Chapter 5

Income distribution in South Africa: a social accounting matrix approach

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Introduction

Apartheid left a legacy of poverty and inequality in South Africa. Despite the wealth of the country – South Africa's average level of per capita income ranks it amongst the world's upper middle-income countries (Malan, 1998:109) – a large proportion of the population has not benefited from SouthAfrica's resources.

The aim of this paper is to show how a social accountingmatrix (SAM)may be used to analyse South Africa's income distribution. Analysis of households is an important feature of a SAM. Comprehensive and reliable data on households are therefore essential in order to use this analytical tool. Important data sources for the compilation of a SAM are those derived from South Africa's population census, the income and expenditure survey (IES) and the October household surveys (OHS) conducted by Stats SA.

The SAM is an extension of the conventional input-output (I-O) framework with emphasis on the household sector. The emphasis on households is particularly significant, since the SAM provides a framework, within the context of national accounts, in which the activities of households are clearly distinguished. Indeed the household is the basic unit within which significant decisions are taken on important economic variables such as expenditure and saving. The development of the SAM, with the household as the focal point, should be viewed against the fact that conventional national accounts often do not provide sufficient information, nor a framework, to properly investigate and address important policy issues, such as household income distribution, personal savings and employment.

The I-O table is a widely used matrix framework providing detailed and coherently arranged information on the flow of goods and services, and on the structure of production costs. Disaggregated linkages between the industries (sectors) in the I-O framework are further developed in the supply and use tables (SU-tables), through a specification of output of product groups by industry.The SU-tables opt for a structure of rows and columns, which is most suitable to describe the economic processes under consideration, namely the process of production and consumption of products. However, these matrices do not incorporate the interrelations between value added and final expenditure. By extending the I-O framework, to show the entire circular flow of income at a meso-level, one captures an essential feature of a SAM.

A SAM can therefore be defined as a presentation of national accounts in a matrix that elaborates on the linkages between SU-tables and institutional sector accounts. It is a presentation of the System of National Accounts (SNA) in matrix terms which incorporates whatever degree of detail might be of special interest. To date, builders of SAMs have exploited the available flexibility to highlight special interests and concerns, to display the various interconnections, and to disaggregate the household sector to show the link between income generation and consumption. The power of a SAM, as well as the System of NationalAccounts (SNA), comes from choosing the appropriate type of disaggregation to study the topic of interest. In addition to a flexible application and the inclusion of various

components, a SAM may incorporate more extensive adjustments, of satellite accounting nature, to meet specific analytical purposes.

Income distribution and the social accountingmatrix

This paper is based on the final SAMs for South Africa for 1978 and 1988 and the preliminary unpublished SAM for 1993. These were all based on the 1968 SNA. To distinguish between income categories or groups the 1978, 1988 and 1993 SAMs provided for five income categories (quintiles) for each population group. In 1988 and 1993 a sixth income category was obtained by dividing the top quintile into two deciles, i.e. 81-90% and 91-100%, compared with the seven income categories that were used for the 1978 SAM where the fifth quintile was divided into three, i.e. 81-90%, 91-95% and 96-100%. To define income categories, households were identified first, after which a per capita household 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 per capita household 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.

Quintiles are based on households ranked by per capita household income. In order to isolate the economic behaviour of the very rich, the top quintile (Q5)wasfurther subdivided (cf. Table 1). Given the wide differences in mean income between population groups, it was 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. Income class designations are usually preceded with a letter designation indicating the relevant population group, e.g.A (African), C (coloured), I (Indian) and W (white).

Table 1: Income class (household per capita income) designation

Quintile (income category)	Percentage of the population	Population numbers by quintile: June 1988* 1 000				
		African	Coloured	Indian	White	Total
Q1	0-20	5 294	629	189	994	7 106
Q2	21-40	5 294	629	189	994	7 106
Q3	41-60	5 294	629	189	994	7 106
Q4	61-80	5 294	629	189	994	7 106
Q51	81-90	2 647	315	95	497	3 554
Q52	91-100	2 647	315	95	497	3 554
Total		**26 472**	**3 146**	**947**	**4 969**	**35 532**

***Based on the results of the 1991 population census.**
Source: Final social accountingmatrix for South Africa, 1988 – Report No. 04-03-02 (1988)

As the SAM is an input-output model, it suffers from the same limitations as all I-O models i.e. they are static models based on linear homogeneous production functions. In using an I-O framework 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 distribution of income in SouthAfrica, as well as expenditure patterns of the different income groups is 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 income redistribution on current economic activity is indicated in this paper, since it affects the long-term growth potential of the economy and has 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, paralleling existing classifications used in the SouthAfrican statistical system. Within these groups, households are further subdivided into income categories (quintiles) based on per capita household 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. 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 establishes a common basis for comparison between groups. Secondly, the household, and not the individual, is taken as the effective expenditure unit. Thus, income categories defined in the SAM relate directly to consumption pattern differentials.

In order to stratify the population by income class, each population group was divided into quintiles based on per capita household incomes. The abbreviated notation for these classes is given in Table 1.

Income distribution in SouthAfrica

Comparative income data from the 1978, 1988 and 1993 SAMs are presented in Table 2. Population shares are given for the purpose of comparison. As may be expected, Africans provide the two extremes.Whereas for 1993, 76,0% of the RSA population received 45,2% of personal income, and whites, constituting 12,8% of the population received 41,9% of the income. This share distribution indicates a slight improvement from 1978 when Africans constituted 72,4% of the population and received 27,1% of personal income, and whites, constituting 15,8% of the population, received 62,4% of the income.

Table 2: Income distribution in the South African economy

Population	Population shares (% of total)			Annual personal income (income as % of the total)			Annual personal per capita income** (Rands)		
	1978	June 1988*	1993*	1978	1988	1993	1978	1988	1993
African	72,4	74,5	76,0	27,1	33,7	45,2	352	1 679	4 180
Coloured	9,0	8,9	8,6	7,4	8,1	9,4	771	3 373	7 737
Indian	2,8	2,7	2,6	3,1	4,0	3,5	1 043	5 529	9 691
White	15,8	14,0	12,8	62,4	54,3	41,9	3 719	14 405	22 970
Total	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**940**	**3 712**	**7 038**

*** Based on the results of the 1991 population census.**
**** The total personal income per head of the population.**
Sources: Stats SA (1993 and 1995) and CEAS (1986)

The number of individuals in each quintile differs significantly between population groups. Themore relevant comparisons in Table 2 are therefore between per capita household incomes for each group. Per capita incomes forAfrican households of R4 180 per annum for 1993 are almost one-half of that of the coloureds and Indians and less than one-fifth of the per capita income of the whites. 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.

Table 3: Propensity to save* by quintile (%)

Quintile	African			Coloured			Indian			White		
	1978	1988	1993	1978	1988	1993	1978	1988	1993	1978	1988	1993
Q1	0,22	0,50	1,30	0,00	0,00	0,00	0,00	0,96	3,02	7,36	2,39	2,32
Q2	1,40	0,52	1,17	1,04	1,03	1,31	1,28	0,77	2,55	5,57	1,99	2,17
Q3	0,65	1,15	2,58	2,37	1,22	1,59	1,70	0,89	3,07	4,86	2,70	3,12
Q4	3,77	2,29	5,33	6,42	3,51	4,93	1,98	0,88	3,11	7,47	2,80	3,12
Q51	5,89	2,60	6,50	10,90	4,73	6,95	3,04	1,61	5,77	12,20	3,75	4,26
Q52	7,89	2,56	7,15	13,23	5,67	8,29	6,03	2,26	8,14	20,01	7,60	7,80
Total	**5,30**	**2,05**	**5,13**	**8,23**	**3,64**	**5,06**	**3,25**	**1,33**	**4,67**	**11,17**	**3,87**	**4,22**

*** Savings as percentage of personal disposable income.**
Sources: Stats SA (1993 and 1995) and CEAS (1986)

As may be expected, saving rates generally increase with higher incomes. In 1993 white savings averaged 4,0% of personal disposable income compared to an average saving rate of 5,0% for Africans as seen in Table 3. This represents an improvement in the average saving rate among Africans from the 1988 average of 2,0%.

Table 4: Tax patterns in South Africa* (%)

Quintile	Direct tax			Indirect tax		
	1978	**1988**	**1993**	**1978**	**1988**	**1993**
A-Q1	0,68	0,29	2,69	5,09	12,08	12,36
A-Q2	0,67	0,19	1,56	5,54	9,35	8,45
A-Q3	0,62	0,36	2,85	6,27	9,59	8,51
A-Q4	2,76	0,89	7,09	6,55	8,43	7,46
A-Q51	3,28	1,79	14,16	6,26	7,03	6,21
A-Q52	2,75	3,35	25,97	7,40	11,95	10,33
African	**2,49**	**1,78**	**14,10**	**6,71**	**9,84**	**8,69**
C-Q1	0,00	0,00	0,00	6,89	12,45	11,76
C-Q2	0,63	1,21	3,42	8,46	10,84	10,43
C-Q3	2,00	1,48	4,28	7,87	9,31	9,16
C-Q4	4,08	5,01	14,46	7,43	9,38	9,19
C-Q51	5,96	6,99	20,11	7,08	7,95	7,77
C-Q52	8,85	6,87	19,76	6,88	7,49	7,32
Coloured	**5,36**	**4,86**	**13,95**	**7,30**	**8,81**	**8,59**
I-Q1	0,00	1,83	2,26	6,30	8,74	9,15
I-Q2	1,01	2,89	3,75	7,49	8,09	8,87
I-Q3	2,64	5,23	6,94	7,26	7,85	8,80
I-Q4	3,90	8,64	11,66	7,01	7,27	8,30
I-Q51	4,99	12,70	17,05	6,48	7,29	8,28
I-Q52	8,28	16,13	21,43	5,27	5,81	6,52
Indian	**4,90**	**9,80**	**13,00**	**6,39**	**7,14**	**8,01**
W-Q1	6,40	9,37	5,58	6,68	6,96	6,35
W-Q2	8,65	14,12	9,34	6,49	7,12	7,23
W-Q3	10,13	16,86	11,88	6,26	6,91	7,47
W-Q4	12,33	16,69	11,40	5,98	7,28	7,62
W-Q51	14,17	20,76	14,60	5,55	7,15	7,71
W-Q52	14,64	21,29	13,78	4,89	7,09	7,04
White	**12,24**	**17,71**	**11,91**	**5,73**	**7,11**	**7,33**

*** Tax payments as percentage of total household per capita income.**
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.
Source: Stats SA

Within each group, the higher per capita income quintiles save considerably more than the lower incomes. The decline in white savings rates at the middle-income levels is atypical in 1978 and 1988 as seen 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 shows an improvement for 1993.

Tax patterns of households

The structure of taxes paid by population group and income level is illustrated in Table 4. Direct tax, which consists of personal income tax, reflects a strongly progressive structure. Indirect taxes, inclusive 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 unchanged from 1978 to 1993, while the payment of direct taxes increased for every population group except whites. The latter is in accordance with the income distribution patterns in South Africa (cf. Table 3). This resulted in a total tax structure that is just barely progressive in each case.

The economic impact of changing the distribution of income

A SAM 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 using the SAM in achieving this through the analysis of multipliers; for identifying areas of the economy which will not be affected by particular changes in expenditures; and for analysing regional effects from development projects on the domestic economy.

The variousmultipliers are computed with the aid of inverse coefficients. They represent the sum total of the multiplier effects of the various industries. Multipliers can measure the effect of an external variable on the economy. This measurement can be refined if the direct, indirect and the derived impacts of the variable are taken into account.Measurement of the impact by means of multipliers can be done for example in terms of production, income, capital formation and employment.

The simplest impactmultiplier in respect of an individual industry is known as the Type I multiplier. It can be calculated for each industry by adding the relevant elements of the inverse-coefficientsmatrix. A Type I industry multiplier does not give a complete picture of the impact in cases where the change of a variable has a dual interlinked interaction effect. The Type II multiplier is calculated similarly to Type I, except that the household sector is taken into account, ensuring that allowance is made for the reciprocal relationship between income and consumption, and between consumption and income.

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 rand 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 ofmultipliers 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.

Impact on the present level of economic activity

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

Impact on gross domestic product: GDP multipliers per unit of incomemeasure the effect of a change in income (households' per capita income) 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. 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 5, GDP multipliers per unit of income are presented in order tomeasure 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, given a change in income. These multipliers increase as per capita household income declines. The total 1993 GDP multiplier forAfrican households, for example, is 1,23, which is higher than the one for white (1,03), Indian (1,17) and coloured (1,18) households. This means that if the income of African households increases by R1-00, and if 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* (i.e. other things being equal), lead to an increase in GDP. GDP multipliers of less than 1,0 are estimated for the richest 20% of whites.

Impact on imports: The leakage effect attributed to imports is also regressive, as is the case with total GDPmultipliers. Total import coefficients (imports per unit of income) decrease as per capita income

Table 5: Gross domestic product generated per unit of income

Quintile	Year 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-Q51	1,19	1,25	1,26
A-Q52	1,15	1,14	1,15
African	**1,20**	**1,22**	**1,23**
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-Q51	1,05	1,14	1,15
C-Q52	0,99	1,13	1,14
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-Q51	1,17	1,12	1,12
I-Q52	1,11	1,07	1,08
Indian	**1,17**	**1,16**	**1,17**
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-Q51	0,92	0,97	0,98
W-Q52	0,83	0,93	0,93
White	**0,96**	**1,02**	**1,03**

Source: Stats SA

increases. According to Table 6, the average import leakage effect is 19% for African expenditures, compared with 15% for white expenditures for 1978, against 21% forAfrican expenditures and 17% for white expenditures for 1993. Table 6 distinguishes between direct and indirect import leakages. Direct import leakages, seen in isolation, 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 substantially greater propensities to consume than do the rich. Their domestic expenditures stimulate production throughout the economy. This production requires intermediate goods and services, both from within and outside South Africa. This higher stimulus from expenditures of the poor generates a similarly higher demand for imported intermediate goods

Table 6: Impact on imports per unit income

	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-Q51	0,19	0,22	0,22	0,04	0,03	0,03	0,16	0,19	0,19
A-Q52	0,19	0,20	0,20	0,03	0,03	0,03	0,16	0,17	0,17
African	**0,19**	**0,21**	**0,21**	**0,03**	**0,03**	**0,03**	**0,17**	**0,18**	**0,18**
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-Q51	0,17	0,19	0,19	0,05	0,03	0,03	0,13	0,17	0,16
C-Q52	0,16	0,19	0,19	0,05	0,03	0,03	0,12	0,16	0,16
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-Q51	0,19	0,19	0,19	0,06	0,03	0,03	0,13	0,16	0,16
I-Q52	0,18	0,18	0,18	0,06	0,03	0,03	0,13	0,15	0,15
Indian	**0,19**	**0,20**	**0,20**	**0,06**	**0,03**	**0,03**	**0,14**	**0,17**	**0,17**
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-Q51	0,14	0,16	0,16	0,06	0,02	0,02	0,09	0,14	0,14
W-Q52	0,13	0,15	0,15	0,06	0,02	0,02	0,08	0,13	0,13
White	**0,15**	**0,17**	**0,17**	**0,06**	**0,02**	**0,02**	**0,09**	**0,15**	**0,15**

Source: Stats SA

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, often overlooked by researchers. It is clear that income redistribution toward the poor will result in an increase in GDP, but at the cost of an increase in demand for import. Part of this cost could be ameliorated by import substitution policies taken in conjunction with redistributive decisions.

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 whites or Africans. These differences underlie the effects of any relative change in the level of African and white income. Table 7 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) to either 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% 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 A-Q2). The 1988 SAM identifies R132 billion in total personal income. Thus either group, hypothetically, could receive R1 320million. 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% while it would raise incomes of Africans in A-Q2 by 34,4%.

As discussed earlier, personal savings and total taxes are lower (cf. Tables 8 and 9) and total import demand is higher (cf. Table 6) for incomes received by poor Africans. However, incomes received by A-Q2 will also result in 21% greater stimulus to domestic aggregate demand than similar incomes received and distributed proportionally among all whites.

Table 7: 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 A-Q2**
Total household income	R million	1 320	1 320
Per capita increase	R	260	245
Per capita increase	%	1,8	34,4
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

Table 8 examines the situation where the government transfers one per cent of total income of whites to Africans in quintile A-Q2. The latter causes a per capita rand decrease of R143 for whites and an increase of R135 for the Africans. Expressed as a percentage of present incomes, a one per cent transfer of total white income will result in a 19% increase in income of Africans in A-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 8: 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 A-Q2 only	
		All whites	Africans in A-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

Conclusion

Per capita income figures for the different income groups point to a very skewed income distribution in South Africa. As processes such as urbanisation, inward industrialisation, improved education, housing and medical services are gaining momentum, a more equitable income distribution may take place in the future.

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 subsidising employment, or for giving incentives to reduce unemployment. 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 that, in terms of income levels, quality of life should be much higher. Life expectancy is lower than in other countries with similar income. Levels of mortality are high, and education levels are not as high as in other countries with similar incomes. A different perspective is to say that, for the same levels of under-development, South Africa is a relatively rich country.

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 probably 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, etc. to model the behavioural relationships in the economy. If the coefficients of the input-output table have been 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).

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

Stats SA plans to publish a SAM according to the 1993 System of National Accounts (SNA93) during 2003. It is a publication which places a heavy burden on data sources, most notably the latest national population and housing census as well as household surveys (inclusive of income and expenditure surveys). The SNA93 introduced integrated economic accounts which form part of a SAM and is a further important data source. These accounts will be constructed by the South African Reserve Bank (SARB).

It should further be remembered that the current empirical evidence relates to static models for 1978, 1988 and 1993 and therefore does not measure changes in South African society since the political transformation of the mid nineties. This may prove to be the most important motivation for updating the SAM for South Africa.

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