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CHANGES IN INCOME DISTRIBUTION IN
SOUTH AFRICA –
A SOCIAL ACCOUNTING MATRIX APPROACH

Anemé Malan
Statistics South Africa
Private Bag X44
Pretoria
0001
South Africa
Tel: +27 12 310 8321
Tel: +27 12 310 8332
e-mail: anemem@statssa.pwv.gov.za

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1. INTRODUCTION

The *apartheid* era has left a legacy of poverty and inequality in South Africa. Despite the country's wealth (South Africa's average level of per capita income places it among the world's upper middle income countries (Malan, 1998:109)), a large share of the population has not been able to benefit from South Africa's resources. A particular problem in South Africa is the inequality in access to services and economic resources for the poor. Within the enabling context of South Africa's new Constitution, the Government's social policies have a wide-ranging developmental and redistributive thrust. One of the first initiatives of the Government elected in April 1994 was the preparation of a White Paper on Reconstruction and Development (Republic of South Africa, 1994). It served as an economic and social policy framework that represented a commitment to the elimination of poverty in a rapidly growing and more equitable economy, seen in the context of an open, peaceful and democratic society. The Reconstruction and Development Programme (RDP) provided an integrated vision for, inter alia, meeting society's basic needs, developing human resources and building the economy, together with the democratisation of society and effective implementation of RDP policies and initiatives. The White Paper set out a programme for orienting the activities of Government fully and effectively towards reconstruction and development goals, within a sound fiscal and macroeconomic framework, thus making all aspects of fiscal policy making inherently inseparable.

In keeping with its commitment to sound fiscal and financial policies as a cornerstone of the implementation of the RDP, the Government adopted a macroeconomic strategy which aimed to strengthen growth to the year 2000 alongside a broadening of employment and the redistribution of economic opportunities. The Minister of Finance published a framework setting out the elements of this strategy in June 1996. Entitled *Growth, Employment and Redistribution* (GEAR), it defines the broad parameters within which a stronger economy and a sound fiscal structure will make the attainment of RDP goals possible. A clear long-term perspective, focusing on the government's four key initiatives. A redistribution of income and opportunities in favour of the poor represents one of these initiatives. Since this policy was only introduced in June 1996 its success in bringing about a more equitable distribution of income cannot yet be evaluated. However, inequality trends up to 1996 offer some insight into the challenges facing GEAR.

While the political transformation has been hailed by the world as a success, the Poverty Index Report prepared for President Thabo Mbeki in September 1998 reveals that 19 million people remain trapped in poverty, surviving on household expenditure of R353 per adult (Malan, 1998:111). South Africa's Gini coefficient (0,62 for 1993 – Statistics South Africa (Stats SA) compiled the last preliminary Social Accounting Matrix (SAM) for 1993), which measures the size of the gap between rich and poor, is fourth on the list of 36 developing countries. While some African people have enjoyed benefits from the transition process – levels of inequality within the African population are almost as high as the national average – 68 per cent of Africans are still living in poverty.

A more equitable income distribution is critical to the future stability of the South African society as well as the vitality of its economy. It has become clear in South Africa that further growth in many of South Africa's economic sectors is severely constrained by the absence of effective buying power on the part of the majority of the population (Eckert & Mullins, 1989:2). However, for income redistribution to be acceptable in the South African context, it is imperative that the measures that are introduced do not cause irreparable harm to the economy, but rather succeed in moving towards the elusive goal of widespread growth with greater economic equality.

One of the goals set for the Social Accounting Matrix (SAM) is to expand the present national accounting system to incorporate data on income distribution (McGrath, 1987: 2). In this sense the SAM provides a method by which the national accounts can be transformed from a documentation of production statistics to a statement of the economy as a generator of incomes, thereby focusing on the living standards of the different socio-economic groups. However, the structure of production, and commodity balances, still have to play an important part in this framework, because they are a part of the setting in which living standards are determined. To achieve this goal, the social classes that are chosen must have relevance to questions relating to the distribution of income. Achieving consistency of data in a framework of this complexity is a major undertaking in its own right. To quote King's comments on the difficulties of preparing a SAM: "The effort required to put together a SAM is not trivial. Data must be ferreted out, wherever it may be available. Conflicting sources must somehow be reconciled" (King, 1981:44).

This paper investigates changes in the distribution of income, using SAM data and estimations made by other authors, amongst races (i.e. African, white, coloured and Indian) in South Africa between 1975 and 1996. The paper contains three parts, namely, the necessity of measuring income distribution and income inequality; different measures for income inequality; and utilising a SAM for the analysis of income inequality and the effect of inequality in income distribution. The paper makes use of various data sets, including the data set of the Southern Africa Labour and Development Research Unit's (SALDRU) survey on living standards and development for 1993 and the SAMs for 1978, 1988 and 1993, all based on the 1968 System of National Accounts (SNA). It should be noted that this paper is more about measuring *the changes in the distribution of income* than about merely measuring the distribution of income. Estimates done by external sources mainly on Population Census data are shown for comparison purposes.

2. WHY MEASURE INCOME DISTRIBUTION?

Concern with the distribution of income arises from the fundamental concern with the level of individual and social welfare. The components of both individual and social welfare are the satisfaction derived from monetary income, as well as the satisfaction derived from non-monetary items, such as leisure, conditions of work and other qualitative aspects of life. However, psychic income is not quantifiable, and thus when the term welfare is used it usually means "economic" welfare as measured by income. The degree of poverty in society is also an important indicator of the level of

welfare. Social welfare is a complex function of many characteristics of society, including the level of per capita income, the extent of riches and poverty, the degree of inequality in the distribution of income and the distribution of employment and unemployment. Income inequality (where the size of the national income is used as a surrogate measure of efficiency and its distribution provides a measure of equity) is seen as one important indicator of social welfare and of the level of development, which should be regularly monitored, and which should be of concern to policy makers.

Thus, an understanding of the distribution of a country's income is important, broadly speaking, for two main reasons. Firstly, it is a fundamental indicator of inequality in society, and secondly it has important implications for economic growth.

2.1 Income distribution: measure of welfare

The concept of welfare encompasses a wide range of aspects of human life such as income, leisure time and psychological well-being. Many of these aspects are not easily quantifiable, making measurement difficult, if not impossible. When studying welfare, economists tend to concentrate on income, since it is relatively easy to measure. It is also one of the most important indicators of well-being, since income is a measure of a person's command over goods and services. Probably the most commonly used measure of income as a welfare indicator is per capita gross domestic product (GDP). This is an important measure since it indicates the level of income which is theoretically available to each person (in the presence of perfect equality). In practice, however, income is not distributed perfectly evenly, and per capita GDP thus conveys little information about the welfare of the household or individual e.g. South Africa's GDP per capita for 1993 was equal to R9 662 (SARB, 1994), but extreme income inequality exists. For a more complete picture of the economic welfare of individuals, knowledge of a country's income distribution among households and/or individuals is thus required.

2.2 Income distribution and economic performance

The link between the distribution of income and economic growth is a frequently debated issue. On the one hand it is argued that the unequal distribution of income in South Africa is limiting the long-term growth potential of the economy. The concentration of economic power in the hands of relatively few rich households has created a pattern of demand in South Africa which has restricted the size of the market. Research by Eckert and Mullins (Malan, 1998:12) on the South Africa economy has shown how a redistribution of income may positively influence economic growth. Their findings show that poor people tend to purchase basic items such as clothes, furniture and housing, which are often produced using labour intensive production methods and have a low import content. A redistribution of income from the rich to the poor can thus increase the labour intensity of the economy and employment levels, and thereby boost local industry. Regrettably this result will not always ensure a redistribution of income from the rich to the poor. International studies have shown that the poor do not always consume relatively labour intensive

products, while the lower incomes of the poor may also increase the demand for agricultural imports. Some evidence for developing countries also suggests that manufactured goods, including consumer durables, are not consumed exclusively by the higher quintiles of the income distribution (Malan, 1998:12).

On the other hand it could be argued that a narrow spread of economic reward reduces incentives and hence diminishes the driving force behind a market-based economy. It is also claimed that a redistribution of income can undermine the capacity of a population to save, since poor people have a lower propensity to save than rich people (cf. table 10). With a reduction in the level of net saving the long-term growth potential of the economy is reduced. Although this is a simplistic exposition of a complex issue there can be little doubt that the distribution of income has a profound effect on economic growth, and economic policy makers should therefore be equipped with an understanding of the extent of income inequality in South Africa.

3. MEASURES OF INEQUALITY

For the purpose of this paper, the emphasis will fall on the positive (or objective) measures of inequality rather than on the normative measures. The distinction lies in the fact that the positive measures are purely statistical and require no value judgements in their calculation. Positive measures can be divided into two broad categories – indecisive (or non-decisive) and decisive. The first type does not attempt to summarise the distribution of income into a single coefficient, e.g. the share of personal income accruing to each population group and percentile shares. Decisive measures, on the other hand, provide summary information about the distribution of income in the form of a single coefficient. Examples of these are the Gini coefficient and the Theil entropy index.

3.1 Indecisive (non-decisive) measures

The two indecisive measures that have most often been used are "percentile incomes" and "percentile shares".

Percentile incomes are the money incomes that cut off specified percentiles of the distribution (for example, the top 10 per cent, top 20 per cent, and so on). When they are expressed as a percentage of the median income, they can give information about dispersion in both the upper and the lower tails of distribution.

Percentile shares are the shares of total incomes that accrue to specified percentiles of the population. Related to these percentile shares is the well-known Lorenz Curve, which graphs percentiles of income (plotted on the vertical axis) against percentiles of the population (plotted on the horizontal axis). If only grouped data are available, and the average income of the population is unknown, the estimation of percentile shares (the parameters of the Lorenz Curve) requires that assumptions must be made about the distribution of income recipients in all income groups, and this opens such estimates to the possibility of greater error than can occur in the percentile income

approach. For this reason alone the percentile income approach may be better suited as a development indicator.

Neither of these indecisive measures summarises information about the distribution into a single statistic. This may be regarded as one of their strengths, since they do not attribute any weighting to the ranges of the distribution, thereby placing the whole burden of interpretation on the observer. Further examples of indecisive measures are the racial incomes and income percentile shares.

3.1.1 Racial income

Racial income refers to the income that accrues to a particular population group. It is one of the most basic measures of inequality in a country since it reflects the inequality among population groups. It is of particular interest in South Africa since inequality has a strong racial dimension.

In a review of racial income shares over the period 1917-1970, McGrath (Malan, 1998:19) shows that there was a remarkable consistency in the white share of income. Whites earned in the region of 70 per cent of total income yet comprised less than 20 per cent of the total population. This trend reflects a widening of the income gap between whites and other groups since the white population has been growing at a slower rate than the other population groups. The African share of income remained fairly constant at about 20 per cent over the same period. The remaining 10 per cent were shared among Indians and coloureds.

This historical consistency was broken between 1970 and 1975 when the white share of income decreased significantly, while the coloured and Indian shares were relatively unchanged and the African share increased. McGrath showed that between 1976 and 1980 there was very little change in the African and white shares of income while the coloured and Indian shares increased slightly.

Subsequently it seems that the white share of total income continued to decline over the period 1980 to 1993, while the African and coloured share increased and the Indian share remained fairly constant (cf. table 1). Table 1 also indicates that the SAM estimates for 1978, 1988 and 1993 compare very well with external data sources. The changes between 1993 and 1996 – notably just before and after the 1994 elections – can be seen in table 1.

The main source of data for McGrath's 1970 figures was the 1970 Population Census (Whiteford and Van Seventer, 1999:4) which provided details of the incomes of white, coloured and Indian families. The 1970 census data had one major omission: it lacked data for the African population group. McGrath used the limited Bureau of Market Research (BMR) survey and national accounts from the South African Reserve Bank to generate an income frequency distribution for Africans. This was, by the author's admission, the "weakest link" in his estimates of inequality and is probably the reason why this figures are a little lower than the SAM estimates for 1978. The 1980 Population Census provided proportional relationships for the 1978 SAM.

The results of Whiteford and McGrath for 1991 differ somewhat from the results of Simkins and Van der Berg (Malan, 1998:20), who estimated a more significant redistribution of income from whites to Africans in the late 1980's. The data used by Whiteford and McGrath (1994) was derived from the 1991 Population Census for the Republic of South Africa, and was supplemented with income and expenditure survey data from the former Transkei, Bophuthatswana, Venda and Ciskei (TBVC states) (Whiteford and Van Seventer, 1999:4). For the compilation of the final SAM for 1988 the most important sources were the results of the 1991 Population Census supplemented with data for the former TBVC states and the surveys of expenditure of households. The possibility exists that Whiteford and McGrath are underestimating African income since the data used is obtained from surveys. Survey data are likely to underestimate African incomes since a large portion of African households earn income from subsistence agriculture and in the informal sector. Income earned in this manner is not easily measured and hence susceptible to underestimation.

One can try to explain the difference between the figures for the 1993 SAM and Whiteford and Van Seventer's 1996 figures as follows. The 1993 SAM used the 1991 Population Census (which excluded the TBVC states) adjusted to include the TBVC states and short-term indicators to take it to 1993 levels. Some difficulty was experienced for obtaining figures for the TBVC states. South Africa was fragmented during the apartheid era into the Republic of South Africa (RSA) and the TBVC states, and the latter were excluded from the Population Censuses of 1991, 1985, 1980 and before. Demographic data from the TBVC states are incomplete, as the results of the censuses conducted in Transkei and Ciskei in 1991 were not published. The geographical area for the 1978, 1988 and 1993 SAMs also differs in that Namibia was included in 1978 but excluded from the 1988 and 1993 figures. In accordance with national accounting principals the 1988 and 1993 SAMs therefore refers to the area consisting of the Republic of South Africa including the TBVC states. Whiteford and Van Seventer (1999:6) used their own estimates of the 1996 Population Census (including the TBVC states), which differ somewhat from the official numbers according to Stats SA (cf. table 1). The largest discrepancy is with respect to the white population with their estimate exceeding the census estimate by approximately 800 000. The 1996 figures also show the changes after the election's of 1994.

Between 1975 and 1993 population growth outstripped income growth causing the average South African household income to decrease from about R30 000 to R28 000, using 1991 levels (Malan, 1998:29). Despite this, a quarter of households managed to increase their income over the period. However, the change in the distribution of income among population groups has been very gradual and the distribution is still skewed in favour of whites. According to the 1993 SAM, whites comprised almost 13 per cent of the population yet earned nearly 42 per cent of total income, while Africans comprised 76 per cent of the population and earned 45 per cent of total income. Although the population shares for whites and Africans remained fairly constant between 1978 and 1993 (cf. table 1) it seems that some redistribution of income between whites and Africans did occur during this period. The income share of Africans rose from 27 per cent in 1978 to 45 per cent in 1993 and decreased from 62 per cent in 1978 to 42 per cent in 1993 for whites.

Table 1 – Racial income shares and population shares (%)

Source	Year	Share of total income				Share of population			
		African	White	Coloured	Indian	African	White	Coloured	Indian
McGrath	1960	20,5	71,9	5,6	1,9	na	na	na	na
McGrath	1970	19,8	71,2	6,7	2,4	70,7	17,0	9,4	2,9
Social Accounting Matrix	1978	27,1	62,4	7,4	3,1	72,4	15,8	9,0	2,8
McGrath	1980	24,9	65,0	7,2	3,0	72,4	15,5	9,3	2,8
Social Accounting Matrix	1988[1]	33,7	54,3	8,1	4,0	74,5	14,0	8,9	2,7
Simkins	1990	33,0	53,9	9,2	3,9	na	na	na	na
Van der Berg	1990	35,4	52,6	8,4	3,6	na	na	na	na
Whiteford and McGrath	1991	27,6	61,2	7,3	3,9	75,2	13,5	8,7	2,6
Whiteford and Van Seventer [2]	1991	29,9	59,5	6,8	3,8	75,2	13,5	8,7	2,6
Social Accounting Matrix	1993	45,2	41,9	9,4	3,5	76,0	12,8	8,6	2,6
Whiteford and Van Seventer adjusted data [2]	1996	35,7	51,9	7,9	4,5	76,2	12,6	8,6	2,6
Whiteford and Van Seventer unadjusted data	1996	38,7	47,8	8,7	4,8	77,3	11,1	8,9	2,7

Sources: Whiteford and van Seventer (1999), Malan (1998), Stats SA (1993 and 1995) and CEAS (1986)
Notes: [1] Population shares: June 1988 – Based on the results of the 1991 Population Census
        [2] The authors used their own estimates of population figures for 1991 and 1996
        na – not available
        Totals may not add up to 100% due to rounding.

3.1.2 Income percentile shares

A useful way of measuring inequality among households of different races, location and gender of household head, is to measure the composition of each income quintile in terms of those characteristics. Using SALDRU's survey on living standards and development the share of income accruing to each quintile of individuals (where individuals are assumed to earn the household per capita income) is shown in table 2. This table shows the extreme inequality in the distribution of income among individuals in 1993, with the poorest 40 per cent of individuals earning nearly six per cent of total income and the richest 10 per cent earning more than half the total income earned.

In 1975 the poorest income deciles were predominately African and their dominance of these deciles has actually increased between 1975 and 1996. This is explained largely in terms of poor coloured households moving out of the poorer deciles into higher income deciles. The dominance of African households in the fifth, sixth and seventh income deciles have decreased and this has been accompanied by a rapid

increase in the proportion of African households in the top two deciles. Some interesting developments occurred in the richest decile, which was overwhelmingly dominated by white households in 1975. Between 1975 and 1991 the proportion of white households in this decile declined from 95 per cent to 83 per cent and then dropped further to 65 per cent over the next five years. These changes were accompanied by an increase in the proportion of African households in the richest decile, from 2 per cent in 1975 to 9 per cent in 1991 to 22 per cent in 1996. There was a similar rise in representation of African households in the second richest decile (i.e. the ninth decile) from 7 per cent in 1975 to 22 per cent in 1991 and 39 per cent in 1996 and a drop in the proportion of white households from 83 per cent in 1975 to 42 per cent in 1996. The proportion of coloured and Indian households in the top two deciles also increased substantially over time.

Table 2 – Racial composition of income deciles

Race	Year	Deciles (%)									
		1	2	3	4	5	6	7	8	9	10
African	1975	87	87	86	86	90	86	75	51	7	2
	1991	92	92	90	86	83	77	69	48	22	9
	1993[1/]		95		93		86		63	23	7
	1996	90	93	91	89	86	81	72	60	39	22
White	1975	2	2	2	2	2	3	8	26	83	95
	1991	3	3	3	5	5	8	14	30	61	83
	1993[1/]		2		2		5		17	56	84
	1996	5	3	3	4	5	7	12	21	42	65
Coloured	1975	10	10	10	11	6	7	12	16	7	2
	1991	4	4	6	8	10	11	13	15	11	4
	1993[1/]		3		5		9		16	14	3
	1996	4	3	5	6	8	10	12	14	12	7
Indian	1975	2	2	2	2	2	4	6	8	3	1
	1991	1	1	1	1	1	3	4	7	6	3
	1993[1/]		1		1		2		5	7	6
	1996	1	1	1	1	1	2	4	5	7	5
% Income share (Individuals)	1993	0,4	1,3	1,7	2,4	3,1	4,4	6,0	8,8	17,0	54,9

Sources: Whiteford and Van Seventer (1999) and Malan (1998)
Note: 1/ The 1993 figures represent quintile – the top quintile being split into 2.

Given the wide differences in mean income between population groups, the compilers of the different SAMs found it impossible to develop a single income stratification that would provide workable detail for each race. Consequently income groupings were chosen separately for each race based solely on within-race income distributions as reported to census enumerators (cf. tables 3 and 4). Strata boundaries as calculated with aid of the 1980 Population Census (adjusted to the 1978 price levels) and 1991 Population Census results (adjusted to the 1988 price levels) are given in table 3. Quintiles are based on households ranked by household per capita income from the

poorest to richest and then categorised into 5 equal-size quintiles of households (cf. tables 3 and 4). To define income groups, households were identified first, after which a household per capita income was allocated to each member of the household by dividing the total income of a household by the number of members in that household. By definition the average of all such household per capita incomes (e.g. over all households) is equal to the per capita income of the population, in other words the total personal income per head of the population. The same applies per population group (Stats SA, 1993:iv). In order to isolate the economic behaviour of the very rich, the top quintile (Q5) was further subdivided (cf. tables 3 and 4). It should be noted that these income groupings are presented in terms of per capita incomes measured at the level of the household (or consuming) unit.

Table 3 – Per capita income groupings for 1980 and 1988 (rand per year)

Quintile (Income group)	% of the population	Household per capita income – 1980 (1978 SAM)				Household per capita income – 1988[1] (1988 SAM)			
		African	White	Coloured	Indian	African	White	Coloured	Indian
Q1	0–20	1 – 79	1– 1 796	1 – 249	1 – 460	1 – 375	1 – 5 594	1 – 733	1 – 1 594
Q2	21–40	80 – 173	1 797 – 2 700	250 – 448	461 – 690	376 – 912	5 595 – 9 441	734 – 1 388	1 595 – 2 805
Q3	41–60	174 – 356	2 701 – 3 740	449 – 685	691 – 1 016	913 – 1 962	9 442 – 14 028	1 389 – 2 319	2 806 – 4 406
Q4	61–80	357 – 794	3 741 – 5 605	686 – 1 205	1 017 – 1 605	1 963 – 5 192	14 029 – 21 272	2 320 – 4 323	4 407 – 7 511
Q5a	81–90	795 – 1 320	5 606 – 7 800	1 206 – 1 790	1 606 – 2 375	5 193 – 10 528	21 273 – 31 650	4 324 – 6 730	7 512 – 10 719
Q5b	91–95	1 321 – 1 750	7 801 – 10 500	1 791 – 2 442	2 376 – 3 200	10 529 – + over	31 651 – + over	6 730 – + over	10 720 – + over
Q5c	96–100	1 751 – + over	10 501 – + over	2 443 – + over	3 201 – + over				

Source: CEAS (1986) and Stats SA (1993)
Note: 1/ Q5b for 1988 is equal to Q5b + Q5c in 1978

To distinguish between income groups the 1978, 1988 and 1993 SAMs made provision for five income groups (quintiles) for each population group. In 1988 and 1993 a sixth income group was obtained by dividing the top quintile into two deciles i.e. 81–90% and 91–100% compared with the seven income groups that were used for the 1978 SAM where the fifth quintile was divided into three i.e. 81–90%, 91–95% and 96–100%.

Table 4 – Income group (Household per capita income) designation

Quintile (income group)	% of the population	African		White		Coloured		Indian		Total	
		1978	**June 1988** [1]	**1978**	**June 1988** [1]	**1978**	**June 1988** [1]	**1978**	**June 1988** [1]	**1978**	**June 1988** [1]
Q1	0–20	4 005	5 294	872	994	497	629	156	189	5 530	7 106
Q2	21–40	4 005	5 294	872	994	497	629	156	189	5 530	7 106
Q3	41–60	4 005	5 294	872	994	497	629	156	189	5 530	7 106
Q4	61–80	4 005	5 294	872	994	497	629	156	189	5 530	7 106
Q5a	81–90	2 003	2 647	436	497	249	315	78	95	2 765	3 554
Q5b	91–95	1 001	2 647	218	497	124	315	39	95	1 383	3 554
Q5c	96–100	1 001		218		124		39		1 383	
TOTAL		**20 025**	**26 472**	**4362**	**4 696**	**2 486**	**3 146**	**779**	**947**	**27 652**	**35 532**

Source: CEAS (1986) and Stats SA (1993)
Note: 1/ Based on the results of the 1991 Population Census – Q5b(1988)=Q5b+Q5c(1978)

3.2 Decisive measures

By contrast, decisive measures summarise the whole distribution into a single statistic, and although this is convenient for comparisons, it is also their greatest weakness, since different indexes may also produce inconsistent rankings of different distributions. The decisive indexes most often used are: the Gini coefficient and the Theil entropy index.

3.2.1 Gini Coefficient (G)

This index was proposed by Gini in 1912 and is probably the most widely used measure of income inequality. The Gini coefficient can theoretically vary from 0, indicating absolute equality (all households earn equal income) to 1, indicating absolute inequality (one household earns the total income).   In geometric terms the Gini coefficient is measured as:

$$G \quad = \quad \frac{\text{area between Lorenz curve and line of perfect equality}}{\text{total area below line of perfect equality}}$$

Although the Gini coefficient is widely used, because of this convenience, it has its drawbacks too. Cowell (Malan, 1998:23) states that the major disadvantage of the Gini coefficient is that an income transfer from a rich person to a poor person has a much greater effect on reducing G if the two persons are near the middle rather than at either end of the distribution. This is an inherent mathematical deficiency of the Gini coefficient and is an undesirable characteristic for a measure of inequality to possess. Such problems are inevitable, however, as statistical measures attach different

weighting systems to particular ranges of the income distribution, and can in certain circumstances produce inconsistencies in the relative ranking of income distribution (Malan, 1998:23). Another drawback of the Gini coefficient is that it is not readily decomposable and thus cannot afford a means of identifying within-group and between-group contributions to the overall measure of income inequality.

Table 5 – The Gini coefficient using different income receiving units

Population group	1975 Population Census	1991 Population Census	1993				1996	
			Total household income	Household per capita income	Individual income	Household per adult income	Own estimations[1]	Population Census [2]
African	0,47	0,62	0,49	0,57	0,55	0,52	0,66	0,66
White	0,36	0,46	0,44	0,45	0,45	0,43	0,50	0,50
Coloured	0,51	0,52	0,42	0,47	0,44	0,44	0,56	0,55
Indian	0,45	0,49	0,46	0,47	0,48	0,46	0,52	0,51
Total	**0,68**	**0,68**	**0,62**	**0,67**	**0,69**	**0,65**	**0,69**	**0,69**

Source: Malan (1998) Data calculated from SALDRU's 1993 survey on living standards and development and Whiteford and Van Seventer (1999)

Notes: 1/ Whiteford and Van Seventer's own estimations for the 1996 population figures
       2/ Whiteford and Van Seventer's 1996 population figures

The Gini coefficient (cf. table 5) for the total population has seen very little change over the period 1975 to 1996, with a slight increase from 0,68 in 1975 to 0,69 in 1996. Predictably, over this period there have been substantial changes within population groups, with the largest increases in inequality having occurred within the African and white population groups. The African Gini has risen from 0,47 in 1975 to 0,66 in 1996, the latter being comparable with that of the most unequal societies in the world. Similarly, the white Gini has risen from 0,36 to 0,50 over the same period. The adjustments to the underlying numbers have little effect on the Gini coefficient but have considerable effect on the racial income shares (cf. table 1) and racial per capita incomes (cf. table 9).

Table 5 agrees with Whiteford and Van Seventer (1999:17) that the Gini coefficient estimated from census data tends to be substantially higher than that estimated from household sample surveys. A possible reason might be that respondents tend to underestimate income in their answers to the census questionnaire. It is probable that poor households underestimate their income to a greater extent than do wealthy households, thus explaining the higher Gini coefficient estimated from census data. Many poor households could be reliant on activities from which the income derived is difficult to estimate, such as subsistence farming and informal sector activities.

The enormously high degree of inequality in South Africa is accentuated when compared with countries at a similar level of development, in terms of per capita income (cf. table 6). The 1993 SAM using household per capita income confirmed the Gini coefficient of 0.67 for 1993 (cf. table 5).

Table 6 – Income inequality of selected countries at a similar level of development to South Africa: 1990

Country	Gini coefficient	Annual per capita income ($ US)
Iran	0,46	4 360
Thailand	0,47	4 610
Brazil	0,61	4 780
Costa Rica	0,42	4 870
Columbia	0,57	4 950
Turkey	0,51	5 020
South Africa	0,58	5 500
Malaysia	0,48	5 900
Mexico	0,50	5 980
Chile	0,46	6 190

Source: Malan (1998)

3.2.2 Theil entropy index

The Gini coefficient is a useful index for giving an overall picture of the extent of income inequality, but cannot be used to provide an indication of sources of inequality in society. In order to do this a decomposable measure of income inequality such as the Theil entropy index is needed. This index indicates the extent to which the population is attributable to inequality within each population group or between population groups.

The Theil entropy index may be represented as follows:

$$T^n = I^m_w I^m_b$$

where T^n is the Theil index for the population as a whole
I^m_w is the "within group" component of inequality
I^m_b is the "between group" component of inequality

in the situation where there are m population sub-groups. (In the case of South Africa the population is usually divided into four population groups i.e. African (A), white (W), coloured (C) and Indian (I)).

Like the Gini coefficient the Theil index also responds more sensitively to transfers at particular ranges of the income distribution. In the case of the Theil index it is insensitive to inequality among high-income earners but very sensitive to inequality among relatively low-income earners. The relative contribution of within and between population group inequality is shown in table 7. The slight difference in the figures for 1993 can be explained by the fact that the figures for 1975, 1991 and 1996 draw on the population censuses for the same years. Whiteford and Van Seventer (1999: 4 and 6) adjusted the 1991 and 1996 figures for an undercount of whites

resulting in a higher within population group inequality and therefore in a lower between population group inequality. The 1993 figures, however, were calculated on the data set from SALDRU's 1993 survey on living standards and development.

Table 7 – Theil index

	Relative contribution (%)			
	1975	**1991**	**1993**	**1996**
Within population group inequality	38	58	51	67
Between population group inequality	62	42	49	33
Total population	**100**	**100**	**100**	**100**

Sources: Whiteford and Van Seventer (1999) and Malan (1998)

The contribution of inequality within population groups to the overall Theil index (cf. table 7) increased considerably from 1975 (38%) to 1996 (67%), whereas for 1991 (58%) and 1993 (51)% the within and between inequality in population groups was almost equal. Whiteford and Van Seventer (1999:19) noted that the inequality between population groups, in 1996, has a relatively small effect on overall inequality, being responsible for 33% of this (cf. table 7). This is surprising in light of the still large gap between white and African per capita incomes (Whiteford and Van Seventer, 1999:19). The gap between white and African communities, however, is being overshadowed by the widening gaps within the African and white communities. Malan (1998:27) indicates that the African population group is the biggest contributor to within-group inequality. While the gap *between* Africans and whites is large, we see that the inequality *within* these groups contributes even more to overall inequality. In this respect, South Africa is becoming daily like Brazil, where deep divisions are based more on class than race as such. Brazil, incidentally, has the most unequal distribution of income in the world; while South Africa has the dubious distinction of being in second place. These inequalities persist, in spite off the fact that both countries have at their helm social democratic regimes that are committed to narrowing the gap but thwarted by deep-rooted structural realities (Peerce, 1999:19).

4. THE COMPILATION OF THE 1978, 1988 AND 1993 SAMs

National economic data are normally collected in ways that serve particular uses, including use in econometric models. Thus South African industrial censuses produce the data for inter-industry (I-O) models. South African Reserve Bank produce data in the form needed for standard national accounting procedures. A SAM emphasises households and thus requires systematic data on these units, their income from various sources, expenditures, savings and tax payments being virtually a minimum data set. Population groupings within a SAM are defined in ways that reflect potential policy decisions. For example, a SAM built to address income distribution (as it is for the purpose of this paper) should disaggregate population into groups that separately identify the rich and the poor. This in turn necessitates that basic economic data be developed for each of these distinct groups. Furthermore, because of the SAM's more eclectic view of an economy, it may require retailed data on parts of the economy that

are not normally so quantified. SAMs may also require accounting categories that differ from conventional practice (CEAS, 1986:5).

Thus it is not unusual for the decision to build a SAM to lead to a subsequent need to reform the existing data system. The effort to do so need not be justified on the grounds of the requirements of the SAM alone. Often economic planners do not quantify impacts of development programmes on households, not because their importance is unrecognised, but because there is little in the way of a solid quantitative basis for analysis and dialogue concerning households. The broader and more carefully stratified data which a SAM requires can find ready use in other applications as well, possibly leading to new levels of economic sophistication in national decision making.

4.1 Choice of year

In 1983 it was decided to construct a SAM for the 1978 reference year as the latest I-O table was compiled for the 1978 reference year. The latter was an estimation, which was derived with the aid of the RAS method. The 1980 Population Census provided proportional relationships, not absolute totals, for several sub-matrices in the SAM. It was assumed that the income and job distributions measured by the census did not differ significantly from those that would have been measured in 1978, an assumption that can be made with reasonable confidence over the short, two-year interval, especially when the level of aggregation in the SAM is considered. Income and expenditure patterns for 1975 from the University of South Africa's Bureau of Market Research (CEAS, 1986:6) were assumed to apply in 1978. Both income:expenditure (1975) patterns and income:employment (1980) patterns were adjusted to 1978 price levels.

For the compilation of the final SAM for 1988 the most important sources were the results of the 1991 Population Census and the 1990 surveys of the expenditure of households. For example, the 1991 Population Census provided the proportional relationships regarding income and work distribution that were necessary for the completion of several sub-matrices and not as absolute totals. Taking into account the relatively short period of two years between 1988 and 1991 (indeed 7 March 1991), the assumption was made that the distributions would not have differed substantially from those of a 1988 population census, if it had been conducted. Similarly, the surveys in respect of expenditure and income of households provided proportional income and expenditure relationships. It was decided to make do with the 1978 SAM framework (inter alia for the purpose of comparability) for the 1988 final SAM, with exceptions as detailed in what follows.

4.2 Classifications in the SAMs

Four types of classifications used in the 1978, 1988 and 1993 SAMs are discussed below:

Classification of industries
The 1988 SAM makes provision for an I-O table that consists of 23 economic sectors, in accordance with the 1988 edition of the Standard Industrial Classification of all Economic Activities (SIC). The SIC is based on the 1968 International Standard Industrial Classification of all Economic Activities (ISIC) with suitable adaptations for South African conditions. This means that the final 1988 I-O table was aggregated from 93 sectors to 23. This classification contrasts with the 1978 SAM where 26 economic sectors were distinguished. Fewer sectors were distinguished in 1988, mainly because the 1991 Population Census, the source for the 1988 SAM, has not been coded to the same degree of detail as before.

Classification of occupations
In the case of the occupational classification, the 1988 SAM distinguishes 13 major occupational groups, as against 10 that were distinguished for the 1978 SAM (cf. Annexure B).

Classification of the capital account
The 1988 SAM distinguishes gross investment only according to a government and a non-government sector. Against this, the capital account for the 1978 SAM, in addition to the aforementioned two classifications, also distinguished a household sector.

Income distributions
The 1988 SAM makes provision for 6 income distribution groups (quintiles) by population group, against the 7 categories that were used for the 1978 SAM.

4.3 Geographic coverage

The SAM for 1978 covers South Africa, South West Africa (SWA)/Namibia and Transkei, Bophuthatswana, Venda and Ciskei (TBVC states). SWA/Namibia was separated from the rest of the region in the detailed analysis of the household sector (CEAS, 1986:7). The 1978, 1988 and 1991 SAMs differ, with regard to the geographical area, in that Namibia was excluded from the 1988 and 1991 figures. In accordance with national accounting principles the 1988 final SAM and preliminary 1991 SAM therefore refer to the area consisting of the Republic of South Africa including the TBVC states.

4.4 Basic structure of a SAM

The core of the SAM is a circular economic process in which production activities generate individual incomes, individual incomes are aggregated into household incomes, and household expenditures, in turn, determine much of the pattern of final demand for the output of the production sectors. Other factors such as government spending, imports and exports, transfers and the distribution of income from wealth are brought to bear on this core process where appropriate.

To ensure consistency with other economic models already in use, the SAM must adopt the most recent I-O table, with some adjustments as described below, as the cornerstone of the SAM, providing the basic structure of production activities.

To address the desired range of policy issues, a number of significant expansions of the I-O table are required. Detail on the structure of employment was important in order for the SAM to be used to model alternative employment, training and wage policy options. To achieve this, the single row which accounts for labour (Remuneration of employees) in the I-O table was disaggregated to become forty rows (for 1978) in the SAM, comprising ten occupational classifications for each of the four races.

As one of the primary concerns was and still is the distribution of personal incomes, a SAM framework was desired which would depict the impact of various types of macro-economic changes on income distribution as well as the reciprocal determinant influences of alternative income distribution on private demand, savings and government revenue. To achieve this, households had to be stratified by income level in a manner that would support the use of contemporary measures of inequality. Thus the SAM disaggregates households within each race into sub categories – seven for 1978 and six for 1988 and 1993 based on household per capita income (per capita income as measured at the household level). Each of these income-by-race sub-groups has differing consumption and expenditure patterns, which are shown explicitly. In this way the single column which accounts for private consumption expenditure in the conventional I-O table for South Africa is expanded to 28 columns in the SAM.

In order to link individual wage earners with their respective households, the SAM includes a conversion matrix, which translates individual income receipts to aggregated household incomes. In this matrix, salaries and wages received by individuals in the 40 occupation-by-race groupings are reclassified into households within the 28 income-by-race strata, reflecting the fact that households may easily contain more than one income-earning individual. The use of household per capita income reflects in part the importance of household size in determining economic well-being. The result is a matrix which identifies the occupational sources of salaries and wages within each household income group. In addition, individual earnings are linked by this technique to private consumption and savings behaviour, which, according to theory, is determined at the household rather than the individual level (CEAS, 1996:15).

In addition to these expansions of the conventional I-O table, the SAM treats imports, exports and transfers to and from the rest of the world in a much more detailed fashion because of the importance of South Africa's economic ties abroad. Finally, in South Africa's economy, government plays a very significant role as an economic entity, quite apart from its policy and control functions. Consequently, government income and expenditures are shown in considerable detail. The SAM, as is the I-O table, is valued at basic values, that is, wholesale price minus indirect taxes plus subsidies minus trade margins minus transport margins.

4.5 Measuring income

Modelling incomes is central to the income SAM. As noted above, 1980 census data were used for the 1978 and 1988 SAM at several points to develop relevant proportional distributions to be applied to known totals from other sources. However, there were a number of problems in the census data with respect to the definition of income and the operational conventions used in its enumeration.

The 1980 census questionnaire defined income as follows:

Included in income:
- Salaries, wages, overtime and commissions (before deduction for pensions, taxes, etc.)
- Net profit from business, farming (profit from sale of cattle, crops, etc.) or professional practice)
- Estimated cash value of fringe benefits such as company car and housing subsidy, as well as meals, clothing, and accommodation provided by employer
- Any other regular income (e.g. pensions, interest, dividends, net rent from fixed property, net amount received from boarders/lodgers, etc.)

Excluded from income:
- Irregular or abnormal income, such as inheritances, matured insurance policies, and gratuities
- Household allowances and pocket money given by one member of the family to another
- "Subsistence" income, e.g. home-grown and home consumed crops and animal products

Unfortunately, the census form used in 1980 is organised in such a way that only a total income figure is given, rather than separating the four components of income (listed above under "Included in income"). Furthermore this census definition of income is not fully compatible with the definition used by the South African Reserve Bank (SARB), which excludes profits, pensions, interest, dividends, and rent from fixed property. SARB data attempt to measure subsistence income, although some underestimation is possible. Altering the SARB control totals to make them definitionally equal to census data would have made them incompatible with

definitions used in the input-output table. For example, profits in the I-O table appear under gross operating surplus, not as remuneration of employees as in the census.

The only realistic alternative was to adjust census data. A partial adjustment was achieved by extracting the income of three groups: pensioners, farmers (whose income are included in the I-O table as profits) and those who are not economically active (NEA). It was thus possible to move from "total income" towards "salaries and wages" by the extent of the excluded pensions, farm profits and the unearned income which accrued to the NEA. These adjustments were possible because pensioners, farmers, and the NEA constitute unique occupational groupings in the Stats SA data coding system. Other types of profits or rents could not be isolated and thus remain included in the distributions used. It is acknowledged that this structure is a composite, adding together the distributions of salaries and wages with those for business profits (other than farm profits), interest income, dividends and rent received. The inability to further separate these income sources resulted in the composite distributions being applied uniformly to the several types of income that remained pooled. Clearly, this method is not entirely correct since one can reasonably hypothesise that whites in general and professionals in particular would tend to have a greater proportion of property (unearned) income. An important difference between the 1978 and 1988 SAMs is found in the way in which income based on the 1991 Population Census was adjusted in order to bring it as far as possible in agreement with the national accounts definition of remuneration of employees. The 1991 Population Census results provided the necessary proportional relationships that were used as a distribution basis for the national account figures. Apart from the exclusion of farming profits, the profits of all single owned businesses and partnerships that form part of the population census income were also not taken into account for the 1988 SAM. In this way it was ensured that the national accounts definition of remuneration of employees could be followed more closely than in the 1978 SAM.

If it is true that whites and professionals accrue a disproportionately higher share of unearned income, then the effect of not further adjusting the occupation-by-industry matrix is to overstate the proportion of salary and wage income accruing to whites and professionals. However, this problem is partially mitigated by the fact that the control total for salaries and wages was divided among population groups using fairly accurate data on types of income accruing to the various races (CEAS, 1986:18).

Another possible inadequacy of census income data result from anomalies in the way people may respond to income questions. Even under ideal circumstances (well-constructed questionnaires and highly trained enumerators) many people hesitate to answer income questions honestly. They may fear that the information will be turned over to tax authorities, they may be operating illegal or unlicensed businesses, they may want to appear richer or poorer than they really are, or they may simply feel that their income is a private matter. In addition to these disclosure problems, the census is not enumerated by individuals who can go through the income question systematically to insure that all kinds of income are reported. Thus, it is highly likely that some people left out certain types of income, while others may have exaggerated their income. One would expect this factor to perhaps lower mean incomes and to under-report some of the extreme high or low cases. To this extent inequality measures will be biased downward.

There is also the strong possibility that certain informal sector activities may not be seen as income by the earner. For example, individuals growing and selling vegetables or buying and selling second-hand clothes or furniture may not report such income since an employer does not pay it on a regular basis. Incomes at the top of the scale are skewed downward because of a simplifying convention used in coding raw census data. For the 1980 census all incomes of R100 000 or greater were coded as R99 999 on the census data available for research. According to published figures, some 3 180 individuals out of a total of 8,4 million employed persons fell into this category. An estimated three thousand of these are white (CEAS, 1986:19). This factor will bias inequality measures downward by a small amount for whites. Effects of within-race inequality figures for other population groups will be inconsequential.

Table 8 – Personal income by population group: Percentage distribution

	African		White		Coloured		Indian		Total
Type of income	**1978**	**1988**	**1978**	**1988**	**1978**	**1988**	**1978**	**1988**	**1978, 88**
Income from property Dividends, interest, rent and net profits of non–corporate businesses	13,9	21,5	81,0	70,7	2,3	3,6	2,8	4,3	**100**
Remuneration of employees	30,5	34,6	57,4	52,8	8,8	8,7	3,3	3,9	**100**
Remuneration by production sectors	28,6	32,5	59,5	55,0	8,6	8,4	3,4	4,1	**100**
Remuneration for household services	87,0	91,1	1,4	1,3	11,2	7,5	0,4	0,1	**100**
Remuneration to employees of Government	29,7	36,7	57,0	49,8	9,7	10,0	3,6	3,5	**100**
Current cash transfers to households (from relatives)	87,7	84,4	11,2	11,6	0,7	3,3	0,4	0,8	**100**
Current transfers received from General Government (social pensions, disability and unemployment insurance allowances, etc.)	6,9	53,2	84,7	22,7	6,7	18,9	1,7	5,3	**100**
Total personal income	**27,1**	**33,7**	**62,4**	**54,3**	**7,4**	**8,1**	**3,1**	**4,0**	**100**

Source: Stats SA (1993)

A final problem with the census income data resulted from individuals who were obviously economically active, but who reported no income or for whom the recorded amounts were indecipherable. These individuals was specially coded and are reported in the 1980 census publication as unknown incomes. These observations were assigned the mean income for their race and occupation in order to include them in the total number of people in their respective occupational cells. This technique will not affect between-race inequality comparisons based on mean income levels. However, it will result in greater central tendency within the data for each population group and thus bias within-race inequality measures downward.

It is not possible to estimate the exact extent of each of these influences nor their aggregate impact on measured inequality. However, experienced judgement suggests that the net effect may be to understate both within-race and between-race differentials and that actual income inequalities may be somewhat larger than those portrayed in the SAM (CEAS, 1986:19).

Table 8 shows the different sources of personal income by population group according to the 1978 and 1988 SAMs. From table 8 it appears that, inter alia, the share of white households in total personal income decreased from 62,38 per cent in 1978 to 54,28 per cent in 1988. In contrast the share of the African, coloured and Indian households increased from 27,1 per cent, 7,4 per cent and 3,1 per cent in 1978 to 33,7 per cent, 8,1 per cent and 4,0 per cent in 1988 respectively. It is interesting to note the shift in current transfers received from the General Government from whites to Africans between 1978 and 1988. Africans received more income from property and remuneration from the government in 1988 than in 1978.

4.6 Identifying households

Developing income and expenditure data for households rather than for individuals became one of the most important steps in constructing a SAM, and at the same time one of the most difficult. Consumption theory suggests that most consumer behaviour is determined at the household level and that the pattern that emerges reflects not only tastes, preferences and relative prices but total household income and household size as well. It was thus essential for the purpose of the SAM to tabulate incomes and expenditures on the household (or consumption unit) basis. Once again it was necessary to manipulate the census data.

In 1991 and previous years, census procedures stressed obtaining information on individuals, not households. A small part of these censuses did deal with so-called "family" data, but these questions were only asked of white, coloured and Indian respondents. For cultural reasons, the "family" questions were deemed inappropriate for Africans and no substitute questions had been developed. This statistical oversight was unfortunate, especially given the importance of both extended families and multiple family living units in the African community.

Thus, it was necessary to develop a technique for reconstituting the census data to provide household information. This was done on the assumption that in the large majority of cases an individual census response form contained the data for one household. Thus, wherever possible, the census data were retabulated by form number rather than by individual. Per capita average incomes within each household were calculated from the full set of entries on each form. There were, however, a number of circumstances in which this method was unusable. These are discussed below.

Enumeration by "sweeps"
The most significant exception involved the so-called 1980 census "sweep" areas. Enumerating areas without clearly established streets or planned development is difficult. Yet, many such areas exist, often with a considerable population. In these

areas, several enumerators spread out in a line across the community, sweeping through the area enumerating everyone encountered. Where families were encountered, members were recorded in order. However, enumeration was continued on the same form with the next family or individual encountered. Thus a single form could contain all parts of several families and it is not possible to associate a form number with a household. Thus, the retabulation technique, which appeared workable elsewhere, was unsuited to sweep areas.

To solve this problem for the 1980 census, the data were separated into two categories – sweep areas and non-sweep areas. A sample of five hundred census forms in the sweep file were randomly selected. Households were formulated based on a careful examination of data and information on the original census response forms. A household-by-occupation matrix was built using the proportions found in this sample of sweep areas. This matrix was then adjusted to equal the total estimated population of sweep areas and total known income for each race and occupation within the sweep areas. This matrix was added to the identical matrix developed for non-sweep areas (where form numbers could uniquely identify households).

Problems in the "non-sweep" areas
The "non-sweep" areas enumerated by more conventional means nevertheless presented several problems in the identification of households. Some of the more significant ones and the solutions adopted are discussed below with a "best guess" as to the possible effects of the approximations used.

Domestic employees
In some cases, live-in domestic employees were enumerated on their employer's form. These individuals were often part of a household which was physically located elsewhere in the RSA. Unfortunately, it was not possible to link these individuals with their correct (often rural) households. At the same time, it was conceptually incorrect to include them statistically in their employer's household. Thus, they were treated as single (one-person) households. In rare instances, co-resident children of a domestic worker may also have been enumerated on the employer's form as part of the employer's household. The result of these assumptions is to overstate the employees' per capita incomes, understate the per capita income of their true households located elsewhere in the RSA and to understate the per capita income of the employers' households in those few instances where children of domestic employees were enumerated with the employers' households. For the 1978 SAM, employees in the service of households were regarded as being in the service of white households only; for the 1988 SAM it was determined that each of the population groups did have domestic servants in their service, and the 1988 SAM consequently provided for that (Stats SA, 1993:v).

Hotels, hostels and compounds
The numbering system used for the 1980 census forms prevented unique households from being identified for people living in hotels, hostels and compounds. Furthermore, it was not possible to link these people (especially those living in hostels and compounds) with their households elsewhere in the RSA. By default, these individuals were also treated as single member households. This may overestimate the income accruing to single member and underestimate the income of

their geographically separated families. However, within the SAM a separate matrix estimates intra-household transfers of the type characterising the (usually African) urban worker's remittances to his or her family living elsewhere.

The intention was to focus on consumption units. Thus, in the case of a geographically separated nuclear family, such as often occurs in the case of Africans, it is probably most accurate to statistically identify two households (consumption units), one single household for the father with an identified level of transfers flowing to a second, multiple household composed of the rest of the family.

<u>Children not linked to households</u>
Occasionally children under the age of sixteen appear in the data with no link to any particular household. These could have been children living in school hostels on the date of enumeration or others who could not be properly considered as single households. Since these cases amounted to a very small proportion of the total sample, they were eliminated from all tabulations. The likely result of this technique is to slightly overstate the per capita income of the households to which these children might really belong.

<u>Zero income households</u>
Once identified, a number of households in the censuses showed a per capita income of zero. Several explanations are possible such as the under-reporting of income or failure to include remittances received from family members (living, for example, with their employers). It is quite possible that respondents interpreted the word "income" to mean salaries and wages only, and neglected production for home consumption, income in kind, etc. Clearly, some "income", either in cash or kind, is necessary for survival. The "zero" income households were distributed in the same fashion as the non-zero income households for each population group. The technique is probably conservative since it may understate inequality both between population group and within each population group.

This assertion rests on the following logic. First, most of the zero income households are African or coloured. Most of them are probably poor. The predominant reason for not reporting incomes was most likely that no formal salaries or wages were received and persons without salaries or wage incomes are likely to be among the poor. Therefore, including these households into the total at the same mean and distribution as for reported incomes will understate within-race inequality. And since the two population groups predominately affected are the two poorest on average within society, overall society wide inequality measures will be understated as well. This is a simple arithmetical result when the poorest of the poor are averaged in at somewhat higher than actual incomes.

Finally, where no income was reported for reasons of concealment, it is probable that the respondent was concealing a high income. Including these individuals at more average levels for their race will again understate within-race inequality. The effect on between-race inequality measures cannot be determined.

To re-emphasise, the technique adopted to handle zero income households is conservative with respect to its influence on inequality measures. These households,

however, constitute a significant stratum within the RSA, one that is too large to be ignored for lack of data. Further analytical research on these households is warranted as is an improved data collection process in the future.

5. INCOME DISTRIBUTION AND THE SOCIAL ACCOUNTING MATRIX

The SAM is an extension of the conventional Input-Output (I-O) framework where the latter does not reflect social dimensions of society explicitly. It shows the flow of goods and services between economic sectors, and the activities of households such as income and expenditure are accentuated and distinguished prominently. The SAM therefore provides a consistent framework for the study of economic as well as demographic and social variables.

This part of the paper is based on the final SAM for South Africa for 1978 and 1988 and the preliminary unpublished SAM for 1993. As the SAM is an ordinary input-output model it suffers from the same limitations as other I-O models, namely, they are static models based on linear homogeneous production functions. In using an I-O system for forecasting it is assumed that the direct (or technical) coefficients remain constant for the forecast period. This implies that neither input substitution owing to price changes, nor technological changes, take place. The analysis, therefore, is only an indication since it investigates the potential effects of income redistribution on the basis of an existing (fixed) set of relationships. The current income distribution and expenditure patterns of the different income groups in South Africa are quantified. Analysis of expenditure patterns indicates aggregate demand shifts that could occur as relative income balances shift between the different groups in the future. The effect of an income redistribution on current economic activity is indicated as it affects the long-term growth potential of the economy and implications for economic policy.

A key characteristic of the SAM is the stratification of households in ways that facilitate analyses of the impact of income redistribution. The first disaggregation is by population group (i.e. African, white, coloured and Indian), paralleling existing groups formally used in the SA statistical system. Within these groups, households were further subdivided into six income groups based on household per capita incomes. Household incomes in turn are divided into income from property, wage income from thirteen occupational categories, transfer payments from government, and transfers from relatives (cf. table 8). Conventionally, income distribution patterns are examined on the basis of individual earnings. The SAM, however, uses per capita incomes calculated for the household unit, for two reasons. Firstly, there is a wide variation in the number of workers per household as well as in dependency ratios. The variation is bound both within and between population groups, reflecting South Africa's cultural heterogeneity as well as social and economic conditions affecting employment. Deriving per capita figures for each household established a common basis for comparison between groups. Secondly, the household, and not the individual, is taken as the effective expenditure unit. Thus, income groups defined in the SAM relate directly to consumption pattern differentials.

In order to stratify the population by income group, each population group was divided into quintiles based on household per capita incomes.

5.1 Income distribution in South Africa

Comparative income data from the 1978, 1988 and 1993 SAMs are presented in table 9 as well as Whiteford and Van Seventer's per capita income (both adjusted and unadjusted) for 1996. Population shares are given for comparison. As expected, the two extremes are given by the Africans, where for 1993, 76 per cent of the RSA population receive 45,2 per cent of personal income, and the whites, with 12,8 per cent of the population receiving 41,9 per cent of the income. The latter indicates a slight improvement from 1978 when Africans represented 72,4 per cent of the RSA population and received 27,1 per cent of personal income, and whites, with 15,8 per cent of the population, received 62,4 per cent of the income.

The number of individuals in each quintile differs significantly between the population groups. The more relevant comparisons in table 9 are, thus, between household per capita incomes for each group. Per capita incomes for African households of R4 180 per annum for 1993 are almost one-half those of coloured and Indian households and less than one-fifth of those of white households. This indicates an improvement from 1978, with income for African households of R352 per annum remaining almost the same in relation to coloured households but improving slightly from the one-third of Indian and the one-tenth of white households. From Whiteford and Van Seventer's estimations (1999:39) it seems that the relative share between African and coloured households remained fairly constant between 1993 and 1996 but that Indian and white households increased dramatically - Indians almost four times that of African households and whites almost nine times that of African households.

Table 9 – Income distribution in the South African economy

Population group	Population shares (% of total)		Personal income (Income as % of the total)			Personal per capita income[2] (Rand)					
	1978	June 1988 [1]	1993	1978	1988	1993	1978	1988	1993	1996[3]	1996[4]
African	72,4	74,5	76,0	27,1	33,7	45,2	352	1 679	4 180	4 896	4 446
White	15,8	14,0	12,8	62,4	54,3	41,9	3 719	14 405	22 970	42 529	39 052
Coloured	9,0	8,9	8,6	7,4	8,1	9,4	771	3 373	7 737	9 522	8 720
Indian	2,8	2,7	2,6	3,1	4,0	3,5	1 043	5 529	9 691	18 157	16 698
Total	**100**	**100**	**100**	**100**	**100**	**100**	**940**	**3 712**	**7 038**	**9 806**	**9 497**

Sources: Stats SA (1993 and 1995), CEAS (1986) and Whiteford and Van Seventer (1999)
Notes: 1/ Based on the results of the 1991 Population Census
      2/ The total personal income per head of the population – This is per definition equal to household per capita income.
      3/ 1996 Population Census estimates
      4/ Whiteford and Van Seventer's own estimations for the population figures

5.2 Average saving rates

As expected, saving rates generally increase with higher incomes. In 1993 white savings averaged 4 per cent of personal disposable income compared to an average saving rate of 5 per cent for Africans, as seen in table 10. The latter represents an improvement in the average saving rate of Africans from the 1988 average saving rate of 2 per cent. Within each group, the higher per capita income quintiles save considerably more than those with lower incomes. The decline in white savings rates at the middle income levels is atypical in 1978 and 1988, as shown by the 1993 figure. It is also informative to note that the propensity to save of all four population groups decreased from 1978 to 1988 but showed an improvement for 1993.

Table 10 – Propensity to save[1] by quintile (%)

Quintile	African			White			Coloured			Indian		
	1978	1988	1993	1978	1988	1993	1978	1988	1993	1978	1988	1993
Q1	0,2	0,5	1,3	7,4	2,4	2,3	0,0	0,0	0,0	0,0	1,0	3,0
Q2	1,4	0,5	1,2	5,6	2,0	2,2	1,0	1,0	1,3	1,3	0,8	2,6
Q3	0,7	1,2	2,6	4,9	2,7	3,1	2,4	1,2	1,6	1,7	0,9	3,1
Q4	3,8	2,3	5,3	7,5	2,8	3,1	6,4	3,5	4,9	2,0	0,9	3,1
Q5a	5,9	2,6	6,5	12,2	3,8	4,3	10,9	4,7	7,0	3,0	1,6	5,8
Q5b	7,9	2,6	7,2	20,0	7,6	7,8	13,2	5,7	8,3	6,0	2,3	8,1
TOTAL	5,3	2,1	5,1	11,2	3,9	4,2	8,2	3,6	5,1	3,3	1,3	4,7

Sources: Stats SA (1993 and 1995) and CEAS (1986)
Note: 1/ Savings as percentage of personal disposable income

5.3 Tax patterns of households

The structure of taxes paid by population group and income level is illustrated in table 11. Direct tax, which consists of personal income tax, reflects a strongly progressive structure. Indirect taxes, which consist of general sales tax/ value added tax and other indirect taxes, have a slightly regressive structure. Indirect taxes paid by the different population groups remained almost the same from 1978 to 1993, while direct taxes paid increased for every population group except whites. The latter is in accordance with the income distribution patterns in South Africa (cf. table 9). This resulted in a total tax structure that is just barely progressive in each case.

Table 11 – Tax patterns in South Africa [1/] (%)

Quintile	Direct tax			Indirect tax		
	1978	**1988**	**1993**	**1978**	**1988**	**1993**
A–Q1	0,7	0,3	2,7	5,1	12,1	12,4
A–Q2	0,7	0,2	1,6	5,6	9,4	8,5
A–Q3	0,6	0,4	2,9	6,3	9,6	8,5
A–Q4	2,8	0,9	7,1	6,6	8,4	7,5
A–Q5a	3,3	1,8	14,2	6,3	7,0	6,2
A–Q5b	2,8	3,4	26,0	7,4	12,0	10,3
Total African	**2,5**	**1,8**	**14,1**	**6,7**	**9,8**	**8,7**
W–Q1	6,4	9,4	5,6	6,7	7,0	6,4
W–Q2	8,7	14,1	9,3	6,5	7,1	7,2
W–Q3	10,1	16,9	11,9	6,3	6,9	7,5
W–Q4	12,3	16,7	11,4	6,0	7,3	7,6
W–Q5a	14,2	20,8	14,6	5,6	7,2	7,7
W–Q5b	14,6	21,3	13,8	4,9	7,1	7,0
Total white	**12,2**	**17,7**	**11,9**	**5,7**	**7,1**	**7,3**
C–Q1	0,0	0,0	0,0	6,9	12,5	11,8
C–Q2	0,6	1,2	3,4	8,5	10,8	10,4
C–Q3	2,0	1,5	4,3	7,9	9,3	9,2
C–Q4	4,1	5,0	14,5	7,4	9,4	9,2
C–Q5a	6,0	7,0	20,1	7,1	8,0	7,78
C–Q5b	8,9	6,9	19,8	6,9	7,5	7,3
Total coloured	**5,4**	**4,9**	**14,0**	**7,3**	**8,8**	**8,6**
I–Q1	0,0	1,8	2,3	6,3	8,7	9,2
I–Q2	1,0	2,9	3,8	7,5	8,1	8,9
I–Q3	2,6	5,2	6,9	7,3	7,9	8,8
I–Q4	3,9	8,6	11,7	7,0	7,3	8,3
I–Q5a	5,0	12,7	17,1	6,5	7,3	8,3
I–Q5b	8,3	16,1	21,4	5,3	5,8	6,5
Total Indian	4,9	9,8	13,0	6,4	7,1	8,0

Note: It is assumed that in the case of indirect taxes on both final and intermediate products, tax payment is shifted onto the final consumer.

    [1/] Tax payments as percentage of total household per capita income

6. THE ECONOMIC IMPACT OF CHANGING THE DISTRIBUTION OF INCOME

A SAM, which can also be seen as a econometric model of the economy, can be used to evaluate the potential impacts of policy changes or developmental programmes on various households or population groups. King (Malan, 1998:105) gives some examples of the use of the SAM in analysing multipliers, for identifying areas of the economy which will not be affected by particular exogenous changes in expenditures, and also for analysing regional leakages from development projects with limited downstream effects on the domestic economy.

The various multipliers are computed with the aid of the matrix of inverse coefficients, which represents the total of the multiplier effects of the various industries included in the transaction matrix. Multipliers can measure the effect of an exogenous variable on the economy. This measurement can be refined if the direct as well as the indirect and the derived impact of an exogenous variable are taken into account. Measurement of the impact by means of multipliers can be done in terms of production, income, capital formation, employment etc.

The simplest impact multiplier in respect of an individual industry is known as the Type I multiplier. It can be calculated for each industry by adding the elements of each column of the inverse-coefficients matrix. A Type I industry multiplier does not give a complete picture of the impact in cases where an exogenous variable has a dual, interlinked interaction effect. For example, when a direct change in production, and therefore in income, leads to a change in consumption expenditure which in turn results in a change in income and production, then the impact should be measured by means of a Type II multiplier.

The Type II multiplier is calculated with the aid of a transaction table that is closed for households i.e. inclusive of household expenditure, ensuring that allowance is made for the reciprocal relationship between income and consumption, and between consumption and income. The Type II multiplier is calculated by adding together the elements of each column of the inverse-coefficients matrix, the latter calculated with the aid of a transaction table that is closed for households.

Different kinds of Type II multipliers can be calculated depending on the way in which the marginal propensity to consume is estimated for the output of each industry namely:
- output multipliers, which measure the direct, indirect and derived output impact for a particular industry in monetary units for each R1 change in an autonomous component of final demand;
- income multipliers, which reflect the change in value added that is directly, indirectly and derivatively attributable to an autonomous change in the demand for the final output of an industry;
- capital multipliers, which reflect the need for net domestic fixed investment as a result of an autonomous change in the final demand for the output of the industry concerned; and

- employment multipliers which reflect the need for employment arising from an autonomous change in the final demand for the output of an industry.

In this paper the Type II income multipliers were calculated from the information contained in the 1978, 1988 and 1993 SAMs. These multipliers reflect comprehensive multiplier effects within the economy, since not only inter-industry interactions are included, but also the relationships between income and consumption, consumption and production, and, finally, production and income. The relationship between the initial spending and the total effects generated by the spending is known as the multiplier effect of the sector, or more generally as the impact of the sector on the economy. For this reason the study of multipliers is also known as impact analysis.

The strength of impact analysis is that it can provide a sensitivity analysis. It allows effective comparisons to be made for the impact of demand between all sectors for a range of economic variables such as total output, value added, remuneration and imports. It differs from a modelling approach, which allows for detailed numerical values of all elements of the SAM as well as of related economic variables to be computed.

Given the income inequalities that exist in South Africa, the effects of several redistributive options can be simulated. The most logical simulation is to allow the income of other groups, especially Africans, to grow proportionately faster than whites. It must, however, be stressed that the calculations below are for illustrative purposes only. Implementation methods are not addressed nor are possible broader consequences that could be seen in a general equilibrium framework.

6.1 Impact on the present level of economic activity

The low growth of the South African economy has imposed a constraint on the reduction of inequality. From 1991 to 1994 there was no meaningful real gross domestic product (GDP) growth in the South African economy. After the elections in 1994, the economy accelerated with GDP growth rates of just over 3 per cent in 1994 and 1995 and even 4,2 per cent in 1996. This late recovery was not enough and over the period 1991 to 1996 the economy grew by just 1,2 per cent (Whiteford and Van Seventer, 1999:2).

The impact of different income growth rates for the higher income groups (mostly white) and the lower income groups (specifically African), can be measured against GDP and increased demand for import per unit of income. Direct ass well as indirect consequences are included, both of which exist because of linkages between sectors of the economy. Effects on GDP and imports per unit of income are expressed as multipliers.

Impact on gross domestic product: GDP multipliers per unit income measure the effect of a change in income (of households) on the economy e.g. through the redistribution of income into changes in GDP rather than translating final demand into total value of sectoral output.

Table 12 – Gross domestic product generated per unit of income

Quintile	Total		
	1978	**1988**	**1993**
A–Q1	1,27	1,29	1,30
A–Q2	1,28	1,28	1,30
A–Q3	1,29	1,27	1,28
A–Q4	1,22	1,25	1,26
A–Q5a	1,19	1,25	1,26
A–Q5b	1,15	1,14	1,15
Total African	**1,20**	**1,22**	**1,23**
W–Q1	1,08	1,16	1,17
W–Q2	1,07	1,09	1,10
W–Q3	1,06	1,05	1,06
W–Q4	1,00	1,04	1,05
W–Q5a	0,92	0,97	0,98
W–Q5b	0,83	0,93	0,93
Total white	**0,96**	**1,02**	**1,03**
C–Q1	1,27	1,25	1,27
C–Q2	1,23	1,23	1,25
C–Q3	1,20	1,24	1,26
C–Q4	1,13	1,17	1,18
C–Q5a	1,05	1,14	1,15
C–Q5b	0,99	1,13	1,14
Total coloured	**1,09**	**1,17**	**1,18**
I–Q1	1,29	1,27	1,28
I–Q2	1,23	1,26	1,27
I–Q3	1,21	1,23	1,24
I–Q4	1,20	1,18	1,19
I–Q5a	1,17	1,12	1,12
I–Q5b	1,11	1,07	1,08
Total Indian	**1,17**	**1,16**	**1,17**

These multipliers then give an indication of the additional GDP created throughout the entire economy due to an increase in demand for a specific sector's output. In table 12, GDP multipliers per unit of income are presented in order to measure the effect of a change in income (of households) on the economy. By means of the mutual comparison of the multipliers in respect of the different income groups it can be determined which group has the biggest effect on the GDP, in the case of a change in income. These multipliers increase as household per capita income declines. The total 1993 GDP multiplier for African households, for example, is 1,23, which is higher than that for white (1,03), Indian (1,17) and coloured (1,18) households. This

shows that if the income of African households increases by R1,00 and the additional income is spent according to existing expenditure patterns, then the GDP will increase by R1,23. Similar patterns appear within groups. This finding implies that a redistribution of income from the higher to the lower income groups will, *ceterus paribus*, lead to an increase in GDP. GDP multipliers of less than 1,0 are estimated for the richest 20 per cent of whites.

Table 13 – Impact on imports per unit income

Quintile	Total			Direct			Indirect		
	1978	1988	1993	1978	1988	1993	1978	1988	1993
A–Q1	0,20	0,22	0,22	0,02	0,03	0,03	0,18	0,19	0,19
A–Q2	0,20	0,22	0,22	0,03	0,03	0,03	0,18	0,19	0,19
A–Q3	0,21	0,22	0,22	0,03	0,03	0,03	0,18	0,19	0,19
A–Q4	0,20	0,22	0,22	0,04	0,03	0,03	0,17	0,19	0,19
A–Q5a	0,19	0,22	0,22	0,04	0,03	0,03	0,16	0,19	0,19
A–Q5b	0,19	0,20	0,20	0,03	0,03	0,03	0,16	0,17	0,17
Total African	**0,19**	**0,21**	**0,21**	**0,03**	**0,03**	**0,03**	**0,17**	**0,18**	**0,18**
W–Q1	0,17	0,19	0,19	0,05	0,03	0,03	0,12	0,16	0,16
W–Q2	0,16	0,18	0,18	0,06	0,02	0,02	0,11	0,16	0,16
W–Q3	0,16	0,17	0,17	0,06	0,02	0,02	0,11	0,15	0,15
W–Q4	0,15	0,17	0,17	0,06	0,02	0,02	0,10	0,15	0,15
W–Q5a	0,14	0,16	0,16	0,06	0,02	0,02	0,09	0,14	0,14
W–Q5b	0,13	0,15	0,15	0,06	0,02	0,02	0,08	0,13	0,13
Total white	**0,15**	**0,17**	**0,17**	**0,06**	**0,02**	**0,02**	**0,09**	**0,15**	**0,15**
C–Q1	0,21	0,21	0,21	0,04	0,03	0,03	0,18	0,18	0,18
C–Q2	0,20	0,21	0,21	0,04	0,03	0,03	0,17	0,18	0,18
C–Q3	0,20	0,21	0,21	0,04	0,04	0,04	0,16	0,18	0,18
C–Q4	0,18	0,20	0,20	0,05	0,03	0,03	0,14	0,17	0,17
C–Q5a	0,17	0,19	0,19	0,05	0,03	0,03	0,13	0,17	0,16
C–Q5b	0,16	0,19	0,19	0,05	0,03	0,03	0,12	0,16	0,16
Total coloured	**0,18**	**0,20**	**0,20**	**0,05**	**0,03**	**0,03**	**0,16**	**0,17**	**0,17**
I–Q1	0,20	0,21	0,21	0,04	0,03	0,03	0,16	0,18	0,18
I–Q2	0,20	0,21	0,21	0,05	0,03	0,03	0,15	0,18	0,18
I–Q3	0,19	0,20	0,20	0,05	0,03	0,03	0,15	0,18	0,17
I–Q4	0,19	0,20	0,20	0,05	0,03	0,03	0,14	0,17	0,17
I–Q5a	0,19	0,19	0,19	0,06	0,03	0,03	0,13	0,16	0,16
I–Q5b	0,18	0,18	0,18	0,06	0,03	0,03	0,13	0,15	0,15
Total Indian	**0,19**	**0,20**	**0,20**	**0,06**	**0,03**	**0,03**	**0,14**	**0,17**	**0,17**

Impact on imports: The leakage effect attributed to imports is also regressive as is the case with total GDP-multipliers. Total import coefficients (imports per unit of income) decrease as per capita income increases. According to table 13, the average import leakage effect is 19 per cent for African expenditure and 15 per cent for white

expenditure for 1978, compared to the 21 per cent for African expenditure and 17 per cent for white expenditure for 1993. Table 13 distinguishes between direct and indirect import leakages. Seen in isolation direct import leakages, are progressive as the theory would suggest. The rich tend to spend more of their money on imported goods and services. Watches, cameras, electronic equipment and especially automobiles are examples of income elastic goods with a high import content.

The poor, however, have a substantially greater propensity to consume than the rich. Their domestic expenditure stimulates production throughout the economy, production that requires intermediate goods and services, both from within and outside South Africa. This higher stimulus from the expenditure of the poor generates a similarly higher demand for imported intermediate goods and services. Thus the indirect import multiplier is regressive, not because the final demand of the poor is more import intensive, but because their demand rises more sharply with higher income levels.

Dominated by indirect demand for imports, the overall import multiplier is regressive in structure. This is an important finding, one often overlooked by researchers. If only the direct import multiplier is taken into account, i.e. without the indirect multiplier, it can easily result in wrong policy proposals.

It is thus clear that redistribution of income toward the poor will result in an increase in GDP, but at the cost of an increase in demand for imports. Part of this cost could be ameliorated by import substitution policies taken in conjunction with redistributive decisions. Redistribution of income from rich to poor is an easier task in the context of a rapidly expanding economy. A number of East Indian economies (such as Taiwan, Singapore, Korea, Hong Kong, Malaysia, Indonesia and Thailand) achieved declining levels of inequality during their high growth years. Their governments adopted a "principle of shared growth", promising that as the economy expanded all groups would benefit. Various mechanisms were used to achieve this, including land reform, agricultural pricing policies, wealth-sharing programmes, public housing programmes and programmes to encourage small and medium-size enterprises (Whiteford and Van Seventer, 1999:2).

6.2 Redistribution options

The coefficients in the above tables can be manipulated to show the effects of specific redistribution options. This part of the paper examines the pattern of expenditure for an equal income increment received by either Africans or whites. These differences underlie the effects of any relative change in the level of African and white income. Table 14 examines the situation where government is able to direct the next one per cent of growth in personal income (resulting from an influx of money from outside South African borders) either to all whites or to poor Africans. The stratum A-Q2 (Africans between the 20th and 40th percentiles) is used as a midpoint and therefore proxy for the poorer 60 per cent of the African population. In each column, the additional income is assumed to be distributed among recipients in proportion to their current income, i.e. everyone gets the same percentage increase. The recipient groups were of similar size in 1988 (5,0 million total whites and 5,3 million Africans in Q2).

The 1988 SAM identifies R132 billion in total personal income. Thus either group, hypothetically, could receive R1 320 million. Given the similarity in the size of the groups, per capita rand receipts are not widely different. Expressed as a percentage of present incomes, however, the comparison is dramatic. R1 320 million would increase white income by 1,8 per cent while it would raise African income in Q2 by 34,4 per cent.

Table 14 – Approximate indicators of the effects of some altered income distributions in South Africa: 1988

Item	Unit	One per cent increase in total household income	
		All whites	**Africans in Q2**
Total household income	R million	1 320	1 320
Per capita increase	R	260	245
Per capita increase	%	2	34
Direct tax paid	R million	230	2
Total disposable income	R million	1 070	1 298
Personal savings	R million	41	7
New demand in RSA	R million	1 029	1 291
Ultimate increase in GDP	R million	1 326	1 664
Increase in demand for imports	R million	221	286

As discussed earlier, personal savings and total taxes are lower (cf. tables 10 and 11) and total import demand is higher (cf. table 13) for incomes received by poor Africans. However, incomes received by those in A-Q2 will also result in 21 per cent greater stimulus to domestic aggregate demand than similar incomes received and distributed proportionally among all whites.

Table 15 examines the situation where the government transfers one per cent of total income of whites to Africans in quintile Q2. The latter causes a per capita decrease of R143 for whites and an increase of R135 for Africans. Expressed as a percentage of present incomes, a one per cent transfer of total white income will result in an 19 per cent increase in income of Africans in Q2. This income received by A-Q2 will also result in a net new demand of R145 million, a net increase in GDP of R186 million and an increase in the demand for imports of R36 million.

Table 15 – Approximate indicators of the effects of some altered income distributions in South Africa: 1988

Item	Unit	One per cent of white income transferred to Africans in Q2 only	
		All whites	Africans in Q2
Total household income	R million	-716	716
Per capita change	R	-143	135
Per capita change	%	-1	19
Direct tax paid	R million	-127	1
Total disposable income	R million	-589	715
Personal savings	R million	-23	4
New demand in RSA	R million	-566	711
Ultimate increase in GDP	R million	-730	916
Increase in demand for imports	R million	-122	158

7. CONCLUSION

Although the racial income gap is still vast, it has narrowed for the past 30 years. Whereas in 1970 only 20 per cent of disposable income used to accrue to Africans, the figure now exceeds 40 per cent (Preece, 1999: 19). However, while the racial is declining the gap within each group is widening, as is the overall gap between rich and poor. Per capita income figures for the different income groups point to a very skewed income distribution in South Africa.

It is important to note that income may be transferred in different ways. It can simply be transferred to some poor people to relieve poverty or it may be transferred in order to expand education and health care, or for employment creation through subsidies and incentives. According to Sen (Malan, 1998:113) one of the greatest reasons for optimism when comparing South Africa with other poor nations of the world, is that it has some wealth to distribute. One way of looking at South Africa is to say that in terms of income levels, quality of life should be much higher. Life expectancy is lower than it should be for these (per capita) income, levels of mortality are too high, and education levels are not as developed as they should be. A different perspective is to say that for the same levels of under-development, South Africa is a relatively rich country. It therefore has opportunities for utilising income transfers. However, should income transfers be used, they should be aimed at regenerating economic and social opportunities, rather than purely being transfers of income.

Whiteford and Van Seventer (1999:37) estimates that more than 90 per cent of the growth of incomes of Africans, coloureds and Indians is derived from economic growth, whereas less than 10 per cent is attributable to a direct redistribution of income from whites. This clearly illustrates the power of economic growth as a redistributive mechanism and had the economy performed better, the growth in

income of non-white groups would probable have been more impressive. However, the overall goals of economic transformation must be the results of growth and redistribution. To take advantage of the many opportunities that exist, we have to be more creative, more competitive, more willing to find common and sometimes unconventional solutions. Complacency, hiding behind old theories, excuses and rhetoric, does not further the developmental agenda. Identifying problems is easy, finding solutions which contribute positively to growth and job creation requires wisdom and courage.

When using the SAM – to analyse the results of several redistributive options – it must be reiterated that the SAM used here is a partial equilibrium, static model. The simulations discussed must be accepted as only indicative. The overall effects of income redistribution will be an increase in the aggregate propensity to consume a sectoral restructuring of aggregate demand and a possibly significant increase in the GDP multiplier. On the negative side, redistribution will be accompanied by a reduction in personal savings and in total tax receipts plus an increase in the demand for imports. The cumulative effect of these possibilities, will probably result in a better economic growth performance in the short term than would have materialised in the absence of income redistribution. The longer-term pattern of growth will require policy attention specifically to the supply of capital for investment, to government revenue and to balance between imports and exports.

According to McGrath (Malan, 1998:107) a SAM can only be used as a model if it is assumed that all its behavioural relationships contain constant marginal and average propensities or coefficients. This may well be a reasonable assumption to make when modelling the effects of small shifts in the direction of economic policy, and the result will most probable have negligible effects on the structure of production, factor payments and the distribution of household incomes. More substantial policy changes will start to affect factor prices, production techniques, patterns of demand, propensities to invest and import, etc. and will require a fully articulated general equilibrium model with production functions, demand functions for goods and factors, market clearing procedures, investment functions, to model the behavioural relationships in the economy. If the coefficients of the input-output table are aggregated from a more detailed input-output table (as is the case for some of the South African SAMs), then changes in expenditure patterns, following an income redistribution, may also require a revision of the input-output coefficients, without any technical changes having occurred (Malan, 1998:108).

Adelman and Robinson provide possibly the best example of a complex model to stimulate the distribution of income for a South Korean type economy for 1978 (Malan, 1998:108). A SAM provides one of the foundations for constructing such a model, but above that foundation an econometric and mathematical edifice still remains to be constructed, clearly a area for further research in South Africa.

For the future Whiteford and Van Seventer (1999) as well as Gerson (Peerce, 1999:19) expect the inequality situation to continue to worsen – at least over the next couple of years, if not longer. One of their main reasons is that in the global, information technology and knowledge economy, skills are in great demand while the unskilled and semiskilled are in excess supply. The scenario of a small but growing

group of highly skilled but well-paid workers, accompanied by a growing mass of unemployed persons, suggests that inequality will increase in the future in the absence of an adequate policy response. Merrill Lynch (Preece, 1999:19) agrees by stating that the widening of the overall income gap is probably inevitable for the time being, despite Government's best efforts. South Africa continues to lose skilled people but finds it difficult to avoid attracting large numbers of unskilled and illegal immigrants from other African countries. Stats SA plans to compile a SAM, according to the 1993 SNA, for the 1999 or 2000 reference year by the end of 2002. This SAM will draw heavily on data from the 1996 Population Census, 2000 Income and Expenditure Survey (IES) as well as the Supply and use tables for 1999 or 2000. Similar calculations as were done for this paper will then be done to get the picture of income inequality in South Africa at the end of the previous century.

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ANNEXURE A – KEY TO ABBREVIATIONS

Households: Income groups

Q1	First income – quintile 0-20% of the population
Q2	Second income – quintile 21-40% of the population
Q3	Third income – quintile 41-60% of the population
Q4	Fourth income – quintile 61-80% of the population
Q5a	Ninth income – decile 81-90% of the population
Q5b	Tenth income – decile 91-100% of the population

Population groups

A	African
W	White
C	Coloured
I	Indians

Other

GDP	Gross domestic product
GEAR	Growth, Employment and Redistribution
GOS	Gross operating surplus
I-O	Input-output
n.e.c.	Not elsewhere classified
RDP	Reconstruction and Development Programme
SA	South Africa
SALDRU	Southern Africa Labour and Development Research Unit
SAM	Social Accounting Matrix
SIC	Standard Industrial Classification
SNA	System of National Accounts
Stats SA	Statistics South Africa
TBVC	Transkei, Bophuthatswana, Venda and Ciskei

ANNEXURE B – KEY BETWEEN MAJOR OCCUPATIONAL GROUPS AND INDIVIDUAL OCCUPATIONS

1. Professional Occupations

2. Other Professional Occupations

3. Technical Occupations

4. Managerial, Executive and Administrative Occupations

5. Clerical Occupations

6. Sales Occupations

7. Transport, Delivery and Communications Occupations

8. Service Occupations

9. Farming and Related Occupations

10. Artisan, Apprentice and Related Occupations

11. Production Foreman and Supervisor Miner and Quarry Worker, Operator, Production and Related Worker

12. Labourer and Other Unskilled Worker n.e.c.

13. Occupation Unspecified and n.e.c.

ANNEXURE C - SOCIAL ACCOUNTING MATRIX EMPHASISING INCOME DISTRIBUTION FOR SOUTH AFRICA, 1988

		Production activities 23 sectors	Capital (GOS)	Labour White	Coloured	Asian	Black	Total	Households White	Coloured	Asian	Black	Total	Government	Capital account	Rest of the World	GDP residual	Row totals
R	Production activities: Total Current account	155 378							46 197	8 127	3 939	34 247	92 510	10 392	38 581	57 260	(1 527)	352 592
e	Factors																	
c	Capital (GOS)	83 704												7 951	(7 084)	1 652		86 223
e	Labour																	
i	White	41 831							25				25	10 630				52 486
p	Coloured	6 347							105	40	3		150	2 127				8 624
t	Asian	3 100									1	1	2	753				3 855
s	Black	24 743							1 596	46	68	109	1 819	7 822				34 385
	Total	76 021							1 726	86	72	110	1 996	21 332				99 350
	Institutions																	
	Households																	
	White		17 428	52 486				52 486	247				247	1 219		200		71 580
	Coloured		876		8 624			8 624		70			70	1 012		29		10 611
	Asian		1 067			3 855		3 855			17		17	282		15		5 235
	Black		5 297				34 385	34 385				1 803	1 803	2 852		119		44 455
	Total		24 668	52 486	8 624	3 855	34 385	99 350	247	70	17	1 803	2 137	5 365		363		131 882
	Government: Total	7 253	12 792						17 239	1 307	823	4 656	24 025	4 848	3 387	(638)		51 668
	Capital account: Total		42 977						2 281	367	63	898	3 609	(1 247)				45 339
	Rest of the World: Total	30 236	7 313						3 890	654	320	2 741	7 605	3 027	10 455	2 728		61 366
	GDP residual		(1 527)															(1 527)
	Transfers																	
	From	14 883																14 883
	To	(14 883)																(14 883)
	Column totals	352 592	86 223	52 486	8 624	3 855	34 385	99 350	71 580	10 611	5 235	44 455	131 882	51 668	45 339	61 366	(1 527)	826 893

Expenditures — Factors; Institutions — Households