The role of demographic effects in changes in poverty in the province of KwaZulu-Natal, South Africa, 1993 to 2004

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Abstract

In this paper we analyse household income mobility among Africans in South Africa's most populous province, KwaZulu-Natal, between 1993 and 2004. Compared to industrialised and most developing countries, mobility has been quite high, as might have been expected after the transition to democracy in South Africa. This finding appears to be robust when measurement error is controlled for. When disaggregating the sources of mobility, we find that demographic changes and employment changes account for most of the mobility observed. This is related to rapidly shifting household boundaries and considerable labour market churning.

1 Introduction

This paper looks at the issue of income mobility in South Africa's most populous province, KwaZulu-Natal, for the period 1993-2004. The paper describes the extent of income mobility and then disaggregates the source of this mobility into "demographic" and "economic" effects. We pay particular attention to the demographic changes, given that this is an area where little work has been focused in the past.

Mobility measures how individuals or households move within the distribution between two time periods. Income mobility studies are thus concerned with quantifying the movement of a *given* recipient unit (individual or household) from one point in the income distribution to another. This is of particular relevance in the South African context, as the post-apartheid government promised to reduce poverty and racial disparities which implies that they were aiming in the process to increase mobility, with particular emphasis on enabling upward mobility of previously marginalized groups (Government of South Africa, 1994).

Beside documenting and interpreting trends in income mobility, the sources of observed income mobility deserve closer inspection. In particular, the importance of two possible sources of mobility should be examined more closely. These we call demographic and economic events. The former refers to changes in the household size and composition, while the later refers to changes in incomes in that household. Among the economic events, we can further distinguish between a change in employment, changes in earnings of those who are employed, and changes in unearned incomes. Given the fluidity of household boundaries in South Africa, the prevalence of multi-generational households that can be affected by a variety of demographic shocks, and high unemployment, we expect demographic events and employment changes to play a significant role in accounting for mobility in South Africa (Case & Deaton, 1998; Klasen & Woolard, 2005).

Here this framework is applied to equivalised household incomes to measure the degree of mobility observed between 1993 and 2004 for African households in KwaZulu-Natal. This paper focuses on the 1000 African households in the KwaZulu-Natal Income Dynamics Study (KIDS) which collected follow-up data on households in KwaZulu-Natal that had

previously formed part of the 1993 Project for Statistics on Living Standards and Development (PSLSD) survey.

Most of the mobility literature is concentrated on industrialized countries. The literature suggests that there may be negative relationship between income inequality and income mobility. For example, in the United States (a country with high levels of inequality) the increase in income inequality during the 1980s and 1990s was accompanied by low income mobility (Burkhauser & Poupore, 1996), while Sweden, Norway and Denmark (which have much lower income inequality than the United States) experienced greater income mobility over the same period (Aaberge, Bjoklund, Janti, Palme, Pedersen, Smith & Wennemo, 1996). Also, rising inequality in Sweden over the past 20 years appears to be correlated with lower income mobility during the same time period (Eriksson & Pettersson, 2000). Research on the income distribution in Britain (Jarvis & Jenkins 1998) indicates that the slow decline in income inequality since the 1980s has been accompanied by moderately high levels of mobility. Cantó-Sánchez (1998) illustrates that this has also been the experience of Spain: while income inequality in Spain was declining in the 1980s, mobility was increasing.

There are few studies on income mobility in developing countries and even fewer that are roughly comparable. This is largely due to the paucity of panel data from developing countries. Some short-term panels exist, such as in Cote d'Ivoire, but it is unclear to what extent observed mobility is simply due to measurement error (Deaton, 1997). Generally, these studies suggest that income mobility in developing countries is somewhat higher than in industrialized countries, particularly at the bottom end of the distribution. They also seem to suggest increasing mobility over time in most places. Panel data from Peru based on expenditures points to increased mobility in the 1990s (Fields, 2001). Data from rural China point towards rapidly increasing mobility from a very low levels in the 1980s (Nee, 1994). These studies as well as studies from Chile and Malaysia suggest that changes in employment and the demographic composition of the household play a large role in explaining existing mobility and in distinguishing between the transient and the chronic poor (Fields, 2001). Given the fluidity of household boundaries in South Africa, demographic events and employment changes can be expected to play a significant role in accounting for mobility in South Africa (Case and Deaton 1998, Klasen and Woolard 2005).

This paper focuses on the 1000 African households in the KwaZulu-Natal Income Dynamics Study (KIDS) which collected follow-up data in 1998 and 2004 on households in KwaZulu-Natal that had previously formed part of the 1993 Project for Statistics on Living Standards and Development (PSLSD) survey.

Because measurement error might well influence the results, we re-run all analysis on a "purged" data-set which eliminates observations where observed wages are more than 2 standard deviations away from predicted wages. While this procedure would be expected to eliminate some genuine income mobility, this gives a sense of the magnitude of possible biases (Bound, Brown, and Mathiowetz 2001).

2 Analytical issues

In contrast to the voluminous theoretical and applied income inequality literature, the literature on the measurement and interpretation of mobility is more limited and generally more ad hoc (Fields and Ok 1999). Important distinctions are made between relative and absolute mobility. The former examines changes in the ranking of households between two periods and is thus mainly concerned with the ability of individuals to move up (and down) in the rankings of incomes while the latter examines absolute changes in income between two periods and thus is additionally concerned with changes in absolute well-being (and poverty). For these reasons, both will be reported on in this paper.

As far as measures of mobility are concerned, one first needs to distinguish between what Cowell and Schluter (1998a and 1998b) call single-stage and two-stage indices. Single-stage indices consider the entire distribution in both years and examine mobility using that entire distribution, while two-stage indices first allocate individuals to income groups (either exogenously fixed income groups or endogenously determined ones like quintiles) and then examine mobility between these groups. Examples of single-stage indices are the correlation coefficient of incomes between two periods, Shorrock's rigidity index, Fields and Ok's measures, and King's measure (Fields 2001, Cowell and Schluter 1998a). They have the advantage of using all available information inherent in the actual distributions and thus give the most comprehensive assessment of mobility. They have the disadvantage, however, of being particularly sensitive to measurement error. The index which, in simulation studies,

was least sensitive to measurement error is Shorrock's rigidity index using the Gini coefficient (Cowell and Schluter 1998a) which compares the Gini of the average income between the periods with the weighted average of the Gini in each period. It is defined as:

$$R = \frac{G(x+y+z)}{(\mu_x G_x + \mu_y G_y + \mu_z G_z)/(\mu_x + \mu_y + \mu_z)}$$

where G(.) refers to the Gini in a particular period and μ(.) to mean income. A value of one would mean no mobility at all, while 0 would indicate perfect mobility. This measure will be used to compare the results of this study with that of other studies.

Regarding two-stage indices, the most commonly used measure is the transition matrix and indices derived from it. For a transition matrix, the data are divided into *n* equally sized income classes (for example deciles or quintiles) which are endogenously determined for each year. Let *P* be a matrix of *n* x *n* transitions, the *ij*-th element of which, P_{ij}, is the percentage in the income class *i* at time t_0 of those who at time t_1 were in class *j*. The units which moved from one income class to another ($i \neq j$) between time t_0 and time t_1 will be referred to as 'mobiles'. Those who remain in their original income class will be called 'immobiles'. Mobiles who experienced a positive change in relative well-being ($i < j$) will be referred to as 'winners' as opposed to 'losers' ($i > j$).

While sometimes the brackets of a transition matrix are exogenously fixed income classes, the more common method are endogenously determined income groups based on quintiles of the distribution in a given year (such as quintiles or deciles). The advantage of the transition matrix is that it can nicely summarise mobility at various points in the distribution which is harder to gauge from a single index. It also turns out to be more robust to measurement error (Cowell and Schluter 1998). There are serious costs as well, including the disregard of important information, such as income changes within a bracket and the different absolute income changes that underlie a change in income bracket (Fields and Ok 1999).[1]

[1] This last point can be important in international comparisons of mobility. In a country with low inequality, the same transition matrix may mean much smaller changes in absolute income levels compared to a country with very high inequality. To the extent one wants to capture these absolute changes as well, a transition matrix may

Lastly, there is the question of the appropriate income concept for mobility analyses, in particular the choice between incomes and expenditures. The case for incomes is that this is the only way one can analyse the *sources* of mobility (particularly in order to distinguish between demographic and economic events) which is an important part of our analysis here. Moreover in some contexts income might actually be more accurately reported than expenditures or the latter are not readily available (Fields *et al.* 2002, Glewwe, Gragnolati and Zaman 2000). On the other hand expenditures are typically a better guide to longer-term well-being of the household (or its 'permanent income') as household will exercise some consumption smoothing and use savings and dissavings to deal with erratic incomes (Deaton 1997). If one is interested in mobility in these longer-term incomes, expenditures are clearly preferred. Moreover expenditures might, in most cases, be more accurately captured, particularly among the poor who have relatively constant and well-known expenditures on relatively few items while their incomes can be very erratic und unpredictable (Ravallion 1992, Deaton 1997, Klasen 2000). We have access to income and expenditure data and will use both, thereby also pointing to the differences between them which give some indication on the importance of transitory income shocks as well as measurement error issues.

In an influential article Bane and Ellwood (1983) argued that all analyses of poverty dynamics using panel data have to deal with the fact that some of those who are measured as poor in one period may not be poor in the next period. Therefore, the distinction between those that are transitorily poor and those that are more persistently poor is central to any treatment of poverty dynamics as well as to the derivation of a well-grounded menu of anti-poverty policies.

Bane and Ellwood went on to suggest that a focus on poverty spells would provide a valuable lens through which to view these dynamics. The length of spells in and out of poverty provides a continuous metric on which to ground notions of persistent/permanent versus non-

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not be the right tool. Despite these problems, the advantages of transition matrices are considerable. The choice of income groups in these transition matrices is largely arbitrary and, in general, tends to take the form prevalent in the literature to allow for the comparison of results. The most popular choices seem to be quintiles and deciles. Nevertheless, the choice of groups influences the results. The smaller (in terms of income range) the brackets, the more likely that people will move between brackets and thus mobility will appear larger. Thus using deciles usually will generate higher perceived mobility than quintiles. Here we selected quintiles rather than deciles because the data-set is quite small.

persistent/transitory poverty and also to ground survival analysis attempting to highlight the key factors leading to the end or the beginning of a poverty spell.

In their work they used a ten year span of annual data from the Panel Study of Income Dynamics in the United States to focus on three things: the mix of poverty spells at any point in time, duration dependent exit probabilities, and the identification of major events associated with beginning and ending poverty spells. Regarding the first point, measured poverty at any point in time will include those who have just begun a poverty spell, those who are midway through a spell and those that have been poor for a very long time and may or may not be about to climb out of poverty. They find that there are households who have spells of poverty of short duration but, in their sample, the majority of poor people are in the midst of long poverty spells. In terms of the second point, it is worth noting that a permanent income type of model will predict that exit probabilities will decline with time. Those who are temporarily poor will leave quickly as they revert back to their non-poor permanent incomes; leaving behind those that will never exit. Finally, they use their analysis of major events associated with movements into or out of poverty to highlight the relative importance of income change events versus household structure changes in leading to these key transitions.

Because we are restricted to three waves of a panel study in which each wave was undertaken at least 5 years apart, the notion of duration is not as tight for us as it was for Bane and Ellwood. We cannot be sure whether households have been in and out of poverty between each five year period that they were observed. Thus, we have to use a looser notion of a spell. This restricts the extent to which we can interrogate their first two points. The best that we can do is to look at waves 2 and 3 and give some sense of the relative proportions of poor households that are new poor versus old poor. We can also see whether those exiting poverty in wave 3 are newly poor or older poor.

Of their three tasks, we pay particular attention to the third one; namely, the key events associated moving into or out of poverty across the three waves.

Given the presence of panel data, Bane and Ellwood undertake these event analyses by tagging households who are starting a poverty spell (entering poverty) or ending a poverty spell (leaving poverty). For these households an attempt is made to single out the main event

associated with this change of poverty status. They compartmentalized these events into income events and household change (demographic) events; which accords with changes in the numerator versus the denominator given that poverty was measured in terms of income per adult equivalent. They started with changes to the denominator (a household change event). This could have included a change in the headship of the family, births, deaths or a departure of a member of the household. The remaining changes were income changes which they classified as head's earnings, wife's earnings, other's earnings or transfer income.

In our case, we adopt the same range of demographic changes as do Bane and Ellwood. However, we break down our earnings changes into head's labour earnings, other household member's labour earnings, remittances, non-labour income of the head/spouse, non-labour income of other household members, self-employment income and farm income.

3. Data and measurement issues

The survey data used in this paper consist of 1000 African households in KwaZulu-Natal (KZN) that had been interviewed in the 1993 PSLSD and 1998 and 2004 KIDS surveys. We exclude 185 households for which no income data was collected. These were households containing children from the 1998 round had moved to another household which had not been interviewed in earlier rounds. These children might be thought of as having been "fostered out". While we have expenditure data for the households in which these children were resident in 1993 and 1998 as well as the households in which they were residing in 2004, it seems inappropriate to compare these households (which have no common "core" adult members). In any event, we do not have income data for these households in the 2004 round (as a different questionnaire was used for "foster child" households) so it seems sensible to restrict the analysis of both income and expenditure to the same sample.

KwaZulu-Natal is South Africa's most populous provinces, containing about one-fifth of South Africa's population. It also contains much of the social and racial stratification present in all of South Africa. In particular the province includes a wealthy metropolitan area (Durban) with poor "townships" surrounding it and a poor and largely rural former homeland (KwaZulu) with high levels of unemployment and poverty. Poverty as well as inequality within the province appear to be relatively similar to the national level (Leibbrandt and Woolard 1999).

The unit of analysis is the household and the income variable used is disposable equivalised net income using the following formula for dealing with economies of scale and adult equivalence, commonly used for poverty and welfare analysis in South Africa (May, Carter and Posel 1995, Roberts 2001):

$$\text{Adult equivalent income} = \frac{\text{Household income}}{(\text{Adults} + 0.5\,\text{children})^{0.9}} \qquad (1)$$

The expenditure variable uses the same adult equivalence procedure. Clearly, given the conceptual difficulties of identifying appropriate equivalence scales (Deaton and Paxson 1998), the choice of equivalence scales is a debatable assumption. Sensitivity analyses by Leibbrandt & Woolard (2001) and Woolard & Klasen (2005) suggest, however, that their results were relatively insensitive to the choice of equivalence scale.

Almost two-thirds (63 per cent) of the sample reported that household income had increased over the period 1993 to 1998, while only 39 per cent reported an increase in expenditures. Real median adult equivalent income for African households increased by 24 per cent between 1993 and 1998, while median monthly expenditures fell by 21 per cent.

More than half (56%) of the sample reported a decrease in real expenditures between 1998 and 2004. Real median adult equivalent expenditure for the sample fell by 15%. Over the same period, 63% of households reported a decline in income and real median adult equivalent income declined by one-third.

While some of this discrepancy could be real and might relate to the timing of the survey (seasonality and economic cycle), changes in perceptions of permanent incomes (and thus expenditures) and the large role of transitory incomes, this large discrepancy in levels and trends raises some questions about the reliability of the data.

Table 1 Transition states

State in wave 1,2,3	% based on income	% based on expenditure
Poor, Poor, Poor	32.4%	22.9%
Non-poor, Non-poor, Non-poor	15.9%	22.2%
Poor, Poor, Non-poor	7.7%	6.6%
Poor, Non-poor, Non-poor	8.8%	4.2%
Non-poor, Non-poor, Poor	10.1%	13.9%
Non-poor, Poor, Poor	7.8%	17.2%
Poor, Non-poor, Poor	13.4%	5.9%
Non-poor, Poor, Non-poor	2.9%	7.2%

These discrepancies could also indicate that measurement error is significant. To address the issue of measurement error the following procedures are used:

a) All analyses are replicated using incomes and expenditures to see to what extent the results differ. Given the large discrepancy between incomes and expenditures, this procedure alone should provide some bound on possible measurement error.

b) The 1993, 1998 and 2004 labour income data was purged by specifying an earnings regressions of hourly earnings on gender, location, industry, age, age squared and education and throwing out all observations that are outside two

standard deviations from the point estimate of this earnings regression. The earnings regressions have a good fit (adjusted R^2 around 0.5) and confirm the usual findings from the human capital literature (regressions available on request). Using this procedure, between four and six per cent of observations were eliminated in each year.

3 The extent of household income mobility 1993-2004

We begin by reporting Shorrock's rigidity index using the Gini coefficient for the various income concepts to get a feel for the data and the changes over time. The Ginis for the three years are presented as well as those for the average income and the rigidity index which is calculated using the formula above. Several items in Table 2 are noteworthy. First, there is a considerable difference between inequality when using income and expenditures. The expenditure Gini is much lower than the income Gini, a finding that appears to be the case in most countries (for example Deininger and Squire 1998). This is to be expected as consumption smoothing makes expenditure less erratic and thus less unequal and as recall error among respondents tends to be inequality-reducing when it comes to expenditures (the poor report it well, the rich forget items) while recall error is usually found to be inequality-enhancing when it comes to incomes (the rich tend to have more stable and predictable incomes than the poor whose income is more erratic and therefore often tends to be understated, for example Bound *et al*. 2001, Deaton 1997).[2] The two measures do agree, however, on rising inequality among Africans over the period which is to be expected given that the educated and upwardly mobile Africans are likely to have benefited more quickly from the end of race-based restrictions (and affirmative action) than poor and uneducated rural dwellers (Klasen 2002, Carter and May 2001).

Second, the rigidity index for incomes and expenditures indicates a fairly high degree of mobility, when compared to mature industrialised countries where the rigidity index is usually around 0.95 or above for countries such as the US, the United Kingdom, Germany, or Sweden (for example Jenkins and Jarvis 1998, Eriksson and Pettersson 2000). It is closer to

[2] This is particularly the case when the many of the rich derive most of their income from employment, rather than capital incomes.

countries undergoing rapidly structural change such as Spain in the 1990s, where it was estimated to be around 0.9 on a comparable basis (Cantó 2000).

Third, while the "purging" affects the Gini coefficients considerably, the rigidity index is scarcely affected. This seems to suggest that to the extent there is measurement error in the data, it seems to be positively correlated across time and thus only has a muted impact on mobility.

Table 2: Rigidity Index using the Gini Coefficient and Various Income Definitions

		1993 Gini	1998 Gini	2004 Gini	Average Gini	Rigidity Index
Incomes	Raw (unpurged)	0.45	0.55	0.64	0.47	0.85
	Purged	0.45	0.56	0.57	0.44	0.83
Expenditures	Raw (unpurged)	0.30	0.36	0.50	0.31	0.80
	Purged	0.31	0.36	0.51	0.31	0.79

Note: The purged data refer to the income and expenditure data where labour income was outside of two standard deviations from predictions based on a wage regression.

Lastly, despite large differences in inequality between incomes and expenditures, the rigidity index is quite similar, although somewhat lower for expenditures. Thus in the eleven years between 1993 and 2004, incomes and expenditures experienced the same, relatively high mobility pattern.

While these statistics already tell us quite a lot, we want to unpack mobility beyond this one measure and thus turn to transition matrices for a more disaggregated look. The quintile mobility matrices below (Tables 3 and 4) show the distribution of households by quintile for 1993 and 1998 and 1998 and 2004. (Quintiles are numbered from one for poorest to five for richest.) It can be seen that 56 per cent of households who were in the richest quintile in 1993 remained there in 1998 and another 23 per cent moved down just one quintile. Likewise, 34 per cent of those who began in the poorest quintile were still there five years later and another 25.5 per cent had moved up just one quintile. It is immediately evident that there is less mobility in the top and bottom quintile than in the middle of the distribution. This is, however, unsurprising given that the bottom (top) quintile can only stay in the same quintile or move up (down); also, furthermore the income range that make up the quintile is

much larger for the richest quintile where the right-hand tail is particularly large which is the reason why persistence in that group is particularly high.[3]

When purging the data of outliers based on earnings regressions, one gets more persistence and very large movements between income groups, particularly downward movements, are now reduced. For example, there are now fewer households that jumped up but particularly down two, three, or even four quintiles. As a result, one gets quite a lot more persistence, particularly in the top quintile where the data now looks more like those of industrialised countries. At the bottom, however, mobility continues to be much higher than in industrialised countries.

Table 3 Quintile mobility matrix for African households in KwaZulu-Natal, 1993-1998

a) Using raw data

	Quintile in 1998					
1993 quintile	1	2	3	4	5	(row) total
1	33.2	24.3	18.2	14.4	9.9	100.0
2	32.6	28.2	18.8	13.8	6.6	100.0
3	17.8	21.7	28.3	23.3	8.9	100.0
4	10.5	19.9	23.8	26.5	19.3	100.0
5	6.1	6.1	10.5	22.1	55.3	100.0

Source: own calculations on PSLSD/KIDS data

b) Using data purged of outliers from wage regressions

	Quintile in 1998					
1993 quintile	1	2	3	4	5	(row) total
1	34.3	26.0	18.8	14.4	6.6	100.0
2	32.6	29.3	18.8	14.4	5.0	100.0
3	17.2	24.4	30.0	20.6	7.8	100.0
4	11.1	15.5	23.8	33.7	16.0	100.0
5	5.0	5.0	8.3	17.1	64.6	100.0

Source: own calculations on PSLSD/KIDS data

[3] While in the lower four quintiles, the income brackets cover a range of R90-R400 in monthly adult equivalent incomes, the top quintile ranges from R792 to R11300. Clearly, it is harder to leave this much larger bracket than the lower ones.

Table 4 Quintile mobility matrix for African households in KwaZulu-Natal, 1998-2004

a) Using raw data

	Quintile in 2004					
1998 quintile	1	2	3	4	5	(row) total
1	34.0	29.0	18.5	11.5	7.0	100.0
2	25.5	27.0	19.0	15.5	13.0	100.0
3	16.5	20.5	29.0	19.0	15.0	100.0
4	15.5	17.0	17.0	27.0	23.5	100.0
5	8.5	6.5	16.5	27.0	41.5	100.0

Source: own calculations on KIDS & KIDS 3 data

b) Using data purged of outliers from wage regressions

	Quintile in 2004					
1998 quintile	1	2	3	4	5	(row) total
1	34.2	30.1	17.6	11.9	6.2	100.0
2	26.3	26.8	19.1	15.0	12.9	100.0
3	17.1	21.2	29.0	18.7	14.0	100.0
4	15.9	18.0	17.5	28.0	20.6	100.0
5	9.2	7.1	16.9	28.3	38.6	100.0

Source: own calculations on KIDS & KIDS 3 data

4 The determinants of welfare changes: univariate analyses

According to identity (1), change in an individual's well-being arises through changes in household income (via the numerator) which we might term *economic events* and/or changes in household composition (via the denominator) which we refer to as *demographic events*. This distinction between welfare changes as the result of economic events and demographic events is often not considered but is of considerable relevance from a policy point of view. These economic events can be further broken down into economic events that relate to changes in income sources (for example through changes in employment status, changes in sources of non-labour income) and changes in existing income sources.

Table 5 considers what is the biggest contributing 'event' associated with a movement into and out of poverty (where poverty is defined as having income of less than R212 per adult equivalent per month in 1993 terms[4]). Table 5 shows that more than one-quarter of households that moved into poverty did so because of a change in demographic composition. The vast majority of these households added a child, a grandchild or another dependent family member to the household. Nevertheless the majority of households became poor because of a fall in income. Of those, nearly half of the households suffered falling incomes due to job losses. A significant number of households, however, fell into poverty because of a decline in remittance income, non-labour earnings (usually the loss of a state pension or grant), a change in earnings, or falling incomes from small-scale agriculture.

Table 5 Main event associated with the movement of a household *into* poverty between 1993 & 1998, 1998 & 2004 and 1993 & 2004 (Percentage of households)

	1993-1998	1998-2004	1993-2004
Fall in money income as result of:			
Demographic events	27.4	17.8	28.1
Income event, change in income from :			
Head losing job	18.8	8.1	16.3
Fall in head's labour earnings	6.0	1.1	1.3
Other family member losing job	15.4	24.3	17.0
Fall in other household members' labour earnings	5.1	9.7	12.4
Fall in remittances	11.1	5.4	9.2
Fall in non-labour income of head/spouse	5.1	11.9	3.3
Fall in non-labour income of other household members	0.9	6.5	2.6
Fall in self-employment income	3.4	9.7	4.6
Fall in farm income	6.8	5.4	5.2
Total	100.0	100.0	100.0
Observations	129	185	153

Source: own calculations on PSLSD/KIDS/KIDS3 data.

[4] This is a relative poverty line that is chosen so as to make the poorest 40 per cent of households 'poor' in 1993. Often there may be more than one event that changed adult equivalent income. In this case, only the biggest one is recorded which is the one that had the largest percentage change in adult equivalent incomes. This we implement by first checking whether a demographic or an economic event had the biggest impact on adult equivalent incomes. If it was an economic event, we then further examine which economic event has the largest impact on adult equivalent incomes.

Note: Tabulation for "purged" data available on request.

Table 6 Main event associated with the movement of a household *out* of poverty between 1993 & 1998 and 1998 & 2004(Percentage of households)

	1993-1998	1998-2004	1993-2004
Rise in money income as result of:			
Demographic events	23.6	35.7	23.0
Income event, change in income from :			
Head getting job	12.0	2.9	3.9
Rise in head's labour earnings	4.8	0.6	0.0
Other family member getting job	16.8	35.1	36.1
Rise in other household members' labour earnings	8.7	5.3	9.6
Rise in remittances	10.6	2.3	4.4
Rise in non-labour income of head/spouse	6.7	2.3	5.7
Rise in non-labour income of other household members	3.4	9.9	12.2
Rise in self-employment income	9.6	2.9	2.6
Rise in farm income	3.9	2.9	2.6
Total	100.0	100.0	100.0
Observations	223	171	230

Source: own calculations on PSLSD/KIDS/KIDS3 data.

Note: Tabulation for "purged" data available on request.

As in the case of movements into poverty, labour market changes were the most common reason for a significant change in household well-being. Again getting a job is much more important than changes in earnings (for those already working) for movements out of poverty. A significant proportion of households moved out of poverty because of an increase in state support or other non-labour income.

The results show some similarities to poverty dynamics in industrialised countries (for example Jenkins and Rigg 2001). For example, demographic events are also more important for getting into poverty than getting out, and employment and earnings of the head and the spouse are particularly important among the income events. But there are also important differences. In particular, employment changes rather than wages in a particular job are more important in South Africa, and there is greater importance of remittances and agricultural incomes for movements into and out of poverty.

Altogether, demographic events and employment changes account for more than 60 per cent of mobility into poverty, and over 50 per cent out of poverty. Clearly, rapidly shifting household dynamics and employment changes in a situation of mass unemployment are the biggest determinants of mobility in this economy. These assignments hardly change when purging the data of outliers (not shown here).

Unpacking the demographic events

Clearly, we need to understand more fully whether households are shedding members because of death, children moving around, members migrating to other areas to search for work, etc. We are constrained in that we only have information about the activities of persons that are no longer resident in the household if they (a) died or (b) still reside in the household for at least 15 days a *year*.

Regarding movements out of poverty between 1993 and 1998, one-fifth of households escaped poverty as a result of shedding household members, the most important of which due to household members leaving home to start employment or education. Also, about a third of the households shedding members between 1993 and 1998 did so because of a death.

Table QQQ Births and deaths between 1998 and 2004, by transitions into and out of poverty

	HH that moved out of poverty	HH that moved into poverty	All households
% of households reporting at least one death between 1998 and 2004	64%	55%	54%
Average number of deaths between 1998 and 2004	0.93	0.75	0.80
% of households reporting at least one new birth between 1998 and 2004	85%	80%	80%
Average number of births between 1998 and 2004	2.1	2.3	2.4

Table QQQ Labour market activity of non-resident members in 2004 (that had been resident in 1998)

	HH that moved out of poverty	HH that moved into poverty	All households
Average number of non-resident members searching for work	0.24	0.38	0.36
Average number of non-resident members working	0.47	0.62	0.50

Besides studying events associated with movements into and out of poverty, we also analysed important univariate determinants of income gains and losses. This was done in detail in Woolard, Klasen and Leibbrandt (2002) for the first two waves and we replicate it here for changes between 1998 and 2004.

Given the importance of demographic and employment changes on movements into and out of poverty, one can look at absolute changes in income more generally in response to demographic and employment events. To reduce false reporting resulting from minor measurement error and to focus only significant income changes, a household is only considered to have "got ahead" ("fallen behind") if household adult equivalent income increased (decreased) by at least 10% in real terms over the period. The tables that follow consider some of the demographic and labour market covariates of these absolute income changes.

Table 6 looks at the absolute income mobility of households by the change in household size. Very few households (20%) remained the same size and half of the households grew or shrank by two or more persons. Not surprisingly, households that grew were the least likely to get ahead since the additional persons were usually children or adult dependants unable to support themselves. Households that lost members were generally better off than before, although in some cases the loss of economically active members resulted in a reduction in

household income. But also a significant number of households who added members were able to move ahead, as it clearly depends on what type of members they added (workers or dependents).

Table 7a Absolute change in real adult equivalent income by change in household size, 1993 to 1998

	Change in household size 1993-1998				
	lost 2 or more persons	Lost 1 person	no change	gained 1 person	gained 2 or more persons
Number of observations	222	112	191	179	256
Got ahead	69.4	65.2	56.5	49.7	46.1
No change in income*	5.0	5.4	15.2	6.7	6.3
Fell behind	25.6	29.5	28.3	43.6	47.7

* refers to households whose (inflation-adjusted) income in 1998 was within 10% of their 1993 income

Source: own calculations on PSLSD/KIDS data.

Table 7b Absolute change in real adult equivalent income by change in household size, 1998 to 2004

	Change in household size 1998-2004				
	Lost 2 or more persons	Lost 1 person	no change	gained 1 person	gained 2 or more persons
Number of observations	319	95	132	102	364
Got ahead	98.7	67.4	17.4	2.0	0
No change in income*	1.3	30.5	71.2	30.4	2.5
Fell behind	0	2.1	11.4	67.7	97.5

* refers to households whose (inflation-adjusted) income in 2004 was within 10% of their 1998 income

Source: own calculations on KIDS/KIDS3 data.

Table 8 shows that households headed by a person over the age of 60 were the least likely to have experienced a loss of income; in fact, more than three-fifths of these households "got ahead". The households are heavily reliant on state support which is not only a secure form of income, but has increased appreciably in real terms since 1993. Households with a head in his/her 40s were the most likely to have experienced a fall in income, largely related to worsening employment prospects. Among younger people, the picture is somewhat brighter. While poor employment prospects worsened incomes, improved earnings due to higher education and more opportunities for Africans post-apartheid might have off-set this.

It is also interesting to note that female-headed households had a higher propensity to move ahead than male-headed households (table not shown). This is probably mostly due to the better prospects for elderly households which are often headed by female pensioners**.**

Table 8a Absolute change in real adult equivalent income by age of household head in 1993, 1993 to 1998

	Age of household head					
	<30	30-39	40-49	50-59	60-69	70+
Number of observations	46	167	227	200	207	113
Got ahead	47.8	57.5	45.8	62.0	60.9	61.9
No change in income*	13.0	4.8	8.4	6.5	8.2	9.7
Fell behind	39.1	37.7	45.8	31.5	30.9	28.3

* refers to households whose (inflation-adjusted) income in 1998 was within 10% of their 1993 income

Source: own calculations on PSLSD/KIDS data.

Table 8b Absolute change in real adult equivalent income by age of household head in 1993, 1998 to 2004 [NB!!! Lots of the older household heads would have died by now, but the households are still classified according to the age of the original 1993 head]

	Age of household head in 1993					
	<30	30-39	40-49	50-59	60-69	70+
Number of observations	23	109	192	236	282	150
Got ahead	65.2	62.4	50.5	37.7	37.6	38.0
No change in income*	13.0	11.9	16.7	17.8	16.0	18.7
Fell behind	21.7	25.7	32.8	44.5	46.4	43.3

* refers to households whose (inflation-adjusted) income in 2004 was within 10% of their 1998 income

Source: own calculations on KIDS/KIDS3 data.

Not surprisingly, households where additional people obtained employment were the most likely to experience upward income mobility (Tables 9a and 9b). Nevertheless, some households that gained workers actually experienced a decline in adult equivalent income. Many of these households experienced an increase in household size which more than compensated for the additional wage income. This is likely related to the fact that African household who are successful in securing employment will attract unemployed relatives that have been less fortunate, a process that has been analysed in greater detail in Klasen & Woolard (2001). [THESE RESULTS ARE VERY WEAK FOR 98-04]

Table 9a Absolute change in real adult equivalent income by change in number of employed, 1993 to 1998

	Change in the number of employed persons in the household				
	Lost 2 or more jobs	lost 1 job	No change	gained 1 job	gained 2 or more jobs
Number of observations	76	177	430	193	84
Got ahead	30.3	44.6	54.7	71.5	79.8
No change in income*	6.6	7.3	9.8	5.7	3.6
Fell behind	63.2	48.0	35.6	22.8	16.7

* refers to households whose (inflation-adjusted) income in 1998 was within +/-10% of their 1993 income

Source: own calculations on PSLSD/KIDS data.

Table 9b Absolute change in real adult equivalent income by change in number of employed, 1998 to 2004

	Change in the number of employed persons in the household				
	Lost 2 or more jobs	lost 1 job	No change	gained 1 job	gained 2 or more jobs
Number of observations	42	165	575	186	44
Got ahead	35.7	41.2	45.2	45.7	38.6
No change in income*	21.4	17.0	16.2	15.6	15.9
Fell behind	42.9	41.8	38.6	38.7	45.5

*refers to households whose (inflation-adjusted) income in 2004 was within +/-10% of their 1998 income

Source: own calculations on KIDS/KIDS3 data.

Tables 10a and 10b look at the impact of a change in the number of unemployed household members. Clearly, this is related to the change in the number of employed, but also relates to changes in household membership and to movements in and out of the state of being economically inactive. Table 10 indicates that shedding unemployed members (through them finding jobs, dying or moving to other households) was a strong indicator of "getting ahead". Interestingly, an increase in the number of unemployed members resulted in roughly similar numbers of households getting ahead as falling behind. Many households that gained workers also gained unemployed members, either through new unemployed members attaching themselves to the household or through encouraging previously inactive household members to seek work (Klasen & Woolard, 2001).

Table 10a Absolute change in adult equivalent income by change in number of unemployed, 1993 to 1998

	Change in the number of unemployed persons in the household				
	2 less unem-ployed	1 less unem-ployed	no change	Gained 1 unem-ployed	gained 2 or more unem-ployed
Number of observations	100	160	340	208	152
Got ahead	78.0	66.2	54.4	50.2	45.1
No change in income*	3.0	7.5	9.1	8.2	7.2
Fell behind	19.0	26.2	36.5	41.6	47.7

* refers to households whose (inflation-adjusted) income in 1998 was within +/-10% of their 1993 income

Source: own calculations on PSLSD/KIDS data.

Table 10b Absolute change in adult equivalent income by change in number of unemployed, 1998 to 2004

	Change in the number of unemployed persons in the household				
	2 less unem-ployed	1 less unem-ployed	no change	gained 1 unem-ployed	gained 2 or more unem-ployed
Number of observations	225	201	285	143	138
Got ahead	45.3	47.8	50.2	44.1	20.3
No change in income*	16.4	16.4	16.8	16.8	15.2
Fell behind	38.2	35.8	33.0	39.2	64.5

*refers to households whose (inflation-adjusted) income in 2004 was within +/-10% of their 1998 income
Source: own calculations on KIDS/KIDS3 data.

Consistent with the findings above, important correlates of moving ahead are shedding household members, gaining employed people and losing unemployed people. More surprisingly, elderly household heads and female-headed households had a higher propensity to move ahead than middle-aged household heads or male-headed households. Households with elderly heads (including many households headed by female elderly) are heavily reliant on state support, particularly the non-contributory social pensions, which is not only a secure form of income, but has increased appreciably in real terms since 1993 (Case and Deaton 1998).

Concluding comments

In this paper the determinants of household income mobility among Africans in South Africa's most populous province of KwaZulu Natal between 1993 and 1998 were examined……..

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