The welfare impacts of targeted transfers to poor households*

Scott McDonald† and Kalie Pauw‡

Abstract

South African researchers and policymakers have for some time now been exploring the idea of basic income grants and extended welfare transfer schemes as a means to reduce poverty and inequality in the country. Despite the fact that poverty in South Africa is widespread there is a general consensus among policymakers about the preference of targeted welfare grants over non-targeted grants due to the huge budgetary implications of the latter. Targeting, however, brings with it increased administrative complexities both with respect to means testing that is required and the challenge of successfully identifying appropriate recipients. These administrative complexities introduce a cost dimension that is as yet largely unexplored. This paper reports the results from a series of simulations that evaluate the general equilibrium and welfare implications of different schemes for targeted transfers. The poverty and inequality implications are evaluated using microsimulation techniques that link the representative households in the CGE model to the household surveys.

The general equilibrium model is calibrated with an aggregation of the PROVIDE Social Accounting Matrix (SAM) for South Africa for the year 2000. Distinctive features of the SAM include detailed factor and household accounts: overall the SAM has 32 commodities, 39 activities, 56 factors, including GOS (capital), nine land factors and 46 labour factors, and the 162 household accounts of the PROVIDE SAM. The labour accounts distinguish between types of labour on the basis of occupational category, race and province of residence, while the household accounts distinguish between households on the basis of race, gender and educational achievements of the 'head' of household; province of residence further

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† Reader in Economics, Department of Economics, University of Sheffield, UK and PROVIDE Project, Elsenburg, South Africa.

‡ Development Policy Research Unit, University of Cape Town and PROVIDE Project, Elsenburg, South Africa. Corresponding author and presenter. E-mail: kpauw@commerce.uct.ac.za, Tel. +27-21-650-5856.

disaggregated according to whether the district of residence was in a former homeland; and, for larger groups, the level of income. A distinctive feature of the SAM is the fact that there is a complete mapping of the individual households in the Income and Expenditure and Labour Force Surveys to the representative households in the SAM. It is this mapping that allows the development of detailed associated microsimulation techniques.

The simulations assume that the total value of transfers, excluding administrative costs, is constrained at R15 billion (approximately US$2.5 billion or 2.4% of total government expenditure). The simulations explore the effectiveness of different targeting regimes, e.g., broad targeting (associated with a low per capita transfer value) versus narrow targeting (associated with a high transfer value), under the assumption that the targeting regimes are determined by reference to the characteristics of the representative household groups. For all simulations, the impact of adding an administrative cost component to the expenditure side is also explored. Various tax replacement policies are explored under alternative financing options; from a welfare point of view these are important, especially when tax rates paid by households that are close to the poverty line change.

The effectiveness of different targeting schemes in reducing poverty and inequality is explored in depth. This is achieved by extracting results on per capita income changes from the general equilibrium model and feeding these into a micro-level module that calculates poverty and inequality at the individual level.

The results indicate that the poverty impact of the R15 billion transfer is typically small: the poverty headcount falls from about 49% in the base to approximately 46% in the simulations. However for some household groups, which are in close proximity to the selected poverty line, poverty actually increases due to the increased tax burden. This highlights the importance of ensuring an equitable distribution of the increased tax burden. Inequality also declines marginally in all the simulations considered, mainly because poor households are targeted while non-poor households typically carry a larger share of the increased tax burden. In as far as the effectiveness of broad versus narrow targeting is concerned the results suggest that narrower targeting generally implies greater reductions in poverty and inequality, although it depends crucially on how far the recipients are located from the poverty line and the funding regime. The paper concludes with a discussion of alternative targeting regimes.

Table of Contents

1. Introduction

Despite South Africa's official status as an upper middle-income country it is characterised by extreme degrees of inequality in the distribution of income, assets and opportunities. Past discriminatory policies have left a large proportion of the population outside the economic mainstream and relatively poor compared to an elite minority. Thurlow (2002) warns that the high degree of relative poverty (or inequality) should not overshadow the high incidence of absolute poverty that also persists in this country. Depending on the definition of the absolute poverty line, current poverty levels of between 45% and 55% are often quoted in the literature (see for example Hoogeveen and Özler, 2004, and others, May, 1998, Taylor, 2002, Woolard and Leibbrandt, 2001). Given the severity of poverty in South Africa it is arguable that the government's first concern should be that of reducing absolute poverty.

In this paper we evaluate the impact of increases in welfare transfers to households in a Computable General Equilibrium (CGE) framework. While similar studies have been done in the past (see McDonald and Punt, 2003, and Thurlow, 2002), neither of these considered the impact of *targeted* transfers, while more detailed micro-level analyses were also largely excluded. In this paper highly disaggregated household accounts, a comprehensive welfare module in the CGE model used, and some preliminary attempts at linking results to the micro- (or survey-) level add to the analysis.

2. Social welfare and poverty in South Africa

2.1. Social welfare policy

Since the inception of democratic rule in South Africa in 1994 debates have taken place to try and reach agreement on what measures should be taken to redress imbalances and uplift the poor. Immediately after coming into power the ANC government committed itself to specific goals in the area of social policy, which included, among other things, eliminating poverty, achieving an acceptable distribution of income, and lowering unemployment levels through programmes of social assistance (Taylor, 2002). Government even went as far as entrenching the right to social assistance in the Constitution [s27(1)(c)] (see Haarmann, 2001a), a bold move that has made them vulnerable to Constitutional Court challenges as was seen in the now famous *State versus Grootboom* case in 2000 (Taylor, 2002).

The new political era saw various policy documents come to the fore, most notably the Reconstruction and Development Programme (RDP), which was later replaced by the Growth, Employment and Redistribution programme (GEAR) in 1996. Both these policy strategies placed poverty reduction and redistribution high on the list of achievable

objectives. GEAR envisaged "*sustained growth on a higher plane*" as its main point of departure and the solution to the low rate of job creation, which in turn would lead to a more equitable distribution of income (Republic of South Africa, 1996). Various studies done in recent years have established the link between unemployment (or under-employment) and poverty in South Africa (see for example May, 1998). Unfortunately, the economy's poor performance in terms of job creation, especially prior to 2000 (see Bhorat and Oosthuizen, 2005, Pauw and Edwards, 2003), has not helped much with the fight against poverty. A recent study by Hoogeveen and Özler (2004) finds that poverty levels in the last five years may have in fact increased. They compare poverty levels based on Statistics South Africa's Income and Expenditure Surveys (IES) of 1995 (SSA, 1997) and 2000 (SSA, 2002) and find that per capita household expenditure levels have decreased, while poverty, and especially extreme poverty, has increased between 1995 and 2000. Overall inequality in the distribution of income has also increased due to higher inequality among African households. This is an indication that the economy is "*highly inefficient in converting economic resources into equitable social welfare outcomes*" (Leibbrandt et al., 2001:1).

The apparent failure of the economy to improve conditions for the poor through growth and job creation has been the basis for arguments in favour of direct interventionist social welfare policies. This is also the opinion held by the Committee of Inquiry into a Comprehensive System of Social Security for South Africa (Taylor, 2002). The Taylor Committee maintains that the underlying assumption of the "*old* [social security] *system*" is that the employed can support themselves through work and that unemployment is temporary (Taylor, 2002: 15). In an ideal world people should be earning a living through employment rather than rely on social welfare. However, given the structural nature of the unemployment problem full employment is an unlikely prospect for the near future. This requires a "*fresh look at social protection systems more appropriate to their environments and needs*" (Taylor, 2002: 154).

The Taylor Committee also found various gaps in the social security net, *inter alia* (Taylor, 2002:9):

- Unemployment insurance offers benefits to only 6% of the unemployed.
- Disability provisions are either not comprehensive enough or overlaps exist between various funds due to a badly designed system.
- Child benefits and old age pensions were found to be insufficient

The deficiencies of the social security system and a general recognition of the poor administrative capacity of government (especially at local level) gave weight to the idea of a universal grant such as the proposed Basic Income Grant (BIG), which first surfaced in 1997

when Jeremy Baskin put it forward in an article in the Mail & Guardian (Haarmann, 2001b). A BIG can be administered fairly easily as no means testing or targeting is involved. It also ensures that no individual falls through gaps in the system. Given the apparent advantages of a BIG it quickly gained widespread support. Some of the more prominent supporters included the Congress of South African Trade Unions (COSATU), who proposed the implementation of such a measure at the Presidential Job Summit in 1998 (Haarmann, 2001b), and the South African Council of Churches (SACC), who formally gave their support for a BIG in 2001 (McDonald and Punt, 2003).

The Taylor Committee gave the idea of a BIG serious consideration, but remained cautious. Although they recognised its merits as part of a comprehensive social protection framework, they questioned the fiscal feasibility of it. Doubts about BIG's feasibility were also expressed by Thurlow (2002). Using a Computable General Equilibrium (CGE) model for South Africa he finds that the cost of such a scheme could be debilitating to the economy, whether it is financed by raising income and/or sales taxes or by reducing other government expenditures. Thurlow also questions the merits of a universal grant over a targeted grant and suggests that more research is necessary. McDonald and Punt focus more on the issue of targeting when they investigate the impact of a BIG in the Western Cape province. They find that an "*enhanced but targeted income grant*" achieves a higher degree of poverty alleviation than a universal BIG (2003: 1).

What was probably the final nail in the BIG coffin came from Trevor Manuel, Minster of Finance, early in 2004, when he announced that the government's approach is to "*extend social security and income support through targeted measures*" rather than through a universal BIG. He regards this as the "*more balanced strategy for social progress and sustainable development*" (Budget Speech, February 2004). The current targeted measures include old age grants (pensions), disability grants, war veterans' grants and various child grants (foster child grants, care dependency grants and child support grants). Social grants have doubled in real terms in the last five years, and currently contribute more than half the income of the poorest 20 per cent of households (Budget Speech, February 2006).[1] At present direct targeted cash grants as opposed to universal cash grants have not yet been proposed or introduced.

Although targeting of welfare transfer payments is necessary in order to reduce the cost of the scheme, targeting also brings with it a number of complications. Most notably are the high administration cost and potential administrative complexities. Given the low administrative capacity in South Africa, as well as the fact that unemployment and poverty is

[1] In the 2000 base data used in the simulations described in this paper social grants contributed about 36 per cent of the income of the poorest two deciles, defined here as the poorest 20 per cent of households as ranked by the per capita income of the household.

widespread, policymakers are often tempted to opt for broader targeting. Very little research has been done to try and estimate what the implementation cost would be of targeted income grants. The fact that estimates of implementation costs are scarce or unavailable remains one of the major constraints faced by researchers wishing to model the economic impact of targeted social security measures.

2.2. Measuring poverty

Poverty measures are usually calculated using the Foster-Greer-Thorbecke (FGT) class of decomposable measures.

$$P_\alpha = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{z - y_i}{z}\right)^\alpha$$

The variable y_i is the welfare measure used to measure poverty and is defined over n people in our population, $i = 1,\ldots, n$. If the n individuals in the sample are ranked by their income or welfare measure, the q 'poor' individuals are those individuals for who $y_i < z$ for $i = 1,\ldots, q$, where z represents the poverty line. The remaining individuals are defined as non-poor since $y_i \geq z$ for $i = q+1,\ldots, n$. The parameter α can take on any value greater or equal to one, but in practice $\alpha = 0$, 1 or 2 is most frequently used. These three measures represent the poverty headcount index (P_0), the poverty gap index (P_1) and the poverty gap squared (P_2) respectively.

Poverty lines are often expressed as some level of per capita income (or an adjusted per capita measure)[2] below which an individual is poor. Many absolute and relative poverty lines are frequently used in the literature. The choice of poverty line has an important impact on the estimated poverty rate. However, in a comparative static analysis such as the one in this paper the choice becomes somewhat arbitrary since the focus is on *changes* in poverty rates as a result of policy intervention rather than the *actual level of poverty*. Recently Hoogeveen and Özler (2004) derived what they term suitable 'upper and lower bound' poverty lines for South Africa using the 'cost of basic needs' approach. They argue that a reasonable poverty line must lie somewhere between R3,864 and R7,116 per capita per annum (2000 prices). In this study we use the Hoogeveen and Özler lower bound poverty line of R3,864 per capita per annum for all further analyses.

[2] To account for differences in household structure (ratio of adults to children) the household size variable can be adjusted using so-called equivalence scales. Equivalence scales are then used to calculate an 'adult equivalent' per capita income measure. However, it is not entirely clear that the 'adult equivalent approach' is necessarily better or much different from the 'per capita approach' (see Hoogeveen and Özler, 2004, and Van der Berg *et al.*, 2003), and as a result the latter is used here.

According to the IES 2000 data an estimated 20.9 million out of 42.6 million (49%) of South Africans are classified as poor.[3] The average per capita income of poor people was R1,934 in 2000, compared to R22,086 for the average non-poor person. This large difference points at the high degree of inequality in South Africa. Given South Africa's historic racial divide poverty is explained mainly by poverty among Africans, and to a lesser extent Coloureds and Asians (see Table 1). Almost 95% of the poor are African and 58% of Africans are poor, compared to 26% of Coloureds and 5% of Asians. In relative terms there are virtually no poor Whites in South Africa.

Table 1: Poverty rates and poverty distribution by race

	Poor	Non-poor	Total
African	57.55	42.45	100.00
	94.98	67.20	80.80
Coloured	25.91	74.09	100.00
	4.64	12.73	8.77
Asian	5.28	94.72	100.00
	0.26	4.52	2.43
White	0.72	99.28	100.00
	0.12	15.55	8.00
Total	48.96	51.04	100.00
	100.00	100.00	100.00

Source: IES 2000

Poverty rates also differ substantially between provinces (see Table 2). The more industrialised Western Cape and Gauteng provinces have the lowest poverty rates (22% and 28% respectively). In contrast the Eastern Cape and Limpopo provinces have the highest rates (both about 69%). More than one third of the poor live in these two provinces. KwaZulu-Natal with a poverty rate of 58% and home to about one quarter of the poor is also hard hit by poverty. KwaZulu-Natal and the Eastern Cape are also fairly large provinces in terms of their population sizes, and consequently are home to just under half the poor in South Africa. Figure 1 compares the IES 2000 figures with the number of beneficiaries of social grants as supplied by the Department of Social Development (2006). It is not surprising to see that most of the beneficiaries of socials grants live in the provinces with high poverty rates and/or a large number of poor people.[4]

[3] Due to data problems and the need to reconcile income and expenditure data in the IES 2000 with the PROVIDE Social Accounting Matrix (see section 3.2) various data adjustments were made to the dataset. As a result the estimates here differ slightly from those in Hoogeveen and Özler. The data adjustments are described in detail in PROVIDE (2005b).

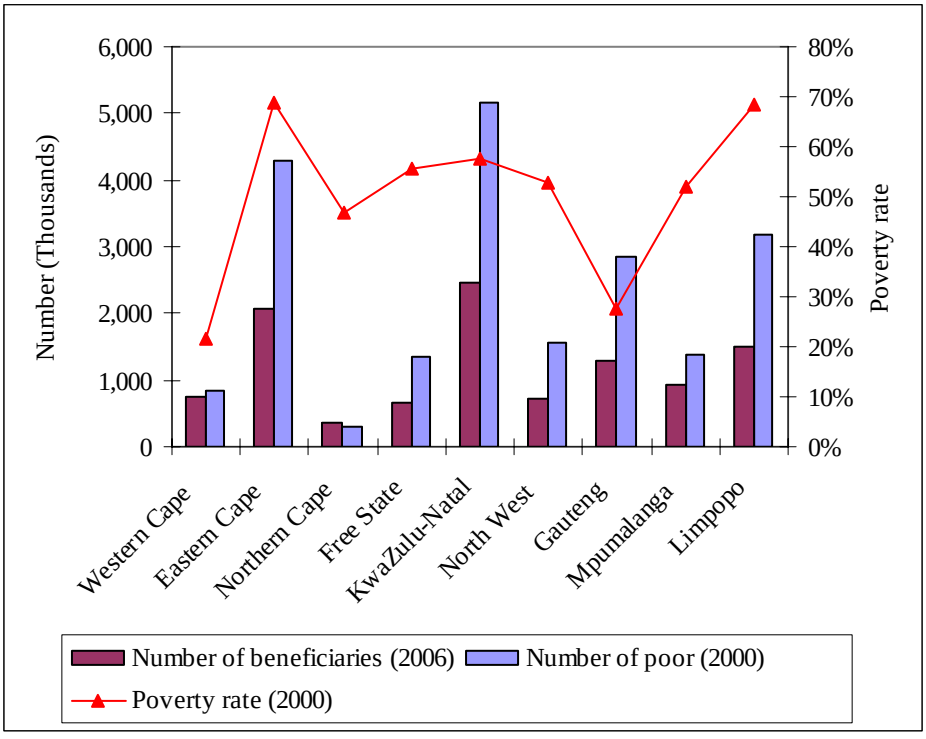
[4] All welfare grants are means tested. Since 2005 with the formation of the South African Social Security Agency welfare grants are disbursed centrally and not by the provincial governments any longer. This is probably due to poor service delivery in some provinces, as is evident from the figure: in some provinces the number of beneficiaries are less than half the number of poor.

Table 2: Poverty rates and poverty distribution by province

	Poor	Non-poor	Total
Western Cape	21.72	78.28	100.00
	4.08	14.10	9.20
Eastern Cape	68.79	31.21	100.00
	20.50	8.92	14.59
Northern Cape	46.82	53.18	100.00
	1.47	1.60	1.53
Free State	55.45	44.55	100.00
	6.41	4.94	5.66
KwaZulu-Natal	57.57	42.43	100.00
	24.73	17.48	21.03
North West	52.64	47.36	100.00
	7.43	6.41	6.91
Gauteng	27.72	72.28	100.00
	13.61	34.05	24.04
Mpumalanga	52.17	47.83	100.00
	6.60	5.80	6.19
Limpopo	68.49	31.51	100.00
	15.17	6.70	10.85
Total	48.96	51.04	100.00
	100.00	100.00	100.00

Source: IES 2000

Figure 1: Number of beneficiaries of social welfare versus the number of poor



Source: Department of Social Development (2006) and IES 2000.

Poverty is often a rural phenomenon. Urban areas are fairly loosely defined in the IES 2000 as any built-up area. This definition thus includes small towns, secondary cities as well as large metropolitan areas. Using the OHS 1995 dataset Woolard (1998) finds that poverty rates are "*unambiguously highest in small towns, followed by secondary cities and lowest in metropolitan areas*" for a wide range of poverty lines. Table 3 splits urban areas further into urban and metropolitan areas, as defined by the Demarcation Board (see PROVIDE, 2005c). The tables suggest that poverty rates are well below the national average in metropolitan areas (27%). The poverty rate in other urban areas is about 39%, which gives an average for all non-rural areas of 32% (not shown in the table). The poverty rate is significantly higher in rural areas (73%).

Table 3: Poverty rates and poverty distribution by location (b)

	Poor	Non-poor	Total
Metro	26.99	73.01	100.00
	18.53	48.07	33.61
Urban	39.16	60.84	100.00
	20.20	30.11	25.26
Rural	72.93	27.07	100.00
	61.27	21.82	41.14
Total	48.96	51.04	100.00
	100.00	100.00	100.00

Source: IES 2000

During the 1960s and 70s the South African government, as part of their apartheid policy, set aside various areas known as homelands. The homelands would typically be made up of Africans of a specific ethnic group, depending on the geographic positioning and dominant ethnic group of the region. Homelands were either partially self-governed or in some cases independent from the Republic. The former homelands cover an area of less than 13% of the total land area of South Africa, but are still today home to 33% of the population. Given decades of under funding, poor management, and economic and geographical isolation, the homelands areas typically have a poor infrastructure and a high incidence of poverty and unemployment (see PROVIDE, 2005c for more). Taken as a whole the former homelands areas have an average poverty rate of 72% compared to only 37% in the rest of South Africa (Table 4). The inhabitants of homelands are virtually without exception African. It is further interesting to note that the poverty rate among Africans living in non-homelands areas is only 47% (not in the tables).

Table 4: Poverty rates and poverty distribution in the former homelands

	Poor	Non-poor	Total
Rest of SA	37.36	62.64	100.00
	51.03	82.05	66.86
Homelands	72.36	27.64	100.00
	48.97	17.95	33.14
Total	48.96	51.04	100.00
	100.00	100.00	100.00

Source: IES 2000

As far as gender of the household head and education level of the household head is concerned, some important features can be highlighted. The poverty rate among individuals living in female-headed households is 64%, compared to only 38% among male-headed households. Educational attainment of the household head is also important, and less education typically means higher poverty rates. The poverty rate in households where the head has no education is a staggering 76%, compared to virtually no poverty among households where the head has a tertiary education (1%).

Table 5: Poverty rates and poverty distribution by gender of the household head

	Poor	Non-poor	Total
Male-headed	38.00	62.00	100.00
	45.36	70.98	58.43
Female-headed	64.36	35.64	100.00
	54.64	29.02	41.57
Total	48.96	51.04	100.00
	100.00	100.00	100.00

Source: IES 2000

Table 6: Poverty rates and poverty distribution by education level of the household head

	Poor	Non-poor	Total
No educ/unknown	75.52	24.48	100.00
	34.88	10.83	22.60
Primary	62.30	37.70	100.00
	40.87	23.68	32.09
Lower secondary	38.66	61.34	100.00
	17.84	27.11	22.57
Upper Secondary	16.77	83.23	100.00
	6.31	30.01	18.42
Tertiary	1.13	98.87	100.00
	0.10	8.38	4.33
Total	48.92	51.08	100.00
	100.00	100.00	100.00

Source: IES 2000

3. Modelling the welfare impacts of targeted welfare transfers

3.1. Computable General Equilibrium Model

The PROVIDE Project standard computable general equilibrium (CGE) model is used to model the impact of targeted cash transfers on poverty, inequality and welfare in the South African economy. This model is a member of the class of single country computable general equilibrium (CGE) models that are descendants of the approach to CGE modelling described by Dervis et al. (1982). Following Pyatt (1998), the model is based on a Social Accounting Matrix (SAM), which serves to identify the agents in the economy and provides the database with which the model is calibrated. A detailed description of the model behavioural relationships can be found in PROVIDE (2005d).

3.2. Social Accounting Matrix

The primary benchmark data used to calibrate the CGE model is arranged in the form of a Social Accounting Matrix (SAM), which is a system of accounts recording all transactions between agents in the economy. The SAM is a 309-account aggregation of the PROVIDE SAM for South Africa in 2000 (see PROVIDE, 2005a for a full description of the South African SAM). The model SAM has 32 commodities, 39 activities, 56 factors, including GOS (capital), nine land factors (one for each province) and 46 labour factors. The model SAM uses the fully disaggregated 162 household accounts of the PROVIDE SAM. There are also accounts for taxes, enterprises, the government, savings and investment, and an account for international transactions (rest-of-world). A full listing of the accounts for this study is given in the appendix (section 7, see Table 10 and Table 11).

The disaggregation of the household accounts deserves more attention. Households are disaggregated by province, race, farming/non-farming, homelands/non-homelands, gender of the head of the household, education level of the head of the household, and income of the household (see Table 11). The racial group and homeland/non-homeland distinction is driven by the history of South Africa. There are large differences in income levels and sources of income, expenditure patterns, poverty rates and other characteristics between households of different racial groups. African households living in homeland areas are also typically more impoverished and isolated from the formal economy than non-homeland African households, hence this distinction in certain provinces (see Table 1 and Table 3).

A further consequence of South Africa's past is the presence of 'fractured families'. The country has a very large share of female-headed households who are left to run the household while their husbands search for work on mines and in the cities. This has had important social

implications, especially in rural areas, with husbands often failing to return home or fulfil their commitments in terms of providing financial support to the family (see Table 5).

Education levels capture a skills dimension and improve the relationship between factor and household accounts. Evidence in South Africa suggests a high correlation between education levels and employment status (Bhorat and Leibbrandt, 1996), and also between unemployment and poverty (see for example May, 1998). As a result the education-poverty linkages are also very strong (Table 6). Only very large groups were further split into low-income and high-income groups, with the cut-off point around the median of income within the larger group.[5]

3.3. Simulation setup

A series of ten simulations are run under a variety of different model closures. In each simulation a set amount of funds is transferred to each member of a targeted representative household group. This transfer takes place over and above existing transfers from government to these to households. The total transfer value is limited to R15bn per annum, hence the higher the transfer per capita the fewer individuals receive the transfer. In simulations one to five (labelled *sim01* to *sim05*) each member of a targeted household group receives R40, R60, R80, R100 and R120 per month respectively. Simulations six to ten (labelled *sim06* to *sim10*) repeat the R40 to R120 per capita per month simulations, but now assume that government incurs an administration fee equal to 25% of the total value of the increase in transfers.[6]

Targeting is based on two basic assumptions: firstly, the total value of the transfer is limited to R15 billion per annum due to some hypothetical budget constraint,[7] and, secondly, household groups with the highest poverty rates receive transfers first until the budget is depleted. Thus, for low transfer values many household groups can be targeted and *vice versa*. The aim of the simulations is to evaluate the trade-off between broad targeting and narrow targeting given a budget constraint. Given the way in which household groups were constructed each household group contains poor and non-poor households. This implies that

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5 Obviously not all provinces or races can be disaggregated fully using these criteria due to limited numbers of observations for some of the criteria. For example, there are no homelands in the Western Cape, and too few farming households in the Northern Cape to justify having separate household groups for these. In most provinces Coloured and Asian households are also grouped together due to limited number of either or both of these households.

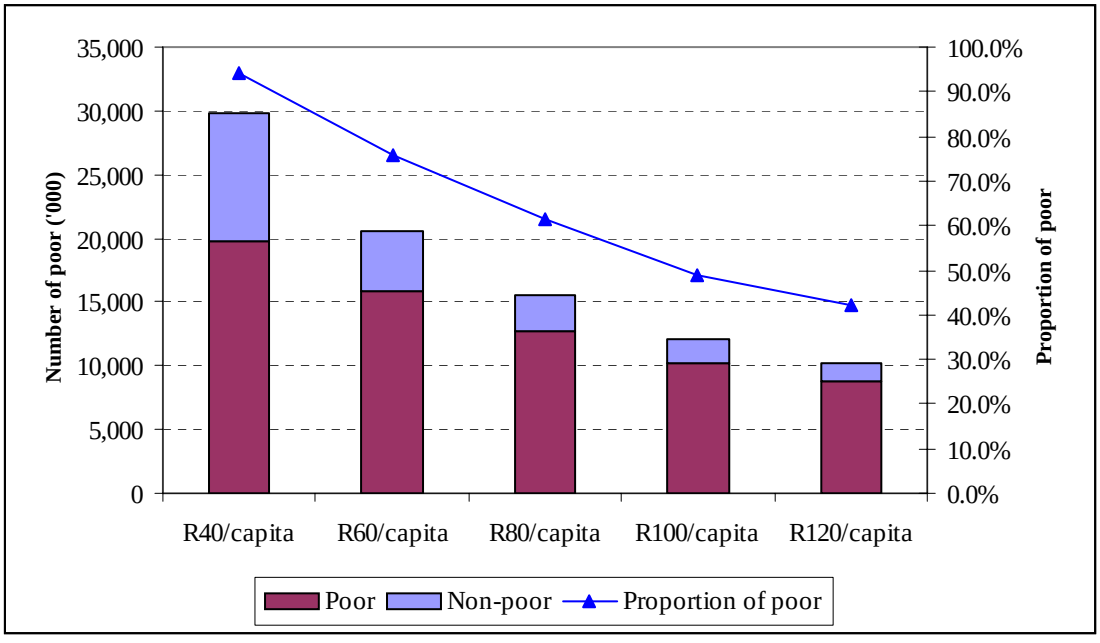
6 This is probably an over-estimate of the true administration cost, although very little information exists about what the true cost of a targeted cash grant would be. At present the administrative costs of disbursing R52 billion worth of welfare transfers (pensions, disability grants and child grants) is about R3.5 billion or 6.8% (National Treasury, 2006).

7 The budget constraint is strictly set at R15 billion or less, i.e. a household group that causes the budget to exceed R15 billion cannot be added. In order to maintain the transfer value at R15bn the actual per capita transfer amount is adjusted slightly in each simulation. Therefore, the exact transfer amounts are actually R42, R61, R81, R104 and R122 per capita per month for the various simulations.

if a household group is targeted for transfers both poor and non-poor members of the household group will receive the transfer. This is a consequence of the top down approach adopted. An alternative bottom up approach would have required the calculation of the transfers by reference to the individual households in the survey and then grossing up the transfer for each representative household group. Of course the bottom up approach implies that there is some form of comprehensive means testing that ensures 'perfect' targeting, but that would be expensive to implement. However, as shown below the proportion of non-poor in targeted households is not extremely high and declines as the target group is narrowed. A listing of all the household groups, their poverty statistics and targeting under the various simulations is shown in Table 11 in the appendix.

Figure 2 shows the number of recipients under each simulation. For a R40 per capita transfer value 95 household groups across South Africa and a total population of about 29.8 million are reached. Of these 19.7 million are poor. Approximately 94% of the poor are reached in this simulation (line graph). However, at a transfer value of R480 per capita per annum it only brings the poor marginally closer to the poverty line of R3,864 per annum, while about a third of the transfer is 'lost' by transferring it to non-poor individuals. The figure shows how the number of targeted individuals falls and the ratio of poor to non-poor increases in favour of the poor as the per capita transfer value increases. However, as shown by the line graph the proportion of the poor reached also declines as targeting becomes narrower. At a transfer value of R120 per capita, only 42% of the poor are reached. A total of 10.2 million individuals are targeted of which only 1.4 million (14%) are classified as non-poor.

Figure 2: The trade-off between transfer value and the number of recipients



3.4. Model closures

Model closures are selected with the objective of providing a realistic representation of the South African economy. In a policy experiment such as this one where a large expenditure is incurred by the government, the government closure rules are important as they capture the different financing options to be considered by policymakers. Mathematically speaking, closure rules ensure that the number of variables and equations in the model are consistent, a necessary condition for the model to solve. In economic terms closure rules define fundamental differences in perceptions of how economic systems operate.

3.4.1. Government closure

Two government closures are considered. In the base-scenario the *government account* is closed by variations in the level of government borrowing or savings – that is the size of the budget deficit or surplus. This implies that the increase in transfers from government to targeted households is financed through an increase in government borrowings (deficit financing). All tax rates are assumed to remain constant under the deficit financing closure.

Alternatively the government can raise revenue via an increase in the direct income tax rate of households. Various other tax rate instruments could also have been considered, but given that the funding is required for transfers to households it seems realistic that government would recover these funds from household income taxes. Essentially the average household tax rate under the tax replacement scenario is endogenised and the model solves for that tax rate that will balance the government budget.

The model simulations also allow for the specification of an administration cost component. As mentioned previously *sim01* to *sim05* simulates transfers ranging from R40 to R120 for each member of a targeted household with zero administration cost, while *sim06* to *sim10* repeat the same, only now assuming an administration cost component equal to 25% of the total transfer value of R15 billion (R3.75 billion). This administration cost component is added to the government expenditure on goods and services and therefore it makes sense to fix the value of government expenditure in the closure.

3.4.2. Factor market closures

There are various factors of production in the model, including land, capital and different types of labour. The labour accounts are grouped into three sub-groups labelled ‘skilled and high skilled’, ‘semi-skilled’ and ‘unskilled’. Land is always fully employed and activity-specific, i.e. it cannot be moved from one activity to the other. For the capital market closure we distinguish between the long- and short run. In the long run capital is fully employed and fully mobile across sectors. In a short-run closure capital is activity-specific. Skilled labour is

always fully employed and fully mobile across sectors. However, for semi-skilled and unskilled labour certain of the closures explore the situation where such factors are unemployed.

The allocation of labour accounts in the SAM to the three broad labour categories is listed in Table 7. In all the closures 'skilled and high-skilled' workers are assumed fully employed. 'Unskilled' workers, on the other hand, are typically modelled as unemployed given South Africa's high unemployment rate among poorly educated low-skilled workers (see Bhorat and Leibbrandt, 1996). The more difficult group is the 'semi-skilled' one. By construction this group contains workers that are unskilled (such as White unskilled workers), semi-skilled (mostly African semi-skilled workers) or unspecified (such as aggregated Coloured and Asian workers), and hence some uncertainty exists as to which closure best applies to this group. Consequently we regard this as a 'grey area', which is why different closure alternatives are explored (see Table 8 for details).

Table 7: Labour group classifications

Skilled & High-skilled – always fully employed		**Semi-skilled – 'grey area', compare full employment and unemployment closures**		**Unskilled – always unemployed**	
fwcafskil	WC Skilled African labour	fwcafunsk	WC Semi and Un skilled African labour	fwccounsk	WC Unskilled Coloured labour
fwccoskil	WC Skilled Coloured and Asian labour	fwcwhunsk	WC Unskilled White labour	fwccofm	WC Farm Coloured and Asian labour
fwcwhskil	WC Skilled White labour	fecwhunsk	EC Unskilled White labour	fecafunsk	EC Unskilled African labour
fecafskil	EC Skilled African labour	fnccolab	NC Coloured and Asian labour	fecaffm	EC Farm African labour
feccoasskil	EC Coloured and Asian skilled labour	ffscolab	FS Coloured and Asian labour	feccounsk	EC Coloured and Asian unskilled
fecwhskil	EC Skilled White labour	ffswhunsk	FS Unskilled White labour	fncaflab	NC African labour
fncwhlab	NC White labour	fkznafsemi	KZN Semi skilled African labour	ffsafunsk	FS Unskilled African labour
ffsafskil	FS Skilled African labour	fkzncolab	KZN Coloured labour	fkznafunsk	KZN Unskilled African labour
ffswhskil	FS Skilled White labour	fkznwhunsk	KZN Unskilled White labour	fkznaffm	KZN Farm African labour
fkznafskil	KZN Skilled African labour	fnwafsemi	NW Semi skilled African labour	fkznasunsk	KZN Unskilled Asian labour
fkznasskil	KZN Skilled Asian labour	fnwcolab	NW Coloured labour	fnwafunsk	NW Unskilled African labour
fkznwhskil	KZN Skilled White labour	fgtafsemi	GT Semi skilled African labour	fgtafunsk	GT Unskilled African labour
fnwafskil	NW Skilled African labour	fgtcolab	GT Coloured labour	fmpafunsk	MP Unskilled African labour
fnwwhlab	NW White labour	fgtaslab	GT Asian labour	flpafunsk	LP Unskilled African labour
fgtafskil	GT Skilled African labour	fgtwhunsk	GT Unskilled White labour		
fgtwhskil	GT Skilled White labour	fmpafsemi	MP Semi skilled African labour		
fmpafskil	MP Skilled African labour	fmpcolab	MP Coloured and Asian labour		
fmpwhskil	MP Skilled White labour	fmpwhunsk	MP Unskilled White labour		
flpafskil	LP Skilled African labour	flpafsemi	LP Semi skilled African labour		
flpwhlab	LP While labour	flpcolab	LP Coloured and Asian labour		

3.4.3. Other closures

The *foreign exchange market* is assumed to clear via a flexible exchange rate and therefore the external balance (or current account balance) remains fixed. Since South Africa is a small country it is a price taker on international markets, i.e. all prices of imported and exported goods are fixed in foreign currency units.

The *capital account* records all savings and investment related transactions. Under the deficit financing option a savings-driven investment closure is assumed whereby the household and enterprise savings rates are fixed. As the deficit increases the total pool of savings in the economy falls, and therefore investments decline as well. Under all the tax replacement closures the capital account is closed by assuming that the share of investment expenditure in total final domestic demand remains constant. This allows for some variation in the volume of investment due to changes in the prices of investment goods and from any change in the total value of domestic absorption. The equilibrating variables are the savings rates of all households and incorporated business enterprises. These rates are allowed to vary equiproportionately, which ensures that the savings equal investments in the economy.

All prices in a CGE model are expressed relative to the *numéraire*, a fixed price (or price index) in the model. In this study the model *numéraire* is the consumer price index (CPI), and consequently all the value results of the model are expressed in real terms. Table 8 provides a summary of the different closures considered in the model.

Table 8: Closures in the model: a summary

Closure name	Government	Capital	Semi-skilled labour	Unskilled labour
deficitfin	Deficit finance closure. Assume 0% administration cost for simulations 1 to 5 and 25% for simulations 6 to 10.	Fully employed and mobile (long run)	Fully employed and mobile	Fully employed and mobile
hhdirtaxsr1	Flexible household income tax rate closure. Assume 0% administration cost for simulations 1 to 5 and 25% for simulations 6 to 10.	Fully employed and activity-specific (short run)	Fully employed and mobile	Fully employed and mobile
hhdirtaxsr2	Flexible household income tax rate closure. Assume 0% administration cost for simulations 1 to 5 and 25% for simulations 6 to 10.	Fully employed and activity-specific (short run)	Fully employed and mobile	Unemployed
hhdirtaxsr3	Flexible household income tax rate closure. Assume 0% administration cost for simulations 1 to 5 and 25% for simulations 6 to 10.	Fully employed and activity-specific (short run)	Unemployed	Unemployed
hhdirtaxlr	Flexible household income tax rate closure. Assume 0% administration cost for simulations 1 to 5 and 25% for simulations 6 to 10.	Fully employed and mobile (long run)	Fully employed and mobile	Unemployed

Notes: Skilled labour is always fully employed and mobile while land is always fully employed and activity-specific. Under the deficit financing closure the model is savings-driven, while a 'balanced' savings-investment closure is set up for the remaining closures.

3.5. Further remarks about the model setup and simulations

As with any other attempts at modelling behaviour there are some limitations to the way in which the household transfer is simulated here. One such limitation is a general weakness of CGE models that make use of the representative household group assumption whereby each individual member of the representative household is assumed to act in exactly the same way. The way in which household groups were formed in the SAM tries to explain as much of the heterogeneity by forming many diverse household groups, but lacks an explicit income dimension. Therefore each household group contains both 'poor' and 'non-poor' individuals (or households), and hence in theory, even though relatively poor household groups are targeted, both poor and non-poor members of a household group will receive the transfer.

Tying in with this are the notions of take-up rates and self-selection. In the modelling of the welfare transfer we assume that all members of a targeted household group receive and take up the transfer. Arguably a household group with a larger proportion of non-poor individuals, many of who may be working individuals, will have a lower take-up rate because

individuals will consider the opportunity cost of waiting in a queue to receive the transfer and may therefore decide against taking up the grant (self-selection).

The targeting options are also numerous. Some may argue that it is better to target household groups with a high depth of poverty as measured by the P_1 or P_2 measures. Alternatively one could target households with a large absolute number of poor individuals, or household groups with the largest proportion of poor people within the region or within in the country as a whole. The targeting criterion in this study represents one option out of whole range of options and is particularly useful to study the impact of targeting on poverty rates among the poorest households groups, while it is also useful for comparisons between broad and narrow targeting with a fixed budget constraint.

4. Results and discussion

4.1. CGE model results

4.1.1. The government closure and administration costs

Section 3.4.1 described the various government closures considered. In simulations one to five (*sim01* to *sim05*) the cost of the transfer is held constant at R15 billion, while in simulations six to ten (*sim06* to *sim10*) an administration cost of R3.75 billion is added to the R15 billion transfer cost. In both these sets of simulations the cost is either financed via an increase in the government deficit (closure *deficitfin*) or via an increase in household income taxes collected by government (any of the other closures). Here we compare closure *deficitfin* and the short-run full employment closure (*hhdirtaxsr1*) (see Table 8) to evaluate the impact under different government closure assumptions. In all instances only *sim01* and *sim06* are considered. These simulations represent a broadly targeted R40 per capita per annum transfer either without (*sim01*) or with (*sim06*) an administration cost component.

The R15 billion transfer value represents an increase in transfers from government to households from R26.7 billion in the base to R41.7 billion (56.2%). In *sim06* an additional amount of R3.75 billion is incurred in respect of administration costs. This is a 2.4% increase in government's base-level expenditure on goods and services of R156.7 billion. Under the deficit financing closure option the increased expenditure leads to an increase in the deficit from R20.3 billion (2.6% of GDP) in the base to R35.6 billion (75.2% increase to 4.5% of GDP) in *sim01* and R39.8 billion (96.3% increase to 5.0% of GDP) in *sim06*.[8]

[8] The deficit-to-GDP ratios are expressed in terms of the base-level GDP of R793.6 billion. The change in nominal GDP is negligible in all the closures-simulation combinations, ranging between no change and 0.1% decline. The nominal GDP change is also negligible given almost no change in the CPI.

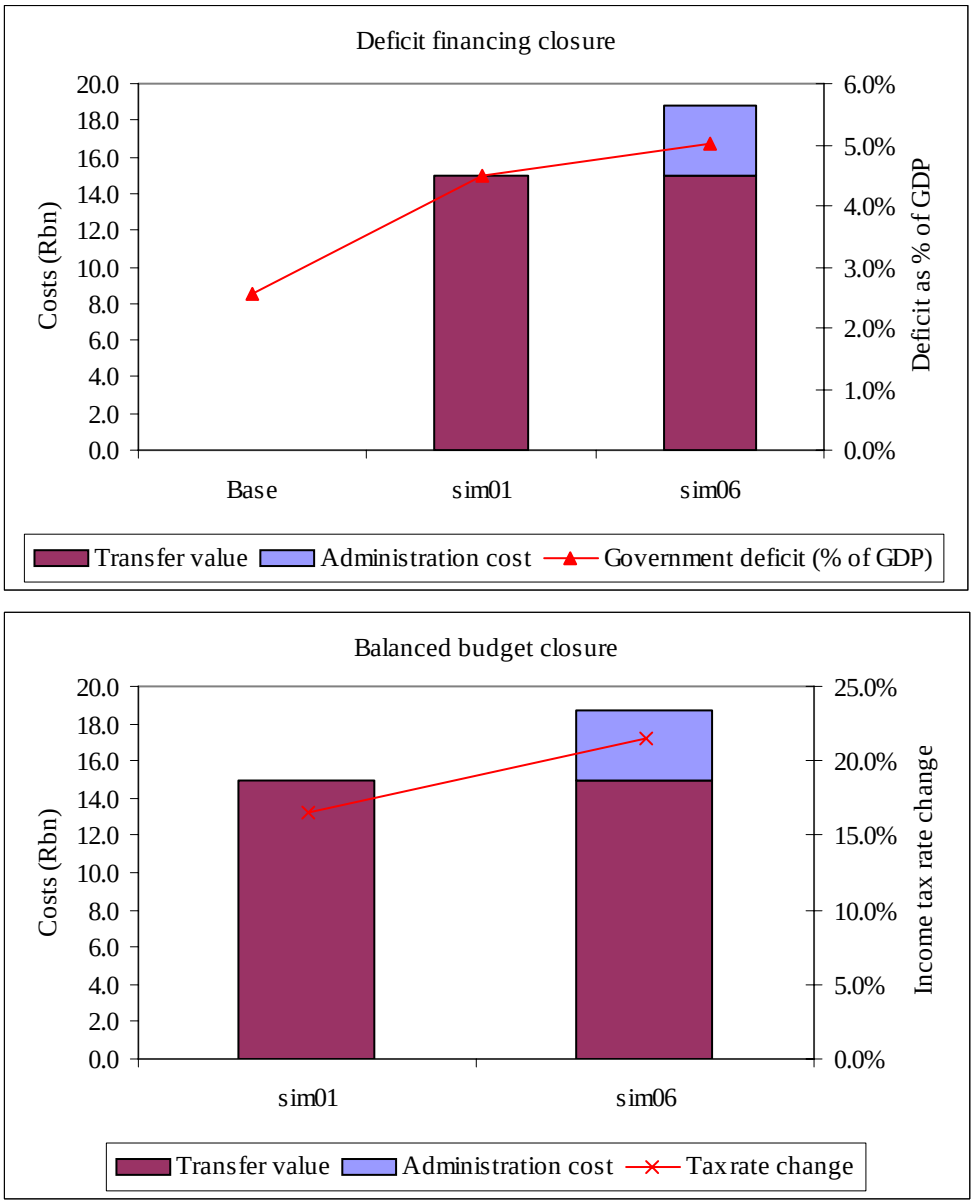
Under the savings-driven investment closure adopted for the deficit financing closure the savings rates of households and enterprises are fixed, and any change in total savings by these institutions comes as a result of changes in income. Under this closure households increase savings by 0.8% and 0.9% in *sim01* and *sim06* respectively, while enterprise savings are largely unaffected (0.0% and –0.1%). However, the large drop in government savings causes overall savings in the economy to decline by 10.3% and 13.3% in *sim01* and *sim06* respectively, and hence total investment declines by these same percentages. Households' disposable income increases as a result of the increased transfer, and hence they are able to increase expenditure. In fact, real private consumption of all households increases by 2.5% and 2.6% in *sim01* and *sim06*. However, this comes at the expense of a rather substantial reduction in investments. This will directly impact on the future growth potential of the economy via its impact on capital stock, which will decline substantially. A static CGE model such as this does not show this adverse effect directly. A dynamic model will pick up changes in capital stock over time and the impact will be seen in the productive capacity of the economy.

In the tax replacement closure (*hhdirtaxsr1*) the investment share of domestic demand is fixed. The value of domestic demand barely changes (-0.1% and 0.0% in *sim01* and *sim06*) and therefore total investment is also virtually unchanged. Since household taxes are increased in order to maintain the base-level government deficit direct tax revenue is increased by 12.5% and 16.2% in *sim01* and *sim06* respectively from a base of R119.4 billion. All the additional tax revenue is sourced from households, whose average tax rates increase by 16.5% and 21.5% in *sim01* and *sim06* respectively.[9] Figure 3 shows the transfer and administration costs graphically under different financing options.

While higher taxes cause the disposable income of households to decline, the increased transfers have a positive effect. The end result is only small changes in overall private household consumption: it remains constant in *sim01*, but decreases by 0.7% in *sim06* due to added requirement of financing the administration costs. These are of course the aggregate economy-wide effects. Typically low-income household groups pay less tax, while they are more likely to receive the transfer. As a result the income distribution may change. A more detailed analysis of the intra-household effects follows (section 4.2).

9 This implies that a hypothetical household that pays an *average* tax rate of 20% on income now pays 23.3% in the case of *sim01* or 24.3% in the case of *sim06*.

Figure 3: Deficit financing and balanced budget simulations



Note: The right-hand vertical axis of the bottom figure shows the *change* in the tax *rate*, not the average tax rate. See footnote 9.

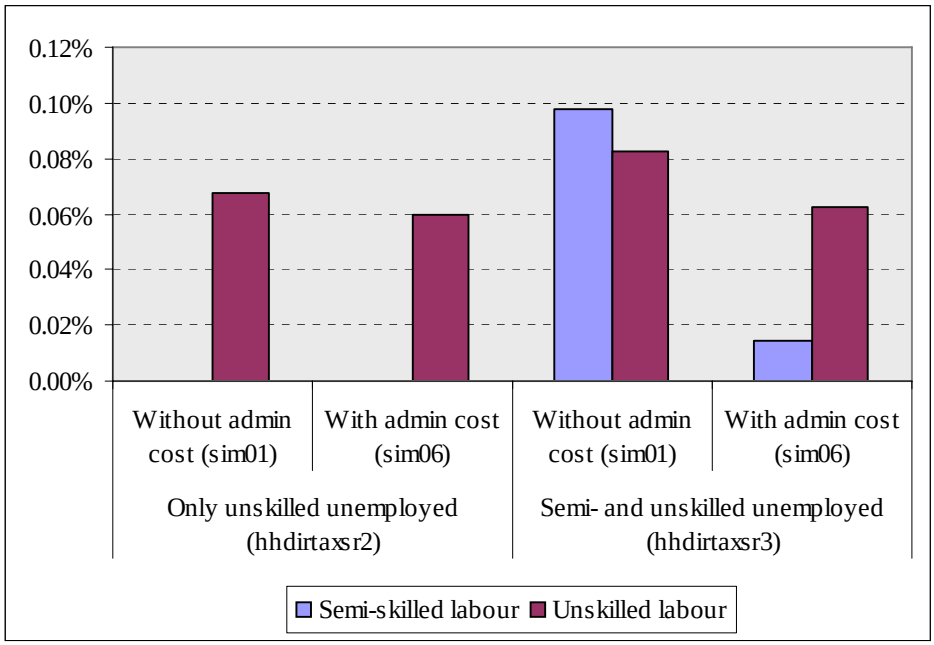
The administration cost scenario also has an employment-side effect that should be explored. Government accounts for about 26% of total expenditure (including intermediate input expenditure, consumer demand, investment and exports) on the commodity 'other services' (*aoserv*). This service is supplied entirely by the 'other services' activity. As a result of the administration cost incurred by government employment is likely to increase in this industry. In fact, under the deficit finance closure employment increases by 0.8% in *sim06* compared to only 0.3% in *sim01*. Similarly, under the tax replacement closure the employment *decline* in *sim06* is 0.2% compared to a much larger relative decline of 0.5% in *sim01*. Granted, these employment effects are small, but the different impacts are clear.

4.1.2. Unemployment closures

South Africa is infamous for its high and persistent unemployment rates. Under the standard full employment assumption wage rates adjust in order to maintain the employment level. Under the 'unemployment closure' a fixed wage rate is assumed, and hence the level of employment varies in order to equilibrate labour supply and demand. Important welfare effects arise since the unemployment closure is usually applied to low-skilled workers that are typically attached to low-income households. A loss of a job potentially has a much more severe impact than a drop in wages. The decision about which labour categories should be treated as 'unemployed' is therefore important.

The overall employment impact in the various transfer simulations is small. In fact, as shown in Figure 4 unskilled employment increases by only 0.07% in *sim01* (without administration cost) compared to a 0.06% increase in *sim06* (with administration cost). There is no change in skilled employment under closure *hhdirtaxsr2* since full employment is assumed. When both semi- and unskilled labour are treated as 'unemployed' (closure *hhdirtaxsr3*) the employment effects are slightly larger since employers can now increase demand for semi-skilled labour as well without the risk of rising wages. Clearly, the inclusion of an administration cost component has a relatively large impact on semi-skilled labour compared to its impact on unskilled labour (see discussion further below).

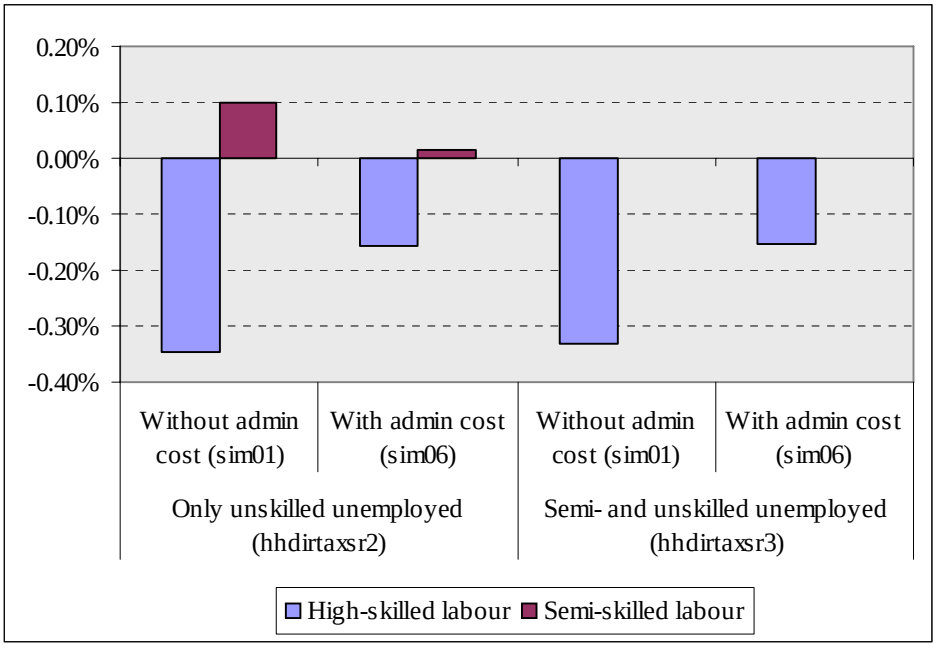
Figure 4: Changes in employment levels under different closure assumptions



Under a full employment closure the equilibrating variable is the wage rate. Figure 5 shows the changes in wage rates under the different closures. Skilled and high-skilled workers are always fully employed, and experience a decline in average wages under both

simulations, i.e. without administration cost (*sim01*) and with administration cost (*sim06*). Semi-skilled workers' average wage, however, increases as a result of an increase in demand for labour.

Figure 5: Changes in average wages under different closure assumptions



Note: Each broad factor group is made up of SAM factor accounts as shown in Table 7. The 'average' change of a broad factor group is calculated as the weighted average of each individual factor account's percentage change in the wage. The employment level (factor supply) of each factor account is used as the weight.

The conclusion drawn from Figure 4 and Figure 5 is that there appears to be an overall increase in the demand for semi- and unskilled labour, and a decrease in demand for skilled and high-skilled labour. This is deduced from the fact that employment levels (or wages) of semi- and unskilled workers rise, while wages of high-skilled workers fall under all the scenarios. Although the percentage changes are relatively small, this changing labour demand pattern may have a redistribution effect since skilled (and better remunerated) labour is typically found in higher-income households, while semi- and unskilled workers are typically linked to middle- or lower-income households.

These effects are caused directly by changes in household consumption levels as a result of the welfare transfers and changes in the tax regime. Poor households are targeted and hence receive the welfare grants, while higher-income taxpaying households bear the brunt of the increased tax burden. The effect of this is an increase in the disposable income of low-income households and a decline in the disposable income of high-income households. Low-income households tend to spend more on food commodities that are more semi- and unskilled intensive in terms of production. As a result the demand for semi- and unskilled

workers increases. High-income households, on the other hand, typically consume more high-skilled intensive goods (such as luxury goods and services) and hence as these households' consumption demand declines, there is also a drop in the demand for high-skilled workers.

4.1.3. Long run and short-run closures

The model closures also make provision for a comparison between long run and short-run closures (see Table 8). The only difference between the long run closure, *hhdirtaxlr*, and *hhdirtaxsr2* is the treatment of the factor capital: in the short run the level of capital employed in each activity is fixed (activity-specific), while in the long run capital is mobile between sectors but fully employed at a national level. While results are not affected greatly by this change, it does allow for more flexibility in that capital moves to sectors where the return to capital is higher.

Table 9 shows that, on average, capital demand increases in the agriculture and food sectors. Capital demand in light manufacturing, which consists of industries such as textiles and petroleum products, also increases. However, there is evidence of a decline in demand for capital in the heavy manufacturing and services industries where, evidently, returns to capital are declining in relative terms. These structural shifts concur with our earlier hypothesis about changing household consumption levels. Low-income households, who are the primary beneficiaries of the increased transfers, increase their demand for capital 'unintensive' commodities such as food and textiles, while high-income households who finance the transfers via increased taxes, reduce their demand for the more capital-intensive heavy manufacturing (such as vehicles) and services.

Table 9: Compositional shift in the demand for the factor capital (long run closure)

Aggregated sector	**Without administration cost**	**With administration cost**
Agriculture	1.4%	1.2%
Food	1.6%	1.3%
Mining	0.0%	-0.2%
Light manufacturing	0.5%	0.3%
Heavy manufacturing	-0.3%	-0.4%
Services	-0.2%	-0.1%

Note: Overall economy-wide demand is unchanged by construction (full employment assumption).

4.1.4. Aggregate household welfare effects

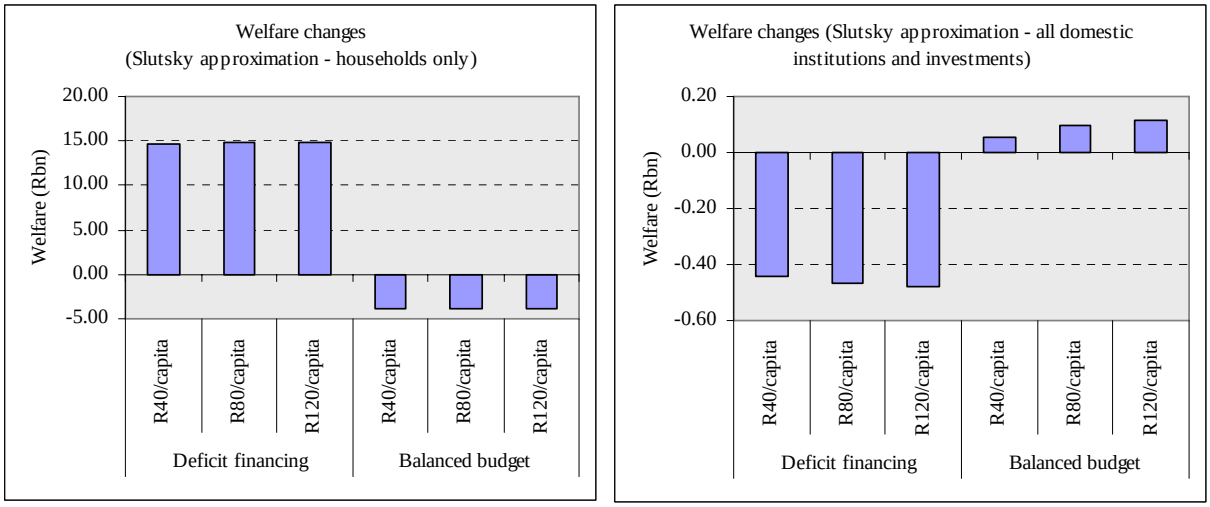
This section briefly reviews some of the aggregate household and economy-wide welfare effects associated with the increased welfare transfer. Section 4.2 looks at the welfare effects at a more detailed household level. The CGE model produces output on aggregate household expenditure changes and the equivalent variation (EV), both of which can be used as proxy for aggregate welfare change. Our focus here is on EV, which, formally, is "*the amount of*

money which would have to be given to the consumer [or household group] *when he faces the initial price* [vector], *to make him as well off as he would be facing the new price* [vector] *with his initial income*" (for more on the definition and interpretation see Gravelle and Rees, 1992:117-119).

Welfare effects are affected by the closure rule. In Figure 6 we compare the economy-wide welfare effect of a R40, R80 and R120 per capita transfer with the administration cost option (*sim06*, *sim08* and *sim10*) under two closures, namely the full-employment deficit financing closure (*deficitfin*) the short-run balanced budget closure with unskilled unemployment (*hhdirtaxsr3*). The left-hand panel shows the Slutsky approximation of the welfare effect (EV) for households. Under the deficit financing option there is a large positive effect since households benefit from the transfer without having to pay more tax. However, with the tax replacement policy in place (balanced budget) the welfare impact is negative. This is an important result as it suggests that an increase in welfare transfers will come at a net cost to households as measured aggregate EV.

The right-hand panel of Figure 6 shows the aggregate welfare change for all domestic institutions, which includes government, households and enterprises. This measure also takes into account changes in investment. Here the net welfare effect is negative under the deficit financing option due to the large decline in investment resulting from the large increase in the deficit. Under the balanced closure scenario, however, increased government expenditure allows for the net effect to be positive. It must be noted that these welfare effects should be used as a guideline only and are not rigorous indications of welfare changes due to aggregation and approximation issues. It is also interesting to note that the aggregate welfare effect increases marginally as the transfer value is increased and becomes more focused on low-income households, despite the fact that the overall transfer value is restricted to R15 billion.

Figure 6: Welfare changes using the Slutsky approximation technique



Note: The aggregate economy-wide welfare effects are very similar under all three simulations considered since the total transfer value is fixed at R15 billion. A positive change reflects a positive welfare effect and *vice versa*.

While the transfer comes at a net welfare loss for households, it is instructive to look at the welfare changes of households within provinces. Provinces such as the Eastern Cape, KwaZulu-Natal and Limpopo contain most of the poor household groups, and as a result receive a larger share of the transfer. Provinces such as Gauteng and the Western Cape, on the other hand, carry most of the increase in the tax burden and hence experience a decline in welfare. These welfare effects are shown in Figure 7 (also compare Figure 1). Compared to the R40 per capita transfer the welfare effects become more pronounced for the R120 transfer as fewer households in the higher income provinces receive the transfer but are still required to carry the same share of the tax burden as before.

Figure 7: Welfare changes by province

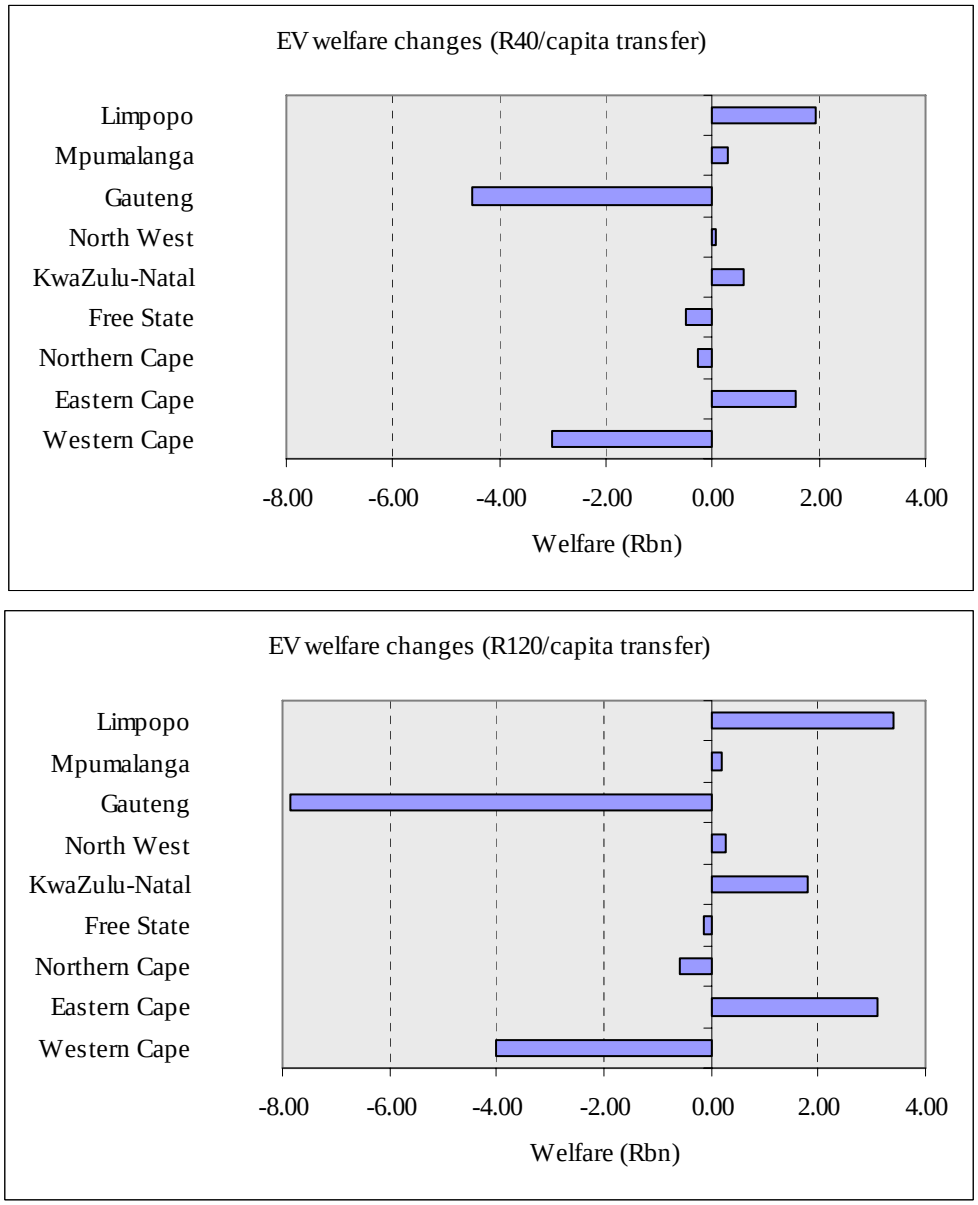
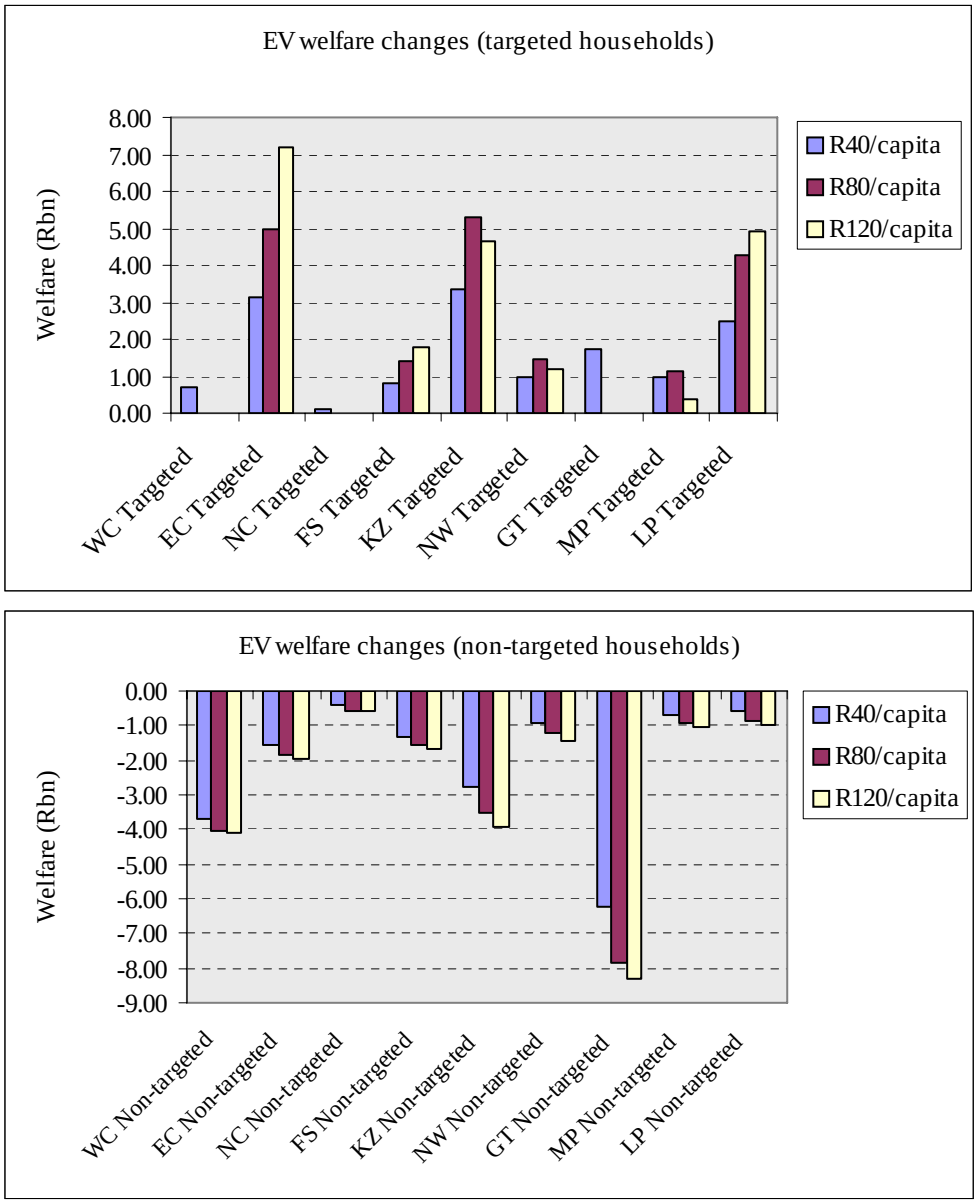


Figure 8 compares the welfare effects within each province but distinguishes between targeted and non-targeted households. In all instances targeted households experience a net welfare gain, which implies that the gain from the transfer offsets the loss associated with the increased tax. This gives weight to earlier suggestions that the recipients of the transfers typically do not pay tax and hence are not affected by tax increases to the extent that their net gain from the transfer is negative.[10] In some provinces where recipients are also taxpayers the gain from the transfer is fairly low. The non-targeted households, on the other hand, all experience declines in welfare due to the impact of the increased taxes.

[10] Note that the tax replacement policy assumes that all taxpayers' average tax rate is increased by the same proportion, i.e. the tax rate increase is applied equiproportionately across all household groups and taxpayers. Thus, if a household does not pay any tax in the base-level, the household will not be required to start paying tax to finance part of the transfer.

Figure 8: Comparing welfare effects between recipient and non-recipient households



4.2. Linking the CGE results to the survey data

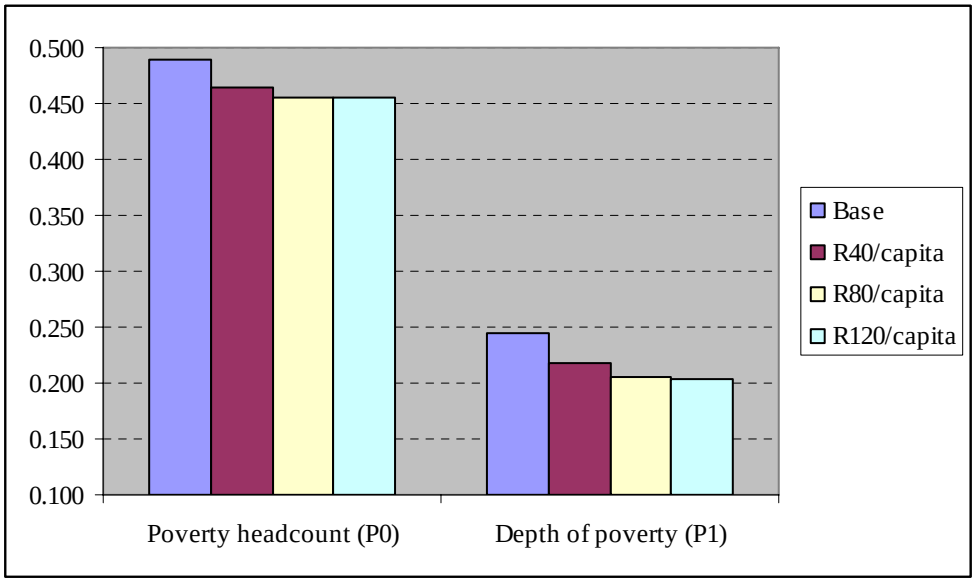
Section 2.2 presented some poverty summary statistics for the South African population where per capita income was used as the welfare measure and a poverty line of R3,864 per annum was assumed. These poverty estimates represent the pre-transfer (base) estimates. The method followed here takes the predicted percentage change in per capita expenditure as the welfare change measure since it takes into account the change in *disposable* income as a result of transfers received and increased taxes. These predicted changes are reported at the household group level in the CGE model. Given the assumptions of the CGE model each individual member of the household group (and by extension each individual member of the household given the assumption of a uniform intra-household income distribution) experiences the exact same change in his or her per capita expenditure.

In order to evaluate the welfare effects the per capita income of each person in the survey (IES/LFS 2000) is adjusted with this percentage change. Poverty and inequality estimates are recalculated and any changes are analysed in a comparative static fashion. In particular comparisons are made across geographical regions, race, and gender of the head of the household. In all the results presented below we consider a R40, R80 and R120 per capita transfer with administration cost under the short-run tax replacement closure with semi- and unskilled unemployment (*hhdirtaxsr3*).

The individual-level analysis using survey data suggests that the transfer simulation will have a fairly small impact on the poverty rate and the depth of poverty. Figure 9 shows a decline in the poverty headcount (P_0) from 49.0% in the base to 46.5% in the case of the R40 per capita transfer. It drops further to 45.6% for the R80 transfer, and only marginally to 45.5% in the case of the R120 transfer. Under a broadly targeted simulation many of the poor are included, and particularly those that are close to the poverty line. Even a small R40 transfer enables a relatively large group of people to escape poverty. In the R80 simulation the transfer is targeted at the very poor, many of whom are further away from the poverty line, so despite the fact that the transfer value is increased not many more people are brought out of poverty.

The figure also shows the change in the depth of poverty measure (P_1), which decline from 0.245 in the base to 0.217, 0.206 and 0.204 respectively. Clearly as the transfer value increases targets the very poor more directly the depth of poverty is reduced, i.e. more people are brought closer to the poverty line without necessarily escaping poverty.

Figure 9: National-level poverty headcount ratio and the depth of poverty



Previously the welfare impacts across provinces suggested that there are winners and losers. Figure 10 shows the regional impact on the poverty headcount ratio.[11] The East Coast experiences the largest decline in the poverty rate, dropping from 62.2% to 55.4%. This is not surprising given that the bulk of the transfer sum is paid to people in this region. Also, as targeting becomes narrower funds are moved from other regions to the East Coast. In the Border region the poverty rate also decline initially for the R40 and R80 per capita transfers, but is starts increasing again for the R120 transfer. This implies that some individuals close to the poverty line cease to receive the transfer as targeting becomes narrower and hence they drop back into poverty. Such increases in poverty rates are also seen in the West Coast and Central regions. In fact, the poverty in the West Coast region actually increases from the base level of 25.3% to 26.1% in the R80 and R120 simulations. This is a tax effect with households that are close to the poverty line having to pay more tax but failing to qualify for the transfer. This points at the importance of ensuring an equitable distribution of the increased tax burden (see footnote 10).

Figure 10: Regional-level poverty headcount ratio

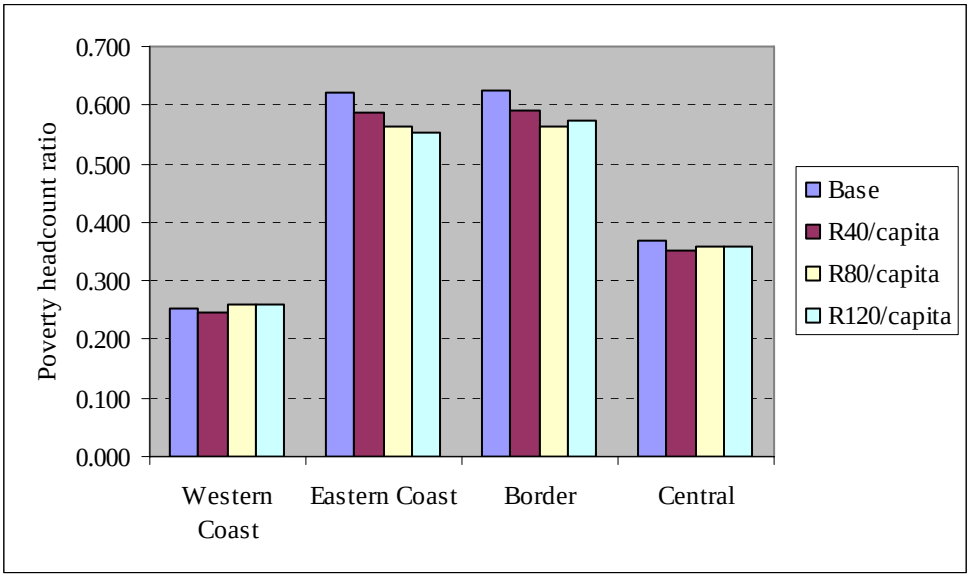


Figure 11 shows the poverty impact across racial groups. Since poverty is most prevalent among African households they were also targeted in the simulations, and hence it is not surprising to see a steady decrease in the poverty rate for all the transfer simulations. Coloured individuals, on the other hand, actually experience an increase in poverty for the R80 and R120 transfer simulations due to the tax effect and the fact that many Coloured people are close to the poverty line. There is virtually no change in the poverty rates among the Asian and White population. Despite having to pay higher taxes and probably not

[11] The regions are defined as follows: West Coast = Western Cape and Northern Cape; East Coast = Eastern Cape and KwaZulu-Natal; Border = Limpopo and Mpumalanga; Central = Gauteng, Free State and North West.

receiving much of the transfer these individuals are far enough from the poverty line to not be affected by increased taxes.

Figure 11: Poverty headcount ratios across racial groups

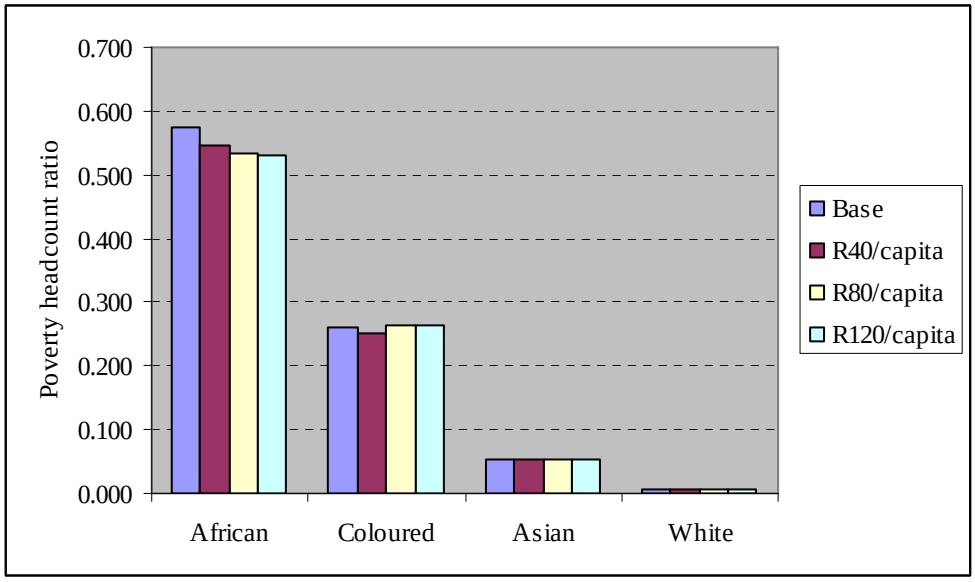
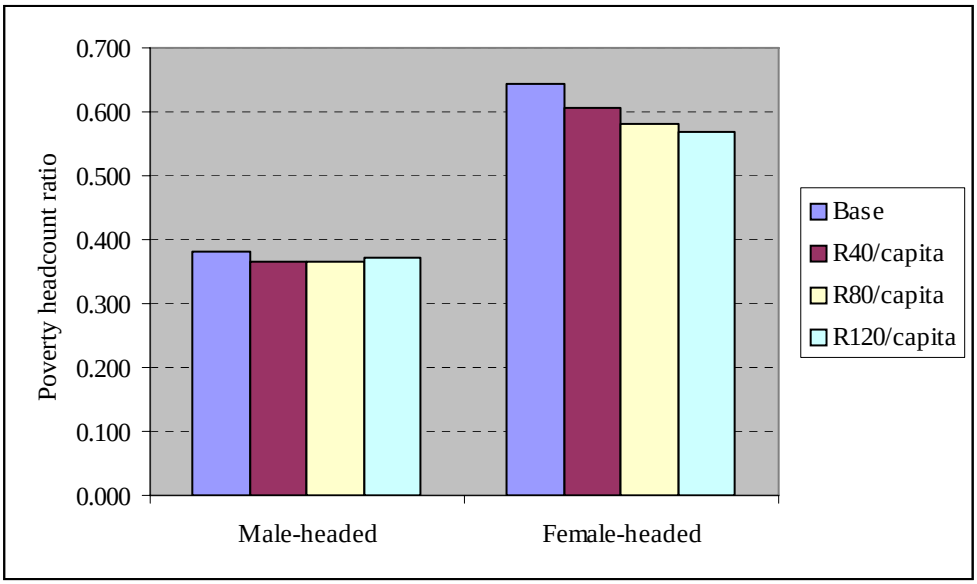


Figure 12 shows the poverty headcount ratios by gender of the head of the household. Many female-headed households were recipients of the transfer, and hence it is not surprising to see a relatively large decline in the poverty rate among these households.

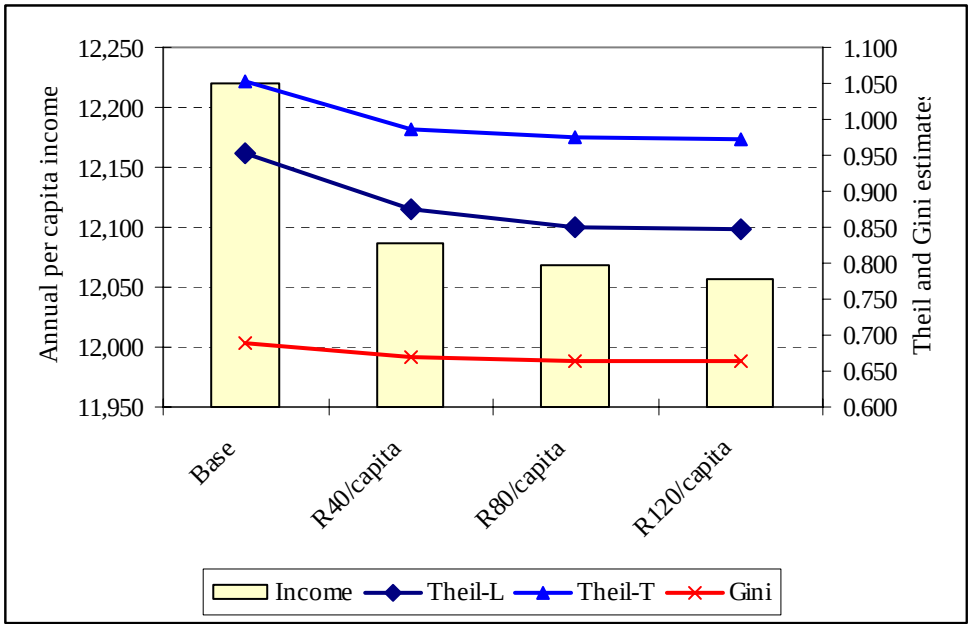
Figure 12: Poverty headcount ratios and the gender of the household head



The percentage change in the mean per capita income shown in Figure 13 is extracted directly from the CGE model results. The change is minimal, ranging from a drop of 1.1% to 1.3% in the R40 and R120 simulations. This drop is consistent with earlier findings of a net welfare loss to households. In all the simulations tax increases are likely to impact more on

middle- to high-income households and hence a decline in inequality is expected. Figure 13 shows various inequality estimates, including the Theil-L and Theil-T indices, as well as the Gini coefficient. All show a decline in inequality as a result of the transfer. The difference between the R40, R80 and R120 transfer simulations is, however, quite small.

Figure 13: Changes in per capita income and inequality estimates



5. Conclusions and policy recommendations

Despite widespread poverty there is general consensus among policymakers about the preference of targeted welfare transfers over non-targeted grants due to the budgetary implications of the latter. Targeting, however, adds to the administrative complexities of disbursing welfare grants, thus introducing a cost dimension that is as yet largely unexplored. Preliminary results suggest that the poverty impact of targeted welfare transfers with a budget of R15 billion is small: the poverty headcount falls from about 49% in the base to approximately 46% in the simulations. However, for some household groups poverty may actually increase due to the increased tax burden, also on households that are close to the poverty line. This highlights the importance of ensuring an equitable distribution of the increased tax burden. Inequality also declines marginally in all the simulations considered, mainly because poor households are targeted while non-poor households typically carry a larger share of the increased tax burden. In as far as the effectiveness of broad versus narrow targeting is concerned the results suggest that narrower targeting generally implies greater reductions in poverty and inequality, although it depends crucially on the how far the transfer recipients are located from the poverty line.

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7. Appendix: Accounts in the SAM

Table 10: Accounts in the model SAM

Account name	Description	Account name	Description
Commodities		**Activities continued…**	
cfield	Field crops	agnwest	Agric North West
chort	Horticulture	agfstat	Agric Free State
clstoc	Livestock and other animals	agecap	Agric East Cape
cfors	Forestry and other agric products	agkzn	Agric KwaZulu Natal
cmins	Mineral products	agmpum	Agric Mpumalanga
cmeat	Meat products	aglimp	Agric Limpopo
cfiprod	Processed fish products	aggaut	Agric Gauteng
cfruveg	Fruit and vegetable products	aforest	Forestry
coils	Oils and fats products	afish	Fishing
cdairy	Dairy products	amins	Minerals
cgrain	Grain mill products	ameat	Meat products
cafeed	Animal feeds	afishp	Fish products
cbake	Balery products	afruit	Fruit
csugar	Sugar products	aoils	Oils
cofood	Other food products	adairy	Dariy products
cbevs	Beveages and tobacco	agrain	Grain mills
ctext	Textile products	aafeed	Animal feeds
clwpap	Leather wood and paper products	abake	Bakeries
cpetro	Petroleum products	asugar	Sugar
Cfert	Fertilisers	aofood	Othe food products
cpcides	Pesticides	abev	Beverages and tobacco
cpharm	Pharmaceutical products	atext	Textiles
ochem	All other chemical products	alwpap	Leather Wood and Paper
cnonmet	Non metalic products	apetro	Petroleum
cmetprod	Metal products	afert	Fertilisers
cmach	Machinery	apest	Pesticides
cvehic	Vehicles	apharm	Pharmaceuticals
comanu	Other manufacturing	aochem	Other Chemicals
cutil	Utilities	anonmet	Non metallics
cconst	Construction and building	ametals	Metals
ctraserv	Trade and transport services	amach	Machinery
coserv	Other services	avehic	Vehicles
Transport margins		aomanu	Other manufacturing
marg	Margins	autil	Utilities
Activities		aconst	Construction and Building
agwcap	Agric W Cape	atrad	Trade and transposrt services
agncap	Agric North Cape	aoserv	Other services

Table 10 continued…

Account name	Description	Account name	Description
Factors		**Factors continued**	
fgos	Gross operating surplus	INDREF	Production rebates
fland	Land	INDTAX	Production taxes
Government accounts		INDSUB	Production subsidies
VATM	Value added taxes in imports	FACTTAX	Factor taxes
VATD	Value added taxes on domestic goods	DIRTAX	Direct income taxes
IMPTAX	Import duties	GOVT	Government
EXPTAX	Export taxes	**Other accounts**	
ECTAX	Excise duty	ENT	Enterprises
FUELTAX	Fuel Tax	KAP	Savings
SALTAX	Sales taxes	DSTOC	Stock Changes
SALSUB	Sales subsidies	ROW	Rest of World

Note: See Table 7 for a listing of the remaining factor (labour) accounts.

Table 11: Household accounts, poverty statistics and targeting

		FGT poverty indices			Population estimates		Targeting (1 = YES)				
Code	**Description**	**P_0**	**P_1**	**P_2**	**Pop size**	**No. of poor**	**R40 p.c.**	**R60 p.c.**	**R80 p.c.**	**R100 p.c.**	**R120 p.c.**
HWC1	WC African, Female, Lower Secondary and lower	0.581	0.210	0.100	286,712	166,642	1	1	0	0	0
HWC2	WC African, Male, Primary and lower	0.492	0.185	0.094	317,393	156,100	1	0	0	0	0
HWC3	WC African, Male, Lower Secondary	0.279	0.098	0.047	163,828	45,720	1	0	0	0	0
HWC4	WC African, Upper Secondary and higher	0.191	0.063	0.030	161,825	30,855	0	0	0	0	0
HWC5	WC Asian & Coloured, Female, Primary and lower	0.337	0.129	0.062	392,351	132,358	1	0	0	0	0
HWC6	WC Asian & Coloured, Female, Lower Secondary	0.212	0.064	0.029	184,473	39,165	0	0	0	0	0
HWC7	WC Asian & Coloured, Female, Upper Secondary and higher	0.052	0.030	0.021	79,000	4,116	0	0	0	0	0
HWC8	WC Asian & Coloured, Male, Primary and lower	0.265	0.079	0.034	651,496	172,430	1	0	0	0	0
HWC9	WC Asian & Coloured, Male, Lower Secondary	0.137	0.051	0.025	616,010	84,235	0	0	0	0	0
HWC10	WC Asian & Coloured, Male, Upper Secondary and higher, Low-income	0.097	0.034	0.016	178,671	17,326	0	0	0	0	0
HWC11	WC Asian & Coloured, Male, Upper Secondary and higher, High-income	0.000	0.000	0.000	254,293	0	0	0	0	0	0
HWC12	WC White, Lower Secondary and lower	0.028	0.013	0.006	106,587	2,999	0	0	0	0	0
HWC13	WC White, Upper Secondary, Low-income	0.000	0.000	0.000	115,248	0	0	0	0	0	0
HWC14	WC White, Upper Secondary, High-income	0.000	0.000	0.000	190,767	0	0	0	0	0	0
HWC15	WC White, Tertiary, Low-income	0.000	0.000	0.000	104,371	0	0	0	0	0	0
HWC16	WC White, Tertiary, High-income	0.000	0.000	0.000	118,774	0	0	0	0	0	0
HNC1	NC African, Primary and lower	0.671	0.292	0.159	147,274	98,830	1	1	0	0	0
HNC2	NC African, Lower Secondary and higher	0.418	0.181	0.100	85,764	35,861	1	0	0	0	0
HNC3	NC Coloured & Asian, Lower Secondary and lower	0.591	0.268	0.156	201,079	118,847	1	1	0	0	0
HNC4	NC Coloured & Asian, Upper Secondary and higher	0.396	0.171	0.092	133,820	52,931	1	0	0	0	0
HNC5	NC White	0.000	0.000	0.000	86,635	0	0	0	0	0	0
HEC1	EC African, Agricultural	0.642	0.348	0.230	227,094	145,805	1	1	0	0	0
HEC2	EC African, Homeland, Female, None	0.937	0.577	0.390	689,921	646,476	1	1	1	1	1
HEC3	EC African, Homeland, Female, Primary	0.896	0.531	0.357	1,036,045	927,954	1	1	1	1	1
HEC4	EC African, Homeland, Female, Lower Secondary	0.811	0.466	0.304	467,897	379,534	1	1	1	1	1
HEC5	EC African, Homeland, Female, Upper Secondary and higher, Low-income	0.806	0.350	0.182	135,392	109,119	1	1	1	1	1
HEC6	EC African, Homeland, Female, Upper Secondary and higher, High-income	0.032	0.012	0.004	132,249	4,184	0	0	0	0	0
HEC7	EC African, Homeland, Male, None	0.892	0.530	0.354	494,602	441,167	1	1	1	1	1
HEC8	EC African, Homeland, Male, Primary	0.813	0.461	0.309	743,475	604,394	1	1	1	1	1
HEC9	EC African, Homeland, Male, Lower Secondary	0.634	0.338	0.214	310,219	196,597	1	1	0	0	0
HEC10	EC African, Homeland, Male, Upper Secondary and higher, Low-income	0.509	0.202	0.107	93,872	47,739	1	0	0	0	0
HEC11	EC African, Homeland, Male, Upper Secondary and higher, High-income	0.000	0.000	0.000	123,849	0	0	0	0	0	0
HEC12	EC African, Non-Homeland, Female, None	0.813	0.422	0.270	79,924	64,943	1	1	1	1	1

Table 11 continued…

		FGT poverty indices			Population estimates		Targeting (1 = YES)				
Code	**Description**	**P_0**	**P_1**	**P_2**	**Pop size**	**No. of poor**	**R40 p.c.**	**R60 p.c.**	**R80 p.c.**	**R100 p.c.**	**R120 p.c.**
HEC13	EC African, Non-Homeland, Female, Primary	0.750	0.386	0.242	162,035	121,498	1	1	1	0	0
HEC14	EC African, Non-Homeland, Female, Lower Secondary	0.634	0.318	0.193	116,083	73,585	1	1	0	0	0
HEC15	EC African, Non-Homeland, Female, Upper Secondary and higher	0.129	0.048	0.021	69,741	9,024	0	0	0	0	0
HEC16	EC African, Non-Homeland, Male, None	0.726	0.361	0.207	90,707	65,854	1	1	1	0	0
HEC17	EC African, Non-Homeland, Male, Primary	0.626	0.286	0.164	273,248	171,138	1	1	0	0	0
HEC18	EC African, Non-Homeland, Male, Lower Secondary	0.333	0.164	0.104	169,795	56,580	1	0	0	0	0
HEC19	EC African, Non-Homeland, Male, Upper Secondary and higher	0.095	0.031	0.017	111,461	10,591	0	0	0	0	0
HEC20	EC Asian & Coloured, Primary and lower	0.605	0.241	0.123	238,879	144,463	1	1	0	0	0
HEC21	EC Asian & Coloured, Lower Secondary	0.373	0.129	0.063	150,155	56,024	1	0	0	0	0
HEC22	EC Asian & Coloured, Upper Secondary and higher	0.067	0.032	0.016	63,029	4,237	0	0	0	0	0
HEC23	EC White, Lower Secondary and lower	0.000	0.000	0.000	60,020	0	0	0	0	0	0
HEC24	EC White, Upper Secondary	0.000	0.000	0.000	109,754	0	0	0	0	0	0
HEC25	EC White, Tertiary	0.000	0.000	0.000	73,388	0	0	0	0	0	0
HKZ1	KZ African, Agricultural, Homeland	0.753	0.456	0.306	168,128	126,530	1	1	1	0	0
HKZ2	KZ African, Agricultural, Non-Homeland, Low-income	0.831	0.474	0.330	65,696	54,603	1	1	1	1	1
HKZ3	KZ African, Agricultural, Non-Homeland, High-income	0.663	0.288	0.155	180,466	119,608	1	1	0	0	0
HKZ4	KZ African, Homeland, Female, None	0.976	0.594	0.415	628,432	613,239	1	1	1	1	1
HKZ5	KZ African, Homeland, Female, Primary	0.883	0.519	0.339	459,103	405,413	1	1	1	1	1
HKZ6	KZ African, Homeland, Female, Lower Secondary	0.794	0.427	0.261	167,339	132,809	1	1	1	1	1
HKZ7	KZ African, Homeland, Female, Upper Secondary and higher	0.305	0.149	0.095	104,797	31,950	1	0	0	0	0
HKZ8	KZ African, Homeland, Male, None	0.850	0.482	0.312	386,446	328,314	1	1	1	1	1
HKZ9	KZ African, Homeland, Male, Primary	0.768	0.383	0.240	439,739	337,523	1	1	1	1	0
HKZ10	KZ African, Homeland, Male, Lower Secondary	0.658	0.314	0.180	161,951	106,527	1	1	0	0	0
HKZ11	KZ African, Homeland, Male, Upper Secondary and higher	0.282	0.168	0.117	194,645	54,929	1	0	0	0	0
HKZ12	KZ African, Non-Homeland, Female, None	0.782	0.426	0.265	634,490	496,483	1	1	1	1	1
HKZ13	KZ African, Non-Homeland, Female, Primary	0.751	0.385	0.242	989,303	743,389	1	1	1	0	0
HKZ14	KZ African, Non-Homeland, Female, Lower Secondary	0.570	0.251	0.140	467,574	266,402	1	1	0	0	0
HKZ15	KZ African, Non-Homeland, Female, Upper Secondary and higher, Low-income	0.613	0.284	0.169	132,226	81,022	1	1	0	0	0
HKZ16	KZ African, Non-Homeland, Female, Upper Secondary and higher, High-income	0.176	0.033	0.008	225,959	39,859	0	0	0	0	0
HKZ17	KZ African, Non-Homeland, Male, None	0.767	0.433	0.282	522,187	400,360	1	1	1	1	0
HKZ18	KZ African, Non-Homeland, Male, Primary	0.582	0.267	0.158	792,897	461,760	1	1	0	0	0
HKZ19	KZ African, Non-Homeland, Male, Lower Secondary, Low-income	0.759	0.337	0.194	222,031	168,566	1	1	1	0	0
HKZ20	KZ African, Non-Homeland, Male, Lower Secondary, High-income	0.143	0.020	0.004	317,473	45,374	0	0	0	0	0

Table 11 continued…

		FGT poverty indices			Population estimates		Targeting (1 = YES)				
Code	**Description**	**P_0**	**P_1**	**P_2**	**Pop size**	**No. of poor**	**R40 p.c.**	**R60 p.c.**	**R80 p.c.**	**R100 p.c.**	**R120 p.c.**
HKZ21	KZ African, Non-Homeland, Male, Upper Secondary and higher, Low-income	0.498	0.205	0.112	177,990	88,651	1	0	0	0	0
HKZ22	KZ African, Non-Homeland, Male, Upper Secondary and higher, High-income	0.030	0.004	0.001	270,037	8,149	0	0	0	0	0
HKZ23	KZ Asian, Female, Lower Secondary and lower	0.103	0.027	0.008	155,761	16,087	0	0	0	0	0
HKZ24	KZ Asian, Male, Lower Secondary and lower, Low-income	0.180	0.046	0.015	128,667	23,177	0	0	0	0	0
HKZ25	KZ Asian, Male, Lower Secondary and lower, High-income	0.000	0.000	0.000	168,966	0	0	0	0	0	0
HKZ26	KZ Asian, Male, Upper Secondary and higher, Low-income	0.023	0.012	0.007	167,493	3,810	0	0	0	0	0
HKZ27	KZ Asian, Male, Upper Secondary and higher, High-income	0.000	0.000	0.000	169,066	0	0	0	0	0	0
HKZ28	KZ Coloured	0.082	0.036	0.016	69,778	5,698	0	0	0	0	0
HKZ29	KZ White, Lower Secondary and lower	0.000	0.000	0.000	57,481	0	0	0	0	0	0
HKZ30	KZ White, Upper Secondary, Low-income	0.023	0.002	0.000	97,179	2,202	0	0	0	0	0
HKZ31	KZ White, Upper Secondary, High-income	0.000	0.000	0.000	137,896	0	0	0	0	0	0
HKZ32	KZ White, Tertiary	0.000	0.000	0.000	106,089	0	0	0	0	0	0
HFS1	FS African, Agricultural	0.702	0.391	0.256	81,512	57,206	1	1	1	0	0
HFS2	FS African, Female, None	0.922	0.511	0.320	203,145	187,286	1	1	1	1	1
HFS3	FS African, Female, Primary	0.816	0.445	0.288	402,263	328,211	1	1	1	1	1
HFS4	FS African, Female, Lower Secondary	0.537	0.272	0.167	164,133	88,209	1	0	0	0	0
HFS5	FS African, Female, Upper Secondary and higher	0.323	0.143	0.078	91,454	29,531	1	0	0	0	0
HFS6	FS African, Male, None	0.761	0.356	0.207	194,928	148,277	1	1	1	0	0
HFS7	FS African, Male, Primary, Low-income	0.938	0.532	0.349	277,339	260,198	1	1	1	1	1
HFS8	FS African, Male, Primary, High-income	0.218	0.059	0.022	225,962	49,206	0	0	0	0	0
HFS9	FS African, Male, Lower Secondary, Low-income	0.808	0.446	0.285	133,803	108,154	1	1	1	1	1
HFS10	FS African, Male, Lower Secondary, High-income	0.083	0.009	0.002	107,923	8,990	0	0	0	0	0
HFS11	FS African, Male, Upper Secondary and higher, Low-income	0.595	0.250	0.142	80,481	47,895	1	1	0	0	0
HFS12	FS African, Male, Upper Secondary and higher, High-income	0.000	0.000	0.000	111,234	0	0	0	0	0	0
HFS13	FS Asian & Coloured	0.432	0.231	0.139	58,035	25,075	1	0	0	0	0
HFS14	FS White, Lower Secondary and lower	0.000	0.000	0.000	80,371	0	0	0	0	0	0
HFS15	FS White, Upper Secondary	0.000	0.000	0.000	125,358	0	0	0	0	0	0
HFS16	FS White, Tertiary	0.000	0.000	0.000	75,467	0	0	0	0	0	0
HNW1	NW African, Agricultural	0.619	0.303	0.186	78,989	48,877	1	1	0	0	0
HNW2	NW African, Female, None	0.829	0.441	0.281	301,664	250,087	1	1	1	1	1
HNW3	NW African, Female, Primary	0.756	0.401	0.253	485,950	367,216	1	1	1	0	0
HNW4	NW African, Female, Lower Secondary	0.479	0.209	0.120	215,185	102,998	1	0	0	0	0
HNW5	NW African, Female, Upper Secondary and higher	0.355	0.176	0.113	144,234	51,192	1	0	0	0	0

Table 11 continued…

		FGT poverty indices			Population estimates		Targeting (1 = YES)				
Code	**Description**	**P_0**	**P_1**	**P_2**	**Pop size**	**No. of poor**	**R40 p.c.**	**R60 p.c.**	**R80 p.c.**	**R100 p.c.**	**R120 p.c.**
HNW6	NW African, Male, None, Low-income	0.921	0.567	0.396	173,485	159,696	1	1	1	1	1
HNW7	NW African, Male, None, High-income	0.683	0.243	0.112	204,120	139,489	1	1	1	0	0
HNW8	NW African, Male, Primary, Low-income	0.800	0.404	0.251	256,969	205,450	1	1	1	1	1
HNW9	NW African, Male, Primary, High-income	0.204	0.045	0.013	280,067	57,194	0	0	0	0	0
HNW10	NW African, Male, Lower Secondary, Low-income	0.578	0.269	0.162	174,529	100,867	1	1	0	0	0
HNW11	NW African, Male, Lower Secondary, High-income	0.116	0.035	0.012	204,808	23,741	0	0	0	0	0
HNW12	NW African, Male, Upper Secondary and higher, Low-income	0.297	0.121	0.062	104,330	30,949	1	0	0	0	0
HNW13	NW African, Male, Upper Secondary and higher, High-income	0.000	0.000	0.000	137,381	0	0	0	0	0	0
HNW14	NW Asian & Coloured	0.299	0.166	0.106	42,466	12,677	1	0	0	0	0
HNW15	NW White, Lower Secondary and lower	0.023	0.007	0.002	60,770	1,394	0	0	0	0	0
HNW16	NW White, Upper Secondary and higher	0.000	0.000	0.000	82,877	0	0	0	0	0	0
HGT1	GT African, Agricultural	0.361	0.162	0.091	133,848	48,288	1	0	0	0	0
HGT2	GT African, Non-Homeland, Female, None	0.655	0.312	0.177	436,043	285,550	1	1	0	0	0
HGT3	GT African, Non-Homeland, Female, Primary	0.560	0.279	0.170	973,378	545,378	1	0	0	0	0
HGT4	GT African, Female, Lower Secondary	0.435	0.176	0.097	966,890	420,162	1	0	0	0	0
HGT5	GT African, Non-Homeland, Female, Upper Secondary, Low-income	0.408	0.186	0.111	186,254	75,967	1	0	0	0	0
HGT6	GT African, Non-Homeland, Female, Upper Secondary, High-income	0.065	0.006	0.001	280,796	18,217	0	0	0	0	0
HGT7	GT African, Non-Homeland, Female, Tertiary	0.078	0.025	0.013	72,086	5,640	0	0	0	0	0
HGT8	GT African, Non-Homeland, Male, None	0.501	0.216	0.124	451,415	225,961	1	0	0	0	0
HGT9	GT African, Non-Homeland, Male, Primary	0.374	0.145	0.076	1,458,923	545,166	1	0	0	0	0
HGT10	GT African, Non-Homeland, Male, Lower Secondary	0.225	0.091	0.050	1,648,472	371,347	0	0	0	0	0
HGT11	GT African, Non-Homeland, Male, Upper Secondary	0.127	0.037	0.016	1,303,884	165,967	0	0	0	0	0
HGT12	GT African, Non-Homeland, Male, unknown	0.267	0.057	0.022	126,022	33,646	1	0	0	0	0
HGT13	GT African, Non-Homeland, Male, Tertiary, Low-income	0.000	0.000	0.000	86,881	0	0	0	0	0	0
HGT14	GT African, Non-Homeland, Male, Tertiary, High-income	0.000	0.000	0.000	103,934	0	0	0	0	0	0
HGT15	GT Coloured, Lower Secondary and lower	0.268	0.092	0.040	262,431	70,336	1	0	0	0	0
HGT16	GT Coloured, Upper Secondary and higher	0.046	0.010	0.002	167,498	7,761	0	0	0	0	0
HGT17	GT Asian, Lower Secondary and lower	0.153	0.101	0.080	54,920	8,383	0	0	0	0	0
HGT18	GT Asian, Upper Secondary and higher	0.020	0.004	0.001	105,125	2,072	0	0	0	0	0
HGT19	GT White, Lower Secondary and lower, Low-income	0.094	0.030	0.009	127,827	12,044	0	0	0	0	0
HGT20	GT White, Lower Secondary and lower, High-income	0.000	0.000	0.000	203,601	0	0	0	0	0	0
HGT21	GT White, Upper Secondary, Low-income	0.000	0.000	0.000	298,420	0	0	0	0	0	0
HGT22	GT White, Upper Secondary, High-income	0.000	0.000	0.000	344,746	0	0	0	0	0	0

Table 11 continued…

		FGT poverty indices			Population estimates		Targeting (1 = YES)				
Code	**Description**	**P_0**	**P_1**	**P_2**	**Pop size**	**No. of poor**	**R40 p.c.**	**R60 p.c.**	**R80 p.c.**	**R100 p.c.**	**R120 p.c.**
HGT23	GT White, Tertiary, Low-income	0.000	0.000	0.000	232,440	0	0	0	0	0	0
HGT24	GT White, Tertiary, High-income	0.000	0.000	0.000	226,991	0	0	0	0	0	0
HMP1	MP African, Agricultural	0.503	0.226	0.137	80,462	40,489	1	0	0	0	0
HMP2	MP African, Female, None	0.762	0.390	0.235	462,715	352,806	1	1	1	0	0
HMP3	MP African, Female, Primary	0.675	0.300	0.168	361,656	244,249	1	1	0	0	0
HMP4	MP African, Female, Lower Secondary	0.601	0.228	0.112	157,442	94,676	1	1	0	0	0
HMP5	MP African, Female, Upper Secondary and higher	0.370	0.161	0.087	113,385	41,914	1	0	0	0	0
HMP6	MP African, Male, None	0.689	0.350	0.213	400,516	276,019	1	1	1	0	0
HMP7	MP African, Male, Primary, Low-income	0.853	0.446	0.273	213,074	181,857	1	1	1	1	1
HMP8	MP African, Male, Primary, High-income	0.213	0.048	0.014	263,077	55,978	0	0	0	0	0
HMP9	MP African, Male, Lower Secondary, Low-income	0.524	0.176	0.083	76,003	39,836	1	0	0	0	0
HMP10	MP African, Male, Lower Secondary, High-income	0.068	0.017	0.005	127,162	8,599	0	0	0	0	0
HMP11	MP African, Male, Upper Secondary and higher, Low-income	0.378	0.140	0.076	92,766	35,081	1	0	0	0	0
HMP12	MP African, Male, Upper Secondary and higher, High-income	0.000	0.000	0.000	108,542	0	0	0	0	0	0
HMP13	MP Asian & Coloured	0.101	0.016	0.003	33,517	3,385	0	0	0	0	0
HMP14	MP White	0.014	0.008	0.005	149,135	2,141	0	0	0	0	0
HLP1	LP African, Agricultural	0.554	0.244	0.140	131,554	72,887	1	0	0	0	0
HLP2	LP African, Female, Non & pre-Primary	0.819	0.448	0.284	1,123,565	920,289	1	1	1	1	1
HLP3	LP African, Female, Primary	0.840	0.482	0.314	682,495	573,404	1	1	1	1	1
HLP4	LP African, Female, Lower Secondary	0.770	0.390	0.246	334,972	257,951	1	1	1	1	0
HLP5	LP African, Female, Upper Secondary and higher, Low-income	0.807	0.401	0.241	146,871	118,577	1	1	1	1	1
HLP6	LP African, Female, Upper Secondary and higher, High-income	0.173	0.041	0.012	131,991	22,869	0	0	0	0	0
HLP7	LP African, Male, None	0.777	0.354	0.203	522,480	406,189	1	1	1	1	0
HLP8	LP African, Male, Primary, Low-income	0.923	0.583	0.403	341,564	315,253	1	1	1	1	1
HLP9	LP African, Male, Primary, High-income	0.442	0.143	0.062	398,309	175,916	1	0	0	0	0
HLP10	LP African, Male, Lower Secondary	0.543	0.240	0.139	362,039	196,418	1	0	0	0	0
HLP11	LP African, Male, Upper Secondary and higher, Low-income	0.650	0.337	0.203	159,899	103,870	1	1	0	0	0
HLP12	LP African, Male, Upper Secondary and higher, High-income	0.000	0.000	0.000	205,745	0	0	0	0	0	0
HLP13	LP Asian & Coloured	0.305	0.160	0.098	15,069	4,596	1	0	0	0	0
HLP14	LP White	0.000	0.000	0.000	69,047	0	0	0	0	0	0

Note: Provincial codes used in description column: WC = Western Cape, EC = Eastern Cape, NC = Northern Cape, FS = Free State, KZ = KwaZulu-Natal, GT = Gauteng, NW = North West, MP = Mpumalanga, LP = Limpopo.