Not Separate, Not Equal

Poverty and Inequality in Post-Apartheid South Africa

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Abstract – As South Africa begins a review of the first ten years of its new democracy, the question remains as to whether the economic inequalities of the apartheid era are beginning to fade. Using new, comparable consumption aggregates for 1995 and 2000, this paper finds that real per capita household expenditures declined for those at the bottom end of the expenditure distribution during this period of low GDP growth. As a result, poverty, especially extreme poverty, increased. Inequality also increased, mainly due to a jump in inequality among the African population. Even among subgroups of the population that experienced healthy consumption growth, such as the Coloreds, the rate of poverty reduction was low because the distributional shifts were not pro-poor.

Key Words: Poverty, Inequality, South Africa

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I.   Introduction

Apartheid in South Africa came officially to an end with the democratically held elections in 1994, and in its wake left a population with vast inequalities across racial groups.[1] Using a poverty line of 322 Rand (in 2000 prices), at least 58% of all South Africans, and 68% of the African population was in poverty in 1995, while poverty was virtually non-existent for Whites.[2] The Gini coefficient of expenditures was 0.56, making South Africa one of the most unequal countries in the world. The country also inherited vast inequalities in education, health, and basic infrastructure, such as access to safe water, sanitation, and housing. For instance, while only a quarter of Africans had access to piped water in their houses, Asians and Whites had universal access.

Many other aspects of the South African economy are equally challenging. Crime is so prevalent that it leads to emigration of South African professionals of all ethnic groups (Dodson, 2002), possibly also discouraging investment and stifling growth. The broad unemployment rate is estimated to be between 30-40% and has been steadily increasing since 1995, making South Africa's unemployment rate one of the highest in the world. Many communities in the former homelands have little economic activity to speak of – mean unemployment rates in these communities approach 75%.[3] The share of the workforce in the informal sector is no more than approximately 15% in South Africa, a figure that is remarkably small when compared with, say, Latin American countries (Rama, 2001). According to UNAIDS, HIV prevalence increased from 10.5% in 1995 to 22.8% in 1998.[4] Human Sciences Research Council projected that more

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[1] In this paper, we refer to four major population groups: Africans, Coloreds, Asians/Indians, and Whites. We use "ethnic, racial, and population groups" interchangeably. For brevity, we refer to the Asians/Indians as Asians.
[2] Authors' calculations using the Income Expenditure Survey (1995).
[3] Authors' own calculations using the 1996 population census.
[4] http://www.unaids.org/hivaidsinfo/statistics/fact_sheets/pdfs/Southafrica_en.pdf

than 375,000 South Africans would die from HIV/AIDS in 2003, a 30% increase from the estimated number of deaths in 2000.[5]

Faced with these enormous challenges, the new government introduced the Reconstruction and Development Program (RDP) in 1994, self-described as an integrated, coherent socio-economic framework. RDP set ambitious goals, such as job creation through public works programs, redistribution via land reform, and major infrastructure projects in housing, services, and social security. The Growth, Employment, and Redistribution (GEAR) program of 1996, which presented a formal macroeconomic framework for growth, followed the RDP and aimed to increase growth and stimulate job creation. It was an export-led macroeconomic strategy that included "…anti-inflationary policies, including fiscal restraint, continued tight monetary policies and wage restraint."[6] Under the program, the average annual GDP growth rate was to increase from a base projection of 2.8% to 4.2% between 1996-2000 and the deficit to be reduced to a target rate of 3% of GDP.[7] The main goals of the RDP were reiterated in GEAR, including reforms to make the labor markets more flexible, to improve productivity, and to increase training and employment of the unskilled.

During this period prices were stable, spending levels in education and pension programs were adequate, and access to certain basic services and infrastructure improved significantly. However, GDP per capita grew at an annual rate of roughly 0.6% that is more in line with baseline projections rather than the Integrated Scenario projections of GEAR, and unemployment

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[5] Mail and Guardian, February 7, 2003. http://www.mg.co.za/Content/l3.asp?ao=10925
[6] Leibbrandt, van der Berg, and Bhorat (2001), page 16.
[7] Government of South Africa (1996).

kept increasing steadily. [8] [9] Final consumption expenditure by households also grew by less than 1% per capita annually between 1995 and 2000. [10]

The failure of the economy to grow and create enough jobs gave way to an "…interrogation of the compatibility between GEAR and the labour legislation and a growing concern with rising unemployment and poverty." (Leibbrandt, van der Berg, and Bhorat, 2001) The government stated its commitment to GEAR again at the Presidential Jobs Summit in 1998, which brought together government, organized labour and the business sector.   Despite consensus on the need for occupational training and job creations schemes, significant changes in labour market legislation did not follow.   Nor did any significant land reform materialize, although it was identified as a source of improvement for long-term employment and rural income growth.

Narrow unemployment rate increased from 17% to 24% between 1995 and 1999, while the broad unemployment rate, which includes the so-called "discouraged workers" increased from 29% to 38% during the same period (Klasen and Woolard, 2000).   During the same time period, the demand for high-skilled labor increased, while it declined for low-skilled labor, a trend that Rama (2001) relates, to some extent, to trade liberalization.   Rama (2001) also reports a tendency towards outsourcing in the manufacturing sector, which led to an increase of workers who are in the informal sector between 1995 and 2000.   Bhorat (2003) reports that the expansion of the informal sector accounted for 84% of the 1.1 million jobs created between 1996-1999.   However, the labor force expanded by 3.1 million over the same period, causing the increase in

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[8] Authors' calculation using "gross domestic product at constant 1995 prices (time series code KBP6006Y)" data from the South African Reserve Bank, http://www.reservebank.co.za/
[9] Annual population growth in South Africa was approximately 2% during this period.
[10] Authors' calculation using "final consumption expenditure by households (time series code KBP6007Y)" data from the South African Reserve Bank, http://www.reservebank.co.za/

the rate of unemployment. Employers in manufacturing perceived labor market regulations as a major hindrance to hiring workers (Rama, 2001; Economist, Jan. 15, 2004)

The result is a segmented labor market, the high-skill tier of which is characterized by excess demand (Rama, 2001), while the low-skill tier displays large excess supply.[11] Unemployment is very high in rural areas, highlighting not only the lack of economic activity in former homelands, but also the fact that unemployed individuals stay in or move back to rural areas to attach themselves to households with adequate public or private support (Klasen, Woolard, 2000). Under these circumstances, one would expect an increase in inequality due to rising incomes for a small group of educated and skilled South Africans and stagnant or declining incomes for a much larger group of low-skilled individuals.[12]

Given this backdrop of very high levels of poverty and inequality in what is essentially an upper-middle-income country, knowledge of what happened to the national distribution of household expenditures since the end of the apartheid is important, but somewhat inadequate.[13] Various studies using the panel data generated by the Kwazulu-Natal Income Dynamics Study (KIDS), report on changes in welfare in Kwazulu-Natal, a large province of South Africa that is home to roughly one fifth of its population. Carter and May (2001) find that poverty rates among the non-white population in Kwazulu-Natal increased from 27% to 43% between 1993 and 1998. Furthermore, they find that approximately 70% of the poor may be dynamically so, unable to escape poverty. Using the same data source, but utilizing income data instead of expenditures, Fields et al. (2003) do not present any figures on absolute poverty, but report that

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[11] According to the Economist (Jan 15, 2003), blacks with sought-after skills are typically paid 15-20% more than similarly qualified whites, as private companies compete for these workers in their effort to make their workplace more "demographically representative."

[12] Old age pensions, child support grants and unemployment insurance that provide social support to some families may counter these impacts.

[13] The PPP-adjusted GDP per capita for South Africa (in current international $) was $8642 in 1995 and $9580 in 2000. Source: World Bank, International Comparison Programme database.

the Gini coefficient increased from 0.515 to 0.543 in Kwazulu-Natal. Also using income data

from the same data sources used in this paper (1995 and 2000 Income Expenditure Surveys),

Lam and Leibbrandt (2003) find that incomes deteriorated for most South Africans. They also

report that inequality within racial groups increased substantially while between group inequality

declined only slightly, as a result of which total inequality increased in South Africa between

1995 and 2000.

In this paper, we build on the literature before us and make three main contributions.

First, we utilize consumption aggregates in both the 1995 and 2000 IES that are carefully built so

as to be as comparable to each other as possible. Second, using price data for each food item

collected in the monthly Consumer Price Surveys conducted by Statistics South Africa (STATS

SA), we not only construct provincial and inter-temporal price indices, but also draw normative

poverty lines to assess poverty in South Africa using the "cost-of-basic-needs" approach.

Finally, in addition to describing changes in real mean household expenditure, poverty, and

inequality across all of South Africa and for various sub-groups of the population for the 1995-

2000 period, we also investigate whether the observed changes in welfare are due to changes in

endowments, or changes in the returns to those endowments.

We find that the annual per capita growth rate of household expenditures between 1995

and 2000 is 0.5% – very much in line with the GDP growth and the growth of final consumption

expenditure by households.[14] Echoing Lam and Leibbrandt (2003), we find a deterioration of

expenditures at the bottom end of the distribution, as a result of which poverty, especially

extreme poverty, increased significantly. There were approximately 1.8 million (2.3 million)

more South Africans in 2000 living with less than $1/day ($2/day) than there were in 1995.

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[14] According to our household survey data, per capita household expenditures went from 534 Rand in 1995 to 547 Rand in 2000. However, this annual increase of 0.5% is not statistically significant.

However, these losses were not uniform: Coloreds made significant gains against poverty over this period, so did several provinces, such as Western Cape, Northern Cape, and Free State. Inequality also increased, mainly due to a sharp increase among the African population. The fact that the growth rate was low and that the materialized growth was not pro-poor were the main reasons for the lack of progress against poverty in this period.

The next section briefly discusses the data and methodology, while section 3 presents the changes in poverty and inequality in South Africa, and provides breakdowns by ethnic group, province, and type of area. Section 4 discusses the sensitivity of our results with respect to the assumptions on sampling weights, the importance of home-grown food consumption, and urban/rural price differentials. Section 5, using a multivariate regression framework, addresses the question of whether changes in endowments or returns to endowments are responsible for the results reported in this paper. Section 6 provides a policy discussion and concludes the paper.

II.   Data and Methodology

In constructing household consumption aggregates to analyze changes in welfare in South Africa, we followed standard practice, in particular the guidelines put forth by Deaton and Zaidi (2002), Lanjouw (1996) et al., and Ravallion (2001).[15]   Instead of discussing the construction and comparability of the consumption aggregates, the normative poverty lines, and the spatial and inter-temporal price adjustments in great detail, we refer the readers to Babita et al. (2003), which provides a very detailed account of these issues. Below, we briefly discuss the data and deviations we had to make from standard practice – mainly due to data constraints – that may affect our welfare estimates.

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[15] The literature on the choice of income vs. expenditure to measure household welfare is well-established and we abstract from that debate here. We believe, for empirical and theoretical reasons, that using data on household expenditures is preferable to using data on incomes.

The data utilized in this paper come from two surveys, each of which was conducted by Statistics South Africa (STATS SA) in both 1995 and 2000. The first is the OHS that is collected annually. The second is the Income and Expenditure Survey (IES), which is held every 5 years among households surveyed by the OHS. Combined, these surveys provide information on household income and expenditure, along with information on other household characteristics, such as demographics, work, access to services and housing characteristics for roughly 30,000 households in each of the survey years. Recently the annual OHS was transformed into a biannual Labor Force Survey (LFS) with a rotating panel. We utilize OHS 1995, IES 1995, LFS 2000:2 and IES 2000 to build comparable welfare indicators for 1995 and 2000.

The income and expenditure modules in the IES have hardly changed between 1995 and 2000, and hence it is possible to build comparable consumption aggregates based on a large set of common items that are included in both the 1995 and 2000 data.[16] The consumption aggregate includes the following expenditure categories: food, beverages, and cigarettes (excluding home-grown foods); housing (imputed rental value of residence and utilities); compensation for domestic workers; personal care, household services, and other household consumer goods; fuel (excluding firewood and dung); clothing and footwear; transport (excluding cost of purchased vehicles); communication; education; reading matter, cost of licenses and other rental charges, and cost of insurance.[17] Rental values for housing were imputed in the same manner for each year using hedonic regressions.[18]

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[16] However, there are two main shortcomings associated with the IES. First, it is an expenditure survey as opposed to a consumption survey, making it difficult to deduce that the purchased amount was consumed during the period of recall. Second, the IES lacks the necessary information to impute reliable values of durable goods and as a result this item was excluded from the consumption aggregate.

[17] Important categories of expenditures we have excluded from the consumption aggregate are: water; firewood and dung; health; imputed value of household durables; food consumption from home production; lobola/dowry,

We used the "cost-of-basic-needs" approach to draw normative poverty lines for our analysis (Ravallion 1994, 2001). According to these calculations, a reasonable poverty line for South Africa must lie between 322 Rand (lower-bound poverty line) and 593 Rand (upper-bound poverty line) per capita per month in 2000 prices. In this paper, we report poverty using the lower-bound poverty line as well as the $2/day poverty line, which is equivalent to 174 Rand per capita per month. The $2/day poverty line is close to the poverty line used by Deaton (1997), and also reasonably close to our food poverty line of 211 Rand.[19] While it is significantly lower than our preferred poverty line for South Africa, it is useful for international comparisons, and to describe what happened to the welfare of those at the bottom end of the distribution. Using these poverty lines, we report the Foster-Greer-Thorbecke (FGT) measures of headcount rate, poverty gap, and poverty gap squared. We also present three inequality measures for South Africa: the Gini index, the Theil index, and the Mean Log Deviation.

The data have three possible shortcomings that might bias the results presented in this paper. First, the issue of sampling weights for the 1995 and 2000 IES data has been a source of much controversy. Because of problems with the sampling frame for the 1995 OHS and IES, we report results using a set of sampling weights that was recalculated by STATS SA using information from the 1996 Population Census.[20] However, there is also reason to fear that the 2000 sampling weights might be inadequate (Simkins, 2003). Second, the IES lack the necessary information to impute a comparable value for consumption of home-grown products. In many countries, consumption of home-grown products is a significant component of the

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funerals, religious or traditional ceremonies, gambling; lumpy expenditures, such as furniture, appliances, vehicles, sound and video equipment, etc. See Babita et al. (2003) for details.

[18] Again, see Babita et al. (2003) for details.

[19] Deaton (1997) uses 105 Rand per capita in 1993 prices as a poverty line. This is very close to 174 Rand in 2000 prices.

[20] The 1991 population census, which was the sampling frame for the 1995 OHS and IES (and for the widely used SALDRU survey), was carried out under the apartheid regime and had marked coverage problems.

household consumption aggregate and hence its omission can lead to poverty being overestimated and the cross-sectional and inter-temporal poverty profiles to be biased.[21] Third, the IES neither collects information on quantities purchased to allow the construction "unit values", nor does it collect information on prices of various food items in the markets in the communities sampled. Hence, the price data we utilize to transform nominal household expenditures into real expenditures come from the price surveys STATS SA conducts on a monthly basis. The Consumer Price Survey covers only metropolitan and urban areas throughout the nine provinces of South Africa. The lack of rural price data may cause an overestimation of poverty in rural areas, as well as biases in inter-temporal comparisons. For each of the potential problems discussed above, we perform sensitivity analysis and report the results in Section 4.

III.   Results

Absolute Poverty

Figure 1 shows the cumulative distribution functions (CDFs) for per capita expenditure in 1995 and 2000. The four vertical lines at R 87, R174, R322, and R593 refer to the $1/day, $2/day, lower-bound, and upper-bound poverty lines, respectively. The CDF for 1995 starts below that for 2000 and stays below it for most of the relevant range of poverty lines before crossing it, indicating a decline in real expenditures for those in the bottom half of the distribution. More than one in ten individuals lived with less than just $1/day, a large increase from 7.7% in 1995 that translates into roughly 1.8 million additional individuals. These changes in poverty are presented in Table 1. Using the normative lower bound poverty line of 322 Rand

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[21] For example, Deaton and Zaidi, 2002 reports that food consumption from home production accounts for 35% of the consumption aggregate in Nepal in 1996 and 21% in Ghana in 1988-89.

per month, we find that at least 58% of the South African population were poor in both years. Roughly one third of the population lived with less than $2/day (174 Rand per month) in 2000. For any poverty line below 322 Rand per capita per month, the poverty gap and poverty severity (poverty gap squared) indices are significantly higher in 2000 than they were in 1995. These increases in poverty accompanied positive expenditure growth that was statistically insignificant.

Figures 2 and 3 show the cumulative distribution functions for Africans and Coloreds by year. Figure 2 demonstrates that the CDFs for Africans looks very similar to the CDF for all South Africa, indicating that while some Africans made gains in their household expenditures over time, many others have lost. However, Africans are the only ethnic group that exhibit this pattern. As can be seen in Figure 3, the CDF in 2000 for Coloreds lies nowhere above that in 1995, meaning that poverty among them is lower in 2000 for any poverty line. We find similar but more modest improvements for Asians and Whites (figures not shown).

Figures 4 and 5 show the distribution of per capita expenditures by ethnic groups for 1995 and 2000, respectively. In both years, the CDF for Coloreds first order dominates that for Africans, the CDF for Asians dominates that for Coloreds, and the CDF for Whites dominates that for Asians. However, somewhat surprisingly, the gap between Coloreds and Africans increased over this period, while the gap between Coloreds and the remaining population groups decreased. Nonetheless, poverty is virtually zero among Whites, and Africans are the poorest ethnic group followed by Coloreds and Asians in 2000 – closely mimicking the order established by the Apartheid regime.

Changes in poverty by population group are also presented in Table 1. Among Africans, extreme poverty increased using any of the three common Foster-Greer-Thorbecke (FGT) measures of poverty. In 2000, more than two thirds of Africans in South Africa lived in poverty,

while more than 40% lived with less than $2/day. On the other hand, the substantial improvements in mean expenditures for Coloreds resulted in a significant decrease in poverty. The poverty headcount among this group went down from 50% in 1995 to 35% in 2000, while extreme poverty declined from 20% to 12%. There was no change for Asians and Whites, i.e. the headcount rate remained at a very low level for Asians and at virtually zero for Whites.

Table 1 also presents changes in poverty for urban and rural areas. There is a large gap in poverty rates between urban and rural areas, both of which increased significantly over this period. No significant change in the overall headcount ratio (using the lower-bound poverty line of 322 per capita per month) in South Africa during this period is consistent with increases in that index in both urban and rural areas, as the share of the population living in urban areas increased significantly during this period.[22] More than three quarters of the population in rural areas lived in poverty in both years, while the share living with less than $2/day increased from 45% in 1995 to more than half of the rural population in 2000. Poverty in urban areas also increased – from 36% to 40%.

Table 2 presents the changes in poverty for the nine provinces of South Africa. There is substantial variation in levels and changes in poverty across provinces. The only provinces that have experienced significant growth in their mean household expenditure levels – Western Cape, Northern Cape, and Free State – have had significant declines in poverty. In fact, by 2000, Western Cape had the lowest poverty headcount rate in South Africa, replacing Gauteng. The declines in poverty in the Northern Cape and Free State were mainly driven by rural sector growth.[23] That Western Cape and Northern Cape are also the two provinces in which Coloreds

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[22] In our samples for the IES in 1995 and 2000, the share of population living in urban areas is 44.3% and 56.7%, respectively.
[23] Rural poverty headcount declined from 87% to 76% in Free State, and from 70% to 49% in Northern Cape between 1995-2000.

form the majority of the population is consistent with the significant reduction in poverty Coloreds experienced. However, it wasn't just Coloreds who benefited from poverty reduction in these provinces – the poverty headcount among Africans went down from 75% to 62% in Northern Cape and from 62% to 55% in Western Cape.

While a few provinces made progress, a number of provinces have seen dramatic increases in poverty. In Eastern Cape, already the poorest province in South Africa in 1995, the extreme poverty rate increased from 49% to 56%, while the poverty gap and poverty severity have also gotten significantly worse. Limpopo, mainly a rural province, has seen the most dramatic increase in its poverty incidence, with approximately three-quarters of its population in poverty by 2000 compared with 65% in 1995. Poverty has increased also in Kwazulu-Natal where close to half of the population lived with less than $2/day by 2000.[24] Finally Gauteng, the wealthiest province in 1995, has experienced large increases in poverty, where more than one third of the population lived in poverty by 2000, up from less than a quarter five years prior to that.[25]

Some of the dramatic increases in extreme poverty happened in provinces where mean expenditure levels stayed constant over time. In Eastern Cape and Kwazulu-Natal, the increase in poverty is due to a worsening of the distribution of expenditures. On the other hand, in Northwest Province and Mpumalanga, where growth rates were also zero, poverty stayed constant. Given this variation in outcomes regarding consumption growth and poverty, in the

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[24] This increase is consistent with the results reported in Carter and May (2001) on changes in poverty in Kwazulu-Natal between 1993-98.

[25] There is reason to believe that the sampling problems that plagued the 1995 survey were the most severe in Gauteng, leading to an undercount of the population there, especially Africans. Hence, part of the increase in poverty in Gauteng during this period may be due to an underestimation of poverty in 1995. Another factor likely to be contributing to this increase is migration to Gauteng from poorer provinces after 1994. According to the Population Census of 2001 , the population of Gauteng increased by 20% between 1996 and 2001, an growth rate that is twice as large as that of South Africa as a whole. We discuss the these issues further in Section 4.

next two sub-sections, we like to examine whether South Africa's growth has been pro-poor for some and describe the changes in inequality.

Pro-poor growth

Figures 6 & 7 present growth incidence curves (GIC) for South Africa and for the Colored population, respectively for the period 1995-2000. The GIC is obtained by plotting the annual growth rate in each percentile *p* of the distribution of per capita expenditures while *p* is varied from 0 to 1.[26] The area under the GIC up to the headcount index in 1995 (normalized by the headcount rate in 1995) gives the mean growth rate for the poor. The vertical line in the graph indicates the headcount rate in 1995, while the horizontal line denotes the mean percentile growth rate. We define growth to be "absolutely pro-poor" if the mean growth rate for the poor is positive, and "relatively pro-poor" if, in addition, the mean growth rate for the poor is greater than or equal to the growth rate in mean expenditure. Hence, "absolute pro-poor growth" only requires that the poor be better off on average in absolute terms, while "relative pro-poor growth" requires the distributional shifts to be pro-poor as well.[27]

A GIC that lies above zero for each percentile implies first order dominance of the expenditure distribution in 2000 over 1995, i.e. an unambiguous decline in poverty. A GIC that is downward sloping implies that the poor benefit from growth more than the non-poor, leading to a decrease in inequality. Unfortunately, the GIC for South Africa during this period (Figure 6) satisfies neither condition: it is below zero everywhere for the poor and upward sloping over

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[26] It is important to remember that the households in the same percentile in two different periods need not be the same, i.e. these percentiles are "anonymous." See Ravallion & Chen (2003) for a detailed discussion of growth incidence curves and pro-poor growth.

[27] For example, Ravallion & Chen (2003) report that the rate of pro-poor growth in China is 3.9% between 1990-1999, while the growth rate in the mean is 6.2%, an example of what we define "absolute pro-poor growth." However, between 1993-1996, the same figures were 10% and 8.2%, respectively, i.e. growth during this period was "relatively pro-poor."

most of the range. The annual growth rate in the mean is 0.5%, while the rate of pro-poor growth is –1.4%. Hence, the modest growth in South Africa has not been pro-poor between 1995 and 2000 – either absolutely or relatively.

As poverty headcount has dropped sharply among Coloreds, it is informative to contrast the GIC for Coloreds with that for the whole country. Figure 8 shows that the GIC for Coloreds lies entirely above the zero line and the rate of pro-poor growth is 4.8%. However, the GIC is again upward sloping, meaning that the non-poor benefited more from growth than the poor and inequality within Coloreds has risen. The growth in the mean for Coloreds is 6.8%. Hence, growth has been only "absolutely pro-poor" for Coloreds. The same pattern (not shown here) also holds for the three provinces with significant poverty reduction.

Growth has not been pro-poor in South Africa as a whole, and in the instances when poverty declined for certain sub-groups, the distributional shifts were still not pro-poor. As a result, one expects inequality to have somewhat increased. We describe the changes in inequality below.

Inequality

Table 3 shows the changes in inequality in South Africa as a whole as well as the changes by population group and type of area, using three inequality measures: the Gini Index, mean log deviation, and the Theil Index. The Gini index went up only slightly from 0.56 in 1995 to 0.58 in 2000. This is not unexpected, as the Gini index is most sensitive to income differences in the middle of the distribution, while the observed changes in the South African expenditure distribution took place mostly at the tails. Mean log deviation, a general entropy class measure of inequality that is sensitive to changes at the bottom end of the distribution, went up from 0.56

to 0.61. Table 3 also shows that there was a significant increase in inequality among the African population. During this five-year period, the Gini index among Africans increased by more than 3 percentage points to 0.50 and the mean log deviation went up from 0.37 to 0.44. Inequality also increased slightly among Coloreds and decreased somewhat among Asians and Whites.

General Entropy Class Inequality Measures are decomposable into components of inequality within and between groups, and the mean log deviation is decomposed as follows:

(1) $I_0 = [\sum_j g_j \log(\frac{\mu}{\mu_j})] + \sum_j I_j g_j,$

where j refers to sub-groups, g_j refers to the population share of group j and I_j refers to inequality in group j. The between-group component of inequality is captured by the first term to the right of the equality sign. It can be interpreted as measuring what would be the level of inequality in the population if everyone within the group had the same (the group-mean) consumption level, μ_j. The second term on the right reflects what would be the overall inequality level if there were no differences in mean consumption across groups but each group had its actual within-group inequality I_j.

Table 4 shows the results for such a decomposition exercise for South Africa, where the sub-groups are the four major population groups. We find that the share of inequality between ethnic groups went down from 38.3% in 1995 to 33.2% in 2000. However, this decrease in the share of between-group inequality can be attributed mostly to the increase in inequality within groups, as between-group inequality decreased slightly the same over this period. The former can be explained mostly by the large increase in inequality among Africans, while the latter mainly owes to the relative progress made by Coloreds in their level of mean per capita household expenditure.

IV.   Sensitivity Analysis

Sampling Weights

Throughout this paper, we use a set of sampling weights for the 1995 data that were recalculated by STATS SA based on information from the 1996 Population Census. However, some have suggested (e.g. Simkins, 2003) that the sampling weights in the 2000 IES may also be problematic, in that they may lead to an overestimation (underestimation) in the population share of Africans (Whites). Following the end of apartheid, internal migration and emigration might have led to rapid shifts in demographic composition in South Africa, possibly making the 1996 Population Census – the sampling frame for the 2000 IES – somewhat outdated. Comparing respective population shares of racial groups in the IES with those from the recent 2001 Census (STATS SA, 2003) confirms that this may be true to some extent. Table 5 shows that the share of Whites is underestimated significantly in the IES (9.6% vs. 7.7%), and this is particularly true in Gauteng (19.9% vs. 13.0%).   If the census figures in 2001 are better in representing the 2000 population, this bias could lead to an underestimation of the growth rate and an overestimation of the increase in poverty in South Africa.

To test the robustness of our results, we employ a crude ex-post re-weighting scheme.[28] Using population shares from the 2001 Census at the province level for each racial group, we re-weight our 2000 IES sample so that the population share in each of the 36 province/race cells (9 provinces *times* 4 racial groups) is identical to that from the 2001 Census. The re-estimated welfare measures are presented in Table 6. Using the adjusted weights, mean expenditure grows from 534 Rand to 587 Rand over this period, a per capita growth rate of 1.9% per year. This is

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[28] Introducing ex-post inflation factors into surveys in this way is not uncommon. See, for example, Deaton (1997).

more than double the GDP growth rate, and as such we can treat it as an upper limit on growth of per capita household expenditures over this period.

Despite this expenditure growth, the effect of re-weighting on poverty changes is minimal. The conclusion that poverty increased between 1995 and 2000 remains true for a wide range of poverty lines, especially for the poverty gap and poverty severity measures. On the other hand, inequality is higher using these adjusted sampling weights. These results are not completely surprising. As the population share of Whites – who are clustered at top end of the expenditure distribution – is significantly higher than originally estimated by the IES alone, the rate of growth and the level of inequality increase but poverty levels are not significantly affected.

While our results with respect to changes in poverty and inequality generally hold regardless of the sampling weights used in the analysis, the magnitudes of some of these changes are different. For example, using the adjusted weights for 2000, the headcount index for Gauteng still increases significantly, but only to 33.8% instead of 36.8%. We conclude that adjustments to sampling weights alone cannot reverse the main conclusions reached in this paper.

Consumption from home-grown production

The importance of consumption from home-grown production seems to be small in South Africa compared with other countries. Deaton and Zaidi (2002) reports that the budget share of this item was 2.2% in South Africa in 1993, compared with 6.7% in Brazil or 16.8% in Vietnam. We have obtained the South Africa Integrated Household Survey, 1993 (SAIHS) – the same data set used by Deaton and Zaidi – and replicated this figure ourselves. Further examination of these

data revealed no significant differences in the share of consumption from home-grown production across per capita expenditure deciles.

To examine whether this pattern has significantly changed over time, we calculated the share of maize consumption from home-grown production using our datasets for 1995 and 2000.[29] We use the market price of maize in each province to value home consumption. We find that while only 3% of the population was consuming maize from own-production in 1995, this figure went up to approximately 11% by 2000. The share of maize consumption from home production in the consumption aggregate also increased from approximately 0.5% in 1995, to roughly 1.5% by 2000. Furthermore by 2000, home-grown maize consumption constituted 3% of the poorest quintile's consumption and virtually none of the richest quintile's, suggesting that home production of food may have become more important for the poor over this period.

However, these figures are still very small. Table 7 compares the poverty figures for 2000 using a consumption aggregate that includes home-grown maize (column 5) with those without this consumption item for 1995 (column 3) and 2000 (column 4). While poverty (and inequality) is slightly less in 2000 when this consumption of home grown maize is accounted for, the changes in the poverty gap and poverty gap squared measures over this period remain significant. We conclude that our general conclusions regarding inter-temporal comparisons of the mean growth rate, poverty and inequality are robust to the inclusion of home-grown food products. This conclusion remains the same regardless of whether we use the *published* sampling weights in the IES 2000, or the *adjusted* ones discussed above.

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[29] Among the home-grown products for which data are collected, maize is by far the most important item grown and consumed by households in our surveys.

Rural/Urban Price Differentials

Data on rural prices in South Africa is poor. As mentioned before, the IES data do not allow the calculation of unit values and there are no community price surveys. To get a basic idea of the rural/urban food price differentials, we again draw from the SAIHS of 1993. We fix a food bundle that makes up roughly 80% of the food consumption in the 2000 IES and use the mean national urban and rural prices of these items from the SAIHS community questionnaire to construct crude rural and urban price indices for South Africa.[30] We find that the cost of this bundle in urban areas is approximately 4.5% higher than that in rural areas in 1993. This difference would lead to a slight overestimation of poverty in South Africa in general and the relative poverty of rural households in particular.

There is no data source available to us that can shed light on whether this small difference has changed between 1995 and 2000.[31] However, there is evidence from other countries on divergence of price indices between urban and rural areas. For instance, Friedman and Levinsohn (2002) report a co-movement of rural and urban prices in Indonesia over a 12-year period between 1984 and 1996.[32] Deaton and Tarozzi (2000) report that urban prices were 11.4% higher than rural prices in India in 1987-88 and this difference increased to 15.6% by 1993-94. These numbers do not suggest a large divergence in rural/urban price differentials over time.

There are yet other factors to suggest that the small rural/urban price differentials are not likely to effect our results significantly. According to information collected on the area of purchase of goods and services in the 2000 IES, households in rural areas report buying a

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[30] This bundle includes mealie meal/maize flour, rice, bread, beef, mutton, pork, lamb, potatoes, tomatoes, cabbage, soft drinks, milk, milk powder, eggs, vegetable oil, margarine, butter, and sugar.
[31] Carter and May (2001) use separate costs for rural and urban areas of Kwazulu-Natal province that are borrowed from Potgieter (1993), but we were not able locate this study.

significant amount of food items and most of their non-food items in nearby urban areas.[33]

Nonetheless, we simulate the effect of changes in the urban/rural price differential over time and report the results in Table 8. We present revised poverty and inequality figures under three hypothetical scenarios: that the base rural/urban price differential increased from a reasonable 5% in 1995 to 10%, 15%, or 20% in 2000. We note that if we had assumed a 5% price differential between urban and rural areas in 1995, the poverty figures would not be significantly lower than those reported in section 3 (column 3). The table also shows that the increase in various FGT measures of poverty between 1995 and 2000 become insignificant only if the rural/urban price differential quadrupled in the five-year period between 1995 and 2000 (columns 4-6).

V.   Correlates of Household Expenditure

In this section, we investigate the underlying factors for the changes in household expenditures described in the previous section. We show that changes in the distribution of welfare between 1995 and 2000 are mostly attributable to changes in returns to endowments, such as education, and not to changes in the endowment levels themselves. In a manner that is analogous to wage regressions (e.g. Lam 1999), we estimate a regression model to explain the variation in per capita household expenditures.[34]

Endogeneity – either as a result of reverse causality (e.g. current household expenditure may effect decisions regarding the formation of new households) or due to omitted variables (e.g. quality of education) – is a cause for concern. We try to minimize this concern through a

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[32] Specifically, they report that the rural prices increased by 182% while urban prices increased by 187%.
[33] For example, approximately 60% of rural households reported purchasing grain products in nearby urban areas.
[34] Van de Walle and Gunewardena (2001) presents a similar regression model to identify the determinants of living standards in Vietnam

careful selection of explanatory variables and the use of location fixed effects. Household size

and composition, for instance, are responsive to the availability of resources, such as the receipt

of old-age pension, in South Africa (Klasen and Woolard, 2000; Edmonds, Mammen and Miller,

2001; Dieden, 2003). The convention, however, is to include household size in regressions such

as ours (see, for instance, Maluccio, Haddad and May, 2000; Leibbrandt and Woolard 2001).

We include household size and composition in our regressions for two reasons. First, predicted

poverty estimates (reported in Table 10) derived from the regression coefficients are closer to the

'true' poverty estimates for the regressions with household size included than without. Second,

the remaining coefficients in the regression model are robust to the inclusion of household size

and composition.

To estimate these regressions, we pool the data for 1995 and 2000 and regress the natural

logarithm of per capita household consumption, $ln\ y_{id}$, for the ith household in district d on its

characteristics, X_{id}, and a set of district dummies, ν_d. To capture changes over time, all

household characteristics are interacted with a time dummy for year 2000. The model can be

written as follows:

(2) $ln\ y_{id} = X_{id}^{'}\ \beta + tX_{id}^{'}\ \gamma + \nu_d + \varepsilon_i$,

where ε_i is an i.i.d. error term, and t a dummy taking the value one if the observation is from

2000 and zero otherwise. β is the vector of coefficients pertaining to 1995, and ($\beta + \gamma$) is the

vector of parameter estimates for the year 2000.

The explanatory variables can be divided into three categories: demographics, education,

and location effects. Demographic characteristics include household size, age and ethnic origin

of the head of household, and whether the head of household is female or widowed. We also

include variables reflecting the fraction of dependents in the household and distinguish between

those aged 17 and below and those of pensionable age (65 for men, 60 for women).[35]

For heads of households that did not report obtaining a diploma or schooling certificate,

we include dummies for each year of education between 2 and 10 years.[36] For those with high

levels of education, i.e. those that obtained a diploma, dummy variables are included, and the

years of education is set to zero.[37] All education variables are interacted with ethnic group

dummies, as quality of education-received conditional on attainment may differ for these groups

(Case and Deaton, 1999), and because there may be discrimination in the marketplace.

Finally, geographic effects, such as living in a former homeland, agro-ecological factors,

access to markets, local institutions, and infrastructure could be sources of variation in household

consumption. We experimented with province, district, and primary sampling unit (PSU) level

fixed effects, and settled for the inclusion of 362 district dummies.[38] We present two separate

regression models for urban and rural areas.[39] There are very few Asians in rural areas and they

are classified as Whites in the rural regression model.[40]

Table 9 presents the regression results. The adjusted-R^2 is 0.68 for the urban regression

and 0.67 for the rural one.[41] Turning first to the results for 1995, we find that in both rural and

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[35] This old-age pension is arguably the most important social transfer in South Africa (Case and Deaton, 1998). In 2000, the maximum pension benefit was R 549 (or 1.7 times the lower-bound poverty line) per month per pensioner; the maximum disability grant was slightly larger: R 685.

[36] However, in our sample, the number of Whites with low levels of education was very small. Hence, the omitted education group for Whites is 5 years and below, rather than 0 or 1 year of education for other population groups.

[37] We distinguish between four diploma types: (i) diploma obtained with Standard 9 or lower, (ii) diploma obtained with Standard 10, (iii) university degree and (iv) other diplomas and certificates (including postgraduate diplomas).

[38] The results are also robust to the inclusion of time-variant geographic fixed-effects.

[39] We tested whether the correlates of poverty in rural areas are different from those in urban areas by including interaction terms for urban households for all variables. The null hypothesis that the interaction terms are jointly equal to zero was rejected.

[40] Asians made up less than 0.3% of the rural population in both years.

[41] The high R^2 may partly be attributable to the (endogeneity) of household size. If household size is excluded from the regressions, the R^2s drops to around 0.5.

urban areas, household size is negatively correlated with per capita expenditure.[42] The coefficient for the age of the household head reflects the expected life cycle effects. Living in a household that is non-white, that includes young dependents or that is female-headed is negatively correlated with per capita expenditure. This comes over and above the negative correlations associated to household size. There is no correlation between households with a dependent of pensionable age and log per capita consumption for those living in rural areas, but a negative and significant correlation exists in urban areas. The fact that this coefficient is negative in urban areas, despite eligibility to a transfer, confirms a finding by Case and Deaton (1998), who report that median per capita income in pensioner households is lower than in households without a beneficiary of this transfer.

The parameter estimates for the education variables are consistently positive and significant, but vary significantly across ethnic groups and rural and urban areas. Note that the parameter estimates for education between Whites and non-Whites are not directly comparable as the omitted groups are different. Returns to education for Africans and Whites seem to be higher in rural areas than in urban areas in 1995. We also observe sheepskin effects in all population groups at 10 years of education, as well as for degree holders and certificate holders with Standard 10.

Turning to the results for 2000, we find that in the rural and urban regression the set of 2000 interactions are jointly significant, suggesting that a structural change took place.[43] The pattern of change, especially with respect to education, is strikingly different between rural and urban areas. In rural areas the year-interacted terms for demographic characteristics are all

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[42] This result is robust to the choice of different parameters for adult equivalence and economies of scale.
[43] A potential concern is that changes in the estimated parameters pick up measurement error or changes in the omitted variables rather than structural changes (see for instance Malucio, Haddad, and May, 2000, who report large

negative and mostly significant, implying an across the board worsening of these parameters. In urban areas, the results are similar but the declines in parameters are less significant statistically. More interesting are the changes in education coefficients. In urban areas, while the coefficients on education have not changed significantly for Whites, Asians, or Coloreds, they have increased for Africans. These gains are particularly large for Africans with high education, such as degree, certificate, and other diploma holders. In rural areas, however, the picture is different. The year-interacted education parameters for Whites and Coloreds are mostly negative, although statistically insignificant, while those for Africans are mixed. As in urban areas, there were some small gains in returns to low levels of education (2-3 years), there were declines in those for higher levels (9-10 years).

Since this is a household-level analysis and education reflects the level of education of the head of household, we cannot make definitive statements about the returns to education, however, one can interpret the education coefficients to capture the composite impact of differences in the quality of education and various trends in the labor market. Increasing unemployment since 1995, increased labor market opportunities for skilled laborers, deteriorating conditions for unskilled workers, and the decline of labor market discrimination are likely to have affected the education coefficients in various ways.

The results confirm a decline in the ethnic gap in education coefficients, a phenomenon some (e.g. Mwabu and Schultz, 1996 and Moll, 2000) attribute to the decline in labor market discrimination. The result that the returns to education accrued mostly to urban Africans with high levels of education – something documented also by Lam and Leibbrandt (2003) is consistent with the high and rising demand for skilled workers, and an erosion of demand at the

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changes in the return to social capital between 1993 and 1998 in KwaZulu-Natal). As it is not clear how this could be addressed, we assume changes in measurement error are random and the observed parameter changes structural.

bottom end of the labor force. Note that the consequence of such a trend is a greater inequality within Africans, and a decline in inequality between ethnic groups, consistent with our earlier findings on changes in inequality.

In view of these results, it is natural to ask how much of the changes in poverty described in earlier can be attributed to changes in the coefficients as opposed to the changes in household endowments. To address this question, we construct counterfactual consumption distributions and examine the difference in the poverty headcount between the original and counterfactual distributions.[44] Table 10 presents the different counterfactuals, and the associated predicted poverty numbers.

Starting with rural areas, counterfactuals 1 and 4 demonstrate that the changes in poverty are entirely due to changes in the parameters and not in the endowments. Poverty headcount would have been remained the same in rural South Africa if only the endowments changed but the coefficients remained the same between 1995 and 2000 (counterfactual 4). Similarly, the poverty headcount in 2000 would be the same if only the parameters changed (counterfactual 1). Examining further which parameters are responsible for the increase in poverty in rural areas, we find that the decline in the parameters for demographic characteristics (counterfactual 3) and not those for education (counterfactual 2) are responsible for this change.

In urban areas, the picture is slightly different. Again, counterfactual 4 shows that if only the endowments changed, but the parameters stayed the same, poverty in urban areas would be roughly the same in 2000 as in 1995. However, if only the parameters changed (counterfactual 1), poverty would have increased (from 37.0% to 39.6%), but not as much as the realized poverty increase between 1995 and 2000 (from 37.0% to 41.5%). Interestingly, and consistent with the

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[44] A detailed description of how we derive predicted poverty rates for each counterfactual is presented in Appendix 1.

finding that there were increases to returns to education in urban areas, the direction of change in poverty due to a change in education parameters is different than that due to a change in "other" parameters. If only the education parameters changed between 1995 and 2000 (counterfactual 2), poverty would have actually declined to 34.7% in urban South Africa. However, these potential gains were cancelled by declines in other parameters: if only the "other" parameters changed between 1995 and 2000, then poverty would increase to 42.0% – very close to the realized poverty headcount of 41.5%. Interestingly, poverty would have been highest in urban areas in 2000 if only education parameters remained *unchanged* between 1995 and 2000.

Given the central importance of education, it may be useful to consider what happens to poverty if inequalities in education are reduced, as they are likely to translate to inequalities in per capita expenditure. This notion is intuitively appealing, although whether it holds depends on how education outcomes are mapped into welfare outcomes (Lam, 1999). A legacy of the apartheid, the education gap between racial groups still exists in 2000 but it is closing due to improvements in educational attainment, especially by Africans and Coloreds (Lam & Leibbrandt, 2003).

To explore how increases in educational attainment and returns to education might affect poverty reduction, we perform more simulations. For example, all else equal, if every household head with less than 7 years of education attained 7 years of education, then poverty would decline by about 8 percentage points in rural areas and 5 percentage points in urban areas.[45] If, in addition, the return to education for those with some education but without a diploma increased by 50%, the poverty would decline by 16 percentage points in rural areas and by about 14 percentage points in urban areas.

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[45] This is the average level of education for the most recent cohort of household heads, defined as those aged 30 or below.

We conclude that most of the trends in poverty observed between 1995 and 2000 can be attributed not to the changes to household endowments, but rather to the returns to those endowments. Although there was some improvement in educational attainment over this period, these changes were not large for Africans.[46] In urban areas, where returns to education seem to be improving, these returns improved mostly for the highly educated – a very small percentage of the African population. The education parameters reflect the composite influence of education quality, labor market opportunities, and (wage) returns to education. Disentangling these effects is beyond the scope of this paper. However, we can say that micro-economic policies that focus on improving quality educational attainment for the poor, addressing labor market rigidities, and providing safety nets are urgently needed if the trend of increasing poverty and inequality in South Africa is to be reversed in the short to medium-run.

VI. Policy Discussion & Conclusions

This paper assesses the changes in poverty and inequality in South Africa between 1995-2000, the period that covers the first five years after the official end of the apartheid in 1994. Consistent with GDP growth, we find that there was little growth in per capita household expenditures during this period. Roughly 60% of all South Africans, and two thirds of the African population was poor in either year. The depth and severity of poverty increased as a result of declining expenditures for those at the bottom of the expenditure distribution, and inequality among Africans rose sharply. By 2000, there were approximately 1.8 million more South Africans living with less than $1/day and 2.3 million more with less than $2/day.

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[46] Average education levels for Africans remained roughly the same in urban areas between 1995 and 2000, possibly due to migration by low-skilled individuals from rural to urban areas. In contrast, the improvements in education were larger for Coloreds in both urban and rural areas.

These declines in welfare were not uniform for all South Africans. Coloreds experienced a substantial decline in poverty, consistent with the finding that Western Cape and Northern Cape – the two provinces where Coloreds form the majority of the population – also saw their poverty rates decline significantly during this period. African residents of these provinces also benefited from these reductions in poverty, suggesting a geographic rather than an ethnic explanation for this change. On the other hand, poverty increased significantly in Eastern Cape, Limpopo, Kwazulu-Natal, and Gauteng – the four most populated provinces in South Africa.

At the same time, substantial progress was made in other areas, such as access to safe water and sanitation between 1995 and 2000. Coverage for social transfers, such as old-age pension, improved significantly and spending in social sectors, such as in public education at 7% of the GDP, was among the highest in the world.[47]

However, the government's macroeconomic strategy failed to generate the projected growth and create enough jobs to bring down the high rate of unemployment. Even if the projected growth rates were achieved, it should not be assumed that substantial reductions in poverty would follow. Without a progressive shift in the expenditure distribution, even if South Africa grew at a remarkable annual rate of 8% per capita – similar to China's growth rate in the 1990s or double the growth rate experienced by Coloreds between 1995 and 2000 – it would take approximately 10 years for the average poor household to escape poverty.[48] Hence, it is unlikely that growth alone – without explicit poverty reduction strategies – could have lifted many South Africans out of poverty. South Africa needs to grow in a way that also improves the distribution of incomes if it is to make significant progress against poverty in the short to medium run.

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[47] Rama (2001).

[48] Authors' own calculation. With a more reasonable growth rate of 5% per year (3% per capita), it would take more than 23 years for an average poor household to get out of poverty, assuming that the Lorenz curve stays unchanged.

Improvements in attainment of quality education are central to any long-term policy to fight poverty in South Africa. In the meantime, however, South Africa must focus on trying to help its poor citizens, who are unable to benefit from the growth process. Some of the policies that were mentioned in both the RDP and the GEAR, but were never seriously undertaken, such as land reform and changes in labor market legislation, can be reconsidered. Increased employment could reduce the return gap in education, and increase demand for schooling.

Public works programs seem particularly well suited for a country like South Africa, where there is a great need for infrastructure in poor areas and for jobs for low-skilled individuals. These programs could be particularly cost-effective if geographically targeted to poor areas, and could jump-start some economic activity in depressed areas and add to the skills of the unemployed.[49] Conditional transfer schemes – such as Progresa (Mexico), Bolsa Escola (Brazil), Food For Education (Bangladesh) – could also be attractive. Such schemes combine cash (or asset) transfers to poor families with incentives for investments in education and health, addressing South Africa's need to invest in its human capital while providing safety nets to the poor in the short-term.

The end of the apartheid gave South Africans their freedom. As the first decade of the post-apartheid era draws to an end, the South African government also succeeded in stabilizing its economy and bringing some services to its people. The time is now to shift the focus and aggressively fight poverty in the next decade.

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[49] Ravallion et al. (2003) finds that workers in the Trabajar program in Argentina felt that the program improved their earnings outside the program, their chances of getting a job, gave them a marketable skill, and expanded their contacts.

References

Babita, Miriam, Berk Özler, Nozipho Shabalala, and Harry Thema (2003). Changes in Poverty and Inequality in South Africa: 1995-2000. Unpublished manuscript.

Bhorat, Haroon (2003). The Post-Apartheid Challenge. Labour Demand Trends in the South African Labour Market, 1995-1999. DPRU Working Paper 03/82.

Blinder, A. S. (1973). Wage Discrimination: Reduced Form and Structural Estimates. *Journal of Human Resources* 8(4):436-455.

Butcher, Kristin, and Cecilia Rouse (2001). Wage Effects of Unions and Industrial Councils in South Africa. *Industrial and Labor Relations Review* 54(2): 349-374.

Carter, Michael R., and Julian May (1999). Poverty, Livelihood and Class in Rural South Africa. *World Development* 21(1): 1-20.

Carter, Michael R., and Julian May (2001). One Kind of Freedom: Poverty Dynamics in Post-Apartheid South Africa. *World Development* 29(12): 1987-2006.

Case, Anne, and Angus Deaton (1998). Large Cash Transfers to the Elderly in South Africa. *Economic Journal* 108(450): 1330-1362.

Case, Anne, and Angus Deaton (1999). School Inputs and Educational Outcomes in South Africa. *Quarterly Journal of Economics* 114(3): 1047-1084.

Datt, Gaurav, and Dean Joliffe (2001). Poverty in Egypt: Modeling and Poverty Simulations. Unpublished manuscript.

Deaton Angus (1997). *The Analysis of Household Surveys. A Microeconometric Approach to Development Policy.* Baltimore: Johns Hopkins University Press.

Deaton, Angus, and Alessandro Tarozzi (2000). Prices and Poverty in India. Unpublished Manuscript.

Deaton, Angus, and Salman Zaidi (2002). Guidelines for Constructing Consumption Aggregates for Welfare Analysis. LSMS Working Paper No. 135, World Bank, Washington.

Dieden S. (2003). South African Household's Integration into the Core Economy –Micro Level Covariates. Unpublished manuscript.

Dodson, Belinda. 2002. Gender and The Brain Drain from South Africa. The Southern African Migration Project. Migration Policy Series No. 23.

Edmonds E., K. Mammen and D. Miller (2001). Rearranging the Family: Household composition changes to Large Pension Receipts: Unpublished manuscript.

Fields, Gary S., Paul L. Cichello, Samuel Freije, Marta Menendez, David Newhouse (2003). For Richer or for Poorer? Evidence from Indonesia, South Africa, Spain, and Venezuela. *Journal of Economic Inequality,* 1(1): 67-99.

Friedman, Jed, and James Levinsohn (2002). The Distributional Impacts of Indonesia's Financial Crisis on Household Welfare: A "Rapid Response" Methodology. *The World Bank Economic Review* 16(3): 397-423.

Government of South Africa (1996). Growth, Employment and Redistribution: A Macroeconomic Strategy.

Hentschel, Jesko, Jean Olson Lanjouw, Peter Lanjouw and Javier Poggi (2000). Combining Census and Survey Data to Trace the Spatial Dimensions of Poverty. *The World Bank Economic Review* 14(1): 147-65.

Kingdon Geeta and J. Knight (1999). Unemployment and Wages in South Africa: A Spatial Approach. Working Paper WPS99-12. Center for Study of African Economies, Department of Economics, University of Oxford.

Klasen, Stephan, and Ingrid Woolard (2000). Surviving Unemployment without State Support: Unemployment and Household Formation in South Africa. IZA Discussion Paper No. 237.

Lam, D. (1999). Generating Extreme Inequality: Schooling, Earnings and Intergenerational Transmission of Human Capital in South Africa and Brazil. University of Michigan, PSC Research Report No: 99-439.

Lam, David, and Murray Leibbrandt (2003). What's Happened to Inequality in South Africa Since the End of Apartheid? Unpublished manuscript.

Lanjouw, Peter, Giovanna Prennushi, and Salman Zaidi (1996). Building Blocks for a Consumption-Based Analysis of Poverty in Nepal. The World Bank. Unpublished manuscript.

Leibbrandt M., and I. Woolard (2001). The Labour Market and Household Income Inequality in South Africa: Existing Evidence and New Panel Data. *Journal of International Development* 13: 671-689.

Leibbrandt, Murray, Servaas van der Berg, and Haroon Bhorat (2001). Introduction, in Bhorat et al. (eds.) *Fighting Poverty.* UCT Press.

Maluccio, J., L. Haddad and J. May (2000). Social Capital and Household Welfare in South Africa, 1993-98. *Journal of Development Studies* 36(6): 54-81.

Moll, Peter G. (2000). Discrimination is Declining in South Africa but Inequality is Not. *Studies in Economics and Econometrics* 24(3): 91-108.

Mwabu, Germano, and T. Paul Schultz (1996). Education Returns across Quantiles of the Wage Function: Alternative Explanations for the Returns to Education by Race in South Africa. *American Economic Review* 86(2): 335-339.

Oaxaca R. (1973). Male-female wage differentials in urban labor markets. *International Economic Review* 14: 693-709.

Rama, Martin (2001). Labor Market Issues in South Africa. The World Bank. Unpublished manuscript.

Ravallion, Martin (1994). *Poverty Comparisons*. Harwood Academic Publishers.

Ravallion, Martin (2001). Poverty Lines: Economic Foundations of Current Practices. The World Bank. Unpublished manuscript.

Ravallion, Martin, Emanuela Galasso, Teodoro Lazo, and Ernesto Philipp (2003). Do Workfare Participants Recover Quickly from Retrenchment? Policy Research Working Paper No. 2672. The World Bank.

Ravallion, Martin, and Shaohua Chen (2003). Measuring pro-poor growth. *Economic Letters* 78: 93-99.

Ravallion, Martin, and Quentin Wodon (1999). Poor Areas, or Only Poor People. *Journal of Regional Science* 39(4): 689-711.

Simkins, Charles (2003). A Critical Assessment of the 1995 and 2000 Income and Expenditure surveys as Sources of Information on Incomes. Unpublished manuscript.

Statistics South Africa (2001). South Africa in Transition. Selected Findings from the October Household Survey of 1999 and Changes that have occurred between 1995 and 1999.

Statistics South Africa (2003). Census 2001: Census in Brief. Second Edition.

The Economist (January 15, 2004). Africa's Engine. Survey: Sub-Saharan Africa.

Van de Walle Dominique, and Dileni Gunewardena (2001). Sources of Ethnic Inequality in Vietnam. *Journal of Development Economics* 65: 177-207.

Figure 1: Cumulative Distribution Functions by Year
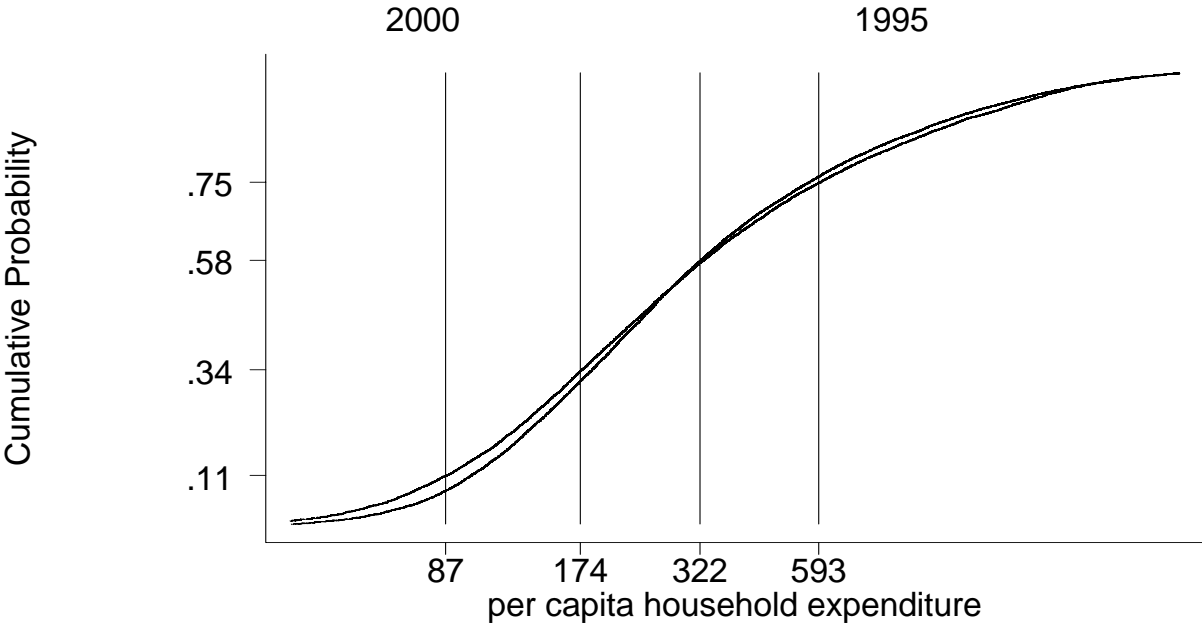
Figure 2: Cumulative Distribution Functions by Year for *Africans*
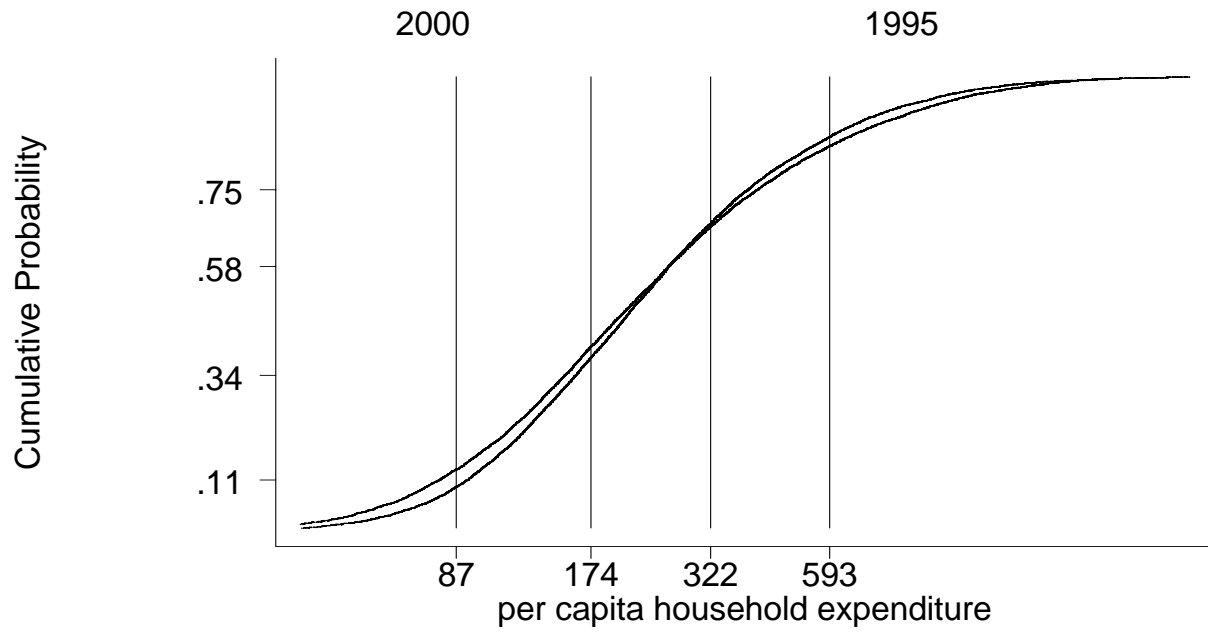
Figure 3: Cumulative Distribution Functions by Year for *Coloreds*
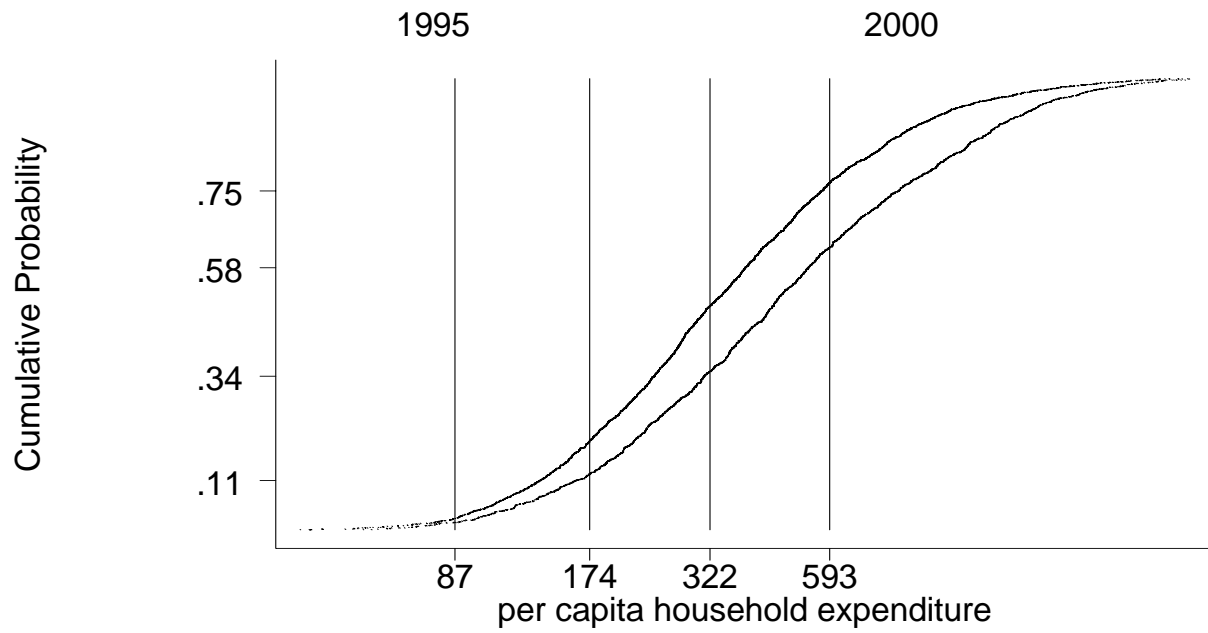
Figure 4: Cumulative Distribution Functions by Population Group in 1995

Africans   Coloreds Asians   Whites

Cumulative Probability

.75

.58

.34

.11

87   174   322   593

per capita household expenditure
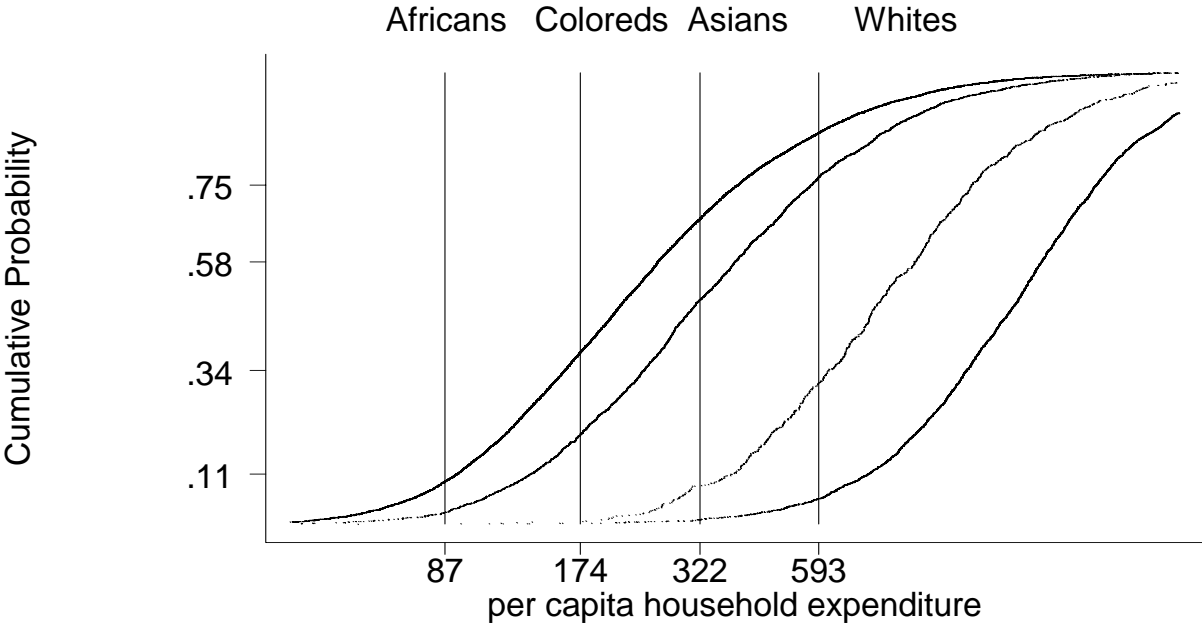
Figure 5: Cumulative Distribution Functions by Population Group in 2000

Africans   Coloreds Asians   Whites

Cumulative Probability

.75

.58

.34

.11

87   174   322   593

per capita household expenditure

Figure 6: Growth Incidence Curve for *South Africa*

Figure 7: Growth Incidence Curve for *Coloreds*

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Table 1: Changes in poverty between 1995 and 2000

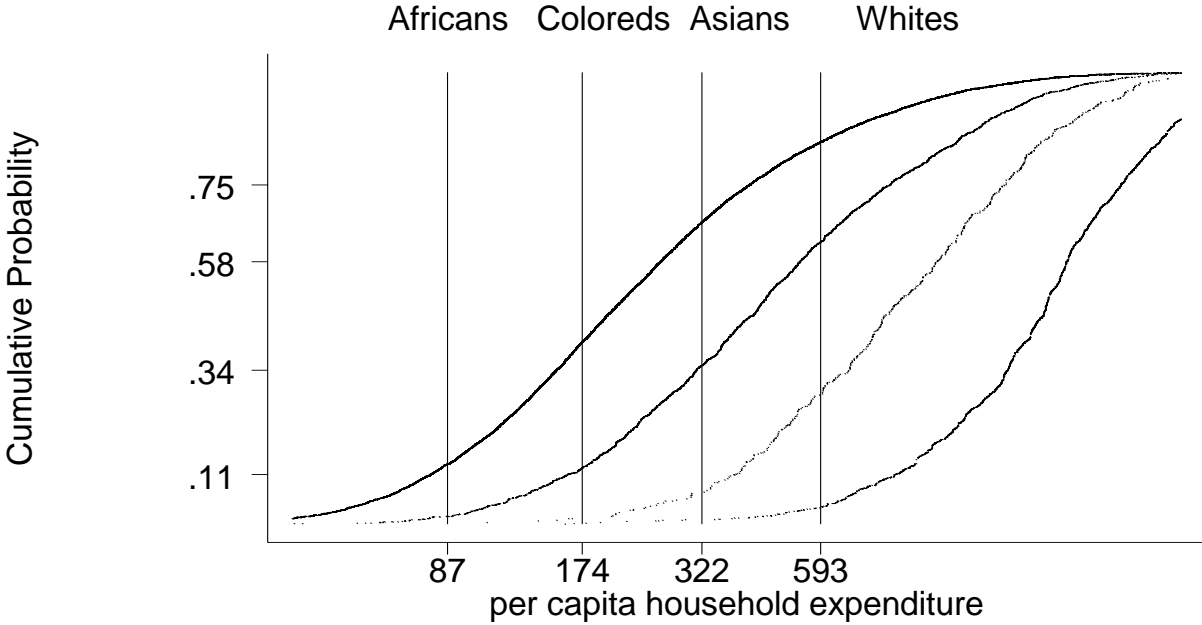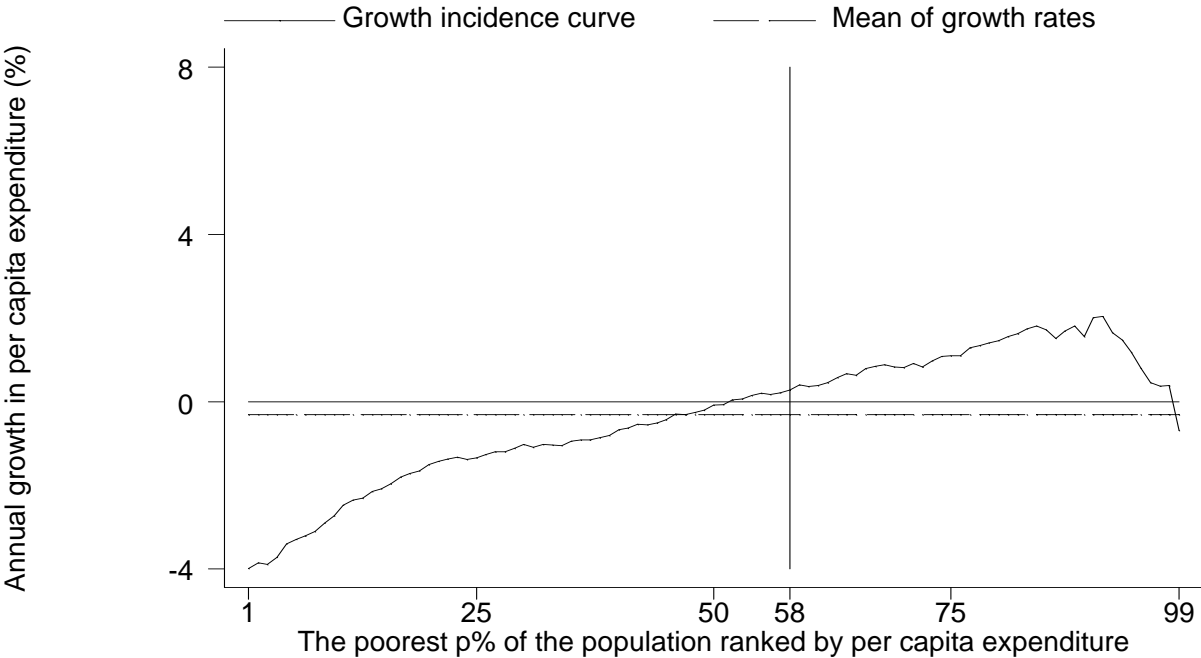| Poverty Line		$2/day poverty line (R 174)		lower-bound poverty line (R 322)	
		1995	**2000**	**1995**	**2000**
South Africa	Headcount Index*	0.32 (0.01)	0.34 (0.01)	0.58 (0.01)	0.58 (0.01)
	Poverty Gap*[a]	0.11 (0.00)	0.13 (0.00)	0.27 (0.01)	0.29 (0.01)
	Poverty Gap Squared*[a]	0.05 (0.00)	0.07 (0.00)	0.16 (0.00)	0.17 (0.00)
	Mean Expenditure	534 (10.5)	547 (11.0)	534 (10.5)	547 (11.0)
Africans	Headcount Index*	0.38 (0.01)	0.40 (0.01)	0.68 (0.01)	0.67 (0.01)
	Poverty Gap*[a]	0.13 (0.00)	0.15 (0.00)	0.32 (0.00)	0.34 (0.00)
	Poverty Gap Squared*[a]	0.06 (0.00)	0.08 (0.00)	0.19 (0.00)	0.21 (0.00)
	Mean Expenditure[b]	341 (6.8)	357 (5.9)	341 (6.8)	357 (5.9)
Coloreds	Headcount Index*[a]	0.20 (0.01)	0.12 (0.01)	0.50 (0.02)	0.35 (0.02)
	Poverty Gap*[a]	0.06 (0.00)	0.04 (0.00)	0.19 (0.01)	0.13 (0.01)
	Poverty Gap Squared*[a]	0.02 (0.00)	0.01 (0.00)	0.10 (0.01)	0.07 (0.00)
	Mean Expenditure[b]	474 (15.9)	659 (23.6)	474 (15.9)	659 (23.6)
Indians/ Asians	Headcount Index	0.00 (0.00)	0.01 (0.01)	0.08 (0.01)	0.07 (0.02)
	Poverty Gap	0.00 (0.00)	0.00 (0.00)	0.02 (0.00)	0.02 (0.01)
	Poverty Gap Squared	0.00 (0.00)	0.00 (0.00)	0.01 (0.00)	0.01 (0.00)
	Mean Expenditure	1108 (66.6)	1146 (49.7)	1108 (66.6)	1146 (49.7)
Whites	Headcount Index	0.00 (0.00)	0.00 (0.00)	0.01 (0.00)	0.01 (0.01)
	Poverty Gap	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
	Poverty Gap Squared	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
	Mean Expenditure[b]	1989 (39.0)	2211 (51.7)	1989 (39.0)	2211 (51.7)
Urban	Headcount Index *[a]	0.15 (0.01)	0.18 (0.01)	0.36 (0.01)	0.40 (0.01)
	Poverty Gap *[a]	0.05 (0.00)	0.05 (0.00)	0.14 (0.00)	0.16 (0.00)
	Poverty Gap Squared *[a]	0.02 (0.00)	0.02 (0.00)	0.08 (0.00)	0.09 (0.00)
	Mean Expenditure[b]	811 (19.8)	764 (17.9)	811 (19.8)	764 (17.9)
Rural	Headcount Index *[a]	0.45 (0.01)	0.55 (0.01)	0.75 (0.01)	0.80 (0.01)
	Poverty Gap *[a]	0.16 (0.00)	0.22 (0.01)	0.37 (0.01)	0.44 (0.01)
	Poverty Gap Squared *[a]	0.07 (0.00)	0.12 (0.00)	0.22 (0.00)	0.29 (0.00)
	Mean Expenditure[b]	313(8.3)	262 (6.1)	313(8.3)	262 (6.1)

All figures have been weighted using person weights (household weight * household size). Standard errors are corrected for complex survey design.
* indicates that the difference in the poverty figures between 1995 and 2000 is statistically significant at the 90% level for z=174. a indicates that the difference in the poverty figures between 1995 and 2000 is statistically significant at the 90% level for z=322. b indicates that the difference in mean expenditure levels between 1995 and 2000 is statistically significant at the 90% level.

Table 2: Changes in poverty by province

		$2/day poverty line (R 174)		lower-bound poverty line (R 322)	
		1995	**2000**	**1995**	**2000**
South Africa	Headcount Index *	0.32 (0.01)	0.34 (0.01)	0.58 (0.01)	0.58 (0.01)
	Poverty Gap*a	0.11 (0.00)	0.13 (0.00)	0.27 (0.01)	0.29 (0.01)
	Poverty Gap Squared * a	0.05 (0.00)	0.07 (0.00)	0.16 (0.00)	0.17 (0.00)
Western Cape	Headcount Index * a	0.15 (0.02)	0.10 (0.01)	0.40 (0.02)	0.31 (0.02)
	Poverty Gap * a	0.04 (0.01)	0.02 (0.00)	0.15 (0.01)	0.11 (0.01)
	Poverty Gap Squared* a	0.01 (0.00)	0.01 (0.00)	0.07 (0.01)	0.05 (0.00)
Eastern Cape	Headcount Index *	0.49 (0.01)	0.56 (0.02)	0.76 (0.01)	0.76 (0.01)
	Poverty Gap * a	0.18 (0.01)	0.23 (0.01)	0.39 (0.01)	0.44 (0.01)
	Poverty Gap Squared * a	0.08 (0.00)	0.13 (0.01)	0.24 (0.01)	0.29 (0.01)
Northern Cape	Headcount Index * a	0.33 (0.03)	0.26 (0.02)	0.62 (0.03)	0.53 (0.03)
	Poverty Gap* a	0.12 (0.04)	0.09 (0.01)	0.29 (0.02)	0.24 (0.02)
	Poverty Gap Squared a	0.05 (0.01)	0.04 (0.01)	0.17 (0.01)	0.13 (0.01)
Free State	Headcount Index * a	0.48 (0.02)	0.38 (0.02)	0.70 (0.02)	0.61 (0.02)
	Poverty Gap * a	0.19 (0.01)	0.14 (0.01)	0.38 (0.01)	0.32 (0.01)
	Poverty Gap Squared * a	0.10 (0.01)	0.07 (0.00)	0.24 (0.01)	0.19 (0.01)
Kwazulu-Natal	Headcount Index * a	0.32 (0.02)	0.46 (0.02)	0.63 (0.02)	0.68 (0.02)
	Poverty Gap * a	0.11 (0.01)	0.20 (0.01)	0.28 (0.01)	0.37 (0.01)
	Poverty Gap Squared * a	0.05 (0.01)	0.11 (0.01)	0.16 (0.01)	0.24 (0.01)
North West	Headcount Index a	0.39 (0.02)	0.35 (0.02)	0.66 (0.02)	0.61 (0.02)
	Poverty Gap	0.14 (0.01)	0.13 (0.01)	0.33 (0.01)	0.30 (0.01)
	Poverty Gap Squared	0.07 (0.01)	0.06 (0.01)	0.20 (0.01)	0.18 (0.01)
Gauteng	Headcount Index * a	0.08 (0.01)	0.14 (0.01)	0.23 (0.02)	0.37 (0.02)
	Poverty Gap * a	0.02 (0.00)	0.04 (0.00)	0.08 (0.01)	0.14 (0.01)
	Poverty Gap Squared * a	0.01 (0.00)	0.02 (0.00)	0.04 (0.01)	0.07 (0.00)
Mpumalanga	Headcount Index	0.31 (0.02)	0.29 (0.02)	0.62 (0.02)	0.59 (0.02)
	Poverty Gap	0.09 (0.01)	0.09 (0.01)	0.28 (0.01)	0.26 (0.01)
	Poverty Gap Squared	0.04 (0.00)	0.04 (0.00)	0.15 (0.01)	0.14 (0.01)
Limpopo	Headcount Index * a	0.36 (0.02)	0.47 (0.01)	0.65 (0.02)	0.76 (0.01)
	Poverty Gap * a	0.12 (0.01)	0.16 (0.01)	0.31 (0.01)	0.38 (0.01)
	Poverty Gap Squared * a	0.06 (0.01)	0.07 (0.00)	0.18 (0.01)	0.23 (0.01)

All figures have been weighted using person weights (household weight * household size). Standard errors are corrected for complex survey design.
* indicates that the difference in the poverty figures between 1995 and 2000 is statistically significant at the 90% level for z=174. a indicates that the difference in the poverty figures between 1995 and 2000 is statistically significant at the 90% level for z=322.

Table 3: Changes in inequality between 1995 and 2000

		1995	2000
South Africa	Gini Index	0.565 (0.005)	0.577 (0.005)
	Mean Log Deviation	0.563 (0.011)	0.607 (0.012)
	Theil Index	0.608 (0.014)	0.617 (0.012)
Africans	Gini Index	0.467 (0.007)	0.501 (0.005)
	Mean Log Deviation	0.370 (0.011)	0.436 (0.010)
	Theil Index	0.414 (0.015)	0.460 (0.012)
Coloreds	Gini Index	0.439 (0.009)	0.453 (0.008)
	Mean Log Deviation	0.326 (0.014)	0.359 (0.012)
	Theil Index	0.345 (0.016)	0.348 (0.013)
Indians/Asians	Gini Index	0.398 (0.019)	0.374 (0.014)
	Mean Log Deviation	0.265 (0.025)	0.243 (0.021)
	Theil Index	0.287 (0.034)	0.233 (0.018)
Whites	Gini Index	0.344 (0.007)	0.319 (0.009)
	Mean Log Deviation	0.203 (0.008)	0.179 (0.011)
	Theil Index	0.201 (0.007)	0.172 (0.011)
Urban	Gini Index	0.527 (0.006)	0.533 (0.006)
	Mean Log Deviation	0.502 (0.013)	0.517 (0.013)
	Theil Index	0.494 (0.013)	0.502 (0.013)
Rural	Gini Index	0.493 (0.009)	0.502 (0.008)
	Mean Log Deviation	0.410 (0.016)	0.428 (0.014)
	Theil Index	0.513 (0.022)	0.516 (0.022)

All figures have been weighted using person weights (household weight * household size). Standard errors are corrected for complex survey design by utilizing the ineqerr.ado file in STATA that provides bootstrap estimates of sampling the variances. Mean log deviation and Theil Index are General Entropy Class Inequality Measures with parameter values "c" equal to 0 and 1, respectively.

Table 4: Inequality within and between population groups

	1995	2000
Mean Log Deviation	0.563	0.606
Inequality within population groups	0.347	0.405
Inequality between population groups	0.216	0.201
Share of between-group inequality	38.3%	33.2%

Table 5: Population Shares by Race in 2000 (%)

	South Africa		Gauteng	
	IES 2000	Census 2001	IES 2000	Census 2001
Africans	81.0	79.0	81.1	73.8
Coloreds	8.8	8.9	4.3	3.8
Indians/Asians	2.5	2.5	1.6	2.5
Whites	7.7	9.6	13.0	19.9

Table 6: Sensitivity of poverty and inequality comparisons to sampling weights

Poverty Line		*Revised* 1995 sampling weights	*Published* 2000 sampling weights	*Adjusted* 2000 sampling weights
$2/day poverty line (R 174)	Headcount Index[a]*	0.317 (0.007)	0.339 (0.007)	0.334 (0.007)
	Poverty Gap[a]*	0.109 (0.003)	0.128 (0.003)	0.126 (0.003)
	Poverty Gap Squared[a]*	0.050 (0.002)	0.065 (0.002)	0.064 (0.002)
lower-bound poverty line (R 322)	Headcount Index	0.579 (0.007)	0.575 (0.007)	0.564 (0.007)
	Poverty Gap[a]	0.272 (0.005)	0.286 (0.005)	0.281 (0.005)
	Poverty Gap Squared[a]*	0.157 (0.003)	0.174 (0.004)	0.171 (0.004)
	Mean Expenditure*	534 (10.5)	547 (11.0)	587 (13.1)
	Gini Index	0.565 (0.005)	0.578 (0.004)	0.588 (0.005)
	Mean Log Deviation	0.563 (0.011)	0.606 (0.010)	0.638 (0.012)
	Theil Index	0.608 (0.014)	0.623 (0.011)	0.636 (0.012)

All figures have been weighted using person weights (household weight * household size). Standard errors are corrected for complex survey design.
[a] indicates that the difference between the 1995 figures (column 3) and the *published* 2000 figures (column 4) for mean expenditure and poverty measures is statistically significant at the 90% level. * indicates that the difference between the 1995 figures (column 3) and the *adjusted* 2000 figures (column 5) for the same measures is statistically significant at the 90% level.

Table 7: Sensitivity of poverty and inequality comparisons to consumption of home grown food

Poverty Line		Consumption *excluding* home grown maize (1995)	Consumption *excluding* home grown maize (2000)	Consumption *including* home grown maize (2000)
$2/day poverty line (R 174)	Headcount Index[a]	0.317 (0.007)	0.339 (0.007)	0.331 (0.006)
	Poverty Gap[a]*	0.109 (0.003)	0.128 (0.003)	0.122 (0.003)
	Poverty Gap Squared[a]*	0.050 (0.002)	0.065 (0.002)	0.061 (0.002)
lower-bound poverty line (R 322)	Headcount Index	0.579 (0.007)	0.575 (0.007)	0.573 (0.006)
	Poverty Gap[a]	0.272 (0.005)	0.286 (0.005)	0.281 (0.004)
	Poverty Gap Squared[a]*	0.157 (0.003)	0.174 (0.004)	0.169 (0.003)
	Mean Expenditure	534 (10.5)	547 (11.0)	549 (10.6)
	Gini Index	0.565 (0.005)	0.578 (0.004)	0.574 (0.005)
	Mean Log Deviation	0.563 (0.011)	0.606 (0.010)	0.596 (0.012)
	Theil Index	0.608 (0.014)	0.623 (0.011)	0.610 (0.012)

All figures have been weighted using person weights (household weight * household size). Standard errors are corrected for complex survey design.
[a] indicates that the difference between figures *excluding* maize for 1995 (column 3) and for 2000 (column 4) for mean expenditure and poverty measures is statistically significant at the 90% level. * indicates that the difference between the 1995 figures (column 3) and the 2000 figures *including* maize (column 5) for the same measures is statistically significant at the 90% level.

Table 8: Sensitivity of poverty and inequality comparisons to changes in the urban/rural price differential

		If the base urban/rural price differential of 5% in 1995 doubled to 10%, tripled to15%, or quadrupled to 20% by 2000…			
Poverty Line		1995 (5%)	2000 (10%)	2000 (15%)	2000 (20%)
$2/day poverty line (R 174)	Headcount Index	0.303 (0.007)	0.316 (0.007)	0.306 (0.006)	0.296 (0.006)
	Poverty Gap	0.101 (0.003)	0.115* (0.003)	0.109* (0.003)	0.104 (0.003)
	Poverty Gap Squared	0.046 (0.002)	0.057* (0.002)	0.053* (0.002)	0.050* (0.002)
lower-bound poverty line (R 322)	Headcount Index	0.570 (0.007)	0.561 (0.007)	0.555 (0.007)	0.549* (0.007)
	Poverty Gap	0.262 (0.005)	0.271 (0.005)	0.264 (0.005)	0.257 (0.004)
	Poverty Gap Squared	0.149 (0.003)	0.161* (0.003)	0.155 (0.003)	0.150 (0.003)
	Mean Expenditure	543 (10.6)	558 (11.0)	564 (11.0)	569* (11.0)
	Gini Index	0.560 (0.005)	0.570 (0.005)	0.566 (0.005)	0.563 (0.004)
	Mean Log Deviation	0.552 (0.011)	0.586 (0.012)	0.577 (0.011)	0.569 (0.010)
	Theil Index	0.598 (0.012)	0.601 (0.013)	0.593 (0.012)	0.586 (0.012)

The figures in parantheses in row 2 represent the percentage by which prices in urban areas exceed those in rural areas.
All figures have been weighted using person weights (household weight * household size). Standard errors are corrected for complex survey design.
* indicates that the difference in mean expenditure and the poverty figures between 1995 and 2000 is statistically significant at the 90% level.

Table 9: Correlates of log per capita consumption

	Urban		Rural	
	Coefficient	T-statistic	Coefficient	T-statistic
Household size	-0.24	-22.4	-0.23	-23.2
Household size, squared	0.01	9.9	0.01	12.9
Fraction of dependents aged 17 and less	-0.22	-10.6	-0.27	-13.6
Fraction of dependents of pensionable age	-0.15	-5.3	0.03	0.7
Age of head of household	0.02	10.5	0.02	9.9
Age of head of household, squared	0.00	-9.7	0.00	-8.6
D-household head is widow	0.02	1.3	-0.04	-2.1
D-household head is female	-0.14	-10.7	-0.03	-2.5
D-head is African	-1.09	-11.7	-0.80	-4.7
D-head is Colored	-1.00	-10.3	-0.77	-4.3
D-head is Asian	-0.51	-3.5		
D-6 years of education, White	-0.10	-1.1	0.33	1.7
D-7 years of education, White	0.02	0.2	0.37	1.6
D-8 years of education, White	0.14	1.5	0.77	4.3
D-9 years of education, White	0.20	2.0	0.78	3.8
D-10 years of education, White	0.41	4.6	1.14	6.4
D-holder of certificate with less Std 9, White	0.39	3.6	1.09	3.9
D-holder of certificate with Std 10, White	0.59	6.4	1.28	6.7
D-holder of degree, White	0.75	8.1	1.39	7.6
D-other diploma, White	0.10	0.8	1.24	4.0
D-2 years of education, Asian	0.09	0.5		
D-3 years of education, Asian	0.12	0.8		
D-4 years of education, Asian	-0.05	-0.4		
D-5 years of education, Asian	0.27	2.0		
D-6 years of education, Asian	0.26	2.2		
D-7 years of education, Asian	0.11	0.8		
D-8 years of education, Asian	0.38	3.1		
D-9 years of education, Asian	0.55	4.3		
D-10 years of education, Asian	0.65	5.4		
D-holder of certificate with less Std 9, Asian	1.33	3.1		
D-holder of certificate with Std 10, Asian	1.04	7.6		
D-holder of degree, Asian	1.10	7.4		
D-other diploma, Asian	0.42	0.7		
D-2 years of education, Colored	0.08	1.3	0.05	0.8
D-3 years of education, Colored	0.14	2.8	0.10	1.7
D-4 years of education, Colored	0.18	3.8	0.26	5.0
D-5 years of education, Colored	0.20	4.6	0.26	4.3
D-6 years of education, Colored	0.28	7.0	0.27	4.4
D-7 years of education, Colored	0.43	9.2	0.26	2.2
D-8 years of education, Colored	0.60	11.4	0.53	4.6
D-9 years of education, Colored	0.63	9.4	0.61	2.4
D-10 years of education, Colored	0.93	18.6	1.14	6.7
D-holder of certificate with less Std 9, Colored	1.26	7.0	0.65	1.5
D-holder of certificate with Std 10, Colored	1.18	18.7	1.30	6.0
D-holder of degree, Colored	1.51	14.0	1.46	4.3
D-other diploma, Colored	0.92	4.0	-0.03	-0.2
D-2 years of education, African	-0.01	-0.4	0.12	6.1

	Urban		Rural	
	Coefficient	T-statistic	Coefficient	T-statistic
D-3 years of education, African	0.04	1.0	0.08	4.1
D-4 years of education, African	0.13	4.0	0.14	6.9
D-5 years of education, African	0.12	4.2	0.22	10.9
D-6 years of education, African	0.24	8.9	0.30	14.2
D-7 years of education, African	0.27	8.2	0.39	13.2
D-8 years of education, African	0.40	12.0	0.42	14.0
D-9 years of education, African	0.42	11.2	0.54	13.6
D-10 years of education, African	0.69	21.4	0.74	19.0
D-holder of certificate with less Std 9, African	0.78	9.3	0.78	10.3
D-holder of certificate with Std 10, African	1.06	24.5	1.24	22.3
D-holder of degree, African	1.18	19.7	1.41	11.6
D-other diploma, African	0.21	2.7	0.35	4.6
Interaction terms with D-2000				
Household size	0.01	1.1	-0.05	-3.5
Household size, squared	0.00	-0.7	0.00	2.1
Fraction of dependents aged 17 and less	-0.10	-3.3	-0.09	-3.0
Fraction of dependents of pensionable age	-0.02	-0.4	-0.09	-1.7
Age of head of household	0.00	-0.8	-0.01	-1.8
Age of head of household, squared	0.00	1.9	0.00	2.7
D-household head is widow	0.00	0.0	-0.02	-0.7
D-household head is female	-0.03	-1.4	-0.08	-4.3
D-head is African	-0.16	-1.0	-0.37	-1.1
D-head is Colored	0.02	0.1	-0.16	-0.5
D-head is Asian	0.07	0.3		
D-6 years of education, White	0.06	0.4	-0.30	-0.8
D-7 years of education, White	0.04	0.2	-0.23	-0.5
D-8 years of education, White	0.00	0.0	-0.11	-0.3
D-9 years of education, White	0.14	0.8	-0.70	-1.4
D-10 years of education, White	0.08	0.5	-0.27	-0.8
D-holder of certificate with less Std 9, White	0.15	0.8	0.03	0.1
D-holder of certificate with Std 10, White	0.06	0.4	-0.43	-1.2
D-holder of degree, White	0.00	0.0	-0.20	-0.6
D-other diploma, White	0.73	3.9	-0.07	-0.2
D-2 years of education, Asian	0.24	1.1		
D-3 years of education, Asian	-0.20	-0.9		
D-4 years of education, Asian	0.03	0.2		
D-5 years of education, Asian	-0.37	-1.9		
D-6 years of education, Asian	-0.10	-0.6		
D-7 years of education, Asian	-0.04	-0.2		
D-8 years of education, Asian	0.07	0.4		
D-9 years of education, Asian	-0.03	-0.2		
D-10 years of education, Asian	-0.07	-0.5		
D-holder of certificate with less Std 9, Asian	-0.49	-1.1		
D-holder of certificate with Std 10, Asian	-0.13	-0.7		
D-holder of degree, Asian	0.00	0.0		
D-other diploma, Asian	0.41	0.6		
D-2 years of education, Colored	0.06	0.7	-0.11	-1.1
D-3 years of education, Colored	0.02	0.2	0.06	0.7
D-4 years of education, Colored	-0.08	-1.1	-0.13	-1.7
D-5 years of education, Colored	0.03	0.5	-0.12	-1.3
D-6 years of education, Colored	0.06	1.0	0.04	0.5
D-7 years of education, Colored	0.10	1.4	0.10	0.8

	Urban		Rural	
	Coefficient	T-statistic	Coefficient	T-statistic
D-8 years of education, Colored	0.01	0.1	-0.02	-0.1
D-9 years of education, Colored	0.10	0.9	-0.22	-0.7
D-10 years of education, Colored	0.10	1.4	-0.60	-2.7
D-holder of certificate with less Std 9, Colored	-0.09	-0.4	-0.01	0.0
D-holder of certificate with Std 10, Colored	0.13	1.4	0.08	0.3
D-holder of degree, Colored	0.15	1.1	0.17	0.5
D-other diploma, Colored	0.58	2.2		
D-2 years of education, African	0.11	2.4	0.03	1.0
D-3 years of education, African	0.09	2.0	0.05	1.7
D-4 years of education, African	0.00	0.0	0.07	2.2
D-5 years of education, African	0.07	1.8	0.04	1.2
D-6 years of education, African	0.02	0.6	0.01	0.3
D-7 years of education, African	0.06	1.4	-0.06	-1.5
D-8 years of education, African	0.06	1.3	0.00	0.1
D-9 years of education, African	0.06	1.4	-0.18	-3.6
D-10 years of education, African	0.08	2.0	-0.15	-2.7
D-holder of certificate with less Std 9, African	0.26	2.5	0.07	0.5
D-holder of certificate with Std 10, African	0.26	4.7	0.07	0.9
D-holder of degree, African	0.38	4.8	0.06	0.4
D-other diploma, African	1.22	11.1	0.85	5.1
D-year 2000	-0.04	-0.2	0.52	1.5
Constant	7.19	69.9	6.56	36.5
Number of observations	29472		24966	
R^2	0.68		0.67	

Note: T-statistics in parantheses. District dummies are not reported.

Table 10: Poverty headcounts for various counterfactuals in 1995 and 2000

	Simulated log per capita consumption	Urban	Rural
1995 poverty incidence	$\ln \hat{y}_{95} = \beta_x X_{95} + \beta_e E_{95}$	37.0	75.2
2000 poverty incidence	$\ln \hat{y}_{00} = (\beta_x + \gamma_x)X_{00} + (\beta_e + \gamma_e)E_{00}$	41.5	80.1
Counterfactuals			
1. All parameters change	$\ln \hat{y}_{95} = (\beta_x + \gamma_x)X_{95} + (\beta_e + \gamma_e)E_{95}$	39.6	79.9
2. *Education* parameters change	$\ln \hat{y}_{95} = \beta_x X_{95} + (\beta_e + \gamma_e)E_{95}$	34.7	74.6
3. *Other* parameters change	$\ln \hat{y}_{95} = (\beta_x + \gamma_x)X_{95} + \beta_e E_{95}$	42.0	80.5
4. Old parameters	$\ln \hat{y}_{00} = \beta_x X_{00} + \beta_e E_{00}$	37.5	74.9
5. *Other* parameters unchanged	$\ln \hat{y}_{00} = \beta_x X_{00} + (\beta_e + \gamma_e)E_{00}$	35.5	74.8
6. *Education* parameters unchanged	$\ln \hat{y}_{00} = (\beta_x + \gamma_x)X_{00} + \beta_e E_{00}$	43.8	80.0

* Poverty is calculated as the expected probability of poverty, i.e. prob $(\ln \hat{y} < \ln z)$, with z being the poverty line at R322.

Appendix 1: Poverty Simulations

To calculate poverty incidence from the regressions we allow for the fact that even if predicted per capita consumption, $\hat{y}_i$, exceeds the poverty line, z, there is a non-zero probability that the household is in fact poor. Hence we derive a household's *probability* of being poor, and calculate the incidence of poverty as the mean of the household-specific probabilities (see Ravallion and Wodon (1999), Hentschel et al. (2000) and Datt and Joliffe (2001)).

Using the model's parameters the expected probability of being poor P_i for each household i, can be written as:

(A1) $\quad E(P_i \mid X_i, \hat{\beta}, \hat{\gamma}, \hat{v}_d, \hat{\sigma}) = prob(\ln \hat{y}_i < \ln z)$

where $\hat{\sigma}$ indicates the predicted standard error of the regression. Assuming normally distributed errors, the expected probability P_i is non-zero for every household and given by:

(A2) $\quad E(P_i \mid X_i, \hat{\beta}, \hat{\gamma}, \hat{v}_d, \hat{\sigma}) =$

$$prob(X_i\hat{\beta} + tX_i\hat{\gamma} + \hat{v}_d < \ln z) = \Phi\left[\frac{\ln z - (X_i\hat{\beta} + X_i\hat{\gamma} + \hat{v}_d)}{\hat{\sigma}}\right]$$

with Φ indicating the cumulative standard normal distribution. The predicted incidence of poverty P^* for a group of households i with observable characteristics X_i and households weights w_i is then:

(A3) $\quad P^* = \dfrac{\displaystyle\sum_{i=1}^{N} w_i E(P_i \mid X_i, \hat{\beta}, \hat{\gamma}, \hat{\sigma})}{\displaystyle\sum_{i=1}^{N} w_i}$.