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Challenging Cassandra: Household and Per Capita Household Income Distribution in the October Household Surveys 1995-1999, Income and Expenditure Surveys 1995 & 2000, and the Labour Force Survey 2000

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Challenging Cassandra: Household and Per Capita Household Income Distribution in the October Household Surveys 1995 - 1999, Income and Expenditure Surveys 1995 & 2000, and the Labour Force Survey 2000*

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Abstract

This paper examines household income inequality in the South African October Household Survey datasets between 1995 and 1999, the Labour Force Survey 2000, and the Income and Expenditure Surveys 1995 and 2000. The paper reflects both on changing patterns of income inequality in South Africa, and on the quality and comparability of the data employed. We employ several measures of income inequality, employing nominal income and expenditure data from South Africa over the 1995-2000 period. Results prove sensitive to the choice of welfare measure. Furthermore, results from income data and expenditure data provide contrasting results. On self-reported income data, our findings are that inequality measures increased over the 1995 - 2000 time period. While we do not attach much credence to the evidence for reasons attaching to data quality, there is nevertheless evidence suggesting that the general increase in inequality for the African race group also hides a decrease in inequality for the bottom $\frac{1}{3}$ of the income distribution, and (more unambiguously) a widening of inequality for the middle $\frac{1}{3}$ of the income distribution for Africans. There is also some evidence of a narrowing inequality amongst rich households for the population as a whole. This suggests that there is at least some evidence consistent with a successful redistribution of income from richest to poorest households, though this has not yet reversed the high aggregate level of inequality in South Africa. Evidence from inequality measures based on expenditure data reverse the findings based on self-reported income. Where there is evidence of an increase in inequality, in most instances this proves to be statistically insignificant. On some measures African as well as total population inequality has declined significantly, and for a number of racial groups inequality has remained unchanged. The central conclusion of the paper is therefore that there is much contradictory evidence that emerges from household level data on income inequality - suggesting that the choice of data set is non-trivial in drawing inference on income inequality in South

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1. Introduction

This paper is concerned with two questions.

Inequality has been a perennial feature of income and welfare in South Africa. The democratic transition of 1994 offered the opportunity not only of redressing imbalances in access to formal political rights. It also afforded the opportunity of redressing inequality of economic opportunity. The first question is whether the available household survey data shed any light on whether income inequality has been subject to change over the 1995 - 2000 time frame.

The second question of the paper addresses data quality issues. South Africa is one of a growing number of developing countries for which cross sectional household survey data is becoming available for repeated years. For users of such data a crucial question is its reliability. A reflection of this general concern has been the debate around the quality of income data collected in the October Household Surveys (OHS) conducted by Statistics South Africa (StatsSA). In the present paper we concern ourselves with income data specifically. Although it is widely believed that expenditure data is superior to income data, the latter could still be useful in examining a country's income distribution in the absence of more reliable data. Income and expenditure surveys (IES) collected detailed information on income and expenditure patterns in 1995 and 2000.

The second objective of the paper is therefore to compare and contrast the results obtained on income inequality obtained from expenditure data with those obtained from income data. In the process, we hope to draw some more general inferences on the quality of the income data obtained from the various surveys employed for this study.

Our findings are that, using income data, inequality in South Africa has increased over the 1995-2000 time frame. This is regardless of whether we employ the two IES data sets for 1995 and 2000, or the four OHS data sets for 1996, 1997, 1998, and 1999, and regardless

of which race group is considered.

However, evidence from inequality measures based on expenditure data reverse this finding. Where there is evidence of an increase in inequality, in most instances this proves to be statistically insignificant (though there are two countervailing instances). On some measures African as well as total population inequality has declined (significantly), and for a number of racial groups inequality has remained unchanged.

Thus if any increase in inequality has occured, inequality measures based on expenditure data suggest that the increase is more muted than that suggested by self-reported income (and may be entirely absent), and certainly the increase (if any) is less clearly concentrated in the African population group.

The paper also examines intradistributional changes in inequality, by examining inequality in the bottom, middle and top income ranges, and also proportions of households ranked by income. The evidence from these intradistributional ranges further confounds any suggestion of unambiguous increases in inequality. The evidence proves very sensitive to the specific income range or household proportion analyzed, to the decomposition employed to arrive at intradistributional ranges, and to the data employed.

While we do not attach much credence to the evidence for data quality reasons, there is nevertheless evidence suggesting that the general increase in inequality for the African race group hides a decrease in inequality for the bottom $\frac{1}{3}$ of the income distribution, and (more unambiguously) a widening of inequality for the middle $\frac{1}{3}$ of the income distribution for Africans. There is also some evidence of narrowing inequality amongst rich households for the population as a whole. This suggests that there is at least some evidence consistent with a successful redistribution of income from richest to poorest households, though this has not yet reversed the high aggregate level of inequality in South Africa.

The upshot of the paper is that there is much contradictory evidence that emerges from household level data on income inequality - both rising and falling inequality can be inferred from the evidence, suggesting that the choice of data set is non-trivial in drawing inference on income inequality in South Africa.

Moreover, the conclusion to emerge on the quality of the data examined for this study, is

that it leaves much to be desired. Examination of the distributions of income and expenditure data over successive years raises serious concerns about the validity of analysis conducted on the data. This is borne out by the more detailed evidence reporting inequality measures in the study. Often both the order of implied magnitude of changes in the inequality measures, as well as the suggested level of inequality prove to be implausible.

The most general implication is that at least for South Africa, evidence on income inequality from household surveys must be treated with some caution when inferring policy conclusions.

Section 2 of the paper introduces the measures of inequality employed for the present study. Section 3 introduces the data sets employed. Section 4 reports the results and comparisons of income inequality. Section 5 concludes.

2. Measures of Inequality

We employ three distinct measures of inequality in the results which follow. Two of the measures, the Gini coefficient and Theil's entropy measure, are standard to the literature, and thus receive only cursory coverage.[1] Pareto's inequality measure is no longer widely employed. There are good reasons for the loss of popularity of the measure, and we point these out. However, the Pareto measure nevertheless proves useful in the context of the current study since it serves to identify changes in the distribution of income over high income ranges. As we suggest in the empirical results section of the paper, such changes prove to be potentially important in the South African context.

While Dalton (1920) identified a number of distinct criteria against which measures of inequality might be assessed, modern authors focus on whether inequality measures satisfy what is termed the *principle of transfers*, viz. that inequality will be decreased by any transfer of income from a richer to a poorer person, provided only that the transfer does not reverse the relative position of the two individuals.[2] Both the Gini coefficient and Theil's entropy measure satisfy the principle of transfers. Pareto's inequality measure implies a uniformity of distribution, which makes it impossible to apply the principle of transfers to the Pareto measure - one of the reasons for its disappearance from the literature (see the

more detailed discussion below).

2.1. Gini Coefficient

The Gini coefficient applied to income is defined as the arithmetic average of the moduli of the differences between all possible income pairs,[3] divided by the arithmetic mean of income. The Gini measure is thus one of relative mean difference. The Gini coefficient is calculated as:

$$G = \frac{1}{2\mu N^2} \sum_{j=1}^{m} \sum_{k=1}^{m} n_j n_k \left| x_j - x_k \right| \tag{1}$$

where N is the total number of units of measurement (eg. households, individuals), μ is the arithmetic mean of the income measure, m denotes the income classes in the sample, n_i denotes the number of units of measurement in the income class i, and x denotes the income of the unit of measurement. The Gini measure is such that $0 \leq G \leq 1$, with $G = 0$ indicating perfect equality, and $G = 1$ concentration of income on a single unit of measurement.

2.2. Theil's Entropy Measure

Theil's entropy measure is given by:

$$I_T = \frac{1}{N} \sum_{i=1}^{N} \frac{x_i}{\mu} \ln \left(\frac{x_i}{\mu} \right) \tag{2}$$

where N denotes the population size, x_i the measure of living standards (here, as generally, total or per capita household income or expenditure), and μ the mean of the x's. The Theil entropy measure is such that $0 \leq I_T \leq \ln N$, with $I_T = 0$ indicating perfect equality, $I_T = \ln N$ concentration of income on a single unit of measurement.

2.3. Pareto's α Measure

Given the lack of modern usage of the Pareto measure of inequality, we provide a little more detail with respect to this statistic.

The origin of the proposed measure is inductive. An examination of the cumulative distribution of income for England, a range of Italian cities, a number of German states,

Paris and Peru, led Pareto to propose that:

$$N(x) = Ax^{-\alpha} \tag{3}$$

$$\Rightarrow \ln N(x) = \ln A - \alpha \ln x \tag{4}$$

where $N(x)$ denotes the number of incomes greater than x, and A and α are constant parameters.[4] Given that $\alpha \to \infty$ would imply a decreasing number of income units with high incomes, higher absolute values of the α parameter are interpreted as implying lower inequality.[5] It follows that the average income over x is:[6]

$$\overline{x} = \frac{\alpha}{\alpha - 1} x \tag{5}$$

Thus average income over any arbitrary x is given by the constant multiple, $\frac{\alpha}{\alpha-1}$.

Pareto claimed that α proves constant across both time and societies (given the range of data he considered), approximating 1.5, leading him to the assertion of a "law" of income distribution.[7] Indeed, Allen (1956: 408) continued to affirm $\alpha = 1.5$. Application of Pareto's law proved wide-spread, with Clark (1951) reporting over 150 estimates from different countries, and different time-points. More modern applications of Pareto's law show greater variability in the value of α, implying a change in developed country α-estimates from $1.6 - 1.8$ in the nineteenth to $1.9 - 2.1$ in the twentieth century, thus implying a reduction in inequality over time - see Cramer (1969: 56-7).

A number of points are worth noting in evaluating the Pareto inequality measure.

First, while Pareto held his "law" to hold over the entire domain of income, subsequent analysis suggested that the log-linear relationship in (4) held only for some lower limit x^0, generally held to exceed the mode of the income distribution, and often found to hold for less than half of all income recipients in the distribution. The discrepancy between Pareto's and subsequent findings is readily explained: Pareto's estimations were conducted on income tax data, which in the nineteenth century did not extend to lower income groups. Application of Pareto's inequality measure is thus subject to potential charges of being *ad hoc* in its choice of x^0. On the other hand, provided only that the log-linearity of (4) is an adequate

approximation, as long as the choice of x^0 is sufficiently aggressive in excluding low incomes, estimates of α should prove to be insensitive to the choice of x^0. The more serious limitation of the Pareto measure is that it restricts itself to a consideration of one tail of the income distribution. Use of the measure is therefore relevant only where the characteristics of the tail are of interest - as they may be in contexts of extreme inequality.

Second, given $N(x) = Ax^{-\alpha}$, $x > x^0$, $\alpha > 0$, let $x^* = \frac{x}{x^0} \geq 1$, with associated probability distribution $F(x^*) = 1 - x^{*-\alpha}$, and density $f(x^*) = \alpha x^{*-(1+\alpha)}$. The mean of the distribution is then given by $E(x^*) = \int_1^\infty \alpha x^{*-\alpha} dx^* = \frac{\alpha}{\alpha-1}$, the variance by $E(x^{*2}) = \int_1^\infty \alpha x^{*(1-\alpha)} dx^*$. This raises a potential problem for the Pareto inequality measure. For $\alpha < 1$, $E(x^*) = \int_1^\infty \alpha x^{*-\alpha} dx^*$ is non-convergent, precluding the existence of a finite mean to the distribution. For $\alpha < 2$, $E(x^{*2}) = \int_1^\infty \alpha x^{*(1-\alpha)} dx^*$ is non-convergent, precluding the existence of a finite variance to the distribution. Given that empirically $1 < \widehat{\alpha} < 2$, the implication is that while the implied income distribution has a finite mean, the variance is infinite.

One solution is to infer the variance from the necessarily finite sample variance where required. Another solution is provided by Mandelbrot (1960, 1961). The requirement is that incomes of earning units are additive over the independent random variables (which constitute the alternative income sources) with the same distribution up to some linear transformation of their scale, and that the common distribution that they share is one that approaches Pareto's law. Then asymptotically for large values of the random variable,[8] the distribution of the summation is Pareto-Lévy,[9] such that it is stable,[10] with finite mean, infinite variance, and maximum right-skewness. Mandelbrot thus demonstrates that the distribution of incomes required by Pareto is feasible for $1 < \alpha < 2$. A final solution is to note that there exists a class of stochastic process models that lead to stationary distributions that have Pareto tails. Champernowne (1953) provides an explicit application to income, while Simon (1955) and Steindl (1965) are also of relevance.[11]

Finally, attacks on Pareto's law have been sustained. For instance, we have already noted that subsequent research found α to vary considerably both over time and society - a point argued for from the outset by Pigou (1912) for instance. Pigou (1912) and Dalton (1920) argued forcefully that institutions mattered a great deal in determining income distribution.

Disputes on the goodness of fit of Pareto's law were also mounted virtually from the outset.[12] Despite these attacks Pareto's law continued to find adherents, primarily because of the extent to which good fit to the data was achieved on the basis of a very simple summary measure.[13]

One criticism that appears incontrovertible, however, is that Pareto's α strictly applies only to high incomes - or at least to incomes above some lower bound. Use of the measure therefore presupposes that there is a special interest in high incomes rather than inequality over the full range of income. Where inequality is high, and the tail of the income distribution particularly pronounced, such an interest is indeed justified. Policy makers may have an interest in examining whether redistributive measures are serving to alter the strength of the tail of the income distribution. It is in this vein that we consider the evidence for the South African case on Pareto's α.

3. Data

The data employed for this study is derived from a number of distinct sources. These include the Income and Expenditure Surveys (IES) of 1995 and 2000, the Labour Force Survey (LFS) of 2000, and the October Household Surveys (OHS) of 1996, 1997, 1998, and 1999.

Use of a series of cross sectional data sets has advantages, but also raises some methodological problems. In Appendix 1 of the paper we detail some of the problems that arise from the compilation of the income and expenditure data. What stands out in particular is that the 1995 and the 2000 data is derived from detailed income and expenditure surveys. We matched information for the 1995 IES with the 1995 OHS, and the 2000 IES with the 2000 LFS. By contrast, for 1996, 1997, 1998 and 1999 only OHS data was available, and total household income variables had to be constructed from the information in the OHS data sets. There is thus a fundamental difference between the 1995 and 2000 data set pairing, and the data sets obtained for other years. As we will report in greater detail in what follows, the distinction between the data sets is clearly evident in the results.

Weighted data is used throughout the study - with the single exception of the proportion

of the population falling below various poverty lines reported in Table 3 below.[14]

The literature on poverty and inequality measurement has established a preference for the use of data based on consumption, rather than data on reported income directly.[15] For South Africa consumption data is not available, and expenditure data is the closest approximation available.[16] In the present paper we nevertheless proceed with a consideration of income and expenditure data, for two distinct reasons. The first is that a comparison between the results obtained on income and expenditure data for 1995 and 2000 affords the opportunity of some inferences on the quality of the income data collected in the South African household surveys, as well as comparing the consistency of results from income and expenditure data. Second, the primary analytical concern of the present study is to establish whether there exists a *trend* in the inequality measures computed on the income and expenditure data collected in South African household surveys. Given this focus of the study, even where income data may suffer from bias, as long as the magnitude and direction of bias remains consistent over time, results on inequality computed on income data may continue to provide useful insight into inequality patterns in South Africa.

Two final points need to be borne in mind by readers when considering the evidence presented below. The income and expenditure data has not been converted to a real scale. The price indices available for South Africa are available for geographically disaggregated metropolitan and urban areas.[17] Deflating nominal income by such indices presumes that the consumption bundles, and hence the price indexes that apply to rich and poor households are homogeneous. But where this assumption is satisfied, the need for deflation is obviated. Where a common price index applies to the income streams of rich and poor households, the Gini computed on nominal income is equivalent to that computed on real income. One should note, however, that for the South African context the assumption that the same rate of inflation in nominal income applies to rich and poor households is unlikely to hold. The majority of the poorest members of South African society are unemployed, and thus are likely to realize lower rates of adjustment to nominal income than those in formal employment. Under these circumstances deflation of income across rich and poor households by a common price index will introduce a clear and potentially substantial bias to inequality measures.

Given that we cannot assume homogeneity of price indexes across income groups in South Africa, absent the existence of more disaggregated price indexes, and given the homogneity of degree zero of inequality measures, we believe that there is little to be gained from the use of real rather than nominal data.

The final point to note is that we have employed both total household income as well as per capita household income in the computation of our inequality measures. While the discussion focuses primarily on the per capita income figures, inequality of household incomes in the South African context potentially carries some additional information that may be of interest to readers.

Tables 1 and 2 respectively report the summary statistics for the total household income and per capita household income variables obtained from the data sets under consideration, while Figure 1 reports the frequency distributions of the per capita household income variables over the six data sets.[18]

A number of features are worth noting in the summary statistics.

First, a source of concern is that the mean income from 1995 - 2000 has declined, despite the use of nominal income data. By contrast, mean household income obtained from the use of the OHS income data shows a more plausible monotonically upward trend. A related matter is that income obtained from the two IES data sets lies above that of the income levels obtained from the OHS data. One interpretation is that the income data from the OHS's is inherently unreliable. Another, is that it confirms the conventional downward bias to income data.[19] Where we are concerned with the trend in inequality over time, the downward bias is of reduced concern, as long as it remains consistent. However the presence of the bias does require a clear separation of the data sets based on income from those based on expenditure data.

Second, the conventional right-skewness of income data is generally found in all of the data sets when we look at per capita income. The exception is 1996, and the more marginal case of 1998. The left-skewness of 1996 confirms the possibility of data collection problems with lower incomes in 1996 noted in the Appendix 1.

Third, questions also arise with respect to the collection of income data for the 1999 OHS.

While the summary statistics are not markedly out of line with those of the other OHS's, the discrete nature of the frequency distribution of income does point to the presence of potentially significant problems with this data set. Appendix 1 indicates problems associated with the net income of the self-employed, as well as non-wage income.

We note that the cumulative density functions (CDF) by race for income consistently confirm the standard finding that the CDF for Africans stochastically dominates that for Coloureds, whose CDF dominates that for Indians, who in turn dominate the CDF for Whites (See Figure 2). The only exception to this finding is in 1996, where Indian and White incomes at the lower end of the distribution for the two race groups fail to show clear stochastic dominance at low income levels. Thus the standard income order amongst South Africa's racial groups is present in the data. Figure 3 reports the CDF over the 1995-2000 time frame for each racial grouping. Again with the exception of 1996, the CDF's demonstrate the clear rightward migration of the distribution that one would anticipate with the use of nominal data.

Table 3 reports the proportion of the population that has fallen below a set of poverty lines set at R87, R174, R322 in 2000 prices.[20] For earlier years the poverty line is discounted at a 10% rate of inflation from their 2000 values. Note that where the imputed rate of inflation is too high, this would serve to understate poverty in earlier years, and *vice versa* where imputed inflation is too low.

The first point to note from the evidence is that the proportion of the population that falls below the three poverty measures is substantially lower than that reported in Hoogeveen and Özler (2003), on all measures, and for both years in which the data sets overlap. Second, we note that between 1995 and 2000, the proportion of the population falling below the poverty lines has been rising. This is particularly noticeable for the total population, and the African population group - a finding consistent with that of Hoogeveen and Özler (2003). However, there is a distinction between the poverty counts obtained from the OHS data sets, and the IES data sets. Over the 1996-99 period the proportion of the population that has fallen below the "low" poverty line has been falling, for both the total population and the African population group - in contrast to the upward trend in poverty between the 1995 and 2000

IES data sets. One interpretation of the evidence is thus that results are sensitive to the data employed. It also suggests that the Hoogeveen and Özler (2003) result of rising poverty may well be sensitive to the choice of data sets.

4. Results

In discussing the results to emerge from the three inequality measures, we turn first to the evidence to emerge for changes in inequality for the population in aggregate, as well as by racial group, over the 1995 - 2000 period. In discussing the evidence, we begin with a consideration of the results to emerge from both the Gini and the Theil entropy measures.

A second set of results then considers changing patterns of inequality to emerge from the distribution of income over sub-samples of the populations observed in this study. Thus we consider inequality for the bottom, middle and top $\frac{1}{3}$ of the population defined both in terms of the income range observed in the sample, as well as in terms of the number of households. The analysis extends to both the South African population as a whole, as well as to the racial groups standard to South African economic analysis. We repeat the exercise for the bottom $\frac{3}{4}$ and top $\frac{1}{4}$ of the population again on the two alternative decompositions.

Finally, we consider the evidence on inequality to emerge for the top end of the South African income distribution, utilizing Pareto's measure of inequality.

Throughout, we report the standard errors that attach to the inequality measures. For the Gini and Teil measures, the standard errors were obtained by bootstrapping, on 1000 replications.

We note at the outset that the conclusions implied by the total household income data, are broadly consistent with those drawn from the per capita household income data. However, those to emerge from the expenditure and the income data are not. While the income data imply an increase in inequality, both in aggregate and for the individual race groups, the expenditure data does not. Instead, expenditure data suggests inequality to have been constant or declining.

4.1. The full population results

Our first concern is with changing patterns of inequality in the South African population as a whole, as well as for the standard racial groups within the South African population.

We report the Gini coefficients and Theil entropy measures for the South African population as a whole as well as by race, for total household income in Table 4 and for per capita household income in Table 5. The results also report inequality results for both expenditure and income where both forms of data are available (1995 and 2000).

We begin by noting that for inequality measures based on self-reported income, regardless of the inequality measure employed, the only significant difference between the household income and per capita household income data lies in the magnitude of inequality indicated. The Gini coefficient and Theil entropy measure for per capita income consistently lie above those for total household income, an expression of the fact that poor households also tend to have more members.[21]

On self-reported income data the inequality measures indicate that for the South African population as a whole income inequality has been rising - and statistically significantly so. This is irrespective of whether we are considering household income, whether we are considering per capita household income, and irrespective of the measure of inequality employed. Moreover, it is regardless of whether we consider the 1995/2000 data set pairing (henceforth 95/00), or the 1996/1997/1998/1999 data sets (henceforth 96/99). Figure 4 illustrates for the case of the per capita household income case on the Gini coefficient - results for the Theil are symmetrical.

Unsurprisingly, intra-racial income inequality is lower than the aggregate income inequality. Of the intra-racial income inequalities, inequality is consistently strongest amongst Africans, followed by Coloureds, Indians and Whites. Africans also observed the strongest increase in inequality followed by Coloureds. Again, these findings are consistent across both the 95/00, and 96/99 data set groupings, as well as across the two inequality measures employed. Note, however, that the 1996 data set may bias upward the inequality measure for Africans and Coloureds (see the discussion of this data set in the preceding section, and in the data appendix).

One source of difference across the Gini and Theil measures arises with respect to inequality amongst Whites and Indians. On the Gini measure movements in inequality amongst Whites and Indians are ambiguous. Consideration of the 95/00 data set pairing suggests an increase in inequality for both Indians and Whites, though the extent of the increase is more muted than for Africans and Coloureds. By contrast, the 96/99 data set grouping indicates a somewhat stronger increase in inequality for Indians and Whites over the 1996-98 period, only to be reversed in the 1999 data set. One plausible explanation is provided by the fact that the 1999 data set collects self-employed income poorly (see the preceding section and the data appendix), which would bias higher income groupings downward particularly for Indians and Whites. The 1999 inequality measure for these two racial groupings is thus likely to be an understatement. Inequality is thus likely to have increased for Indians and Whites also.

By contrast, the Theil entropy measure results for Whites and Indians show a consistent movement over time. In particular, movements in inequality amongst Whites and Indians are consistent across the two groupings of data sets, and suggest a small change in inequality, with Indians reporting a decline over the period, and Whites a moderate increase.[22]

While the inequality findings to emerge from the data are therefore plausibly consistent across data sets and inequality measures when computed on self-reported income, findings with respect to income measures based on reported expenditure generate contrasting results. For household income inequality measures, on the Gini coefficient inequality either remains constant over the 95/00 data set pairing, or declines marginally for some racial groups (African, Indian), though any recorded movement in inequality is statistically insignificant. By contrast, for household income on the Theil entropy measure, the index shows a statistically insignificant increase in inequality for the population as a whole, for Coloureds, and for Whites, and a statistically significant *decrease* in inequality for Africans and for Indians.

Inequality measures inferred from per capita household income data based on expenditure data, report statistically insignificant increases for the population as a whole, for Coloureds (though on the Gini measure the increase is marginally significant), and for Whites, regardless of the use of the Gini or Theil measure. For Africans, both inequality measures report no

alternation in inequality. Finally, for Indians the Gini coefficient records an increase in inequality, the Theil a decrease, though both changes remain insignificant.

The general finding of inequality changes based on expendiutre data therefore suggests that inequality in the South African population as a whole, as well as within racial groupings, has remained largely unchanged over the 1995 - 2000 period, in strong contrast to the implications that emerge from self-reported income.

Two immediate implications flow from these findings. First, the results reported in the present study raise questions about the results reported in Hoogeveen and Özler (2003), which are based on real per capita expenditure figures from the 95/00 data set pairing. They report an increase in the Gini and Theil measures for Africans from 0.47 to 0.50 and 0.41 to 0.46 respectively (as well as an increase in the Gini and Theil measures for the population as a whole).[23] Given that the African population grouping in South Africa is also the racial group which contains households least able to correct nominal earnings for inflationary pressure, one explanation of this divergence of findings is that the Gini computed by Hoogeveen and Özler (2003) suffers from the upward bias due to an inappropriate deflation of the poorest income classes noted in the data section above. An alternative interpretation is that while for income data deflation is not appropriate (for the reasons outlined in the data section), for expenditure data a homogenous price deflator may be more appropriate across income groups. This would render the Hoogeveen and Özler (2003) results appropriate, and would provide results consistent with the income data of the present study.

Second, the findings point to a problem of interpretation of the results. Given that the income data consistently point to an increase in inequality in South Africa over the 1995-2000 period, while the results from the expenditure data indicate little or no change, final conclusions on the direction of change in inequality are less unambiguous than is desirable. Inference could be either in favour of no change (if expenditure data is preferred), or in favour of an increase (if the income data is believed). The findings on inequality therefore confirm the implication of the exploratory data analysis that inference on inequality in South Africa is sensitive to the data set employed.

Caveats in interpreting inequality findings follow immediately.

Finally, note that the Theil measure makes it possible to separate overall inequality into *within* and *between* group inequality. *Within* racial group inequality quantifies the inequality ignoring differences in the mean income level across the different groups. We are thus able to uncover whether overall inequality has changed chiefly due to changes in mean incomes earned by different racial groups in South Africa or changes in the income distribution within the different racial groups. Table 6 reports the results. Over 1995 to 2000, both *within* and *between* racial group inequality have risen in South Africa. This appears to be mainly due to a rise in *within* group inequality in the middle income range, which is a reflection of the rise in per capita income inequality within the African and Coloured racial groups (see the discussion of the following section). Considering the 1996-1999 data, a large increase in *within* group inequality again emerges, although we now mainly observe an increase in the dispersion of income in the bottom and top income range. The fraction of total inequality that can be explained by *between* racial group inequality has decreased over all the years and plays almost no part for inequality in the bottom and top income ranges.

4.2. Intra-distributional changes in inequality

We extend the present analysis to a consideration of changes in the Gini and Theil inequality measures over sub-samples of the population. We do so for two alternative decompositions of the population. In the first we consider proportions of the population defined by income range, in the second we refer to population proportions defined by household counts. Thus in the first decomposition we consider inequality in the bottom, middle and top $\frac{1}{3}$ of the total income range found in South Africa, as well as inequality in the bottom $\frac{3}{4}$ and top $\frac{1}{4}$ of the income range. In the second decomposition the sub-components of the sample are defined in terms of numbers of households, such that the $\frac{1}{3}'s$ and quartiles apply to proportions of total households, rather than income ranges. In the discussion which follows, we refer to these alternative decompositions as the "income range" and "household proportion" decompositions respectively. The purpose of these decompositions is to determine whether inequality increased most strongly at low or high income levels. We also apply the decompositions to racial groups in the population.

Full results are reported in Appendix 2 of the paper. Tables 7 and 8 summarize for the Gini coefficients for total household and per capita household income respectively. Theil results are symmetrical, and are not explicitly reported, though full results are provided in Appendix 2.

A number of findings emerge from the evidence.

First, findings are sensitive to the use of household income or per capita household income data. The two sets of results largely concur only for the total population, and the African population for the 96/99 data set pairing, and the White population for the 95/00 data sets. In all other categories changes in inequality differed between the two definitions of income.

Second, findings are sensitive to the use of intradistributional decompositions based on income range, or on proportions of households. In only 35 of 100 intradistributional changes do the changes in inequality based on income range and household proportion decompositions concur.

Third, for the 96/99 data sets there is evidence of considerable volatility in the direction of change in inequality over a relatively short period of time. Given that it is difficult to understand why such frequent, rapid, and often substantial change (see the detailed results of Appendix 2) should emerge in income inequality, this may once again be a reflection of the quality of the OHS income data.

A general point once again therefore is that conclusions on changes in intradistributional income inequality depend critically on the data set employed, and on how the data is decomposed for the intradistributional comparisons.

The warning on the quality of the data employed is particularly cogent given the often implausibly large changes in inequality and levels of inequality that emerge from the use of some data sets. The data from the 1999 OHS is particularly noticeable in this regard.

In addition to the general implications, a number of additional substantive results also emerge from the intradistributional evidence.

For the African population inequality generally increases for per capita household income on the 95/00 data set pairing. However, important countervailing evidence emerges for the Bottom $\frac{1}{3}$ income range, for which inequality appears to decline, the Top $\frac{1}{3}$ income range and

household proportion, and the Top $\frac{1}{4}$ household proportion, for which inquality is unchanged. For the 96/99 data set grouping, inequality declines significantly for both the Bottom $\frac{1}{3}$ and Bottom $\frac{3}{4}$ household proportion on per capita household income, though the income range decomposition shows the reverse result.

For intradistributional changes in inequality, African total household income results are distinct from those obtained for per capita income. Perhaps most notable of these is that the finding of a decrease in inequality in the Bottom $\frac{1}{3}$ income range and household proportion is reversed. We find that inequality in this range of income and for the poorest households now increases for total household income.

Results for the African population are thus sensitive to data set grouping, and to the decomposition of households by income range or household proportion. Nevertheless the results reported above do provide one suggestive result. At least in terms of the 95/00 data set pairing, the implication is that the extent of income inequality for Africans in the bottom $\frac{1}{3}$ of the income distribution has decreased, while an increase in inequality for Africans has occurred in the middle $\frac{1}{3}$ of the income range. One possible interpretation of this result is that welfare transfers to poor households have been successful to some extent, while the loss of formal sector employment during the course of the 1990's together with the concomitant rise in wage earnings over this period would have served to raise inequality in the middle $\frac{1}{3}$ of the income distribution.

However, consideration of the mean incomes of households in the lower income ranges renders this interpretation unlikely. Mean incomes for total and per capita household income are reported in Appendix 3 of the paper.[24] The declining mean income in the bottom range over the 95/00 data sets suggests that the more likely explanation of the declining income inequality at low incomes is simply that inflation has pushed low incomes upward, and left increasingly small numbers of households at the very low incomes falling in the lowest range.

On the other hand, the falling mean incomes for the middle income ranges of the African population would be consistent with explanations resting on changes in unemployment over the sample period (predicated on the accuracy of the income data, of course).

On per capita household income the 95/00 data set pairing shows an unambiguous in-

crease in inequality for Coloureds across all intra-distributional ranges, regardless of whether decomposition is by income or by household proportion. This mirrors precisely the result of Hoogeveen and Özler (2003) for Coloureds. But note that the finding is not replicated for the 96/99 data set grouping, and for total household income the result is again not replicated. Instead, in both instances movements in inequality are sensitive to the intradistributional range considered, and the use of the 95/00 and 96/99 data set groupings. Note in particular that the use of per capita income data in the 96/99 data sets suggests a decrease in income inequality in all intradistributional ranges (except the Top $\frac{1}{4}$ of households), provided only that the household proportion decomposition is employed.

Our general finding on the sensitivity of findings to data set and decomposition noted above is thus well illustrated by the Coloured population group.

The Indian and White populations show the greatest degree of sensitivity of results to data set grouping and decomposition, out of all South African racial groups. Given the results that are to follow for Pareto's α, it is worth noting that on the 95/00 data sets income inequality for the Top $\frac{1}{4}$ and $\frac{1}{3}$ income range and household proportions declined consistently for total household income for both Indians and Whites, and on the Top $\frac{1}{4}$ and $\frac{1}{3}$ household proportions for per capita household income. Similar evidence does emerge for the 96/99 data sets, though the decline in inequality tends to be restricted to the Top $\frac{1}{4}$ and Top $\frac{1}{3}$ income ranges, and is not as unambiguous across both racial groups.

While it is not possible to verify this finding, the implication is that there is at least some evidence consistent with redistribution away from the highest income groups over the 1995 - 2000 time period.

Finally, for the population in aggregate inequality appears to have increased in the Top $\frac{1}{4}$ and $\frac{1}{3}$ income ranges and household proportions, decreased in the Middle $\frac{1}{3}$ and Bottom $\frac{3}{4}$ ranges, and increased in the Bottom $\frac{1}{3}$ ranges. However, the evidence is only relatively uncontestable for the Top $\frac{1}{4}$ and $\frac{1}{3}$ ranges, and elsewhere evidence is mixed depending on the the use of household or income decompositions, and the data sets employed.

4.3. Estimates of Pareto's α

The final set of results in this paper are obtained from an estimation of Pareto's α, for both total household income and per capita household income.

Recall that Pareto's α is held to apply only to the upper tail of the income distribution. Our interest in this part of the income distribution arises from the extreme nature of South African income inequality. High income levels are particularly far removed from lower income levels - that much is common cause amongst researchers on income inequality in South Africa. If so, then any policy designed at redistributing income from upper income classes to lower income brackets as a means of improving social welfare must be concerned with whether the redistribution measures are having an impact. One means of assessing whether this is the case is to examine the distribution of income in the upper tail of income. Where redistribution is being successful, one possible expectation might be that upper incomes are coming to be less unequally distributed.[25] Pareto's α is suited to the examination of this task.

Since the upper tail of the income distribution is dominated by Indians and Whites in South Africa, we do not believe a racial break-down of the α parameter to add substantially to the analysis. We therefore report the α-parameter only for the population in aggregate.

Tables 9 and 10 report the results we obtain for the 1995 - 2000 sample period, for total household income and per capita household income respectively. Readers should recall that estimation of Pareto's α requires the specification of some lower bound to income, x^0, above which Pareto's law is said to hold. It is clear that this introduces an *ad hoc* element to the analysis. However, since Pareto's law hypothesizes a log linear relationship between cumulative income units and level of income (see the extended discussion of section 2.3 above), as long as the choice of x^0 errs on the "high" side, the estimate of α should prove to be relatively insensitive to the choice of x^0. We provide some sense of the sensitivity of $\widehat{\alpha}$ to alternative choices of x^0, by reporting estimates based on both a "low" and a "high" lower bound in income.

In addition, in order to avoid rendering estimated α's for successive years arbitrary, we increased the lower bound income by approximately 10% per year, in order to account for

inflation in nominal magnitudes.

It is worth noting immediately that the implications derived below are not sensitive to the choice between the two lower bounds, in the sense that the trend in the inequality measure remains unaffected. For this reason we restrict ourselves to an explicit discussion of the results derived for the higher of the two lower bound values.

Results differ between the 95/00 and 96/99 data sets, and there is also some difference between the results from per capita household income and total household income.

On the 95/00 data sets based on the IES data, the implication is of a rising absolute value of α, and hence a falling level of inequality. Moreover, this finding is invariant between the per capita household income measure, and the total household income measure. By contrast, the trend in the absolute value of α in the 96/99 grouping of data sets is negative for the per capita household income variable, implying an increasing level of inequality in high income households, while it is difficult to discern any trend in the value of α in total household income for the 96/99 data set grouping.

To check whether the quality of our results was affected by a choice of too low a x^0 lower bound value, we reestimated α on income with a lower bound close to three times the level employed for the results reported above. Results for per capita household income are reported in Table 11. However, the pattern already reported above, viz. declining inequality over the 95/00 data set, and rising inequality over the 96/99 data set is repeated.

One possible response to the countervailing evidence is to dismiss the income data from the OHS surveys as too unreliable - particularly for high income categories, and to focus on the data based on the IES's of 95/00 instead. In this case the evidence points clearly to a reduction in inequality from Pareto's α - irrespective of whether we employ total household income or per capita household income. On this interpretation policy makers might conclude that redistributive policies have had some purchase on upper income levels in South Africa.

Given the countervailing evidence from the OHS data, the suggestion must remain a hypothesis, and more detailed work is required to settle the matter.

5. Conclusions and Evaluation

We have a mixed bag of results here. But that is also the point.

The most immediate lesson to be learnt from the evidence must be that interpretation of inequality results for South Africa based on household survey data must be undertaken with considerable care. Results are sensitive both to the choice of real or nominal variables, as well as the welfare measure chosen. Results from income data and expenditure data provide substantially different results.

At the very least therefore, public policy conclusions should not attach too great a weight to one measure, or a single data set grouping. Results for this study cast doubt on suggestions that inequality in South Africa has unambiguously increased.

On income data, our findings are that inequality measures increased over the 1995 - 2000 time period, regardless of the data set grouping employed, and irrespective of race. The strongest increase in income inequality occurred for the poorest racial groups in South Africa, viz. Africans and Coloureds.

Moreover, the strongest increase in income inequality occurs over the middle $\frac{1}{3}$ of the total income range, particularly for Africans, though also for Coloureds. By contrast, there is arguably a reduction in income inequality in the lowest income range (bottom $\frac{1}{3}$) for Africans - though the decrease is marginal, as well as contestable.

Finally, from Pareto's α measure of inequality there is a weak suggestion that inequality over high income classes has declined, though this conclusion is sensitive to the data sets employed.

Such movements in inequality suggest at least three questions for future research.

Is the reduction of the inequality for Africans in the bottom $\frac{1}{3}$ of the income distribution a result of the introduction of welfare payments during the course of the 1990's?

Is the widening inequality for Africans in the middle $\frac{1}{3}$ of the income distribution a reflection of the poorly functioning South African labour market? In particular, to what extent is it being driven by the loss of formal sector job opportunities at a time when formal sector pay has been rising particularly for unskilled workers?

Finally, is the evidence from Pareto's α plausible, and if so does it indicate that policy in South Africa during the course of the 1990's has been successful in redistributing income from high income households?

At least conceivably, the evidence from the income data of this study suggests that policy intervention has been successful at improving the lot of the poorest in society through welfare transfers, and that it has reigned in to some extent excesses at the top of the income pyramid. In the mid-range of the income distribution, however, inequality appears to have got worse. Why this is the case must remain the topic of additional research.

Results from expenditure data are less dramatic than for income data. The central finding is that there have been no statistically significant changes in inequality for the population in aggregate, and inequality for Africans if anything decreases rather than increases as suggested by the income data.

Further research would also be useful on the relative quality of the income and expenditure data contained in the survey data employed for this study. Are the divergent results obtained for income and expenditure a function of data collection problems? If so, are the problems more severe for expenditure or for income? The answer matters for policy contexts, since the inferences drawn on the magnitude of change in inequality and the racial concentration of such changes is markedly different.

Another possibility is that the role of real and nominal data differs between income and expenditure data. We saw in the data section of the paper that the use of real income data deflated on average price indexes would be likely to overstate the extent of inequality. Whether this inference follows to the same degree for expenditure data is perhaps also worthy of further investigation, since results from the Hoogeveen and Özler (2003) study suggest that results consistent with those obtained on the income data for this study are feasible.

But one feature of the results in this study remains incontrovertible. Regardless of which inequality measure we employ, and which data set is considered, South African inequality remains high in absolute terms. Much therefore remains to be done to reduce it.

Notes

[1]See for instance Deaton (1997: 139-40ff) for a fuller treatment.

[2]Three additional criteria mentioned by Dalton are termed the *principle of proportionate additions to income*, the *principle of equal additions to incomes*, and the *principle of proportionate additions to persons*.

[3]This is equal to the arithmetic mean of deviations from the median, weighted by the number of incomes intermediate between the median and the income whose deviation is being calculated, plus one.

[4]See Pareto (1896, 1897).

[5]Dalton (1920) notes that the Gini coefficient can be inferred from the Pareto inequality measure. Gini notes that many income distributions approximate an expression that is close to Pareto's, viz. $N = \frac{1}{c}s^{\delta}$, where s denotes the total income of the N richest income receivers, with c, δ constant parameters. Since $\delta = \frac{\alpha}{\alpha-1}$, this is analogous to Pareto's law. By means of a transformation into a Lorenz curve, Dalton's analysis shows that the Gini coefficient can now be derived as $G = \frac{\delta-1}{\delta+1} = \frac{1}{2\alpha-1}$.

[6]See Allen (1956: 407-8).

[7]For an extended review of the literature surrounding Pareto's law, and an engaging discussion of its "sociological" interpretation, in particular the possibility of attributing the constancy of α to either chance, social institutions or human nature, see Persky (1992). See also Davis (1963) on the link of α to social instability.

[8]Specifically for $U_n = \sum_{i=1}^{n} u_i$, where u_i denotes the n independent random variables with common distribution, either u_i or U_n, but not necessarily n is large.

[9]See Lévy (1925, 1937) and also Feller (1966: ch6).

[10]A random variable composed of a sum of independent variables is said to have a stable distribution if the sum has the same distribution as its constituent elements up to some linear transformation.

[11]Note that Simon (1955) is concerned with the frequency with which words appear in texts, and Steindl (1965) with firm characteristics. Their approaches generalize to income.

[12]See for instance Persons (1909).

[13]See for instance Johnson (1937).

[14]Since households have different probabilities of being selected in samples, some households may come to be overrepresented, others underrepresented. Correction was by the weights supplied by StatsSA.

[15]See the discussion and Deaton and Zaidi (2002), Hoogeveen and Özler (2003), and Ravaillon (2001).

[16]As a consequence Hoogeveen and Özler (2003) use the expenditure data in their analysis. They do not extend their analysis to income data.

[17]These are the deflators employed by Hoogeveen and Özler (2003) in their South African study.

[18]The difference in sample size between the total household income and the per capita household income data arises due to missing values in the StatsSA household size variable.

[19]The conventional bias arises due to a presumption that survey respondents are reluctant to disclose income directly. In the South African surveys, in the IES surveys income was adjusted on the basis of rendered expenditure information.

[20]For a discussion of the choice of these poverty lines see Hoogeveen and Özler (2003).

[21]We computed per capita income by simply dividing by household size. Using adult equivalence and adjusting for economies of scale in larger households, would likely adjust the per capita income of poorer and larger households upwards. The aggregate income inequality measured in this paper can thus be considered an upper bound to the true (lower) value. The bias in the inequality measure within population groups may be more ambiguous.

[22]This finding would be consistent with traditionally sheltered economic conditions for the sections of the white population most vulnerable to economic competition disappearing, leading to a loss of income.

[23]See Table 5 of the paper.

[24]Note that the data on mean income on intradistributional ranges further confirms our earlier doubts expressed about the reliability of income data from South African OHS's.

[25]Of course, strictly this depends on whether it is the upper or the lower portion of the "rich" income group being subject to the change.

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6. Appendix 1: Data Sets, Data Problems and Relevant Data Transformations

Income and expenditure data for this study is collected from a range of Income and Expenditure Surveys (IES), October Household Surveys (OHS) and the new Labour Force Survey (LFS). The data appendix provides brief notes on the data compilation issues that arise from each data set.

Readers should note that personal income information is composed of data that is both continuous, since it contains the actual income (or expenditure) amount tendered by respondents, and/or discrete since it also contains an indication of an income bracket in which work and non-work income falls.

6.1. OHS 1995

The OHS 1995 questionnaire asked for the actual income amount or income bracket before deductions. Additionally, workers were asked to indicate the estimated value they receive in kind per week (transport, food, other).

Problems in the data arise on own account income as the income bracket and frequency data does not correspond to the coding in the questionnaire. Most researchers seem to circumvent these problems by using the IES data in the first place. Stats SA in their summary of findings on the OHS also quotes IES findings in their discussion of incomes. We have been forced to resort to the IES data also.[26]

6.2. IES 1995

The Income and Expenditure survey (IES 1995) collected detailed information on income and expenditure patterns mostly in the same households as those who were included in the OHS sample.

6.3. OHS 1996

Income before deductions of employees was recorded in 14 income brackets. Income before any expenditures (i.e. turnover) of self-employed persons was recorded in 16 income brackets. For expenditures on goods, wages and other of self-employed the actual amount was asked for. For income of the self-employed, we therefore obtain a continuous variable if we subtract expenditures from the midpoint of income brackets.

Household income from sources other than employment and self-employment has been collected in a separate section of the survey (section 7). Respondents were asked to either indicate an annual or monthly amount received from various sources, including financial support from non-members of the household.

Total household income can therefore be summated as the incomes earned by working household members plus the sum of non-work income reported in section 7.

In order to create a variable for total household income, we calculated household income from work and added other income to form total household income.

6.4. OHS 1997

For each household member, the actual amount they received from various non-work sources was asked. Sources also include support from relatives or other persons outside the household.

The personal income question similarly asks for the actual amount received, for the period of payment and in which of 14 income brackets receipts fell. Information on the income bracket was elicited in the case of refusal to answer the income questions, or in the event of a don't know response with regard to the actual income figure.

Income of self-employed persons can be calculated from a variable given as total turnover before the deduction of expenses, less expenditure on goods, remuneration and other costs. Again refusals and don't know responses on precise income could indicate their income / turnover bracket. Information on expenses would still be given as an actual amount (Q. 3.27). One problem with regard to self-employed income is that subtracting expenditures from the midpoint of an income bracket could lead to negative income figures.

6.5. OHS 1998

Income information was collected in the same way as in the OHS 1997. For each household member, the actual amount they are receiving from each non-work source is asked. This section is identical to the questionnaire in 1997.

Again as in 1997, the personal income question asks for the actual amount, for the period of payment and in which of 14 income brackets the amount fell.

In deriving self-employed income variables, the problem of arriving at negative income figures for self-employed is more prevalent than in the 1997 data set.

6.6. OHS 1999

This data set appears to be the most problematic in terms of survey design regarding income information. As in 1997 and 1998, respondents in the worker section were asked to indicate their actual income amount from work before deductions, but could also indicate into which of 14 income brackets the amount fell.

A first problem arises from the fact that for self-employed, their income (actual amount or income bracket, same brackets as for employees) is recorded before deducting expenses, but the questions on actual expenses on material, wages etc. have been skipped. This makes income information for self-employed incomparable to that of self-employed in previous OHS surveys.

Further, non-wage income of household members was not recorded separately any longer. Instead, it is indicated whether somebody receives income from a certain source or not, and a person's total income from work and non-work sources is then only recorded within an income bracket (Q. 4.13). There are 9 income brackets which means that there is a further loss of information if we use this variable as income variable in comparison to the wage information.

Asking income information in several sections of the interview may have enhanced the quality of the income variable if interviewers cross-checked during the interview and prompted respondents to confirm their answer or correct if an amount deviated from an earlier statement. Such a possible gain is likely to have been eroded by the broad brackets in which

personal total income and household total income have been recorded.

There also is a total household income variable in Section 6 (House). This affords the opportunity to cross-check the total household income variable calculated from the person level data on work and non work income.

6.7. IES 2000 and LFS September 2000

Income from work for someone else or own account is asked as the amount including overtime, allowances and bonus, before any tax or deductions (Q. 4.15). As in the OHS, respondents refusing to disclose the actual amount or not knowing it, could indicate one of 14 income brackets. The LFS has no information on the amount of non-work income received by household members or the household, as the questionnaire is only recording whether someone is receiving income from a particular source or not (or doesn't know, Section 6 of LFS questionnaire).

In the IES 2000, respondents are stating their regular income from work, other non-work income and the data set then generates variables for total income and undeclared income.

Where income data was missing but expenditure data existed StatsSA estimated the expenditure amount to be "undeclared income." In case total income proved significantly smaller than total expenditure, undeclared income was estimated equal to the total expenditure minus the total income.

7. Appendix 2: Intradistributional changes in income inequality

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8. Appendix 3: Mean Incomes

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Year	N	Mean	Median	Mode	Std.Dev.	Variance	Skewness	Kurtosis
1995	29595	1678	1494	410	1.10	1.21	0.40	2.82
1996	16269	869	1250	2000	1.66	2.76	-0.52	2.65
1997	29811	1059	1000	470	1.23	1.52	-0.10	3.46
1998	18981	1080	1031	500	1.30	1.70	-0.12	3.66
1999	26308	1256	1000	600	1.19	1.42	0.39	3.05
2000	26265	1360	1200	540	1.16	1.35	0.19	3.69

Table 1: Summary Statistics for Aggregate Household Income. Income figures are current, and denote monthly income.

Year	N	Mean	Median	Mode	Std.Dev.	Variance	Skewness	Kurtosis
1995	28585	455	406	410	1.25	1.55	0.36	2.71
1996	11824	220	275	1000	1.77	3.13	-0.46	2.72
1997	27559	268	250	100	1.34	1.80	0.03	3.20
1998	16170	304	300	500	1.42	2.02	-0.07	3.34
1999	24114	392	343	200	1.34	1.79	0.28	2.96
2000	26265	437	397	500	1.29	1.67	0.21	3.07

Table 2: Summary statistics for per capita income. Income figures are in current Rand, and denote monthly income.

Year		**Low Poverty Line**	**Mid Poverty Line**	**High Poverty Line**
Income <		**52.77**	**105.54**	**195.30**
1995	Total	2.05	11.78	27.90
	African	1.97	11.02	25.08
	Coloured	0.08	0.75	2.71
	Indian	0.00	0.00	0.03
	White	0.00	0.02	0.07
Income <		**58.32**	**116.64**	**215.84**
1996	Total	15.91	23.37	32.91
	African	14.48	21.07	28.92
	Coloured	0.80	1.36	2.66
	Indian	0.15	0.22	0.40
	White	0.48	0.72	0.95
Income <		**64.45**	**128.90**	**238.54**
1997	Total	12.05	28.00	44.85
	African	11.27	25.81	40.06
	Coloured	0.57	1.70	3.79
	Indian	0.04	0.13	0.27
	White	0.17	0.35	0.72
Income <		**71.23**	**142.46**	**263.63**
1998	Total	12.29	25.75	40.35
	African	11.63	23.80	35.81
	Coloured	0.45	1.43	3.41
	Indian	0.09	0.19	0.31
	White	0.13	0.33	0.82
Income <		**78.72**	**157.44**	**291.36**
1999	Total	10.43	24.40	39.32
	African	10.04	23.10	36.25
	Coloured	0.35	1.20	2.78
	Indian	0.01	0.04	0.14
	White	0.03	0.07	0.15
Income <		**87**	**174**	**322**
2000	Total	8.83	24.68	44.07
	African	8.50	23.34	40.60
	Coloured	0.26	1.20	3.19
	Indian	0.02	0.05	0.13
	White	0.04	0.08	0.16

Table 3: Percentage of the Population with income below indicated values.

Gini	Total Household Income							
	1995		1996	1997	1998	1999	2000	
	Income	Expend.	Income	Income	Income	Income	Income	Expend.
Total	0.58	0.59	0.62	0.61	0.64	0.65	0.62	0.59
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
African	0.52	0.53	0.61	0.55	0.59	0.61	0.54	0.50
	(0.01)	(0.01)	(0.01)	(0.004)	(0.01)	(0.02)	(0.01)	(0.01)
Coloured	0.45	0.46	0.50	0.48	0.60	0.66	0.50	0.48
	(0.01)	(0.01)	(0.01)	(0.01)	(0.07)	(0.05)	(0.01)	(0.01)
Indian	0.46	0.44	0.47	0.48	0.54	0.42	0.45	0.43
	(0.03)	(0.02)	(0.02)	(0.02)	(0.04)	(0.02)	(0.02)	(0.01)
White	0.44	0.43	0.43	0.51	0.50	0.40	0.43	0.43
	(0.01	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)
Theil	Total Household Income							
	1995		1996	1997	1998	1999	2000	
	Income	Expend.	Income	Income	Income	Income	Income	Expend.
Total	0.69	0.69	0.70	0.74	0.90	1.13	0.76	0.72
	(0.03)	(0.03)	(0.02)	(0.02)	(0.09)	(0.11)	(0.02)	(0.03)
African	0.54	0.56	0.68	0.55	0.74	1.04	0.59	0.49
	(0.03)	(0.03)	(0.02)	(0.01)	(0.04)	(0.14)	(0.04)	(0.02)
Coloured	0.36	0.37	0.42	0.44	1.12	1.69	0.45	0.41
	(0.02)	(0.02)	(0.02)	(0.07)	(0.43)	(0.41)	(0.02)	(0.02)
Indian	0.42	0.37	0.39	0.44	0.64	0.31	0.35	0.30
	(0.06)	(0.04)	(0.05)	(0.05)	(0.14)	(0.03)	(0.03)	(0.02)
White	0.38	0.37	0.32	0.47	0.47	0.37	0.34	0.39
	(0.03)	(0.03)	(0.02)	(0.02)	(0.04)	(0.07)	(0.03)	(0.06)

Table 4: Gini and Theil for Aggregate Population for Total Household Income.

Gini	Per Capita Household Income							
	1995		1996	1997	1998	1999	2000	
	Income	Expend.	Income	Income	Income	Income	Income	Expend.
Total	0.66	0.66	0.68	0.68	0.70	0.72	0.69	0.67
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.005)	(0.01)
African	0.56	0.57	0.65	0.59	0.64	0.68	0.61	0.57
	(0.01)	(0.01)	(0.01)	(0.004)	(0.01)	(0.02)	(0.01)	(0.01)
Coloured	0.49	0.50	0.56	0.51	0.62	0.72	0.55	0.52
	(0.01)	(0.01)	(0.02)	(0.01)	(0.06)	(0.05)	(0.01)	(0.01)
Indian	0.47	0.46	0.49	0.50	0.57	0.47	0.49	0.47
	(0.02)	(0.02)	(0.02)	(0.02)	(0.05)	(0.02)	(0.02)	(0.02)
White	0.44	0.43	0.47	0.52	0.51	0.45	0.46	0.46
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)
Theil	Per Capita Household Income							
	1995		1996	1997	1998	1999	2000	
	Income	Expend.	Income	Income	Income	Income	Income	Expend.
Total	0.91	0.91	0.89	0.98	1.11	1.48	1.00	0.98
	(0.03)	(0.02)	(0.02)	(0.03)	(0.06)	(0.13)	(0.03)	(0.03)
African	0.66	0.67	0.80	0.68	0.95	1.46	0.76	0.67
	(0.03)	(0.03)	(0.02)	(0.01)	(0.06)	(0.22)	(0.04)	(0.02)
Coloured	0.45	0.48	0.56	0.51	1.09	2.14	0.56	0.50
	(0.02)	(0.03)	(0.03)	(0.07)	(0.35)	(0.47)	(0.04)	(0.03)
Indian	0.43	0.42	0.42	0.53	0.92	0.40	0.44	0.41
	(0.05)	(0.04)	(0.04)	(0.08)	(0.36)	(0.04)	(0.04)	(0.04)
White	0.39	0.38	0.39	0.51	0.51	0.48	0.40	0.44
	(0.03)	(0.03)	(0.02)	(0.03)	(0.04)	(0.11)	(0.03)	(0.04)

Table 5: Gini and Theil for Aggregate Population for Per Capita Household Income.

Year	Sample Pop.		Sample Pop.		Bottom $\frac{1}{3}$		Middle $\frac{1}{3}$		Top $\frac{1}{3}$	
Inequality	Income		Expend		Income		Income		Income	
decomposed					Range		Range		Range	
by pop. grps.	With.	Betw.	With.	Betw.	With.	Betw.	With.	Betw.	With.	Betw.
1995	0.51	0.40	0.51	0.41	0.10	0.002	0.24	0.15	0.17	0.001
1996	0.58	0.31			0.06	0.001	0.30	0.01	0.25	0.07
1997	0.58	0.40			0.11	0.001	0.39	0.12	0.21	0.01
1998	0.80	0.31			0.13	0.001	0.42	0.14	0.37	0.01
1999	1.17	0.31			0.18	0.005	0.29	0.10	0.62	0.11
2000	0.58	0.42	0.55	0.43	0.08	0.002	0.39	0.10	0.19	0.007

Table 6: Theil's Within and Between Inequality Measure

Income Range:	Bottom	Middle	Top	Bottom	Top
Household Proportion:	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{3}{4}$	$\frac{1}{4}$
95/00					
Total	$\uparrow$	$\downarrow$	$\uparrow$	$\downarrow$	$\downarrow_Y, \uparrow_N$
African	$\uparrow$	$\longrightarrow_Y, \uparrow_N$	$\downarrow_Y, \uparrow_N$	$\downarrow_Y, \uparrow_N$	$\downarrow_Y, \uparrow_N$
Coloured	$\longrightarrow_Y, \uparrow_N$	$\downarrow$	$\uparrow$	$\longrightarrow$	$\uparrow$
Indian	$\downarrow_Y, \uparrow_N$	$\downarrow_Y, \longrightarrow_N$	$\uparrow_Y, \downarrow_N$	$\downarrow_Y, \uparrow_N$	$\downarrow$
White	$\longrightarrow_Y, \uparrow_N$	$\downarrow_Y, \uparrow_N$	$\uparrow_Y, \downarrow_N$	$\downarrow_Y, \uparrow_N$	$\downarrow$
96/99					
Total	$\uparrow_Y, \downarrow_N$	$\uparrow\downarrow_Y, \downarrow_N$	$\downarrow\uparrow_Y, \uparrow_N$	$\uparrow_Y, \downarrow_N$	$\uparrow$
African	$\uparrow_Y, \downarrow_N$	$\uparrow\downarrow_Y, \downarrow_N$	$\downarrow\uparrow_Y, \uparrow_N$	$\uparrow_Y, \downarrow_N$	$\longrightarrow_Y, \uparrow_N$
Coloured	$\uparrow\downarrow\uparrow_Y, \downarrow_N$	$\uparrow\downarrow_Y, \downarrow\uparrow_N$	$\downarrow\uparrow_Y, \uparrow_N$	$\uparrow_Y, \downarrow_N$	$\downarrow\uparrow_Y, \uparrow_N$
Indian	$\uparrow_Y, \downarrow_N$	$\uparrow\downarrow_Y, \uparrow_N$	$\downarrow$	$\uparrow$	$\longrightarrow$
White	$\uparrow\downarrow_Y, \downarrow_N$	$\downarrow_Y, \uparrow\downarrow_N$	$\downarrow_Y, \uparrow_N$	$\uparrow\downarrow_Y, \downarrow_N$	$\longrightarrow_Y, \uparrow_N$

$\uparrow, \downarrow$ denote statistically significant increases and decreases in inequality respectively.
$\longrightarrow$ denotes no statistically significant change in inequality.
Y, N denote changes associated with the income range and household decomposition respectively.

Table 7: Gini coefficient for intradistributional changes in total household income

Income Range:	Bottom	Middle	Top	Bottom	Top
Household Proportion:	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{3}{4}$	$\frac{1}{4}$
95/00					
Total	$\downarrow_Y, \uparrow_N$	$\uparrow_Y, \downarrow_N$	$\uparrow$	$\longrightarrow$	$\uparrow$
African	$\downarrow_Y, \uparrow_N$	$\uparrow$	$\longrightarrow$	$\uparrow$	$\uparrow_Y, \longrightarrow_N$
Coloured	$\uparrow$	$\uparrow$	$\uparrow$	$\uparrow$	$\uparrow$
Indian	$\longrightarrow_Y, \uparrow_N$	$\downarrow_Y, \uparrow_N$	$\uparrow_Y, \downarrow_N$	$\longrightarrow_Y, \uparrow_N$	$\longrightarrow_Y, \downarrow_N$
White	$\longrightarrow_Y, \uparrow_N$	$\downarrow_Y, \longrightarrow_N$	$\uparrow_Y, \downarrow_N$	$\downarrow_Y, \uparrow_N$	$\longrightarrow$
96/99					
Total	$\uparrow_Y, \downarrow_N$	$\uparrow_Y, \downarrow_N$	$\downarrow\uparrow_Y, \uparrow_N$	$\uparrow_Y, \downarrow_N$	$\uparrow$
African	$\uparrow_Y, \downarrow_N$	$\uparrow\downarrow_Y, \downarrow_N$	$\downarrow\uparrow_Y, \uparrow_N$	$\uparrow_Y, \downarrow_N$	$\uparrow$
Coloured	$\uparrow\downarrow\uparrow_Y, \downarrow_N$	$\uparrow_Y, \downarrow_N$	$\downarrow\uparrow\downarrow_Y, \uparrow_N$	$\uparrow_Y, \downarrow_N$	$\uparrow$
Indian	$\longrightarrow_Y, \uparrow\downarrow_N$	$\uparrow$	$\longrightarrow$	$\uparrow$	$\longrightarrow$
White	$\downarrow$	$\downarrow$	$\downarrow\longrightarrow_Y, \uparrow_N$	$\uparrow_Y, \downarrow_N$	$\longrightarrow_Y, \uparrow_N$

$\uparrow, \downarrow$ denote statistically significant increases and decreases in inequality respectively.
$\longrightarrow$ denotes no statistically significant change in inequality.
Y, N denote changes associated with the income range and household decomposition respectively.

Table 8: Gini coefficient for intradistributional changes in per capita household income

Year	x^0_{high}	α_{high}	δ_{high}	Gini_{high}	x^0_{low}	α_{low}	δ_{low}	Gini_{low}
1995	1097	-1.17	6.88	0.75	992	-1.14	8.14	0.78
1996	1212	-1.32	4.13	0.61	1097	-1.30	4.33	0.63
1997	1339	-1.42	3.38	0.54	1212	-1.37	3.70	0.57
1998	1480	-1.34	3.94	0.60	1339	-1.32	4.13	0.61
1999	1635	-1.37	3.70	0.57	1480	-1.24	5.17	0.68
2000	1808	-1.34	3.94	0.60	1635	-1.31	4.23	0.62

Table 9: Pareto's alpha on aggregate household income, with implied Gini.

Year	x^0_{high}	α_{high}	δ_{high}	Gini_{high}	x^0_{low}	α_{low}	δ_{low}	Gini_{low}
1995	1097	-1.53	2.89	0.49	992	-1.48	3.08	0.51
1996	1212	-1.87	2.15	0.36	1097	-1.83	2.20	0.38
1997	1339	-1.78	2.28	0.39	1212	-1.74	2.35	0.40
1998	1480	-1.64	2.56	0.43	1339	-1.62	2.61	0.45
1999	1635	-1.69	2.45	0.42	1480	-1.65	2.54	0.43
2000	1808	-1.74	2.35	0.40	1635	-1.70	2.43	0.42

Table 10: Pareto's alpha on per capita household income, with implied Gini.

Year	x^0	α	δ	Gini
1995	2981	-1.83	2.20	0.38
1996	3294	-2.55	1.65	0.24
1997	3641	-1.96	2.04	0.34
1998	4024	-1.75	2.33	0.40
1999	4447	-1.73	2.37	0.41
2000	4915	-2.07	1.93	0.32

Table 11: Pareto's alpha on per capita household income, for high income values, with implied Gini.

		Income Range Decomposition					Household Proportion Decomposition				
		Bott. 1/3	Mid. 1/3	Top 1/3	Bott. 3/4	Top 1/4	Bott. 1/3	Mid. 1/3	Top 1/3	Bott. 3/4	Top 1/4
1995	Total	0.17	0.45	0.31	0.56	0.28	0.19	0.18	0.39	0.36	0.36
		(0.002)	(0.003)	(0.02)	(0.004)	(0.02)	(0.002)	(0.001)	(0.01)	(0.002)	(0.01)
	African	0.17	0.41	0.36	0.51	0.31	0.16	0.13	0.36	0.29	0.34
		(0.002)	(0.005)	(0.06)	(0.006)	(0.05)	(0.002)	(0.001)	(0.01)	(0.002)	(0.01)
	Coloured	0.15	0.39	0.19	0.45	0.04	0.17	0.15	0.28	0.29	0.26
		(0.004)	(0.007)	(0.05)	(0.009)	(0.03)	(0.01)	(0.002)	(0.01)	(0.01)	(0.01)
	Indian	0.10	0.36	0.25	0.42	0.19	0.2	0.12	0.33	0.28	0.32
		(0.01)	(0.009)	(0.05)	(0.02)	(0.05)	(0.01)	(0.004)	(0.04)	(0.01)	(0.04)
	White	0.17	0.32	0.30	0.38	0.27	0.24	0.12	0.31	0.27	0.3
		(0.02)	(0.005)	(0.03)	(0.01)	(0.03)	(0.01)	(0.002)	(0.02)	(0.01)	(0.02)
1996	Total	0.06	0.38	0.39	0.50	0.29	0.45	0.22	0.36	0.49	0.32
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.002)	(0.01)	(0.01)	(0.01)
	African	0.05	0.39	0.33	0.52	0.24	0.46	0.21	0.34	0.5	0.31
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.003)	(0.01)	(0.01)	(0.01)
	Coloured	0.09	0.31	0.33	0.38	22	0.35	0.17	0.26	0.38	0.22
		(0.03)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
	Indian	0.02	0.26	0.40	0.27	0.30	0.31	0.11	0.30	0.3	0.27
		(0.005)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(0.01)	(0.03)	(0.02)	(0.03)
	White	0.11	0.45	0.36	0.38	0.30	0.4	0.13	0.24	0.34	0.21
		(0.06)	(0.03)	(0.01)	(0.02)	(0.01)	(0.02)	(0.004)	(0.01)	(0.01)	(0.01)
1997	Total	0.27	0.43	0.33	0.53	0.28	0.24	0.18	0.42	0.38	0.38
		(0.01)	(0.002)	(0.01)	(0.002)	(0.01)	0.003)	(0.001)	(0.01)	(0.002)	0.38
	African	0.26	0.43	0.24	0.52	0.21	0.26	0.17	0.35	0.35	0.32
		(0.01)	(0.002)	(0.01)	(0.003)	(0.02)	(0.004)	(0.001)	(0.01)	(0.002)	(0.01)
	Coloured	0.29	0.36	0.20	0.44	0.13	0.25	0.15	0.29	0.33	0.26
		(0.08)	(0.006)	(0.01)	(0.007)	(0.02)	(0.01)	(0.003)	(0.02)	(0.01)	(0.03)
	Indian	0.13	0.31	0.32	0.38	0.29	0.29	0.12	0.31	0.32	0.30
		(0.08)	(0.01)	(0.03)	(0.01)	(0.04)	(0.02)	(0.01)	(0.03)	(0.01)	(0.03)
	White	0.40	0.35	0.37	0.37	0.29	0.37	0.14	0.33	0.35	0.31
		(0.06)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.003)	(0.01)	(0.01)	(0.01)

Table 12: Intradistributional income inequality: Gini Coefficient on Total Household Income, 1995-97. Figures in round parentheses denote standard errors.

		Income Range Decomposition					Household Proportion Decomposition				
		Bott. 1/3	Mid. 1/3	Top 1/3	Bott. 3/4	Top 1/4	Bott. 1/3	Mid. 1/3	Top 1/3	Bott. 3/4	Top 1/4
1998	Total	0.25	0.50	0.37	0.58	0.35	0.26	0.19	0.45	0.4	0.42
		(0.01)	(0.003)	(0.04)	(0.01)	(0.07)	(0.01)	(0.002)	(0.02)	(0.003)	(0.02)
	African	0.25	0.49	0.35	0.55	0.26	0.29	0.18	0.41	0.36	0.39
		(0.01)	(0.003)	(0.02)	(0.004)	(0.03)	(0.01)	(0.002)	(0.01)	(0.003)	(0.01)
	Coloured	0.14	0.40	0.54	0.47	0.56	0.24	0.17	0.48	0.34	0.48
		(0.05)	(0.007)	(0.15)	(0.010)	(0.16)	(0.01)	(0.004)	(0.11)	(0.01)	(0.12)
	Indian	0.14	0.37	0.37	0.45	0.27	0.36	0.16	0.37	0.37	0.36
		(0.04)	(0.02)	(0.06)	(0.02)	(0.14)	(0.03)	(0.01)	(0.05)	(0.02)	(0.05)
	White	0.23	0.34	0.31	0.42	0.27	0.34	0.15	0.32	0.35	0.30
		(0.08)	(0.01)	(0.02)	(0.01)	(0.04)	(0.01)	(0.004)	(0.02)	(0.01)	(0.02)
1999	Total	0.43	0.27	0.49	0.61	0.39	0.23	0.17	0.47	0.36	0.43
		(0.002)	(0.01)	(0.05)	(0.01)	(0.04)	(0.003)	(0.002)	(0.02)	(0.002)	(0.02)
	African	0.43	0.26	0.42	0.57	0.30	0.25	0.17	0.48	0.31	0.45
		(0.003)	(0.01)	(0.06)	(0.01)	(0.06)	(0.002)	(0.002)	(0.03)	(0.002)	(0.03)
	Coloured	0.35	0.24	0.42	0.50	0.40	0.21	0.18	0.55	0.35	0.55
		(0.01)	(0.02)	(0.08)	(0.01)	(0.10)	(0.01)	(0.01)	(0.08)	(0.01)	(0.08)
	Indian	0.28	0.25	xx	0.42	xx	0.26	0.14	0.2	0.34	0.2
		(0.02)	(0.02)	-	(0.02)	-	(0.02)	(0.01)	(0.03)	(0.01)	(0.03)
	White	0.24	0.27	0.32	0.38	0.30	0.24	0.1	0.29	0.27	0.32
		(0.01)	(0.01)	(0.13)	(0.01)	(0.13)	(0.01)	(0.01)	(0.03)	(0.01)	(0.03)
2000	Total	0.28	0.41	0.33	0.54	0.23	0.21	0.16	0.44	0.34	0.41
		(0.03)	(0.002)	(0.01)	(0.003)	(0.02)	(0.003)	(0.001)	(0.01)	(0.002)	(0.01)
	African	0.28	0.41	0.28	0.50	0.26	0.2	0.14	0.39	0.3	0.36
		(0.03)	(0.002)	(0.02)	(0.004)	(0.07)	(0.004)	(0.001)	(0.01)	(0.002)	(0.01)
	Coloured	0.12	0.33	0.27	0.45	0.14	0.21	0.14	0.35	0.3	0.32
		(0.04)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.003)	(0.01)	(0.01)	(0.01)
	Indian	0.00	0.28	0.29	0.37	0.15	0.25	0.13	0.26	0.32	0.23
		(0)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
	White	0.11	0.27	0.33	0.31	0.23	0.27	0.13	0.25	0.31	0.24
		(0.05)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)	(0.003)	(0.02)	(0.01)	(0.02)

Table 13: Intradistributional income inequality: Gini Coefficient on Total Household Income, 1998-2000. xx denotes missing values. Figures in round parentheses denote standard errors.

		Income Range Decomposition					Household Proportion Decomposition				
		Bott. 1/3	Mid. 1/3	Top 1/3	Bott. 3/4	Top 1/4	Bott. 1/3	Mid. 1/3	Top 1/3	Bott. 3/4	Top 1/4
1995	Total	0.25	0.48	0.29	0.64	0.21	0.24	0.20	0.41	0.43	0.38
		(0.002)	(0.003)	(0.02)	(0.004)	(0.03)	(0.003)	(0.001)	(0.01)	(0.002)	(0.01)
	African	0.25	0.40	0.29	0.55	0.08	0.21	0.15	0.38	0.35	0.35
		0.003)	(0.01)	(0.02)	(0.01)	(0.03)	(0.003)	(0.001)	(0.01)	(0.002)	(0.01)
	Coloured	0.19	0.39	0.14	0.49	0.00	0.20	0.13	0.32	0.31	0.29
		(0.01)	(0.01)	(0.05)	(0.01)	(0)	(0.01)	(0.002)	(0.01)	(0.01)	(0.01)
	Indian	0.11	0.40	0.17	0.46	0.10	0.20	0.11	0.33	0.28	0.32
		(0.02)	(0.01)	(0.03)	(0.02)	(0.03)	(0.01)	(0.004)	(0.03)	(0.01)	(0.44)
	White	0.17	0.34	0.29	0.39	0.24	0.21	0.11	0.32	0.27	0.31
		(0.03)	(.005)	(0.02)	(0.01)	(0.03)	(0.01)	(0.002)	(0.02)	(0.01)	(0.02)
1996	Total	0.19	0.44	0.42	0.56	0.29	0.47	0.24	0.39	0.52	0.36
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.002)	(0.01)	(0.01)	(0.01)
	African	0.18	0.45	0.33	0.58	0.23	0.47	0.23	0.36	0.52	0.32
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.003)	(0.01)	(0.01)	(0.01)
	Coloured	0.18	0.33	0.36	0.44	0.24	0.34	0.17	0.33	0.39	0.29
		(0.04)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.005)	(0.02)	(0.01)	(0.02)
	Indian	0.00	0.27	0.38	0.33	0.25	0.27	0.13	0.29	0.32	0.26
		(0)	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.01)	(0.02)	(0.01)	(0.03)
	White	0.39	0.44	0.40	0.35	0.31	0.36	0.14	0.26	0.35	0.24
		(0.20)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.004)	(0.01)	(0.01)	(0.01)
1997	Total	0.26	0.54	0.32	0.64	0.24	0.29	0.19	0.46	0.44	0.43
		(0.01)	(0.002)	(0.01)	(0.004)	(0.02)	(0.003)	(0.001)	(0.01)	(0.002)	(0.01)
	African	0.25	0.52	0.23	0.58	0.16	0.27	0.17	0.36	0.40	0.33
		(0.01)	(0.003)	(0.01)	(0.004)	(0.03)	(0.003)	(0.001)	(0.01)	(0.002)	(0.01)
	Coloured	0.26	0.45	0.26	0.50	0.33	0.27	0.13	0.32	0.34	0.30
		(0.04)	(0.006)	(0.08)	(0.01)	(0.11)	(0.01)	(0.003)	(0.02)	(0.006)	(0.02)
	Indian	0.17	0.37	0.34	0.45	0.32	0.28	0.12	0.34	0.33	0.33
		(0.07)	(0.01)	(0.05)	(0.01)	(0.09)	(0.02)	(0.004)	(0.04)	(0.01)	(0.04)
	White	0.37	0.34	0.32	0.43	0.23	0.33	0.14	0.32	0.36	0.31
		(0.05)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.003)	(0.01)	(0.01)	(0.02)

Table 14: Intradistributional income inequality: Gini Coefficient on Per Capita Household Income, 1995-97. Figures in round parentheses denote standard errors.

		Income Range Decomposition					Household Proportion Decomposition				
		Bott. 1/3	Mid. 1/3	Top 1/3	Bott. 3/4	Top 1/4	Bott. 1/3	Mid. 1/3	Top 1/3	Bott. 3/4	Top 1/4
1998	Total	0.28	0.57	0.36	0.66	0.39	0.31	0.20	0.47	0.47	0.43
		(0.01)	(0.003)	(0.03)	(0.004)	(0.05)	(0.004)	(0.001)	(0.02)	(0.003)	(0.02)
	African	0.28	0.55	0.37	0.62	0.39	0.29	0.20	0.43	0.44	0.41
		(0.01)	(0.004)	(0.04)	(0.01)	(0.07)	(0.004)	(0.002)	(0.01)	(0.003)	(0.02)
	Coloured	0.19	0.46	0.55	0.51	0.45	0.25	0.16	0.49	0.36	0.49
		(0.07)	(0.01)	(0.13)	(0.01)	(0.14)	(0.01)	(0.004)	(0.09)	(0.01)	(0.10)
	Indian	0.17	0.40	0.44	0.50	0.62	0.36	0.15	0.41	0.38	0.42
		(0.04)	(0.02)	(0.16)	(0.02)	(0.26)	(0.03)	(0.005)	(0.09)	(0.02)	(0.10)
	White	0.12	0.34	0.32	0.44	0.29	0.31	0.14	0.33	0.35	0.31
		(0.04)	(0.01)	(0.02)	(0.01)	(0.05)	(0.01)	(0.003)	(0.02)	(0.01)	(0.02)
1999	Total	0.34	0.47	0.58	0.68	0.44	0.29	0.21	0.50	0.47	0.48
		(0.003)	(0.004)	(0.04)	(0.004)	(0.04)	(0.003)	(0.001)	(0.02)	(0.002)	(0.03)
	African	0.35	0.41	0.61	0.64	0.42	0.27	0.19	0.51	0.43	0.50
		(0.003)	(0.007)	(0.07)	(0.01)	(0.05)	(0.003)	(0.001)	(0.03)	(0.002)	(0.04)
	Coloured	0.26	0.41	0.42	0.53	0.40	0.26	0.15	0.63	0.36	0.63
		(0.009)	(0.01)	(0.08)	(0.01)	(0.08)	(0.01)	(0.003)	(0.08)	(0.01)	(0.08)
	Indian	0.21	0.40	0.00	0.47	xx	0.26	0.16	0.27	0.36	0.27
		(0.03)	(0.02)	(0)	(0.02)	-	(0.02)	(0.01)	(0.03)	(0.01)	(0.03)
	White	0.26	0.38	0.43	0.42	0.41	0.25	0.12	0.33	0.29	0.33
		(0.04)	(0.01)	(0.13)	(0.01)	(0.12)	(0.01)	(0.003)	(0.04)	(0.01)	(0.04)
2000	Total	0.21	0.54	0.31	0.64	0.25	0.26	0.18	0.45	0.43	0.41
		(0.01)	(0.003)	(0.01)	(0.004)	(0.02)	(0.003)	(0.001)	(0.01)	(0.002)	(0.01)
	African	0.21	0.52	0.26	0.59	0.28	0.25	0.17	0.39	0.39	0.36
		(0.01)	(0.003)	(0.03)	(0.004)	(0.10)	(0.003)	(0.001)	(0.01)	(0.002)	(0.01)
	Coloured	0.25	0.45	0.24	0.52	0.10	0.23	0.14	0.36	0.33	0.33
		(0.05)	(0.01)	(0.03)	(0.01)	(0.02)	(0.01)	(0.003)	(0.02)	(0.01)	(0.02)
	Indian	0.13	0.35	0.22	0.46	0.17	0.24	0.14	0.29	0.33	0.25
		(0.06)	(0.01)	(0.02)	(0.02)	(0.07)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
	White	0.39	0.28	0.32	0.35	0.24	0.28	0.11	0.29	0.31	0.28
		(0.14)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)	(0.002)	(0.02)	(0.01)	(0.02)

Table 15: Intradistributional income inequality: Gini Coefficient on Per Capita Household Income, 1998-2000. xx denotes missing values. Figures in round parentheses denote standard errors.

		Income Range Decomposition					Household Proportion Decomposition				
		Bott. 1/3	Mid. 1/3	Top 1/3	Bott. 3/4	Top 1/4	Bott. 1/3	Mid. 1/3	Top 1/3	Bott. 3/4	Top 1/4
1995	Total	0.05	0.34	0.21	0.56	0.13	0.06	0.05	0.32	0.20	0.29
		(0.001)	(0..005)	(0.03)	(0.01)	(0.02)	(0.001)	(0.001)	(0.03)	(0.003)	(0.03)
	African	0.05	0.29	0.27	0.46	0.16	0.04	0.03	0.30	0.13	0.27
		(0.001)	(0.01)	(0.07)	(0.01)	(0.04)	(0.001)	(0.0004)	(0.04)	(0.002)	(0.04)
	Coloured	0.03	l0.25	0.07	0.35	0.01	0.05	0.03	0.15	0.13	0.13
		(0.002)	(0.01)	(0.03)	(0.02)	(0.01)	(0.003)	(0.001)	(0.02)	(0.004)	(0.02)
	Indian	0.02	0.20	0.11	0.31	0.06	0.06	0.02	0.24	0.13	0.23
		(0.004)	(0.01)	(0.04)	(0.03)	(0.02)	(0.01)	(0.001)	(0.05)	(0.01)	(0.05)
	White	0.05	0.16	0.20	0.23	0.13	0.10	0.02	0.23	0.12	0.22
		(0.01)	(0.005)	(0.04)	(0.01)	(0.02)	(0.005)	(0.001)	(0.03)	(0.005)	(0.04)
1996	Total	0.02	0.25	0.27	0.42	0.15	0.34	0.07	0.29	0.41	0.24
		(0.004)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.001)	(0.01)	(0.01)	(0.01)
	African	0.02	0.25	0.20	0.46	0.11	0.35	0.07	0.24	0.42	0.19
		(0.004)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.002)	(0.01)	(0.01)	(0.01)
	Coloured	0.03	0.17	0.18	0.25	0.08	0.23	0.05	0.20	0.25	0.16
		(0.03)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.002)	(0.02)	(0.02)	(0.02)
	Indian	0.001	0.14	0.29	0.14	0.17	0.19	0.02	0.15	0.16	0.13
		(0.0002)	(0.03)	(0.04)	(0.02)	(0.04)	(0.03)	(0.002)	(0.03)	(0.02)	(0.02)
	White	0.06	0.36	0.22	0.28	0.16	0.30	0.03	0.13	0.21	0.11
		(0.05)	(0.04)	(0.01)	(0.02)	(0.01)	(0.03)	(0.002)	(0.01)	(0.01)	(0.01)
1997	Total	0.12	0.30	0.23	0.48	0.14	0.12	0.05	0.44	0.23	0.38
		(0.01)	(0.003)	(0.02)	(0.01)	(0.01)	(0.003)	(0.001)	(0.03)	(0.002)	(0.02)
	African	0.12	0.31	0.12	0.46	0.08	0.13	0.04	0.26	0.19	0.22
		(0.01)	(0.003)	(0.02)	(0.01)	(0.02)	(0.003)	(0.001)	(0.01)	(0.002)	(0.01)
	Coloured	0.16	0.20	0.08	0.32	0.03	0.11	0.03	0.24	0.18	0.22
		(0.09)	(0.006)	(0.01)	(0.01)	(0.01)	(0.01)	(0.001)	(0.07)	(0.01)	(0.08)
	Indian	0.06	0.16	0.22	0.23	0.17	0.14	0.02	0.30	0.18	0.29
		(0.04)	(0.01)	(0.05)	(0.01)	(0.04)	(0.02)	(0.002)	(0.08)	(0.01)	(0.09)
	White	0.27	0.21	0.26	0.23	0.15	0.22	0.03	0.22	0.22	0.20
		(0.07)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.001)	(0.03)	(0.01)	(0.03)

Table 16: Intradistributional income inequality: Theil Entropy Measure on Total Household Income, 1995-97. Figures in round parentheses denote standard errors.

		Income Range Decomposition					Household Proportion Decomposition				
		Bott. 1/3	Mid. 1/3	Top 1/3	Bott. 3/4	Top 1/4	Bott. 1/3	Mid. 1/3	Top 1/3	Bott. 3/4	Top 1/4
1998	Total	0.11	0.41	0.38	0.60	0.36	0.13	0.06	0.53	0.26	0.48
		(0.01)	(0.01)	(0.12)	(0.01)	(0.15)	(0.004)	(0.001)	(0.06)	(0.004)	(0.07)
	African	0.11	0.41	0.28	0.55	0.14	0.15	0.05	0.48	0.21	0.45
		(0.01)	(0.01)	(0.04)	(0.01)	(0.03)	(0.005)	(0.001)	(0.06)	(0.004)	(0.07)
	Coloured	0.04	0.26	1.00	0.38	0.70	0.10	0.04	0.82	0.19	0.82
		(0.02)	(0.01)	(0.36)	(0.02)	(0.28)	(0.01)	(0.002)	(0.33)	(0.01)	(0.34)
	Indian	0.03	0.22	0.19	0.34	0.33	0.23	0.04	0.71	0.23	0.73
		(0.01)	(0.02)	(0.22)	(0.04)	(0.24)	(0.03)	(0.004)	(0.42)	(0.02)	(0.44)
	White	0.10	0.20	0.22	0.29	0.16	0.20	0.03	0.25	0.21	0.23
		(0.07)	(0.01)	(0.04)	(0.01)	(0.04)	(0.01)	(0.002)	(0.04)	(0.01)	(0.04)
1999	Total	0.30	0.15	0.43	0.73	0.26	0.11	0.05	0.73	0.21	0.68
		(0.003)	(0.01)	(0.08)	(0.02)	(0.05)	(0.002)	(0.001)	(0.11)	(0.003)	(0.11)
	African	0.30	0.14	0.31	0.66	0.16	0.12	0.05	0.77	0.17	0.74
		(0.004)	(0.01)	(0.08)	(0.04)	(0.06)	(0.001)	(0.001)	(0.16)	(0.002)	(0.16)
	Coloured	0.20	0.13	0.33	0.45	0.29	0.09	0.06	1.48	0.20	1.52
		(0.01)	(0.03)	(0.09)	(0.03)	(0.09)	(0.01)	(0.004)	(0.41)	(0.01)	(0.40)
	Indian	0.14	0.12	xx	0.31	xx	0.12	0.04	0.09	0.19	0.09
		(0.02)	(0.02)	-	(0.03)	-	(0.02)	(0.004)	(0.02)	(0.01)	(0.02)
	White	0.13	0.14	0.27	0.29	0.18	0.13	0.02	0.26	0.14	0.28
		(0.01)	(0.01)	(0.13)	(0.03)	(0.08)	(0.01)	(0.002)	(0.08)	(0.01)	(0.09)
2000	Total	0.14	0.27	0.22	0.50	0.15	0.08	0.04	0.38	0.18	0.33
		(0.02)	(0.003)	(0.02)	(0.01)	(0.03)	(0.002)	(0.001)	(0.02)	(0.002)	(0.02)
	African	0.14	0.27	0.20	0.45	0.22	0.08	0.03	0.32	0.15	0.29
		(0.02)	(0.003)	(0.06)	(0.01)	(0.13)	(0.003)	(0.0005)	(0.04)	(0.002)	(0.04)
	Coloured	0.03	0.17	0.13	0.33	0.04	0.08	0.03	0.21	0.14	0.17
		(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.001)	(0.02)	(0.01)	(0.02)
	Indian	0.00	0.13	0.14	0.23	0.04	0.11	0.03	0.11	0.16	0.09
		(0)	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.002)	(0.01)	(0.01)	(0.01)
	White	0.03	0.13	0.22	0.17	0.15	0.14	0.02	0.16	0.16	0.15
		(0.01)	(0.02)	(0.03)	(0.01)	(0.04)	(0.02)	(0.001)	(0.03)	(0.01)	(0.03)

Table 17: Intradistributional income inequality: Theil Entropy Measure on Total Household Income, 1998-2000. xx denotes missing values. Figures in round parentheses denote standard errors.

		Income Range Decomposition					Household Proportion Decomposition				
		Bott. 1/3	Mid. 1/3	Top 1/3	Bott. 3/4	Top 1/4	Bott. 1/3	Mid. 1/3	Top 1/3	Bott. 3/4	Top 1/4
1995	Total	0.10	0.39	0.17	0.79	0.09	0.09	0.06	0.36	0.30	0.31
		(0.002)	(0.01)	(0.02)	(0.01)	(0.03)	(0.002)	(0.001)	(0.02)	(0.004)	(0.02)
	African	0.10	0.29	0.14	0.59	0.01	0.07	0.03	0.32	0.19	0.29
		(0.002)	(0.01)	(0.02)	(0.02)	(0.01)	(0.002)	(0.0005)	(0.03)	(0.003)	(0.03)
	Coloured	0.06	0.28	0.05	0.45	0.00	0.07	0.03	0.20	0.15	0.18
		(0.004)	(0.01)	(0.04)	(0.02)	(0)	(0.004)	(0.001)	(0.02)	(0.01)	(0.02)
	Indian	0.02	0.27	0.05	0.40	0.02	0.07	0.02	0.22	0.13	0.19
		(0.006)	(0.02)	(0.02)	(0.04)	(0.01)	(0.01)	(0.001)	(0.03)	(0.01)	(0.03)
	White	0.06	0.18	0.18	0.26	0.11	0.07	0.02	0.23	0.12	0.22
		(0.02)	(0.01)	(0.03)	(0.01)	(0.03)	(0.005)	(0.001)	(0.03)	(0.005)	(0.03)
1996	Total	0.06	0.32	0.32	0.53	0.16	0.37	0.09	0.29	0.46	0.24
		(0.005)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.002)	(0.01)	(0.01)	(0.01)
	African	0.06	0.34	0.21	0.58	0.10	0.36	0.08	0.24	0.46	0.19
		(0.005)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.002)	(0.01)	(0.01)	(0.01)
	Coloured	0.07	0.18	0.24	0.32	0.11	0.22	0.05	0.20	0.26	0.16
		(0.03)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.003)	(0.02)	(0.02)	(0.02)
	Indian	0.00	0.14	0.25	0.19	0.12	0.15	0.03	0.15	0.17	0.13
		(0)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)	(0.002)	(0.03)	(0.02)	(0.02)
	White	0.37	0.32	0.28	0.22	0.17	0.24	0.03	0.13	0.22	0.11
		(0.21)	(0.04)	(0.01)	(0.02)	(0.01)	(0.03)	(0.002)	(0.01)	(0.01)	(0.01)
1997	Total	0.11	0.50	0.21	0.77	0.12	0.14	0.06	0.44	0.31	0.38
		(0.01)	(0.005)	(0.02)	(0.01)	(0.02)	(0.003)	(0.001)	(0.03)	(0.003)	(0.02)
	African	0.11	0.48	0.11	0.64	0.05	0.13	0.05	0.26	0.26	0.22
		(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.003)	(0.001)	(0.01)	(0.003)	(0.01)
	Coloured	0.13	0.33	0.26	0.43	0.23	0.12	0.03	0.24	0.19	0.22
		(0.05)	(0.01)	(0.16)	(0.01)	(0.09)	(0.01)	(0.001)	(0.07)	(0.01)	(0.08)
	Indian	0.05	0.22	0.28	0.34	0.23	0.13	0.02	0.30	0.18	0.29
		(0.04)	(0.01)	(0.11)	(0.02)	(0.11)	(0.01)	(0.001)	(0.08)	(0.01)	(0.09)
	White	0.24	0.19	0.22	0.30	0.11	0.18	0.03	0.22	0.22	0.20
		(0.05)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.001)	(0.03)	(0.01)	(0.03)

Table 18: Intradistributional income inequality: Theil Entropy Measure on Per Capita Household Income, 1995-97. Figures in round parentheses denote standard errors.

		Income Range Decomposition					Household Proportion Decomposition				
		Bott. 1/3	Mid. 1/3	Top 1/3	Bott. 3/4	Top 1/4	Bott. 1/3	Mid. 1/3	Top 1/3	Bott. 3/4	Top 1/4
1998	Total	0.13	0.56	0.38	0.82	0.37	0.16	0.06	0.53	0.36	0.48
		(0.01)	(0.01)	(0.08)	(0.01)	(0.09)	(0.004)	(0.001)	(0.06)	(0.01)	(0.07)
	African	0.14	0.54	0.40	0.75	0.40	0.15	0.06	0.48	0.31	0.45
		(0.01)	(0.01)	(0.11)	(0.02)	(0.18)	(0.004)	(0.001)	(0.06)	(0.005)	(0.07)
	Coloured	0.08	0.36	0.79	0.46	0.43	0.10	0.04	0.82	0.21	0.82
		(0.04)	(0.01)	(0.27)	(0.02)	(0.18)	(0.01)	(0.002)	(0.33)	(0.01)	(0.34)
	Indian	0.04	0.27	0.86	0.44	0.91	0.22	0.03	0.71	0.24	0.73
		(0.02)	(0.02)	(0.51)	(0.04)	(0.39)	(0.04)	(0.002)	(0.42)	(0.03)	(0.44)
	White	0.03	0.19	0.24	0.33	0.18	0.16	0.03	0.25	0.21	0.23
		(0.02)	(0.01)	(0.05)	(0.01)	(0.05)	(0.01)	(0.001)	(0.04)	(0.01)	(0.04)
1999	Total	0.19	0.39	0.72	0.95	0.32	0.13	0.07	0.89	0.36	0.85
		(0.003)	(0.008)	(0.09)	(0.02)	(0.07)	(0.003)	(0.001)	(0.14)	(0.004)	(0.15)
	African	0.19	0.33	0.81	0.88	0.30	0.12	0.05	1.05	0.29	1.04
		(0.003)	(0.01)	(0.15)	(0.03)	(0.07)	(0.003)	(0.001)	(0.24)	(0.004)	(0.25)
	Coloured	0.11	0.29	0.31	0.52	0.28	0.11	0.03	1.88	0.21	1.88
		(0.007)	(0.02)	(0.09)	(0.03)	(0.09)	(0.01)	(0.001)	(0.45)	(0.01)	(0.43)
	Indian	0.08	0.28	0.00	0.40	0.00	0.11	0.04	0.16	0.21	0.15
		(0.03)	(0.03)	(0)	(0.04)	(0)	(0.02)	(0.003)	(0.03)	(0.02)	(0.03)
	White	0.12	0.24	0.54	0.32	0.29	0.11	0.02	0.35	0.14	0.36
		(0.03)	(0.01)	(0.23)	(0.02)	(0.12)	(0.01)	(0.001)	(0.15)	(0.01)	(0.15)
2000	Total	0.09	0.49	0.20	0.77	0.15	0.11	0.05	0.41	0.30	0.34
		(0.01)	(0.01)	(0.02)	(0.01)	(0.03)	(0.002)	(0.001)	(0.02)	(0.004)	(0.02)
	African	0.08	0.47	0.19	0.66	0.24	0.10	0.04	0.32	0.25	0.28
		(0.01)	(0.01)	(0.08)	(0.01)	(0.14)	(0.003)	(0.001)	(0.04)	(0.003)	(0.04)
	Coloured	0.11	0.33	0.11	0.48	0.02	0.09	0.03	0.24	0.18	0.21
		(0.03)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.001)	(0.03)	(0.01)	(0.03)
	Indian	0.04	0.19	0.10	0.36	0.09	0.10	0.03	0.16	0.18	0.12
		(0.02)	(0.01)	(0.03)	(0.03)	(0.06)	(0.01)	(0.002)	(0.03)	(0.01)	(0.03)
	White	0.29	0.13	0.21	0.20	0.13	0.14	0.02	0.19	0.16	0.18
		(0.13)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.001)	(0.03)	(0.01)	(0.03)

Table 19: Intradistributional income inequality: Theil Entropy Measure on Per Capita Household Income, 1998-2000. Figures in round parentheses denote standard errors.

Total Household Income											
		Bott. 1/3	Mid. 1/3	Top 1/3	Bott. 3/4	Top 1/4	Bott. 1/3	Mid. 1/3	Top 1/3	Bott. 3/4	Top 1/4
1995	Total	497	3418	34174	2994	72985	575	1590	7501	1347	8972
	African	495	2596	37162	2048	82427	477	1102	4191	958	4921
	Coloured	538	3088	25844	2855	64150	691	1668	5210	1515	5986
	Indian	587	5181	35523	5868	60418	1844	4164	12253	3554	14259
	White	522	7315	33592	8529	71832	2278	5867	16437	5187	18581
1996	Total	34	646	5213	1118	7974	183	1234	3149	948	3239
	African	34	625	3996	991	6557	137	853	1881	649	1888
	Coloured	33	790	4571	1527	6884	487	1858	4736	1529	5093
	Indian	35	884	5439	2009	8360	1218	2799	5757	2408	5994
	White	31	616	8611	1716	9963	1468	5318	7425	4295	7347
1997	Total	50	1312	9552	2001	21692	342	1077	4704	909	5312
	African	51	1198	7308	1559	18757	310	2004	2869	711	3192
	Coloured	50	1802	7244	2757	15658	555	3637	5094	1438	5623
	Indian	43	2297	9500	3858	20909	1093	5850	7838	2724	8465
	White	33	2128	12434	4855	22890	1307	9399	12269	3965	13101
1998	Total	40	1684	16003	2256	46377	340	1119	4219	910	4590
	African	40	1396	15355	1587	42159	302	834	2621	691	2810
	Coloured	36	2381	20522	3111	107670	593	1832	7014	1563	7802
	Indian	52	3114	15836	4441	40732	1034	3318	8618	2611	9180
	White	43	3469	15305	6051	38270	1269	4546	8761	3741	8968
1999	Total	1278	9463	299224	2776	476448	430	1157	7375	971	8972
	African	1172	8230	252994	1834	390270	389	930	4707	768	5616
	Coloured	1778	8232	643232	3665	686459	689	1910	11176	1705	13328
	Indian	2376	9114	xx	5598	xx	1621	4529	10815	3538	11872
	White	2700	11217	165556	9343	351221	2692	7173	16080	5939	17920
2000	Total	41	1547	12686	2459	26275	484	1293	7140	1104	8472
	African	51	1423	10199	1875	27751	434	1053	4214	910	4980
	Coloured	25	2200	10729	3489	22133	766	1999	7336	1802	8554
	Indian	31	2887	11488	5212	22913	1813	4859	13462	3941	15544
	White	13	3012	15778	7611	26624	2987	8435	22021	7010	24522

Table 20: Mean Household Income. xx denotes missing values.

Per Capita Household Income											
		Bott. 1/3	Mid. 1/3	Top 1/3	Bott. 3/4	Top 1/4	Bott. 1/3	Mid. 1/3	Top 1/3	Bott. 3/4	Top 1/4
1995	Total	131	1097	13260	715	27919	125	422	2409	305	2944
	African	129	718	14187	397	25641	101	268	1078	203	1305
	Coloured	158	762	11667	584	39900	169	404	1289	326	1528
	Indian	185	1288	11333	1393	21270	469	1065	3286	843	3861
	White	170	2346	13262	2677	28687	950	2129	5809	1772	6850
1996	Total	5	165	1563	304	2866	43	296	805	216	821
	African	5	153	1108	249	2337	30	201	401	147	394
	Coloured	6	217	1240	398	2458	112	393	1115	313	1233
	Indian	6	269	1381	548	2460	257	665	1305	517	1342
	White	2	185	2494	694	3280	512	1676	2232	1314	2160
1997	Total	18	394	4757	512	12524	74	269	1291	197	1474
	African	18	302	3672	313	9822	63	200	666	151	742
	Coloured	18	528	3867	592	27293	137	378	1133	306	1299
	Indian	22	785	4624	976	13513	273	760	1840	602	1992
	White	13	1083	5084	1900	12576	496	1667	3832	1290	4052
1998	Total	12	426	6004	556	20500	77	310	1168	221	1267
	African	12	311	5990	342	20713	63	226	647	161	683
	Coloured	14	566	9061	649	29838	146	419	1546	335	1750
	Indian	12	836	6813	1045	49641	239	770	1958	575	2112
	White	15	1203	5605	1959	16918	513	1607	2795	1256	2816
1999	Total	141	1540	65265	715	176732	99	371	2697	257	3350
	African	137	1086	73897	425	228435	87	858	1744	193	2164
	Coloured	193	1191	137487	796	144920	174	1918	3263	380	4115
	Indian	225	1545	23000	1328	xx	388	1919	3092	875	3572
	White	192	2895	37873	2982	142359	1042	4241	6979	1940	7711
2000	Total	31	501	5928	707	13141	121	403	2628	288	3244
	African	28	404	4977	453	11920	107	324	1486	227	1801
	Coloured	13	700	4983	878	11006	203	530	2071	418	2405
	Indian	13	1055	5223	1523	13504	466	1246	3885	961	4670
	White	22	1596	6400	2975	28730	1231	3144	8539	2428	9708

Table 21: Mean Per Capita Household Income. xx denotes missing values.

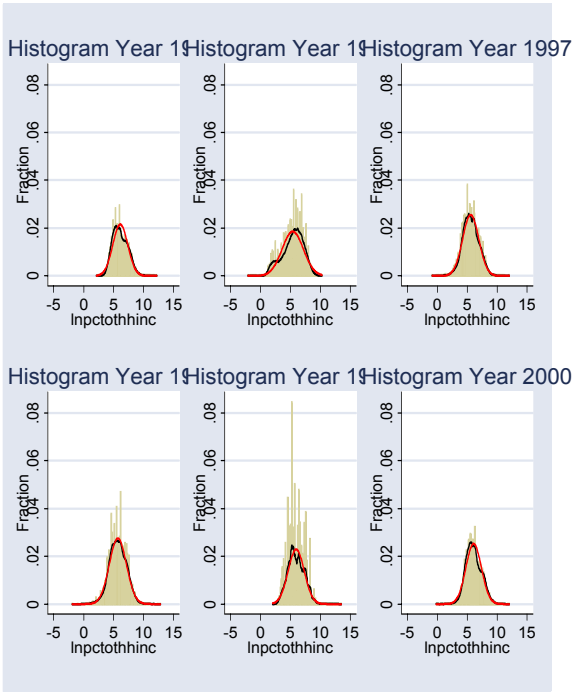

Figure 1: Frequency Distribution of the Income Variable, 1995 - 2000. lnpctothhinc denotes the natural log of per capita total household income.

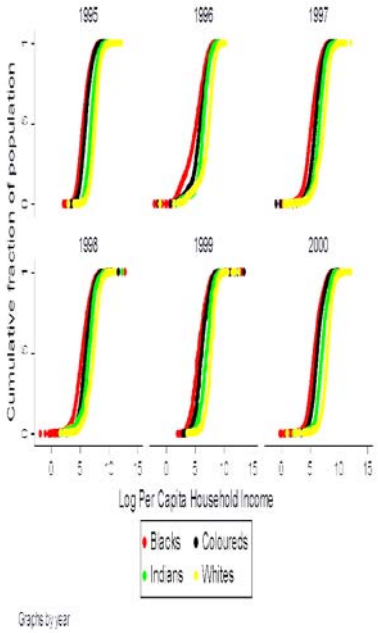

Figure 2: Cumulative Density Function by Year, for all Races.

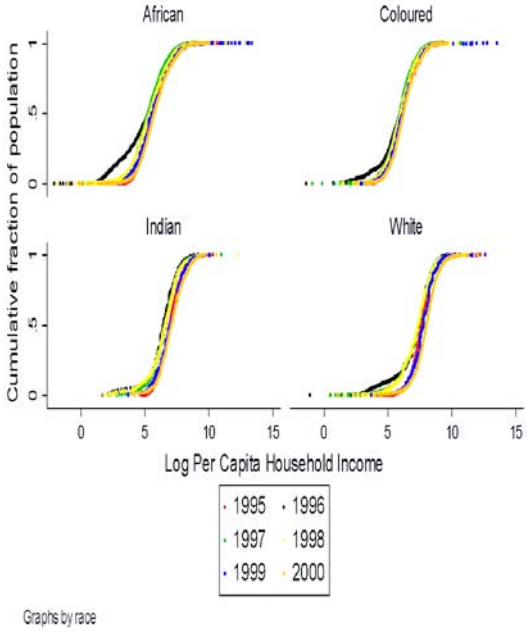

Figure 3: Cumulative Density Function by Race, for each Year.

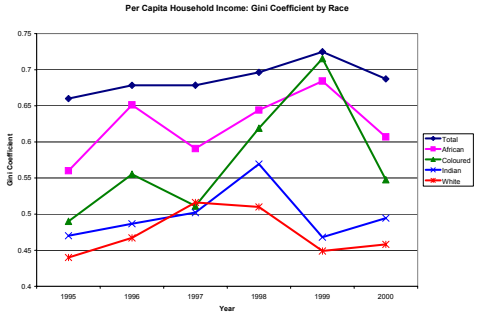

Figure 4: Per Capita Household Income: Gini Coefficient by Race, Total Income Range