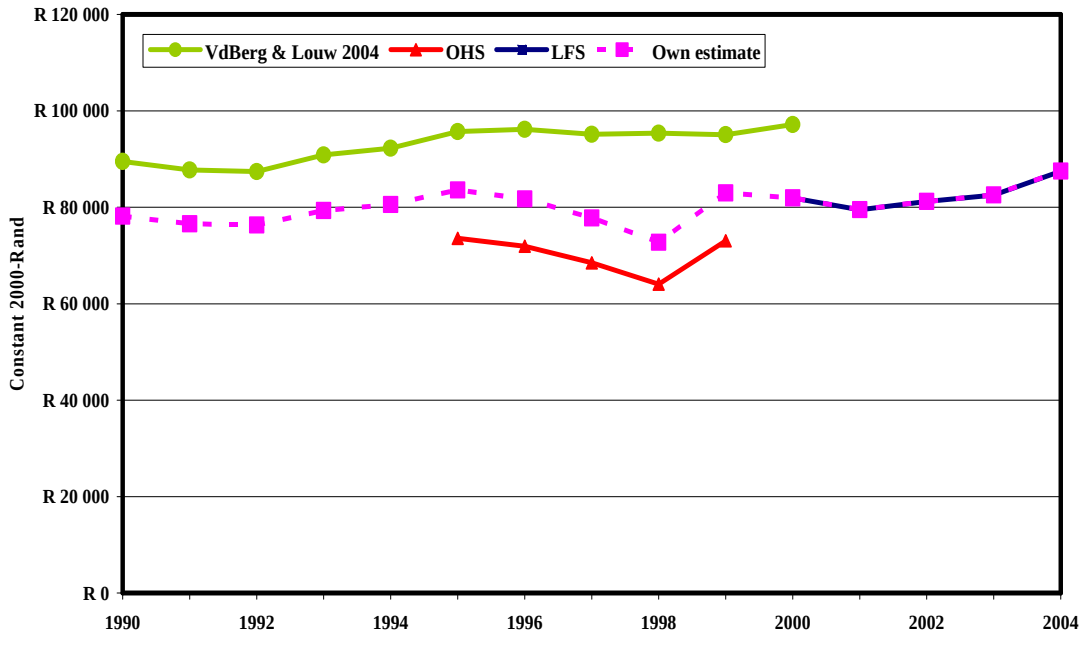
Source: Van der Berg & Louw (2004) and own calculations based on OHS & LFS data of various years

Figure 7: Estimates of Indian wages, 1990-2004



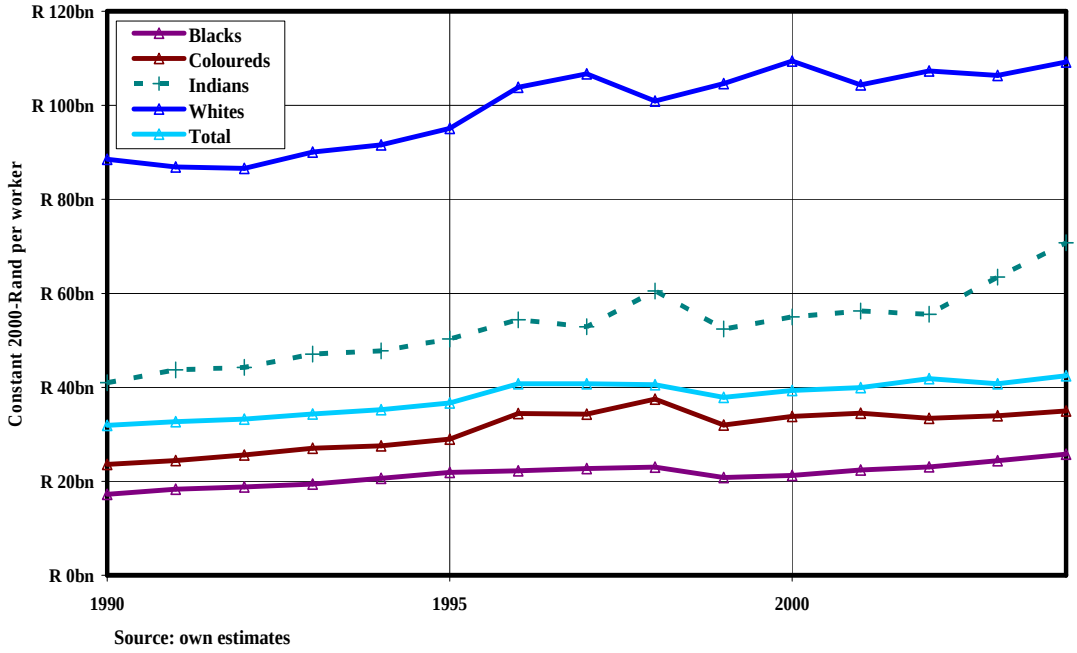
Source: Van der Berg & Louw (2004) and own calculations based on OHS & LFS data of various years

Figure 8: Estimates of white wages, 1990-2004



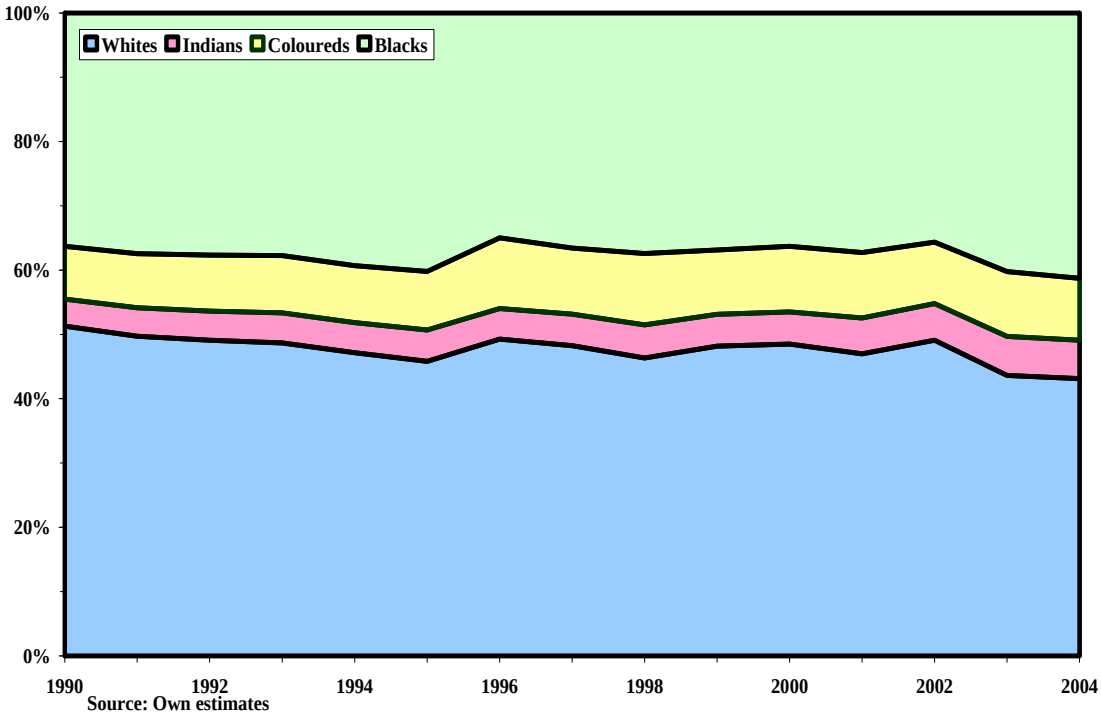
Source: Van der Berg & Louw (2004) and own calculations based on OHS & LFS data of various years

Figure 9: Real wage levels by race



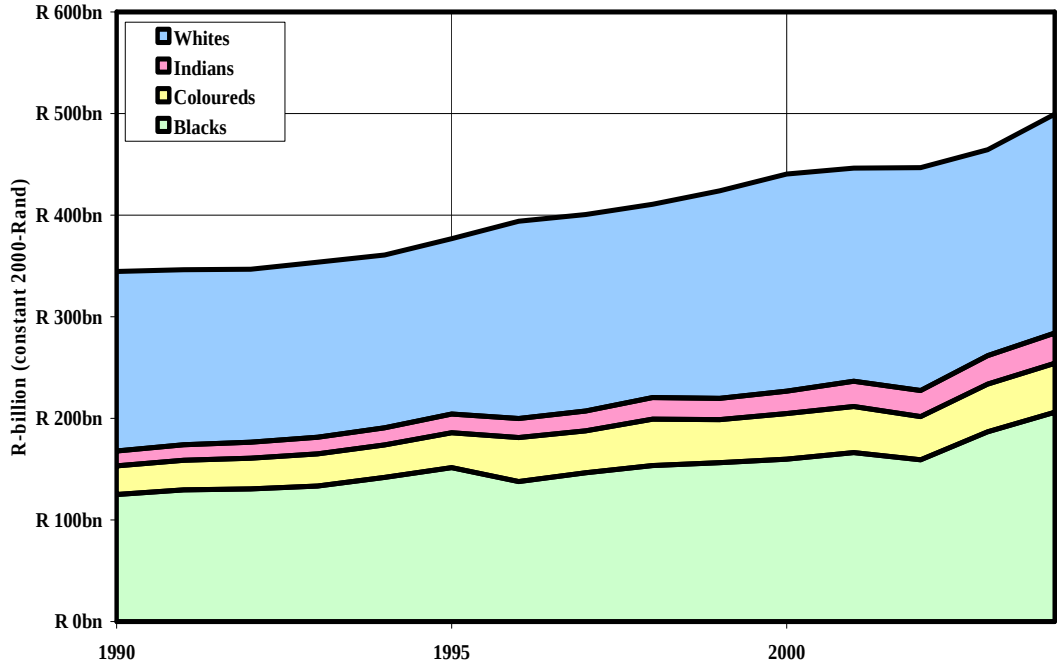
Source: own estimates

Figure 10: Racial share of remuneration, 1990-2004



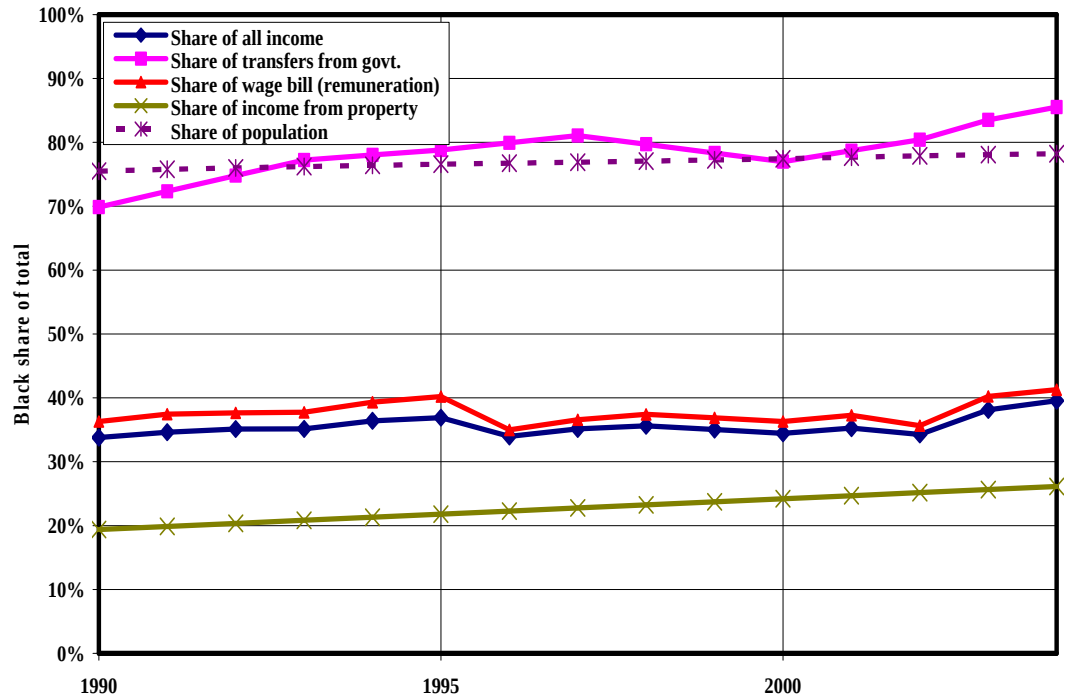
Source: Own estimates

Figure 11: Wage bill by race (2000 R-billion)



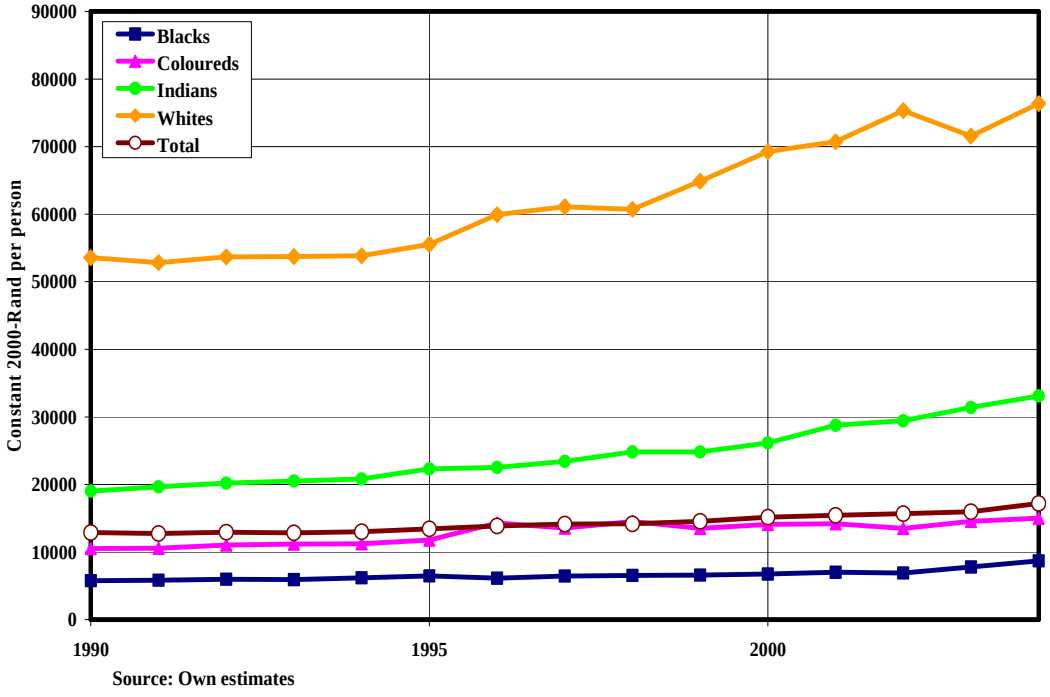
Source: Own estimates

Figure 12: Estimated black shares of income and its components and of population (% of total)



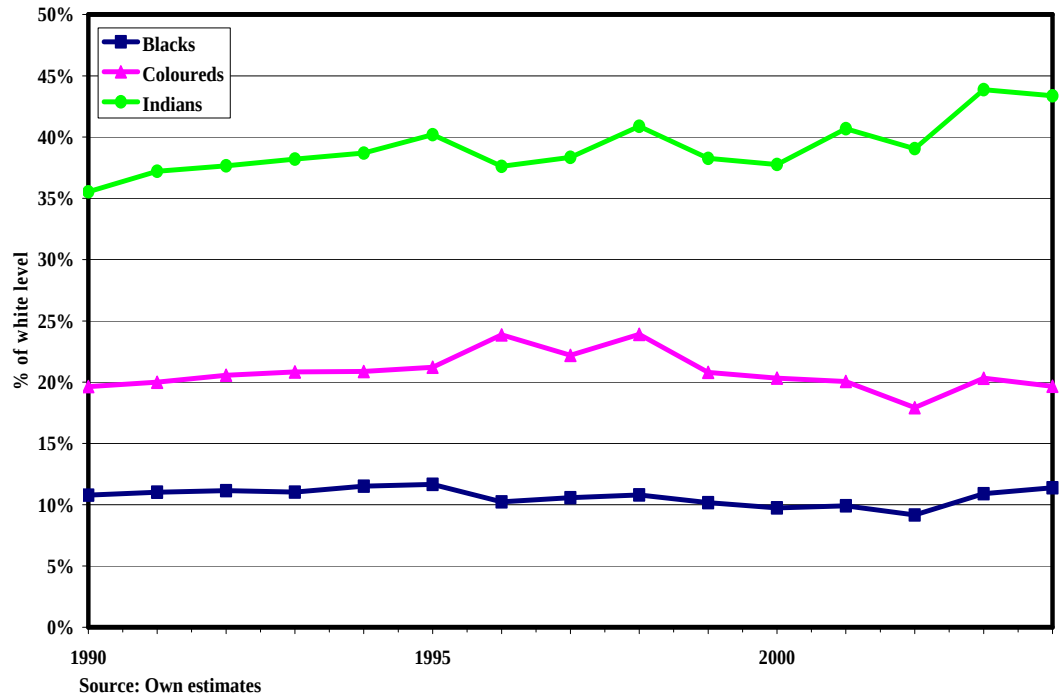
Source: Own estimates

Figure 13: Per capita income estimates by race



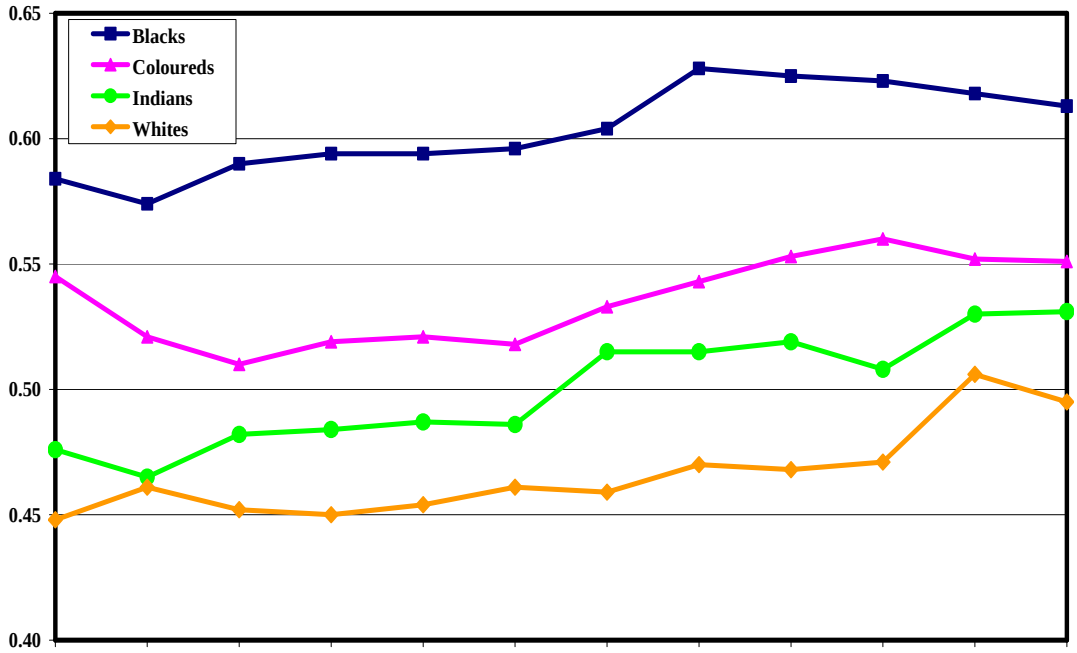
Source: Own estimates

Figure 14: Relative black per capita incomes (% of white level)



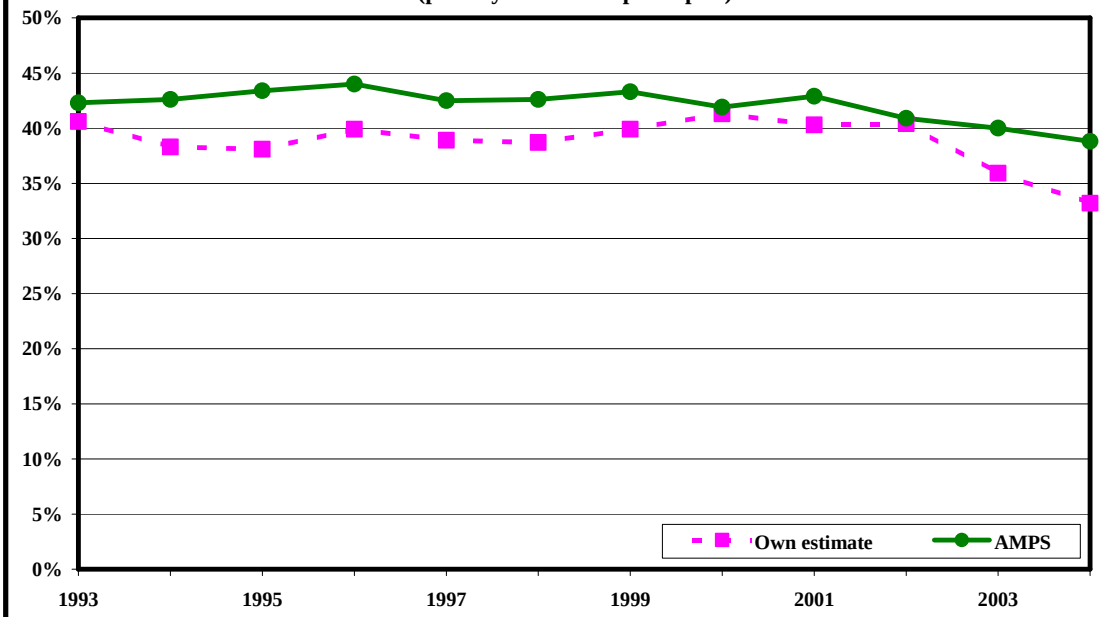
Source: Own estimates

Figure 15: Estimated Gini coefficients by race obtained from AMPS data, 1993-2004



Source: Own estimates based on AMPS data of various years

Figure 16: Comparing poverty headcount trend estimates from own estimates and AMPS, 1993-2004 (poverty line R3000 per capita)



Source: Own estimates and own calculations based on AMPS data of various years

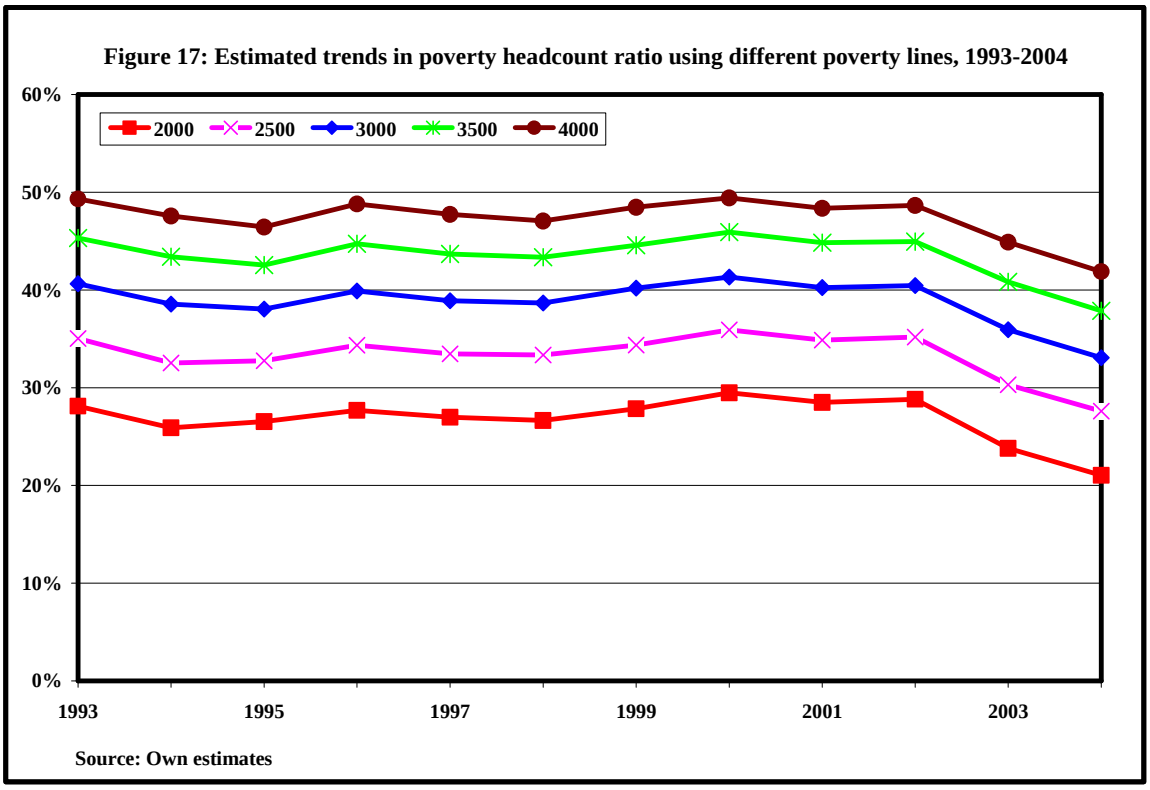
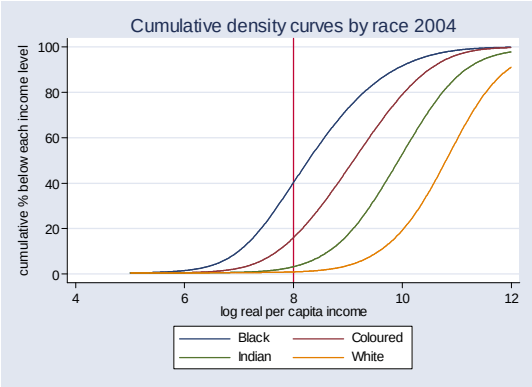


Figure 18: Cumulative density curves by race, 2004 (log and normal scale)

(a) **(b)**



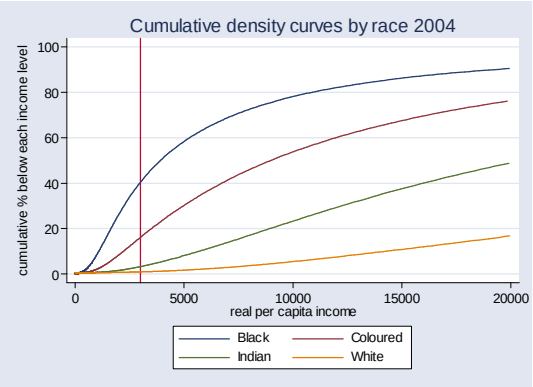


Figure 19: Cumulative density curves by race, 2004 (log and normal scale)

(a) **(b)**

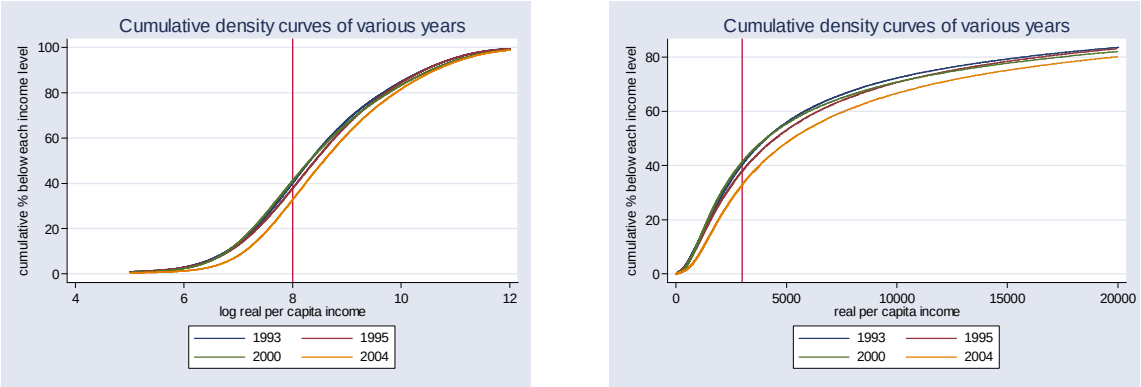


Fig. 20: Kernel density functions of income distribution by race (semi-log scale), 2004