



Understanding Contemporary Household Inequality in South Africa

M Leibbrandt, I Woolard & H Bhorat

To cite this article: M Leibbrandt, I Woolard & H Bhorat (2000) Understanding Contemporary Household Inequality in South Africa, *Studies in Economics and Econometrics*, 24:3, 31-51, DOI: [10.1080/03796205.2000.12129275](https://doi.org/10.1080/03796205.2000.12129275)

To link to this article: <https://doi.org/10.1080/03796205.2000.12129275>



Published online: 28 Jan 2022.



Submit your article to this journal [↗](#)



Article views: 12



View related articles [↗](#)



Citing articles: 2 View citing articles [↗](#)

UNDERSTANDING CONTEMPORARY HOUSEHOLD INEQUALITY IN SOUTH AFRICA

M Leibbrandt, I Woolard and H Bhorat*

Abstract

Within-group inequality is a major contributor to overall inequality, but the impact depends crucially on which measure is used. Wage income contributes 67% to total inequality, despite wage income being the least unequally distributed of all income sources. Of this, half is in fact driven by the 30% of households with no wage earners. Access to wage income is central to determining which households are able to avoid poverty and, even, the depth to which poor households sink below the poverty line. Whereas labour market earnings drive household income inequality, unemployment is a central determinant of poverty.

1. Introduction

The dominant themes of South Africa's economic history are inequality and exclusion. Given this history, a key benchmark against which all contemporary economic planning must be assessed is the role of such plans in narrowing inequality and breaking down the barriers that exclude people from participating in the economy on the grounds of race, gender or location.

South Africa's Gini coefficient has always served as the starkest indicator of the country's unequal distribution of income.¹ For a long time, South Africa's Gini was

*Haroon Bhorat is currently Director of the Development Policy Research Unit (DPRU), based at the School of Economics, University of Cape Town. His research interests cover the areas of labour economics, poverty and income distribution. He has done extensive work for the South African Department of Labour.

e-mail address: bhorat@hiddingh.uct.ac.za

Ingrid Woolard is a lecturer in the Department of Economics at the University of Port Elizabeth. She is currently completing her Ph.D on the measurement of poverty and income inequality at the University of Cape Town. She has published widely in these areas as well as on issues related to South African unemployment.

e-mail address: ecaidw@upe.ac.za

This work was funded by the African Economic Research Consortium and the Department of Labour. Full responsibility for the content rests with the authors.

¹ The Gini coefficient always has a value between zero and one. The bigger the number, the more inequality exists.

the highest recorded in the world. Table 1 presents a comparison of South Africa's Gini coefficient and income shares with countries of similar income levels. It is clear that Brazil and South Africa are far less egalitarian societies than the other nations presented here², but also that Brazil has a slightly higher level of income inequality compared to South Africa. Both these Gini values though are extremely high, indicating very skewed distributions of income. By comparison, Poland and Thailand have Gini coefficients of 0,27 and 0,46 respectively, showing that these economies have a significantly more equitable distribution of income.

Table 1. Comparison of selected middle-income countries

| | Poland | Thailand | Venezuela | Brazil | South Africa | Malaysia |
|----------------------------------|--------|----------|-----------|--------|--------------|----------|
| GNP per capita US\$ (1994) | 2 410 | 2 410 | 2 760 | 2 970 | 3 040 | 3 480 |
| Gini | 0,27 | 0,46 | 0,54 | 0,63 | 0,60 | 0,48 |
| % share of income of poorest 20% | 9,3 | 5,6 | 3,6 | 2,1 | 2,8 | 4,6 |
| % share of income of richest 10% | 22,1 | 37,1 | 42,7 | 51,3 | 41,9 | 37,9 |

Source: 1996 World Development Report and own calculations (South Africa).

Another way to express the degree of inequality in a country is to examine the income shares of households by decile. As can be seen from Figure 1 the degree of inequality is striking. The poorest four deciles (40%) of households, equivalent to 52% of the population, account for less than 10% of total income, while the richest decile (10%) of households, equivalent to just 6% of the population, capture over 40% of total income.³

Whiteford and McGrath (1998) have shown that, while the Gini coefficient remained static between 1975 and 1991, this masked the fact that the rich got richer while the poor got poorer. They found a similar pattern when taking each race group separately. In other words, they observed a widening of the gap between the richest Africans and the poorest Africans, the richest Whites and the poorest Whites. For example, the income share accruing to the poorest 40% of African earners fell by a disquieting 48%, while the share accruing to the richest 10% rose by 43%.⁴

² Note that because of variability in the date of data collection and differing methodologies, these figures should be taken as indicative only.

³ As the average household size is larger for the lower deciles, the inequality is worse than it would have been if no attention had been given to household size. However, in our calculations household incomes were ranked according to adult equivalent incomes rather than per capita incomes. These adult equivalents give explicit cognisance to the fact that children require less income than adults do and that there are certain economies of scale associated with larger households. Following May (1995), we used an adult equivalence scale here and later in the paper, of the form: $E = (A + 0,5K)^{0,9}$, where E = number of adult equivalents, A = number of adults, and K = number of children.

⁴ These figures are questioned by the Centre for Development and Enterprise (1995) who suggest that the distribution among black households is "more equal" than Whiteford and McGrath suggest. CDE Research No. 1, September 1995: "Post-Apartheid Population & Income Trends: A New Analysis".



Figure 1: Inequality in South Africa

Given the above background, this paper seeks to unpack further the nature of inequality in contemporary South Africa. The intention is to provide a contemporary complement to the recent historical review provided by Whiteford and McGrath (1998) and also to focus more explicitly on the link between the labour market and household inequality. There are three sections to the paper. The first section examines the racial fault line in South African inequality using various categorical decomposition techniques. Once the aggregate importance of 'between racial group' versus 'within racial group' inequality has been examined, the second section uses a decomposition analysis of income inequality by income components to focus attention on the major labour market, asset ownership and state welfare processes driving South Africa's inequality. This analysis suggests that the labour market is the key driver of household inequality. In the light of this finding, the final section focuses explicitly on the labour market.

In South African policy debates, there is generally insufficient scrutiny of empirical results. There are two major maladies. First, there is scant recognition of the fact that different measurement techniques are going to generate different results. In contrast to this, the theoretical literature on inequality has paid a great deal of attention to the fact that different measures of inequality do not define inequality in exactly the same way and therefore will arrive at different estimates of inequality.⁵ The importance of this literature lies in its questioning of the extent to which any inequality results are technique driven rather than neutral representations of the circumstances prevailing in that society. We control for this possibility by using a variety of techniques wherever possible. Conflicting results will then serve as an indication that the situation is not as clear-cut as any of the techniques would have us believe. Indeed, a detailed discussion of how techniques differ and why these differences should have led to the measured differences, is itself a useful way to start an interrogation of the processes generating inequality in South Africa.⁶

⁵ See Deaton (1997) and Cowell (1995) for recent reviews of this literature.

⁶ To bring out such points requires that we spend a lot of time unpacking the details of the various techniques. We have done this in the paper partly in the hope that access to such information will be valuable to South African readers.

Second, the South African literature gives too little recognition to the fact that different data are going to give different results. In the past, this could be excused because of the shortage of usable data. However, researchers now have access to a number of national data sources that cover contemporary South Africa. Two data sets are particularly well suited for the purposes of this paper; namely, the 1995 Income and Expenditure Survey (IES) conducted by the South African Central Statistical Service and the survey undertaken as part of the Project for Statistics on Living Standards and Development (PSLSD) by the Southern Africa Labour and Development Research Unit at the University of Cape Town in late 1993. There are clear advantages to using IES data rather than the PSLSD: the data is more recent, the sample was much larger (almost 30 000 households compared with just under 9 000 in the PSLSD study), and the questionnaire was solely devoted to collecting income and expenditure data which points to greater attention to detail and less respondent fatigue. The only disadvantage to using these data is that they do not provide information about small-scale agricultural production and consumption from own production. We therefore focus our analysis on the IES data.⁷

2. The importance of race in national inequality

The literature on the decomposition of total inequality by sub-groups has a long lineage.⁸ If we divide the population into mutually exclusive exhaustive sub-groups then there is a degree of inequality both within these sub-groups and between these sub-groups. It is desirable that one should be able to decompose a measure of overall inequality into the "within" and the "between" portion.⁹ The value of decompositions is that "they gauge the relative importance of various sources and sectors in respect of overall inequality, and thereby direct our attention to potentially fruitful areas of research" (Fields, 1980:438). Indeed South Africa's historical legacy makes a much stronger case than this, in that we are drawn to these tools because they allow for an explicit focus on race in driving inequality. This section concentrates solely on this racial question.

⁷ In an earlier draft of this paper (Leibbrandt, Borat and Woolard, 1999), we used the PSLSD data to reproduce all of our tables and we highlighted any discrepancies in results from the two sets of data as part of our discussion.

^{*} See Fields (1980) for a review.

⁹ A generally decomposable or aggregative index is defined as one where the overall inequality level can be expressed as some general function of the sub-group means, population sizes and inequality measures. The most useful type of decomposability is additive decomposability. A measure is additively decomposable if it can be tidily expressed as the sum of a "between-group" term and a "within-group" term. The between group component is the value of the measure were every member assigned the group mean (i.e. there is assumed to be no inequality within the group). Similarly, the within-group component is the value of the inequality measure when all the between group inequalities are suppressed.

2.1 Measures and estimates of income inequality

The most commonly cited additively decomposable measure of inequality is the Theil T-statistic, derived directly from the notion of entropy in information theory (Fields, 1980:103).

The Theil-T can be decomposed as follows:

$$T = T_B + \sum q_i T_i \quad \dots (1)$$

where T_i is the Theil-T inequality measure within the i th group, q_i is the proportion of income accruing to the i th group and T_B is the between group contribution. T_B is calculated the same way as T , but assuming that all incomes within a group are equal.

The Theil-L decomposes in a similar way to the Theil-T, except that the group statistics are weighted by the proportion of households (not income) in each group, i.e.

$$L = L_B + \sum p_i L_i \quad \dots (2)$$

where p_i is the population share of the i th group.

A second broad class of inequality measures is contained in the Atkinson measure. This starts from an additive social welfare function in order to derive the following inequality

$$I = 1 - \left(\frac{1}{N} \sum_{i=1}^N (y_i / \mu)^{1-\epsilon} \right)^{1/(1-\epsilon)} \quad \dots (3)$$

index:

which may be decomposed into between- and within-group inequality such that

$$I = I_B + I_W + Residual \quad \dots (4)$$

The measure can be interpreted as the proportion of the present total income that would be required to achieve the same level of social welfare as at present if incomes were equally distributed (Atkinson, 1970:48). Atkinson explicitly introduces distributional objectives through the parameter $\epsilon \geq 0$ which represents the weight attached to inequality in the distribution. By specifying different values of ϵ one can vary the importance society attaches to mean living standards versus equality. If society is indifferent about the distribution, we will set ϵ equal to zero. By increasing ϵ we give more weight to inequality at the lower end of the distribution. At ϵ equal to infinity, society is concerned only with the poorest household.

All three of the above decomposition techniques, the Theil-L, Theil-T and Atkinson's measure, would seem to have obvious relevance in South Africa. Yet, it is only recently that such decompositions have begun to be used in South Africa.¹⁰ Table 2 presents the results of the decomposition of South Africa's total national income by race using the three decomposition techniques discussed above.

Table 2: Comparison of distribution measures

| Measure | Between Component | Within Component | Residual | Total |
|------------------------------|-------------------|------------------|-----------------|-------|
| Theil-T | 0,319 (39,7) | 0,483 (60,3) | | 0,802 |
| Theil-L | 0,254 (36,0) | 0,452 (64,0) | | 0,706 |
| Atkinson $\epsilon = 0.5$ | 0,091 (32,8) | 0,187 (67,0) | 0,001 (0,2) | 0,278 |
| Atkinson $\epsilon = 1.5$ | 0,215 (36,8) | 0,368 (63,0) | 0,001 (0,2) | 0,584 |
| Atkinson $\epsilon = 2.5$ | 0,279 (38,5) | 0,445 (61,5) | 0,001 (0,01) | 0,724 |

Note: The figures in brackets show the percentage contribution to total inequality.

All the indices point in a similar direction, i.e. that the "within" and "between" components are both important contributors to overall inequality, with within-group inequality accounting for more than three-fifths of overall inequality, by all the measures used. In addition, the more highly we value equality - i.e. the larger we set ϵ in Atkinson's index - the between group inequality grows in significance as a contributor to overall inequality. This suggests that within-race inequality is lower in the bottom deciles and, therefore, as we weight the bottom deciles more highly so the between group contribution increases.

Table 3 below further decomposes the within-group Theil measures, by race. Hence, we determine the share of each racial group in explaining aggregate within-group inequality. It is immediately evident that the choice of the Theil-L versus the Theil-T index paints a very different picture of the contribution of different races to overall inequality.

The Theil-T suggests that inequality among the White group is almost as large a contributor to overall inequality as inequality amongst the African group, yet the Theil-L suggests that African inequality contributes 52,6% to total inequality vis-à-vis a contribution of 5,9% from white inequality. The reason for the different Theil-T and Theil-L results can be found in the use of income as opposed to population weights. This

¹⁰ See McGrath and Whiteford (1998) and Moll (1998).

stresses the importance of considering the nature of the decomposition measure before relying on any one statistic.

Table 3: Within-race contribution to overall inequality

| Measure | African | Coloured | Asian | White | Total Within Group |
|----------------|----------------------------|---------------------------|---------------------------|----------------------------|--------------------|
| Theil-T | 0,594 [0,265] (33,2) | 0,387 [0,027] (3,4) | 0,400 [0,018] (2,2) | 0,395 [0,172] (21,4) | (60,2) |
| Theil-L | 0,486 [0,371] (52,6) | 0,353 [0,030] (4,2) | 0,350 [0,009] (1,3) | 0,333 [0,042] (5,9) | (64,0) |

Notes:

1. The first row of figures shows the measure when considering only the particular race group.
2. The figures in square brackets show the absolute contribution to total inequality.
3. The figures in round brackets show the percentage contribution to total inequality.
4. Atkinson's index is *generally* but not *additively* decomposable, hence we cannot apportion the within contribution amongst the race groups.

An international perspective provides a benchmark for assessing the magnitude of the between race contribution in South Africa. Malaysia offers a good comparative example as it is also a society with a history of social and economic stratification by race. The table below presents Anand's (1983) Theil-T decomposition analysis of Malaysian household income by race.

Malaysia's between-group share in inequality at 13% is very low compared to South Africa's. When using personal income instead, Anand (1983:96) finds an even lower contribution of 9,2% due to between-group inequality. The baseline value for South Africa, either with the IES or PSLSD data, for the Theil-T measure is 36%. In the case of Malaysia then, between group inequality is not very helpful in explaining individual income inequality. In South Africa on the other hand, income inequality between the four racial groups, and particularly between African and White, is a crucial predictor of total income inequality in the society.

2.2 Sources of income and national inequality

The decomposition literature of the previous section has a much older vintage than the income source analysis of this section. However, over the last decade, a busy international literature has developed around the derivation and refinement of techniques for decomposing inequality measures (in particular the Gini coefficient) by income

sources.¹¹ Such decompositions highlight those income sources that are dominating the distribution of income and, as such, offer a bridge between the description of inequality and the key economic processes generating inequality in a society.

Table 4: The Theil-T decomposition by race in Malaysia

| | Per Capita HH |
|-------------|---------------|
| Malay | 0,41 |
| Chinese | 0,42 |
| Indian | 0,54 |
| Other | 0,94 |
| All (Total) | 0,52 |
| Within | 0,45 (87%) |
| Between | 0,07 (13%) |

Source: Anand (1983:95-6)

Elsewhere (Leibbrandt *et al.*, 1996) we have decomposed the Gini coefficient by income sources using the PSLSD survey. Here, we apply the same methodology to the IES. The application of such work to South Africa provides an immediate addition to our knowledge of South African inequality. The IES data set contains detailed information on all sources of income and, therefore, is an ideal data set to apply such analysis. Clearly, the level of aggregation that is chosen is determined by the context under consideration and the questions that the analysis is addressing. For the purposes of this paper, we want to distinguish between the relative importance of the major foci of policy attention. Total income for each household is therefore divided into five sources:

- (1) *Remittances* - remittances from absent family members or friends and marital maintenance (alimony);
- (2) *Wage income* - regular and casual employment and value of benefit such as subsidised housing, transport and food;
- (3) *Capital income* - dividends, interest, rent income, imputed rent from residing in own dwelling and private and civil (contributory) pensions;
- (4) *State transfers* - social pensions, disability grants, poor relief, unemployment insurance and child maintenance grants;
- (5) *Self employment* - informal and formal business activities.

Such a breakdown is still at a fairly aggregate level and any number of more disaggregated breakdowns are possible to answer more specific questions.

¹¹ The literature starts with Shorrocks (1983) and is most recently extended by Lerman and Yitzhaki (1994).

The key aspects of the decomposition technique are summarised here, while a more detailed description is provided in Appendix 2. If South African society is represented as n households deriving income from K different sources (i.e. K different income components), then the **Gini coefficient** (G) for the distribution of total income within the group can be derived as:

$$G = \sum_{k=1}^K R_k G_k S_k \quad \dots (5)$$

where:

S_k is the share of source k of income in total group income (i.e. S_k = mean income from source k /overall mean income),

G_k is the Gini coefficient measuring the inequality in the distribution of income component k within the group, and

R_k is the Gini correlation of income from source k with total income.¹²

This equation tells us that the effect of source k income on total income inequality can be broken down into three components:

- (a) the share of income component k in total income (captured by the term S_k);
- (b) the inequality within the sample of income from source k (as measured by G_k);
- and
- (c) the correlation between source k income and total income (as measured by R_k).

The larger the product of these three components, the greater the contribution of income from source k to total income inequality. However, it must be noted that whilst S_k and G_k are always positive and less than one, R_k can fall anywhere on the interval $[-1,1]$. When R_k is less than zero, income from source k is negatively correlated with total income and thus serves to lower the overall Gini measure for the sample.

Now, suppose that there is an exogenous increase in income from source j , by some factor σ_j then it can be shown that the derivative of the Gini coefficient with respect to a change in income source j is:

$$\frac{\partial G}{\partial \sigma_j} = S_j (R_j G_j - G) \quad \dots (6)$$

If $\partial G / \partial \sigma_j$ is negative then a marginal increase in income component j will lessen income inequality. This will be the case either when:

¹² R_k is a form of rank correlation coefficient as it measures the extent to which the relationship between Y_k and the cumulative rank distribution of total income coincides with the relationship between Y_k and its own cumulative rank distribution.

- (i) income from component j has either a negative or zero correlation with total income ($-1 \leq R_j \leq 0$); or when
- (ii) income from source j is positively correlated with total income ($R_j > 0$) and $R_j G_j < G$.

Alternatively, in order for a marginal increase in source j income to worsen income inequality it is necessary that $G_j > G$ (i.e. income from source j must be more unevenly distributed than total income). However, this condition alone is not sufficient for a change in income component j to worsen the overall income distribution as the sign of $\partial G / \partial \sigma_j$ will still be influenced by the strength of the Gini correlation between source j income and total income (Stark *et al.*, 1986:260).

Table 5 presents the results of this decomposition for the total South African sample.¹³ A few illustrative features of this table will be highlighted. It can be seen that wage income has a dominant share of income (66%) and makes a similar contribution to inequality (67%). The reason for this is the high R of 0,88, implying that a household's rank in the distribution of wage income is strongly correlated with that household's rank in the distribution of total income. This strong correlation is more than enough to compensate for the fact that the Gini coefficient for wage income (0,67) is the lowest of all income sources.

The Gini coefficient for a particular income source (G_k) is driven by the inequality amongst those earning income from that source (G_A) and the proportion of households who have positive income from that source (P_k), or, changing the focus, *the proportion of households with no access* to a particular income source ($1 - P_k$). Then we see that, for example:

$$G_{\text{wage}} = 0,67 = P_{\text{wage}} G_A + (1 - P_{\text{wage}}) = 0,37 + 0,30. \quad \dots (7)$$

This brings us part of the way to apportioning the "blame" for Gini inequality between the inequality amongst earners and the inequality between those with some wage income and those with none. It would appear that almost half of what we have termed "wage inequality" is in fact driven by the 30% of households with zero wage income.

¹³ It should be noted that the overall Gini coefficient in the table is 0,59, which is very close to the 0,60, we calculate using the PSLSD data. Both of these differ markedly from the 0,65 value that Whiteford and McGrath (1998) calculated using PSLSD data. McGrath and Whiteford re-weighted the sample to coincide with 1991 census population shares, thereby giving more weight to white incomes and accentuating inequality. In our calculations, we used the survey enumeration weights and used a slightly refined data set taking account of the errors in the social pensions data discovered by Pieter le Roux (University of the Western Cape).

Table 5: Decomposition of total national income by income sources

| Income source | Proportion of households receiving income source (P_k) | Mean income from source | Share in total income (S_k) | Gini for income source for households receiving such income (G_A) | Gini for income source for all households (G_k) | Gini correlation with total income rankings (R_k) | Contribution to Gini coefficient of total income ($S_k G_k R_k$) | Percentage share in overall Gini | Effect on overall Gini of a 1% change in income component |
|-----------------|--|-------------------------|---------------------------------|---|---|---|--|----------------------------------|---|
| Remittances | 0,13 | R64,81 | 0,02 | 0,48 | 0,93 | -0,07 | -0,001 | -0,25 | -0,015 |
| Wage income | 0,70 | R1815,63 | 0,66 | 0,53 | 0,67 | 0,88 | 0,39 | 66,59 | 0,002 |
| Capital income | 0,18 | R251,51 | 0,09 | 0,69 | 0,95 | 0,69 | 0,06 | 10,16 | 0,006 |
| State transfers | 0,33 | R155,84 | 0,06 | 0,40 | 0,80 | -0,12 | -0,006 | -0,94 | -0,039 |
| Self-employment | 0,09 | R451,02 | 0,16 | 0,71 | 0,97 | 0,89 | 0,14 | 24,44 | 0,047 |
| Total | | R2738,82 | 1,00 | | | | 0,59 | 100 | |

Notes:

1. G_A is the Gini for the income source when we only consider households with positive income from that source.
2. G_k is the Gini of the income source when we consider all households. Lerman and Yitzhaki (1994) show that $G_k = P_k * G_A + (1 - P_k)$

Remittance income has the smallest share of total income (2%) and makes a small, negative contribution to inequality (-0,25%). This negative contribution arises because of the small negative correlation ($R = -0,07$) between the rank ordering of remittance income and the rank ordering of total income. This negative correlation would seem to imply that the fairly high Gini coefficient for remittances is due to the fact that remittance income is disproportionately distributed to those at the bottom of the total distribution relative to those at the top. In essence, this analysis is suggesting that factors that boost remittance income for current recipients would lower overall inequality.

The last column of Table 5 shows the effects of a 1% increase in a particular income component. It is important to note that this increase only applies to those households who already have some income from this source. We see that a change in state transfers, remittances or income from self-employment will have the greatest effect on the overall Gini. In the last case the Gini increases, but in the other two cases it decreases. The components which increase inequality correlate highly with total income rankings (i.e. R_k is high), which implies that an increase in these sources will primarily benefit the better off and thus aggravate the Gini. The sum of the absolute changes in the Gini coefficient is zero. This follows because increasing all components of income by 1% has no effect on the income distribution and therefore no effect on the Gini.

From the point of view of government policy, state transfers are of special interest. A well-targeted, redistributionist state expenditure programme would be evidenced by a strongly negative R . The value of R at -0,12 suggests that state transfers serve to decrease the value of the overall Gini. Moreover, we see that an increase in state transfers of 1% will reduce the Gini by 0,04 (7%).

While G_k is the coefficient needed to calculate the contribution to inequality, a look at G_A is instructive. G_A is the Gini coefficient when considering only those households actually receiving income from that particular source. We see that there are large disparities in the incomes being earned from self-employment, capital income and wage income. This points to the dichotomous nature of the South African economy, where there is an immense gap between households with members that are engaged in high and low wage employment, formal versus informal self-employment and those earning income from interest and dividends versus those accruing a small capital benefit as a result of owning their dwelling.

A central point to note from Table 5 though, is that while wage incomes on their own are very important, remittances and self-employment are also incomes derivative of the labour market. If the cumulative impact of all three of these sources is considered, it can be seen that the labour market dominates South African income and income inequality. This is in line with comparisons of such studies in other countries. A quote from Fields (1980:114) will suffice:

"Individually and together, the results for Taiwan, Pakistan and Colombia give a common impression about the contribution of various income sources to overall inequality. The bulk of

income inequality is attributable to labor income. The high factor inequality weights for labor incomes suggest that the principal inequality-producing factor is some people receiving a great deal more income for their work than do others. This has important implications both for the research (researchers should study the labor market) and for policy (policy makers should create more well-paying jobs). The intuitively prior notion that the most unequally distributed factors (property, gifts, etc) contribute the most to total inequality is found to be false in each case."

However, it must be remembered that in South Africa households without access to labour market incomes are an important part of the contribution of this source to overall inequality. It is unlikely that this was the case in the countries referred to by Fields. Indeed, it is this aspect of the South African results that flags the importance of both the quantity of employment (job creation) and the quality of employment (the distribution of wage incomes). Given possible trade-offs between the quantity and quality of employment, this additional South African dimension suggests a trickier policy matrix than is thrown up by the quotation.

While the analysis of any of the income sources presented in the table is usefully indicative, it does not really reveal enough about what is going on at the lower end of the distribution relative to the top end. So, for example, it is quite possible for the same aggregate outcomes to result from an income source that is contributing exclusively to the very poor and very rich or exclusively to the middle of the distribution. This points to the need for some complementary sensitivity analysis. A particularly useful exercise would seem to be one that splits the population by a poverty line. This was done for the South African case and the results are presented in Table 6.

Inspection of this table shows that the data from Table 5 is only a rough average of very different processes taking place above and below the poverty line.¹⁴ As agriculture is a consistently low contributor to average income and to inequality in both the above and the below group, it will not be discussed further at this point.

¹⁴ For ease of expression, this paper will refer to those above the poverty line as the above group and those below the poverty line as the below group.

Table 6: Decomposition of total national income by income sources; below and above the poverty line

a. Below the poverty line

| Income source | Proportion of households receiving income source (P_k) | Mean income from source | Share in total income (S_k) | Gini for source for households receiving such income (G_A) | Gini for income source for all households (G_k) | Gini correlation with total income rankings (R_k) | Contribution to Gini coefficient of total income ($S_k G_k R_k$) | Percentage share in overall Gini | Effect on overall Gini of a 1% change in income source |
|-----------------|--|-------------------------|---------------------------------|--|---|---|--|----------------------------------|--|
| Remittances | 0,23 | R78,02 | 0,12 | 0,38 | 0,86 | 0,16 | 0,02 | 5,64 | -0,020 |
| Wage income | 0,50 | R308,00 | 0,49 | 0,31 | 0,65 | 0,60 | 0,19 | 63,0 | 0,044 |
| Capital income | 0,09 | R23,65 | 0,04 | 0,59 | 0,96 | 0,47 | 0,02 | 5,51 | 0,005 |
| State transfers | 0,49 | R206,81 | 0,33 | 0,33 | 0,67 | 0,31 | 0,07 | 22,03 | -0,032 |
| Self-employment | 0,04 | R17,24 | 0,03 | 0,42 | 0,98 | 0,44 | 0,01 | 3,86 | 0,003 |
| Total | | R633,72 | 1,00 | | | | 0,30 | 100 | |

b. Above the poverty line

| Income source | Proportion of households receiving income source (P_k) | Mean income from source | Share in total income (S_k) | Gini for source for households receiving such income (G_A) | Gini coefficient for income source (G_k) | Gini correlation with total income rankings (R_k) | Contribution to Gini coefficient of total income ($S_k G_k R_k$) | Percentage share in overall Gini | Effect on overall Gini of a 1% change in income source |
|-----------------|--|-------------------------|---------------------------------|--|--|---|--|----------------------------------|--|
| Remittances | 0,09 | R58,81 | 0,02 | 0,50 | 0,95 | -0,09 | -0,001 | -0,27 | -0,01 |
| Wage income | 0,79 | R2501,56 | 0,68 | 0,47 | 0,58 | 0,84 | 0,33 | 63,3 | -0,02 |
| Capital income | 0,21 | R355,19 | 0,10 | 0,67 | 0,93 | 0,58 | 0,05 | 9,9 | 0,002 |
| State transfers | 0,26 | R132,65 | 0,04 | 0,45 | 0,85 | -0,15 | -0,005 | -0,91 | -0,02 |
| Self-employment | 0,11 | R648,39 | 0,18 | 0,68 | 0,97 | 0,86 | 0,15 | 27,98 | 0,05 |
| Total | | R3696,60 | 1,00 | | | | 0,52 | 100 | |

We will consider wage income first. In the above group, this income source makes a large and stable contribution to average income (68%) and to the distribution of income (63%). This distributional effect is the result of a low Gini coefficient (0,58) being offset by a high R of 0,84. For the below group, the share of wage income in total income is far lower (49%) but, even within the poor, higher wage income is strongly correlated with higher total income ($R = 0,60$) and this income source therefore still makes a high contribution to inequality (63%). It is clear from this breakdown of above and below groups that access to wage income is central to determining which households are able to avoid poverty and, even, the depth to which poor households sink below the poverty line. This re-asserts the importance of the labour market in understanding poverty: that the formal earnings capacity of households will either reinforce or shed their poverty status.

On the other hand, it is encouraging to see that state transfers are a much smaller part of the total income for the above group (4%) than the below group (33%). Moreover, $R = -0,15$ in the above group reveals that this income is not going to the higher income households in society. However, the fairly high Gini coefficient for state transfers in the below group (0,67) and rank correlation ($R = 0,31$) implies that it is the relatively better off within the poor who are receiving state transfers.

There are two possible explanations for such an outcome. The first is that the targeting of state assistance is not that successful. The second is that the depth of poverty in South African society is so acute that access to some state assistance is sufficient to move a household away from the bottom of the poverty ranking. There is also some recent econometric evidence (Deaton, 1995) that state pensions are not badly targeted. In addition, studies of rural poverty (see May *et al.*, 1995) have made it clear that "claims against the state" are central to rural livelihoods. Thus, on balance, the second explanation is more likely to be true.¹⁵ What can be said with more certainty is that the analysis of wage income and state transfers serves to confirm that, in South Africa, the poorest of the poor are those households that lack access to either wage income or state transfers.

The low share of remittances in total income (2%) and the negative correlation for remittances ($R = -0,09$) in the above group along with the very much higher share of remittances (12%) in the income of the below group indicate that remittances are much more important on average in the below group. In South Africa remittances generally flow from urban to rural areas and, to a large extent, this result is merely confirming that a large component of South Africa's poor are located in the rural areas (Whiteford *et al.*, 1995). However, there is additional information to be gleaned as well. The low, positive rank correlation ($R = 0,16$) in the below group results in a small contribution to inequality (5,6%). This implies that remittance income is well disbursed within the poor. So, while remittances are not important enough to be a major discriminator of who lies above or below the poverty line, factors which might cause an increase in remittances would have

¹⁵ The one clear contribution made by this analysis of state transfers is to illustrate how careful one has to be in adding interpretation to the empirics of the income decomposition analysis.

a generalised positive impact on the poor. The converse is true for capital income. This income source is far more important to the above group than the below group both as an average share (10% and 4% respectively) and as a contributor to inequality (9.9% and 5.5% respectively).

A look at the "actual" Gini (G_A) for the components when considering only those households actually receiving such income reveals much the same picture as the analysis for the total population. We would, perhaps, have anticipated lower Ginis in the below group, which might be expected to be fairly homogenous since everyone is, after all, technically "poor". This is, however, not the case. There are considerable deviations in the incomes earned from capital income and self-employment both in the above and below groups. Self-employment in the below-group, however, produces less inequality amongst those engaged in these activities than in the above-group. This is to be expected, since, all those in the below-group are likely to be involved in marginal informal activities.

Although the results are not presented here, when these same decompositions were performed on all households and on above and below groups using PSLSD data (Leibbrandt, *et al.*, 1999), the analysis confirmed the finding that for all groups wage income is the key determinant of income inequality in the society. In earlier work Leibbrandt, Woolard and Woolard (1996) decomposed the distribution of income-by-income source within African households using identical methods. This within-African analysis generated a picture that is quite different from the total income picture or the above and below picture. This illustrates some of the complexity of South Africa's income dynamics. However, despite these differences, wages have a more dominant influence on South Africa's inequality (79.44% in the IES and 82.25 in the PSLSD) in this group than in any of the other cuts. Thus, the importance of wage income and, by direct implication, the labour market is very clear across all cuts of South African households.

3. A closer look at inequality, poverty and the labour market

The overriding message of the previous section was the dominance of wage income in driving household inequality in South Africa. The decomposition analysis also robustly suggested that the role of wage income is significantly influenced both by the fact that many households have no access to wage income and by the fact that wage income is very unequally distributed across those households that do have access to it. When we have presented similar results in the past (Leibbrandt, Woolard and Woolard, 1996 and Bhorat, Leibbrandt and Woolard, 1995) such a picture has been taken to imply empirical support for the contention that the employment/unemployment fault line is a major class division in contemporary South Africa. While our empirics certainly do not preclude this possibility, such an implication is premature. As stated in the introduction, this paper is focusing on inequality at the household level. In contrast to this, individuals are usually the focus of attention in labour market studies. There is therefore an aggregation problem and an uneasy relationship between our inequality analysis and any labour market analysis. The non-wage earning households are particularly problematic as such households do not constitute a tight labour market category. For example, a household

with two pensioners would be a non-wage earning household. A household containing a mother taking care of her children would also be a non-wage earning household. Neither of these households contains *any* labour market participants and they therefore do not imply anything about the operation of the labour market.

This mapping between individuals in the labour market and household-level poverty and inequality outcomes has proved to be problematic in all international studies such as ours.¹⁶ In this concluding section, we look for a tighter exploration of the labour market implications of our earlier decomposition work by focusing directly on the unemployed and their attachments to different households in the society. Table 7 below seeks to highlight the differences between households when classified by the number of unemployed members resident in the household. The expanded definition of unemployment is utilised for this analysis.

From the table it can be seen that over two-thirds of households (72%) have no unemployed members. This figure falls to 64% among African households. Amongst households with unemployed members, most contain only one unemployed person. Nevertheless, a significant number of households (approximately 800 000) contain two or more unemployed persons. Urban households are more likely to have no unemployed members.

The demographic section of the table is striking. Households where no one is unemployed are typically smaller and the members are significantly older. This has been explained (Klasen and Woolard, 1998) by the fact that the young unemployed generally remain with their parents or attach themselves to the households of other relatives. Once employment is found, they are able to form separate (and thus smaller) households. Not surprisingly, households with no unemployed persons are slightly better educated.

We see from the next section of the table that more than half of the unemployed are in households with two or more unemployed persons. The situation of these households is clearly particularly grim when one considers the average employment (or conversely unemployment) rates in households with two or more unemployed persons. While 47% of labour force participants in households with one unemployed member are formally employed or own account workers, this figure falls to 27% in households with two unemployed members and to a dismal 17% in households with three or more unemployed. The average household unemployment rate calculates an unemployment rate for each household and then averages these rates. It therefore controls for household size, or, more specifically, for the number of labour market participants in households and, as such, is a tighter measure of the severity of unemployment at the household level. This row in the table shows that such average unemployment rates are higher than the more conventional unemployment rates that are discussed above. Using these average household rates, over half of the labour

¹⁶ The furore over the poverty impacts of a minimum wage in the United States is a good example. See Card and Krueger (1994) versus Neumark and Washer (1997).

market participants are unemployed in all households with any unemployed members.

Not surprisingly, income levels fall as the number of unemployed in the household increases. Incomes in households with no unemployed are almost twice those in households with one unemployed person, before taking account of the fact that households with unemployed members are significantly larger. If we compare the Theil-T contributions to inequality relative to the population shares that are shown in the first line of the table, we see that households where no one is unemployed are the major contributors to inequality. Thus, most of the household-level inequality in South Africa is driven by income dynamics within households with no unemployed members. It seems that labour market earnings rather than unemployment need to be highlighted when looking at labour market factors driving household income *inequality*. However, this does not imply that unemployment is unimportant. Indeed, one of the major reasons for this finding is that households with unemployed members are uniformly bunched in the low-income sections of the household income distribution. This is confirmed by the poverty decomposition analysis.

The incidence of poverty (measured by the Foster-Greer-Thorbecke P_0 measure, more commonly known as the head-count index) clearly increases as the number of unemployed household members grows. While 72% of households have no unemployed members, they only make up 52% of the poor. Similarly, while only 3% of households have three or more unemployed members, they account for 8% of poor households. In addition to being more *likely* to be poor, poor households are also *poorer*. We see from the FGT P_1 and P_2 measures (which can be considered to measure the depth and severity of poverty respectively), that households with unemployed persons make up even higher proportions of poverty than when measured by the head-count index.

4. Conclusion

Even after checking for the sensitivity of results to choice of data or inequality measure, a few simple, yet powerful results emerge about income inequality in South Africa. Firstly, income inequality between different races although smaller than the within-race contribution, is amongst the highest in the world – if not the highest. Secondly, the largest within-race contributor to inequality is amongst African households. Greater inequality exists amongst African households than any other race group. Thirdly, it is evident that the most important determinant of the Gini coefficient in South Africa is wage income and the lack thereof. Self-employment income appears as a highly relevant source of inequality as well. Finally, the paper reinforces the fact that the labour market is central to our understanding of poverty in the society. Specifically, most household-level inequality is driven by income dynamics within households with no unemployed members because most households do not have unemployed members and households with unemployed members tend to be crowded below the poverty line at the lower end of the household income distribution.

Table 7: Numbers of unemployed per household and other household characteristics (expanded definition of unemployment)

| Household Type | 0 | 1 | 2 | 3+ | Total | Column |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|--------|
| | | | | | | Shares |
| A. General | | | | | | |
| ALL | 71,8 | 19,1 | 5,9 | 3,2 | 8 801 992 | 100 |
| African | 64,0 | 23,8 | 7,7 | 4,4 | 5 950 904 | 67,6 |
| Coloured | 73,4 | 18,6 | 5,7 | 2,3 | 747 530 | 8,5 |
| Asian | 81,6 | 14,8 | 2,7 | 0,8 | 245 661 | 2,8 |
| White | 94,7 | 4,8 | 0,4 | 0,1 | 1 857 897 | 21,1 |
| Rural | 68,1 | 20,8 | 7,2 | 3,9 | 3 483 220 | |
| Urban | 74,2 | 18,0 | 5,0 | 2,8 | 5 318 772 | |
| B. Other demographics | | | | | | |
| Ave Age | 31,8 | 26,3 | 27,1 | 27,8 | 30,4 | |
| Ave Size | 3,8 | 5,1 | 6,4 | 8,1 | 4,3 | |
| Ave # of Children under 15 | 1,3 | 1,9 | 2,2 | 2,3 | 1,5 | |
| Ave # of Adults | 2,5 | 3,1 | 4,2 | 5,8 | 2,8 | |
| Ave # of Labour Market Participants | 1,3 | 1,9 | 2,7 | 4,3 | 1,6 | |
| Ave adult years of education | 7,0 | 6,0 | 5,6 | 5,6 | 6,7 | |
| C. Labour Market | | | | | | |
| % of total unemployment | 0 | 43,4 | 28,0 | 28,5 | 100 | |
| % of total self-employment | 78,1 | 14,7 | 4,6 | 2,6 | 100 | |
| % of total formal employment | 78,2 | 15,6 | 4,0 | 2,3 | 100 | |
| Ave HH Unemployment Rate | 0 | 65,6 | 80,9 | 85,7 | 24,7 | |
| Ave Unemployment rate | 0 | 53,1 | 73,4 | 83,0 | 28,6 | |
| Ave self-employment rate | 14,5 | 6,5 | 4,4 | 2,7 | 10,3 | |
| Ave formal employment rate | 85,3 | 40,6 | 22,3 | 14,4 | 61,0 | |
| D. Poverty and Inequality | | | | | | |
| Ave hh income per annum (standard deviation) | 42 094 (75493) | 22 886 (48 283) | 17 929 (21 675) | 17 970 (18 559) | 35 770 (67 662) | |
| Ave hh expenditure per annum (standard deviation) | 40 564 (73 687) | 22 848 (47 611) | 17 209 (20 968) | 18 197 (19812) | 34 658 (66073) | |
| Theil-T (% contributions to overall inequality). ¹⁷ | 79,9 | 11,5 | 1,9 | 0,9 | 94,1 | |
| Poverty shares: | | | | | | |
| FGT(P ₀) | 51,9 | 28,0 | 12,2 | 7,9 | 100 | |
| FGT(P ₁) | 48,1 | 28,7 | 13,9 | 9,3 | 100 | |
| FGT(P ₂) | 45,6 | 29,0 | 15,1 | 10,3 | 100 | |

¹⁷ The figures sum to 94,1%. The remaining 5,9% is the "between group" inequality.

REFERENCES

- Anand, S (1983): *Inequality and Poverty in Malaysia: Measurement and Decomposition*, New York: Oxford University Press.
- Atkinson, AB (1977): *The Economics of Inequality*, Oxford: Clarendon Press.
- Bhorat, H and Hertz, T (1995): "A Statistical Overview of the South African Labour Market", Input Paper for the Presidential *Labour Market Commission*.
- Card, D and Krueger, A (1994): "A Living Wage? The Effects of a Minimum Wage on the Distribution of Wages, the Distribution of Family Earnings, and Poverty", *Working Paper*, No. 333, Industrial Relations Section, Princeton University.
- Cowell, F (1995): *Measuring Inequality*, (2nd ed.), London: Prentice Hall.
- Central Statistical Services (1995): *The October Household Survey*, Pretoria: Government Printer.
- Deaton, A (1997): *The Analysis of Household Surveys: A Microeconomic Approach to Development Policy*, Baltimore: Johns Hopkins Press.
- Deaton, A (1995): "Large Transfers to the Elderly in South Africa", Unpublished Paper, Research Program in Development Studies, Princeton University.
- Fields, G S (1980): *Poverty, Inequality, and Development*, Cambridge: Cambridge University Press.
- Fiszbein, A and Psacharopoulos, G (1995): "Income Inequality Trends in Latin America in the 1980s", in Lustig, N (Ed.): *Coping with Austerity: Poverty and Inequality in Latin America*, Washington, D.C.: The Brookings Institution.
- Hertz, T (1995): "Jobs, Farms, Discrimination and Education in South Africa: Simulations and Regressions on Household Survey Data", Unpublished Paper, Department of Economics, University of Massachusetts at Amherst.
- Hindson, D, and Crankshaw, O (1990): "New Jobs, New Skills, New Divisions: The Changing Structure of South Africa's Workforce", *South African Labour Bulletin*, 15(1), 23-31.
- Klasen, S and Woolard, I (1998): "Unemployment, Household Formation, Poverty and Nutrition in South Africa", Unpublished Paper, University of Port Elizabeth.
- Leibbrandt, M, Bhorat, H and Woolard, I (1999): "Understanding Contemporary Household Inequality in South Africa", *DPRU Working Paper*, 99(25), School of Economics, University of Cape Town.
- Leibbrandt, M, Woolard, C and Woolard, I (1996): "The Contribution of Income Components to Income Inequality in South Africa: a Decomposable Gini Analysis", *Living Standards Measurement Survey Working Paper*, No.125, Washington, D.C.: World Bank.
- Lerman, R and Yitzhaki, S (1994): "Effect of Marginal Changes in Income Sources on U.S. Income Inequality", *Public Finance Quarterly*, 22(4):403-416.
- May, J, Carter, M and Posel, D (1995): "The Composition and Persistence of Poverty in Rural South Africa: An Entitlements Approach", *Land and Agriculture Policy Centre Policy Paper*, No.15, Land and Agriculture Policy Centre.
- Moll, P (1998): "Discrimination is Declining in South Africa, but Inequality is not", *SANER Working Paper*, No. 5, Cape Town: South African Network for Economic Research.
- Neumark, D and Wascher, W (1997): "Do Minimum Wages Fight Poverty?", *National Bureau of Economic Research Working Paper*, No. 6127.

- Nygard, F and Sandstrom, A (1981): *Measuring Income Inequality*, Stockholm: Almqvist and Wicksell.
- SALDRU (1994): *South Africans Rich and Poor: Baseline Household Statistics*, Project for Statistics on Living Standards and Development.
- Shorrocks, A (1983): "The Impact of Income Components on the Distribution of Family Income", *Quarterly Journal of Economics*, 98, 311-326.
- Stark, O, Taylor, J and Yitzhaki, S (1986): "Remittances and Inequality", *Economic Journal*, 96, 722-740.
- Tarsitano, A (1990): "The Bonferroni Index of Income Inequality", in Dagum, C and Zenga, M (eds.): *Studies in Contemporary Economics: Income and Wealth Distribution, Inequality and Poverty*, Heidelberg: Springer-Verlag.
- Whiteford, A and McGrath, M (1998): "Income Inequality over the Apartheid Years", *SANER Working Paper*, No. 6, Cape Town: South African Network for Economic Research.
- Whiteford, A, Posel, D and Ketarwang, T (1995): *A Profile of Poverty, Inequality and Human Development*, Pretoria: Human Sciences Research Council.
- World Bank (1997): *World Development Report*, New York: Oxford University Press.