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Snakes and ladders and loaded dice

Poverty dynamics and inequality in South Africa, 2008–2017

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Abstract: Longitudinal surveys can give insight into economic mobility, which allows us to understand how markers of (dis)advantage are consequential in determining material conditions in the present, and how these markers structure economic opportunity over time. In this paper we show that this dynamic element—the risk of falling into (deeper) poverty and the chances of moving up—looms large in the economic lives of both the poor and the non-poor in South Africa. We use all five waves of available National Income Dynamics Study data to provide a thorough and up-to-date analysis of poverty dynamics in South Africa between 2008 and 2017. This analysis focuses on the correlates of transitions into and out of poverty, and investigates how multidimensional inequalities in terms of household- and individual-level characteristics relate to both poverty persistence and vulnerability to poverty. We also update our 2018 analysis using NIDS Wave 5 data to directly link the dynamic study of poverty to the dynamic study of inequality through the lens of social stratification.

Keywords: inequality, poverty, poverty dynamics, South Africa, social stratification, panel data
JEL classification: D63, D310, O12, O15

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1 Introduction

In developing country contexts, poverty analysis is most often undertaken using cross-sectional survey data. As long as this data is representative at a certain geographical level (local, regional, or national), it can give an indication of the extent, depth, severity, and correlates of poverty in a place, at a single point in time.

However, poverty is experienced not only at a point in time, but also over time. Poverty is not a static, timeless state; it is a dynamic and evolving phenomenon, with a past and a future, filled with risk and uncertainty. That is, households move into and out of poverty, remain trapped in poverty, or succeed in keeping their heads above water over time. In the world of risk and uncertainty in which poverty is lived, poverty is experienced as a game of snakes and ladders. However, going beyond the element of chance in this game, factors that relate to the parental background or geographic location of the household, for example, have loaded the dice in favour of some individuals compared with others. In this sense, cross-sectional analyses remain blind to both the ‘snakes’ that lead households or individuals to fall into poverty and the ‘ladders’ which facilitate poverty escapes, as well as to the contextual factors that condition these transitions. Particularly with regard to the latter, it is important to note that the experience of poverty itself may affect not only the opportunities available to a household, but also its economic choices. By missing this dynamic element, a cross-sectional perspective is fundamentally limited in understanding the nature and determinants of poverty.

Panel data, which follow individuals (or households) over time, provide a way of incorporating a dynamic perspective into the analysis of poverty. While nationally representative panel data are rare in developing countries, South Africa is fortunate to have a nationally representative panel study spanning almost 10 years. The National Income Dynamics Study (NIDS) collected its first round of data in 2008 from a sample of approximately 28,000 individuals, and returned to these individuals approximately every two years, the latest round of data having been collected in 2017. The availability of these data provides researchers with a unique opportunity to undertake poverty analysis which is not blind to these important dynamic elements.

This paper aims to take stock of recent poverty dynamics research in South Africa and bring some of the main empirical findings up to date by exploiting the full five waves of NIDS panel data that are now publicly available (SALDRU 2018a, b, c, d, e). In doing so, this paper draws on a body of research which we have produced between 2016 and 2018 using the first four waves of NIDS data (Finn and Leibbrandt, 2017; Schotte et al. 2018a, b; Zizzamia et al. 2016).¹ It focuses on three important dimensions along which this research has the potential to enhance our understanding of the South African poverty landscape:

- a. ***Poverty persistence:*** By observing the same individuals at multiple points in time, we are able to quantify the extent to which the experience of poverty in South Africa is sustained over time as opposed to being a transient, short-lived state, as well as to give an indication of the key channels through which poverty persists. Since persistent poverty and transient poverty represent distinctly different experiences which pose different challenges and

¹ In this paper, the key empirical findings of this existing body of work are brought up to date by exploiting the full five waves of data now available. Since methodological details are fully covered in the existing work, in this paper we do not cover these methodological specifics, and instead refer interested readers to the relevant papers.

needs, understanding the correlates of persistent versus transient poverty is essential for designing effective policy tools and appropriate poverty alleviation measures.

- b. ***Vulnerability***: The adopted dynamic perspective furthermore reveals that poverty affects more households in South Africa than those that are observed to be poor at a given point in time. That is, we identify a group of *non-poor* households who find themselves in a position of economic precariousness where they are teetering on the brink of poverty. This non-poor but vulnerable group shares a number of structural commonalities with the transient poor, which would be overlooked in static analyses. Specifically, we observe that these two groups straddling the poverty line are both confronted with a situation of economic insecurity and instability, which can frequently be traced back to their volatile position in the labour market.
- c. ***The stable middle class***: A central element of our work consists in the identification of a ‘stable’ middle class in South Africa. Taking on a dynamic perspective, we define the middle class as the group of non-poor households who are also non-vulnerable—this is, who face a relatively low risk of falling into poverty over time. Using a model of poverty transitions fitted to NIDS panel data, we show that no more than 25 per cent of the South African population can be classified as stably middle class or ‘elite’.

Drawing on our previous work, the analysis presented in this paper brings into focus the multidimensional factors through which individuals and households are empowered to achieve upward mobility and prevent downward mobility. It illustrates how both the risks of falling into poverty and the available coping strategies to confront these risks are unequally distributed across the population. Framing poverty dynamics through the lens of social stratification thus facilitates an understanding of how these multiple factors, which reflect deeply rooted and structured inequalities, are consequential in determining mobility patterns. We conclude the paper by taking the opportunity to discuss potential avenues for future research that links the dynamic study of poverty and inequality. In particular, we suggest some ways in which the study of inequality dynamics in South Africa (and other countries in the Global South where panel data are becoming increasingly available) might be informed by the existing body of research on poverty dynamics.

The remainder of this paper is structured as follows: Section 2 surveys the existing literature on poverty and inequality dynamics in South Africa. Section 3 provides a brief description of the methods and data used for the analysis presented in this paper, which draws directly on our previous work. The empirical results are presented in the three subsequent sections. Specifically, Section 4 assesses the duration and persistence of poverty in South Africa, Section 5 focuses on vulnerability and the determinants of poverty transitions, and Section 6 covers issues relating to the definition and characteristics of South Africa’s stable middle class and elite. The final section concludes and raises several open questions on the intersection between poverty dynamics, social stratification, and inequality, as well as suggesting some avenues through which future research may be able to find answers.

2 Literature review

An established literature exists on the patterns and determinants of poverty in post-apartheid South Africa (see Finn et al. 2014 for a review). The consensus is that, since the democratic transition in 1994, substantial progress has been made in reducing the depth of poverty in South Africa, largely due to redistributive transfers in the form of government grants (Leibbrandt et al. 2010). While there has also been some progress in reducing the incidence of poverty, this has been

slow, with poverty rates remaining exceptionally high for a middle-income country (Leibbrandt et al. 2010). In 2017, Statistics South Africa (Stats SA) reported that in 2015, 55.5 per cent of the South African population could not afford to meet their basic needs—down from 66.6 per cent in 2006, but up from 53.2 per cent in 2011 (Stats SA 2017).

However, as noted in the introduction, these aggregate poverty figures tend to mask the extent of mobility around the poverty line. The first dynamic analyses of poverty in South Africa were based on the KwaZulu-Natal Income Dynamics Study (KIDS), a longitudinal household survey conducted between 1993 and 1998 that followed 1,200 African households in the KwaZulu-Natal province, which historically has been marked by one of the highest poverty rates in the country (see, *inter alia*, Adato et al. 2006; Adato et al. 2007; Aliber 2003; Carter and May 2001; Woolard and Klasen 2005). Among these studies, Aliber (2003) focuses on the dynamics of poverty below the poverty line, decomposing poverty into chronic and transient components. He finds that between 1993 and 1998, between 18 and 24 per cent of households were chronically poor, and that structural unemployment was a key determinant of this poverty persistence. Alternatively, Carter and May (2001) propose a distinction between structural and stochastic poverty based on asset endowments, where structural mobility leads to a change in permanent income while stochastic mobility is expected to be temporary. Drawing on these distinctions, they find that the majority of those who either remained poor or fell into poverty between survey waves were ‘trapped’ in structural poverty, whereas the majority of the movements out of poverty were stochastic.

Also using KIDS data, Woolard and Klasen (2005) investigate the determinants of poverty transitions. They find that about one-quarter of movements are due to demographic events, while the rest can be attributed to economic events. Amongst the latter, changes in employment are clearly dominant—a symptom of unemployment and a high degree of ‘churning’ in the labour market. Corroborating Aliber’s (2003) results, they find suggestive evidence that those in larger households and those with no access to or experience in the labour market are more likely to be trapped in chronic poverty. There is also a small mixed-methods literature using KIDS, which has been able to shed light on the complex determinants of household dynamics and the role of social capital in determining economic resilience. Among these, Adato, Carter, and May (2006) and Adato, Lund, and Mlongo (2007) combine qualitative methods with KIDS data to explore the role of social capital in determining resilience to poverty and upward mobility. They find that social capital tends to smooth consumption and stabilize welfare, thereby preventing downward mobility, rather than providing a mechanism for promoting upward mobility.

Due to the limited geographic coverage of KIDS, these early studies are, however, constrained to analyse poverty dynamics and risk factors in a predominantly rural setting, which may not speak for South Africa as a whole. Finn and Leibbrandt (2013, 2017) and Finn et al. (2014) are the first to use the recently available, nationally representative NIDS data to investigate poverty dynamics in South Africa. They show that about 30 per cent of the South African population must be considered chronically poor, and that single-parent households with children have the highest poverty rates. Like Woolard and Klasen (2005), Finn and Leibbrandt (2017) find that race, household size, and labour market insertion are the most important determinants of poverty status and that changes in the latter two dimensions dominate as determinants of poverty transitions.²

² While Finn and Leibbrandt find that an increase in household size plays a greater role in determining poverty entries relative to the findings of Woolard and Klasen, this is largely a mechanical issue of differences in poverty measurement. While Woolard and Klasen use an equivalized measure of household income which derives a per capita measure that takes into account differences in consumption for adults and children and considers household economies of scale, Finn and Leibbrandt use a measure where household consumption is simply divided by household size to derive a per

However, using an endogenous switching model to predict poverty transitions, they also find that there is substantial genuine state dependence underlying poverty dynamics, meaning that, independent of other correlates of poverty, the experience of poverty itself is implicated as a determinant of poverty persistence.

Schotte et al. (2018a) also explore the temporal dimension of poverty using the first four waves of NIDS. Their analysis reveals that eight out of ten South Africans find themselves in a situation of poverty at least once over the six-year period between 2008 and 2014/15. They show that, of these eight, four are located persistently below the poverty line during this period. Furthermore, using a similar methodology as Finn and Leibbrandt (2017) to predict poverty transitions, they show that the chronically poor are characterized by exceptionally low levels of human capital and financial assets as well as geographical isolation from markets and employment opportunities. The transient poor, on the other hand, are more urban, are better educated, and rely more heavily on income earned in the labour market than the chronically poor. The economic instability this group experiences is closely linked to their vulnerable position in the labour market, since many rely on precarious forms of employment which are unlikely to be sustained, even once attained. Zizzamia (2018), who combines the analysis of NIDS with data from a qualitative case study of Khayelitsha, Cape Town, provides further support for this finding.

Using the same model of poverty transitions as Schotte et al. (2018a) and Finn and Leibbrandt (2017), Schotte et al. (2018b) extend the analysis of poverty dynamics to those above the poverty line. Specifically, they propose a framework of social stratification that not only distinguishes between transient and chronic poverty, but also allows the differentiation of a non-poor but vulnerable group from the stable middle class and elite. Using this poverty-dynamics approach to social stratification, which includes the identification of a stable middle class,³ their study engages with an emerging international literature in which growing attention has been paid to the study of vulnerability to poverty, broadly understood as the risk of remaining poor or falling (deeper) into poverty (see, *inter alia*, Cafiero and Vakis 2006; Dercon 2001, 2006; Hoddinott and Quisumbing 2003; Klasen and Waibel 2013). The main argument common to these studies is the notion that being able to afford a certain basket of goods at a given point in time provides an insufficient indication of whether the same will be true in the future. In other words, some of those who are currently non-poor may face a non-negligible risk of falling into poverty over time. This position of economic insecurity is a source of considerable discomfort, bearing the risk of negative psychological and health effects (Cafiero and Vakis 2006), and tends to affect people's economic choices. These pernicious dynamics work together to create a low-income trap: for example, if the vulnerable, in order to minimize risks, engage in economic activities that are low-risk and guarantee-constant, but low-return (Cafiero and Vakis 2006; Dercon 2006).

capita figure. This means that in Finn and Leibbrandt's analysis household consumption is mechanically more sensitive to an increase in household size.

³ A debate has emerged in the economics literature on how to measure the middle class in developing country contexts, where those who fall, literally, in the middle of the consumption distribution often lie below the poverty line. For detailed discussion of this debate, see Zizzamia et al. (2016). In the recent literature on the middle class in developing countries, scholars have begun to converge on the understanding that a meaningful definition of the middle class does not simply classify all non-poor households as middle class. Rather, the middle class is seen as a class which is distinct in terms of consumption behaviour, political participation, social norms, and economic empowerment and stability. These criteria are not automatically met when a poor household's income moves above the poverty line. Acknowledging this, an increasing number of researchers have adopted a vulnerability-based definition of the middle class, in which the middle class is distinguished from a non-poor but 'vulnerable' group situated between the middle class and the poor (Corral Rodas et al. forthcoming; López-Calva and Ortiz-Juarez 2014; Schotte et al. 2018; Zizzamia et al. 2016, *inter alia*).

Recognizing the limitations of static consumption measures, Carter and May (2001) and Burger et al. (2015) have advocated the use of alternative non-money-metric approaches to studying social stratification and poverty dynamics. Carter and May calculate an ‘asset poverty line’ to distinguish structural from stochastic mobility, and Burger et al. adopt a capability approach to identify various non-monetary capabilities, which according to Sen (1999: 87) represent the ‘substantive freedoms [one] enjoys to lead the kind of life he or she has reason to value’. However, as Zizzamia et al. (2016) argue, there are several reasons that these approaches go too far in moving away from monetary measures. First, in the South African context of deep retail penetration and market integration even in rural areas, households remain reliant on income from the labour market and state grants to survive. Because of this, the rapid expansion of state-provided services since 1994 means that using multidimensional measures at the expense of money-metric measures may lead to an overly optimistic narrative of social progress (Meth 2016). Second, Schotte et al. (2018b), Zizzamia (2018), and Zizzamia et al. (2016) show that for many households, economic fortune is crucially dependent on one’s position in the labour market, and that this position is inadequately reflected or predicted by assets or by access to basic goods and services. Acknowledging both the limitations of purely monetary-based approaches to social stratification and multidimensional approaches which overlook the importance of income earned in the labour market, Schotte et al. (2018b) exploit the opportunity presented by the availability of NIDS panel data to develop an approach to social stratification which aims to overcome the limitations of both money-metric and multidimensional approaches.⁴

Using this approach linking the dynamic study of poverty and vulnerability and the middle class literature in economics, Schotte et al. (2018b) show that, with an average population share close to 24 per cent between 2008 and 2014/15, the group of South Africans who can be considered as stably middle class or elite is considerably smaller than most other studies suggest. They further find that the transient poor and the vulnerable, at 27 per cent, constitute a considerable share of South Africa’s population and that these two groups, which straddle the poverty line, are structurally more similar in terms of their average household characteristics than a dichotomous poor/non-poor distinction would suggest. In line with the previous literature, their analysis again exposes the labour market as a key determinant that differentiates class categories. Specifically, they find that while most household heads in the middle class and elite are formally employed with a permanent work contract and union coverage, their equivalents among the transient poor and vulnerable are more often employed in precarious employment relationships and a larger share is either unemployed or economically inactive. Finally, Schotte et al. (2018b) also draw attention to the finding that approximately 50 per cent of the South African population are trapped in chronic poverty in that they are both poor and highly unlikely to escape poverty. Echoing the findings of Aliber (2003), Finn and Leibbrandt (2017), and Woolard and Klasen (2005), they show that chronic poverty is driven primarily by structural unemployment and geographical isolation from economic opportunity.

In what follows, we update the findings of this body of work using all five waves of NIDS data, focusing on the ways in which multidimensional inequalities are consequential in shaping mobility patterns.

⁴ More details on their approach are provided in Section 6.

3 Methods and data

This paper uses data from NIDS, South Africa’s only nationally representative household panel study. NIDS began in 2008 with a sample of over 28,000 individuals in 7,300 households. It is these individuals that NIDS has followed since 2008—literally tracking them across the length and breadth of the country—and it is their unfolding livelihoods that underpin the socio-economic dynamics that we reflect in this paper. There are currently five waves of data available, spanning the nine years from 2008 to 2017, with each wave of data spaced approximately two years apart.

As our focus in this study is on poverty dynamics and transition patterns, individuals need to be successfully tracked over at least two consecutive survey waves. In most of the analysis in this paper, we pool data from pairs of consecutive waves ($t - 1$ and t), such that the analysis of changes over time represents changes between 2008 and 2010/11, 2010/11–2012, 2012–2014/15, and 2014/15–2017, controlling for period-specific changes (fixed effects). Only in Section 4, which investigates the duration of poverty, do we reduce the sample to the balanced panel of 15,673 respondents that were successfully observed in all five survey waves.

In line with the research upon which this paper draws, we use expenditure rather than income as a measure of economic welfare. This requires the assumption that expenditure is a good proxy for the resources which are available to individuals and hence reflective of their overall living standards and economic wellbeing.⁵ Expenditure is used most often in South Africa to undertake analyses of poverty, since it is assumed that, to the extent that households are able to smooth consumption, expenditure is a better approximation of permanent household income.⁶ To facilitate comparisons across time, all monetary figures are deflated using the Stats SA consumer price index and are calibrated to March 2017.⁷ To convert household income and expenditure to a per capita measure, household figures are simply divided by the number of members in a household. This follows an established precedent in the South African microeconomics literature (see, in addition to our own work, Budlender et al. 2015; Stats SA 2017).⁸

In this paper, households are classified as being poor versus non-poor using Stats SA’s upper bound poverty line (UBPL), set at R1,136 per person per month in March 2017 rands. In addition, extreme (food) poverty refers to those households falling below Stats SA’s food poverty line (FPL), set at R515. The FPL captures the level of consumption below which individuals are unable to

⁵ This is not to overlook expenditure’s well known limitations as a proxy for economic welfare. For instance, expenditure is measured at the household level, while our analysis is undertaken primarily at the individual level. This presumes that expenditure is divided equally within the household—an assumption which is almost certainly universally untrue (De Vreyer and Lambert 2018).

⁶ The total expenditure variable is simply the aggregation of rental, food, and non-food expenditures, with imputations for missing values and imputed rent for owner-occupied housing (see Finn et al. 2009).

⁷ To adjust for inflation, for each line the food component (equal to the FPL) is inflated by using the food-specific Stats SA CPI, and the non-food component (equal to the difference between the FPL and the UBPL) is inflated by using the non-food-specific Stats SA CPI.

⁸ Recognizing that income in a family of four is ‘stretched’ further than a per capita equivalent in a single-person household, it may be prudent to use an ‘equivalence scale’ to derive an ‘adult-equivalent’ measure of individual income/consumption, which is adjusted to account for differences in the consumption needs of adults and children in a household. This can be further adjusted to consider economies of scale in larger households. However, since there is no consensus as to how to adjust for adult equivalents and economies of scale, Deaton (1997) has suggested that the use of such scales may raise as many issues as it resolves, and their usefulness has been disputed in the South African context by Woolard and Leibbrandt (2006).

purchase sufficient food to fulfil their caloric requirements, even if all expenditure is dedicated to food.⁹

Panel weights are used to correct for the presence of non-random panel attrition in NIDS. Of the 26,775 sample members who were successfully interviewed in 2008, 15,673 were re-interviewed in all four subsequent waves, giving an attrition rate for the balanced panel of 41.47 per cent. However, between-wave attrition, which is most important in this study, is substantially lower, ranging from 9.3 to 21.1 per cent. This is because it is fairly common that respondents who are missed in one wave are successfully contacted again in the next. We refer interested readers to Schotte et al. (2018a, b) for further details on the construction of weights.

Before moving on to the analysis, it is important to briefly highlight some of the limitations of the data at hand. The 2008 sample was drawn on a nationally representative basis, and the poverty headcount (UBPL) calculated from these data on the basis of per capita household expenditure closely matches official statistics. However, the poverty trends observed over subsequent waves should be treated with caution (see Table 1). Using household expenditure, poverty increased in NIDS up to 2010/11, with a remarkable rise by five percentage points in the share of households being pushed below the food poverty line. From 2010/11 to 2014/15, poverty levels decreased, the strongest fall being observed from 2012 to 2014/15. This general trend is consistent across key variables and robust across subsamples (a similar pattern emerges when restricting the sample to respondents that were successfully interviewed in all five waves). However, the strong reduction in poverty over the last two years of NIDS in particular may raise doubts, given that it was not mirrored by a major event at the macro level and it does not match the official statistics on poverty trends as reported by Stats SA in 2017 (see Table 1).¹⁰ There are thus good reasons to believe that the poverty dynamics observed in NIDS are not fully representative at the national level but rather apply to a certain sub-population that was somewhat more likely to be upwardly mobile.¹¹ This may be a consequence of differential attrition. Nevertheless, our estimates can still offer important information on the household characteristics and events associated with movements into and out of poverty. It is important to note that our estimates of the chances of poverty exit should thus be treated as an upper bound. In other words, poverty will tend to be yet more persistent at the national level than we are recording here. Additionally, Table A1 in the appendix compares differences in poverty incidence and mean expenditure between the NIDS panel and NIDS cross-sections—illustrating that poverty rates in the balanced panel are slightly lower than in the NIDS cross-sections.

Table 1: Poverty rates (%) for South Africa, 2008–2017

	NIDS					Stats SA (2017)				
	2008	2010/11	2012	2014/15	2017	2006	2009	2011	2015	2017
Poverty line (PL)										
Poor (<UBPL)	61.96	65.69	63.82	56.88	52.23	66.6	62.1	53.2	55.5	..
Food-poor (<FPL)	36.34	42.00	37.82	30.38	24.71	28.4	33.5	21.4	25.2	..

Source: StatsSA (2017) and authors' calculations using NIDS Waves 1 to 5 (post-stratified weights applied).

⁹ We omit reporting results using Stats SA's lower-bound poverty line (LBPL), set at R747. This line allows for spending on non-food items, but requires that households sacrifice some food consumption in order to fulfil these non-food needs. Considering this conceptualization, this indicator appears conceptually weak as a cost of basic needs indicator (see Budlender et al. 2015 for a more detailed discussion).

¹⁰ Note that by using a panel of pooled wave-to-wave transitions, we attempt to limit the influence of the last two survey waves.

¹¹ We are grateful to Victor Sulla and Kanishka Kacker for pointing this out.

Finally, it is important to note that NIDS is a panel study that tracks individual respondents. This implies that, although our poverty measure is defined at the household level, changes in poverty status over time will be observed at the level of the individual and will not necessarily be identical across members initially belonging to the same household, as household composition almost always changes over time.

4 Poverty persistence

The aggregate poverty trends and figures presented in the previous section mask a great deal of economic mobility both into and out of poverty, which NIDS allows us to illuminate. Table 2 presents five poverty transition matrices—for 2008–2010/11, 2010/11–2012, 2012–2014/15, and 2014/15–2017—as well as the pooled sample of wave-to-wave transitions between time $t-1$ and t . These matrices distinguish between states representing three gradations of economic wellbeing—non-poor, poor, and food-poor—and illustrate the extent of movements between these states. The values on the diagonal of the transition matrices indicate the share of individuals who maintained their poverty status, whereas those below the diagonal were downwardly mobile, and those above the diagonal were upwardly mobile.

Table 2: Poverty transition matrices (%)

		2010/11			Total
		<i>Food-poor</i>	<i>Poor</i>	<i>Non-poor</i>	
2008	<i>Food-poor</i>	73.07	19.48	7.45	100
	<i>Poor</i>	42.62	37.36	20.01	100
	<i>Non-poor</i>	11.41	18.42	70.17	100
		2012			Total
		<i>Food-poor</i>	<i>Poor</i>	<i>Non-poor</i>	
2010/11	<i>Food-poor</i>	65.51	25.93	8.56	100
	<i>Poor</i>	32.49	40.86	26.65	100
	<i>Non-poor</i>	9.16	17.65	73.19	100
		2014/15			Total
		<i>Food-poor</i>	<i>Poor</i>	<i>Non-poor</i>	
2012	<i>Food-poor</i>	55.21	28.92	15.87	100
	<i>Poor</i>	25.83	39.39	34.78	100
	<i>Non-poor</i>	5.67	14.95	79.38	100
		2017			Total
		<i>Food-poor</i>	<i>Poor</i>	<i>Non-poor</i>	
2014/15	<i>Food-poor</i>	54.56	31.17	14.28	100
	<i>Poor</i>	22.88	45.92	31.20	100
	<i>Non-poor</i>	5.79	17.05	77.15	100
		Pooled wave-to-wave transitions			Total
		t			
		<i>Food-poor</i>	<i>Poor</i>	<i>Non-poor</i>	
$t-1$	<i>Food-poor</i>	63.41	26.05	10.54	100
	<i>Poor</i>	30.62	40.65	28.72	100
	<i>Non-poor</i>	7.18	15.93	76.89	100

Source: Authors' calculations using NIDS balanced panel for Waves 1 to 5 (weights corrected for panel attrition).

We find that, on average, those living below the FPL were the most likely to be trapped in extreme poverty. Their chance of moving out of poverty completely by moving above the UBPL was just above 10 per cent on average over the full time horizon. In contrast, those with consumption levels between the FPL and the UBPL experienced particularly high levels of both upward and downward mobility, only about 40 per cent of these individuals maintaining their poverty status

over time. In comparison, the food-poor and the non-poor display a greater degree of stability. Over the full time horizon (see Table 2e), on average, 63.4 per cent of the food-poor and 76.9 per cent of the non-poor remained in the same state. The trend in poverty dynamics over time (see Table 2a–d) suggests a gradual reduction in poverty, in accordance with Table 1, an increase in resilience to poverty, and a decrease in the persistence of extreme poverty. However, bearing in mind the inconsistency between cross-sectional poverty estimates and the trends displayed in the NIDS panel (Table 1 and Figure 1), this optimistic finding should be interpreted with caution.

Table 2 shows the extent of mobility across welfare categories over time. A more illuminating insight into mobility patterns is gained by exploiting the full longitudinal scope of the NIDS data, and disaggregating mobility patterns by demographic and household characteristics. Table 3 does this by dividing the population into six groups according to the number of spells of poverty, with those in the leftmost row having been observed in all five waves to be poor, and those in the rightmost column having been observed in none of the five waves to be poor. An obvious limitation is that Table 3 says nothing of the poverty status of households in the approximately two years between waves, meaning that it is possible that some of those observed to be poor (or non-poor) in two consecutive survey waves were actually transitioning into and out of poverty between the points in time in which these households were surveyed. We interpret Table 3 with these limitations in mind.

The top row reports statistics for the population as a whole. Like Schotte et al. (2018a), who use the first four waves of NIDS, we find that only a small portion (14.7 per cent) of panel members remained consistently non-poor through the five waves of NIDS. In contrast, 36.1 per cent of all panel members remained consistently below the poverty line in all five waves, an additional 21.3 per cent being poor in four out of the five waves. In the rows below, results are reported for several sub-samples of households based on different household characteristics. Although the sample size is small, it is striking that of the 274 white individuals who were tracked in all five waves, none were observed to be poor in four or five waves, while 93.6 per cent were observed to be consistently non-poor. In the African sample, in contrast, 62.9 per cent were observed to be poor in four or five waves, with only 8.9 per cent remaining non-poor in all five waves. Education of the household head (as measured in Wave 1) is similarly strongly associated with mobility patterns. Those in households with heads that have less than matric are much more likely to experience multiple spells of poverty than those in households with better educated household heads. Those in households with heads who have post-matric qualifications are highly unlikely to experience prolonged spells of poverty and are much more likely to have remained stably non-poor between 2008 and 2017.

A clear distinction is also apparent in the dynamic poverty patterns across the urban/rural divide. A striking 2.5 per cent of rural households remained non-poor throughout 2008–2017, while 82.86 were poor in four or five waves. In contrast, 24.7 per cent of urban households remained stably non-poor (34.2 per cent being non-poor in four or five periods), and 42.7 per cent were poor in four or five periods. While it is clear that persistent poverty is widespread even in urban South Africa, it continues to dominate the poverty landscape in rural areas.

Confirming the findings of Finn and Leibbrandt (2017), we also find that single-parent households are substantially more likely to be poor in four or five periods, and are about half as likely as the population average to remain out of poverty in all five waves. However, in Table 3, household type is defined only on the basis of Wave 1 variables, meaning that household compositional changes may confound the relationship we observe between household type and mobility patterns. We try to address this somewhat by restricting the sample by the gender of the household head in all periods. We find that 71.8 per cent of households which are female-headed in all five waves remained in poverty in four or five waves, compared with only 29.1 per cent of male-headed

households. It is worth noting that female-headed households are three times as likely as male-headed households to be single-parent households.

Table 3: Number of spells poor by various characteristics

	No. of spells in poverty						No. of obs.
	Always poor	4	3	2	1	Never poor	
Total	36.06%	21.27%	13.28%	7.78%	6.86%	14.74%	16,786
<i>Race</i>							
African	40.08%	22.84%	13.80%	7.88%	6.57%	8.83%	14,122
White	0.00%	0.00%	0.05%	1.94%	4.46%	93.55%	247
<i>Education (household head)</i>							
< Matric *	41.87%	23.41%	13.94%	7.88%	5.48%	7.41%	13,558
Matric*	11.65%	13.19%	12.06%	7.09%	12.50%	43.50%	1,104
Tertiary*	1.26%	5.33%	7.14%	8.94%	14.82%	62.51%	779
<i>Household type</i>							
Single-parent household*	42.09%	26.30%	14.20%	4.82%	4.92%	7.67%	2,773
Two-adult household*	30.10%	18.81%	12.58%	7.30%	7.28%	23.94%	1,294
<i>Gender (household head)</i>							
Female	50.63%	21.14%	10.93%	4.96%	4.45%	7.89%	4,916
Male	13.14%	15.94%	13.14%	9.90%	13.00%	34.88%	1,503
<i>Area</i>							
Rural	59.61%	23.25%	8.71%	3.68%	2.23%	2.53%	6,776
Urban	23.92%	18.75%	13.92%	9.24%	9.50%	24.67%	6,644

Notes:

a) All cell proportions are weighted using Wave 5 panel weights.

b) Age variables are defined as described in Table 3.

c) Single-parent households are defined as households with a single adult and one or more children. Two-adult households are defined as households with at least two prime-aged adults, with or without children.

d) * denote cases in which group variables are defined using Wave 1 values (2008). In these cases, where changes in household composition occur, these variables may not apply across waves for individuals. For example, we distinguish between households on the basis of the education of the household head in 2008. Members of these households may move to other households where the household head is more (or less) educated, but here they remain classified on the basis of the education of their household head in 2008.

Source: Authors' calculations.

While in Table 3 we look only at the number of periods spent in poverty, in Table 4 we attempt to account for the relationship between the severity of deprivation and the time spent in poverty. To do so, we decompose the standard set of Foster-Greer-Thorbecke (FGT) (Foster et al. 1984) poverty measures into persistent and transient components following an approach developed by Foster (2009). This allows us to investigate the link between the time spent in poverty and the standard FGT dimensions of incidence, depth, and severity. Since there are five periods, we can separately look at individuals that were poor in none, one, two, three, four, or all five waves. If a minimum of four spells spent in poverty is specified as the duration cut-off for defining persistent poverty, then persistent poverty is observed to be responsible for between 76 and 85 per cent of the total poverty headcount. Even if we were to define as persistently poor only those who fell below the poverty line in all five waves, the persistently poor would still make up over 50 per cent of the overall poverty headcount.

When looking at the depth and severity of poverty—that is, when we take the distance of the poor to the poverty line into consideration—the share of poverty attributable to the persistently poor increases further. Those who were poor in four or five waves make up about three-quarters of the

total poverty gap and about nine-tenths of the squared poverty gap or poverty severity index (see Table 4). That is to say that the persistently poor (i.e. those who were poor in four or five waves) tend to be those who experience the highest levels of deprivation. While distressing, this is also unsurprising, given that the further the distance to the poverty line, the less the chance of escaping poverty.

Table 4: Duration in poverty and contribution to poverty measures (UBPL), 2008–2017

# of waves in poverty	share in poverty headcount (%)					share in poverty gap (%)					share in poverty severity (%)				
	2008	2010	2012	2014	2017	2008	2010	2012	2014	2017	2008	2010	2012	2014	2017
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	2.1	3.5	3.5	1.4	1.6	1.4	1.9	1.7	0.7	0.9	1.0	1.3	1.0	0.5	0.6
2	6.2	6.6	4.1	3.4	3.9	4.5	4.7	2.6	2.3	2.4	3.7	3.8	2.0	1.8	1.6
3	13.2	13.6	13.5	9.8	8.5	10.4	11.7	10.6	7.1	5.7	9.1	10.8	8.9	5.7	4.3
4	25.2	26.1	27.2	27.5	23.0	24.9	24.9	26.2	24.5	20.4	24.5	24.0	25.4	22.6	19.4
5	53.2	50.2	51.6	58.0	63.1	58.7	56.7	58.9	65.4	70.6	61.9	60.1	62.7	69.4	74.1
4+5	78.4	76.3	78.9	85.4	86.1	83.7	81.6	85.1	89.9	91.0	86.3	84.1	88.1	92.0	93.5

Source: Authors' calculations using NIDS balanced panel for Waves 1 to 5 (weights corrected for panel attrition).

5 Vulnerability

In Section 4 we saw that persistent poverty affects primarily African, single-parent, female-headed, and rural households. Members of these households are often poorly educated and long-term unemployed. However, we also see that, between 2008 and 2017, poverty affected many more South Africans than those who are persistently poor. The fact that 49.2 per cent of all panel members were observed to move into or out of poverty at least once over the nine-year period under study shows that poverty, experienced as a transient state, affects a large portion of the population. The urban African population, in particular, appears to be afflicted by transient poverty, those who are poor often moving out of poverty, and those who are not poor often falling (back) into poverty over time.

In this section, we try to understand the determinants of vulnerability to poverty and the routes through which the poor escape poverty and the non-poor fall into poverty. We attempt to measure the strength of the association between various events and transitions across the UBPL using a methodology developed by Jenkins (2011). While this approach does not allow us to give a causal interpretation to the impact of these events, it does permit us to understand something of the strength and nature of the association between various shocks and poverty transitions. The results of this analysis are reported in Table 5 and Table 6.

The trigger events listed in Table 5 and Table 6 are split between labour market events, non-labour market income events, and demographic events. For each event, in the first column of the respective tables we report the prevalence with which the event occurred for those who were non-poor (Table 5) or poor (Table 6) in the initial period.

In the second column of each table, we report the poverty entry rate (Table 5) or exit rate (Table 6), conditional on event occurrence—that is, the poverty entry/exit rate among the subset of the population which experienced the trigger event in question. This can be compared with the unrestricted sample's poverty entry rate of 23.1 per cent or exit rate of 18.0 per cent, as reported in the second column of the two tables. This second indicator could be considered a measure of event 'intensity'—the more 'intense' the event, the more likely a transition out of or into poverty

is, conditional on experiencing the event. However, here it is also worth noting one of the event intensity indicator's limitations: intensity rates are biased by the confounding impact of other factors not considered in this associational analysis. For example, while the results in Table 5 suggest that the loss of a formal job has no effect on the likelihood of entering poverty, this is merely because this applies only to those with access to formal jobs in the first place—who also happen to be more likely to have access to other mechanisms which protect them from descent into poverty.

The final column in Table 5 and Table 6 indicates the proportion of total poverty transitions which are associated with particular events. These figures are jointly determined by those reported in columns 1 and 2: the total share of poverty transitions associated with an event will be a function of how frequently an event occurs, and how often it leads to a poverty transition when it does occur.

These results are useful for getting a sense of the importance of various events in determining poverty transitions. The fact that more than one-quarter of all poverty entries are associated with a job loss in the household suggests that a strong link exists between the ability to maintain a job and economic resilience. Similarly, approximately one-third of all poverty escapes are associated with job gains in a household. A change in household size, on the other hand, is associated with approximately half of all poverty entries and exits. While this suggests that demographic events are more important, this is at least partly explainable by the mechanical effect that a change in household size has on poverty measurement when household consumption is divided by household size to derive a per capita measure. Further, as noted above, this associational analysis fails to take into account that the strength of associations between job losses (gains) and poverty entries (exits) may be confounded by factors which it fails to account for.

Table 5: Trigger events and poverty entry (UBPL) (%)

	Event prevalence	Poverty entry rate conditional on event	Share of poverty entries associated with event
Poverty entry rate		23.13	
<i>Labour market events</i>			
Fall in number of workers	22.02	28.76	27.37
Fall in number of workers (formal)	19.78	23.40	20.01
Fall in number of workers (informal)	16.99	33.64	24.71
Fall in number of workers (household size constant)	9.10	25.09	9.87
Fall in labour income (-10 %) (number of workers constant)	14.49	20.57	12.90
<i>Non-labour income events</i>			
Fall in income from public grants (-10%)	2.07	43.40	3.89
<i>Demographic events</i>			
Change in gender of household head (male to female)	15.43	23.03	15.35
Increase in household size	24.41	41.24	43.55
Birth of a child (0–2 years)	17.56	43.66	33.15
Death of a household member	4.93	37.32	7.96
Death of a household member (with life insurance)	4.33	14.49	6.24
Movement from urban to rural	1.12	28.74	1.39

Notes: NIDS Waves 1 to 5 pooled panel of wave-to-wave transitions (weights corrected for panel attrition).

Source: Authors' calculations.

Table 6: Trigger events and poverty exit (UBPL) (%)

	Event prevalence	Poverty exit rate conditional on event	Share of poverty exits associated with event
Poverty exit rate		18.03	
<i>Labour market events</i>			
Rise in number of workers	30.37	18.55	31.26
Rise in number of workers (formal)	21.16	23.08	27.10
Rise in number of workers (informal)	22.19	16.29	20.04
Rise in number of workers (household size constant)	10.95	21.17	12.85
Rise in labour income (+10%) (number of workers constant)	9.60	25.57	13.60
<i>Non-labour income events</i>			
Rise in income from public grants (+10%)	7.11	12.17	4.80
Rise in income from remittances (+10%)	0.55	20.41	0.62
<i>Demographic events</i>			
Change in household head from female to male	11.39	23.40	14.78
Decrease in household size	32.55	25.03	45.22
Movement from rural to urban	2.83	51.33	8.05

Notes: NIDS Waves 1 to 5 pooled panel of wave-to-wave transitions (weights corrected for panel attrition).

Source: Authors' calculations.

Recognizing the extent of mobility around the poverty line and how the patterns of this mobility reflect deep-rooted social and economic inequalities, we proceed to a more careful econometric modelling of the determinants of poverty entry and exit. Our approach to predicting future poverty status from current household- and individual-level characteristics follows a methodology developed by Cappellari and Jenkins (2002, 2004, 2008). Our application of this methodology to NIDS data is described in detail by Schotte et al. (2018a, b), to which we refer interested readers.

Simpler models of poverty risk overlook two key factors which our approach addresses. First, if the experience of poverty itself, independent of other characteristics, affects the likelihood of experiencing poverty in future, then controlling for these initial conditions will be necessary to yield unbiased results. Second, if attrition from the NIDS panel is non-random in the sense that more economically advantaged individuals are more (or less) likely to leave the sample, this may bias the risk estimates if this systematic attrition is not accounted for.

We address these issues by using a multivariate probit model that jointly estimates a system of three equations, these being (1) a first-order Markov process of poverty transitions between two consecutive panel waves, $t-1$ and t (this being the equation of principal interest); (2) the poverty status at $t-1$ (thereby accounting for the potential endogeneity of initial conditions); and (3) an equation predicting sample retention (thereby taking potential non-random attrition into account).

The results are reported in Table 7. Members of female-headed households are on average 6.8 per cent more likely to slip into poverty and 1.5 per cent less likely to escape poverty than members of households where the head is male. Complementing the descriptive profile offered in Section 4, we observe that race remains a strong predictor of poverty in South Africa, black Africans being at the highest risk of being poor. In comparison, whites are 26.6 per cent less likely to fall into poverty and 42.6 per cent less likely to remain poor, even after controlling for differences in education.

Table 7: Multivariate probit model

Probability of being poor in t conditional on poverty status in $t-1$	Poverty persistence			Poverty entry		
	Average marginal effect	Coeff. estimate	Std. err.	Average marginal effect	Coeff. estimate	Std. err.
Characteristics of the household head (HoH) in $t-1$						
HoH age	0.003	0.011***	(0.004)	-0.003	-0.020***	(0.007)
HoH age squared (x0.01)	-0.005	-0.011***	(0.004)	0.003	0.010	(0.007)
HoH is female	0.015	0.057**	(0.025)	0.068	0.240***	(0.038)
<i>HoH race group (base: African)</i>						
Coloured	0.010	0.037	(0.051)	-0.075	-0.255***	(0.062)
Asian/Indian	-0.394	-1.176***	(0.177)	-0.269	-1.198***	(0.122)
White	-0.426	-1.272***	(0.268)	-0.266	-1.172***	(0.143)
<i>HoH education (base: no schooling)</i>						
Less than primary completed	-0.016	-0.067	(0.045)	-0.034	-0.106	(0.094)
Primary completed	-0.021	-0.089*	(0.051)	-0.075	-0.232**	(0.105)
Secondary not completed	-0.059	-0.235***	(0.038)	-0.148	-0.470***	(0.085)
Secondary completed	-0.110	-0.413***	(0.046)	-0.209	-0.687***	(0.092)
Tertiary	-0.209	-0.727***	(0.062)	-0.284	-0.991***	(0.099)
<i>HoH employment status (base: inactive)</i>						
Unemployed (discouraged)	0.009	0.036	(0.068)	-0.030	-0.111	(0.113)
Unemployed (strict)	-0.020	-0.076*	(0.041)	0.051	0.177**	(0.073)
Personal agricultural work	0.009	0.036	(0.076)	0.010	0.036	(0.144)
Paid casual work	0.041	0.163***	(0.060)	0.177	0.592***	(0.158)
Self-employed	-0.007	-0.026	(0.054)	0.062	0.214***	(0.080)
Self-employed # Formal ^a	-0.113	-0.387**	(0.165)	-0.130	-0.476***	(0.131)
Employee	-0.006	-0.024	(0.043)	0.055	0.191***	(0.069)
Employee # Permanent contract	-0.010	-0.039	(0.050)	-0.047	-0.163***	(0.062)
Employee # Union member	-0.068	-0.241***	(0.061)	-0.065	-0.229***	(0.055)
Composition of the HH						
No. of members in HH	0.015	0.054***	(0.009)	0.037	0.133***	(0.021)
No. of workers in HH (excl. HoH)	-0.016	-0.061***	(0.015)	-0.026	-0.092***	(0.028)
No. of children (<18 years)	0.012	0.046***	(0.011)	-0.014	-0.051**	(0.026)
No. of elderly members (60+ years)	-0.011	-0.040*	(0.022)	0.028	0.097**	(0.039)
HH has access to basic goods and services (shelter/water/sanitation/electricity)	-0.038	-0.141***	(0.033)	-0.025	-0.087**	(0.043)
<i>Geographic location (base: traditional)^b</i>						
Urban	-0.006	-0.021	(0.033)	-0.081	-0.277***	(0.052)
Farms	0.022	0.083*	(0.050)	0.036	0.115	(0.095)
Constant		0.735***	(0.121)		0.689***	(0.194)
Province and time fixed effects		YES			YES	
Time fixed effects		YES			YES	
Log-likelihood					-98,265,170	
Model chi2 (d.f.=173)					19,756	
Number of observations					60,951	

Notes: Asymptotic standard errors are robust for the presence of repeated observations on the same individual.

*** p<0.01, ** p<0.05, * p<0.1

Simulated pseudo maximum likelihood estimation with 250 random draws. The sample has been restricted to all individuals aged 15 years and above.

^a For the self-employed, formal businesses are those registered for income tax and/or VAT.

^b In line with the 2011 census, three settlement types are distinguished in NIDS: Urban—A continuously built-up area that is established through cities, towns, townships, small towns, and hamlets. Traditional—Communally owned land under the jurisdiction of traditional leaders; settlements within these areas are villages. Farms—Land allocated for and used for commercial farming including the structures and infrastructure on it.

Source: Authors' calculations.

Higher levels of education of the household head are strong predictors of a lower vulnerability to poverty. The estimated effects differ considerably between initially poor versus non-poor households. For example, we find that those living in households where the head has attained at least some secondary education are on average 5.6 per cent less likely to remain poor, whereas the risk of falling into poverty is reduced by 14.8 per cent. For those where the head has completed secondary schooling, the average poverty risk is reduced by 11.1 per cent if household members were initially poor and 20.9 per cent if initially non-poor. This divide in the marginal effect of education for initially poor versus non-poor households may be explained by a number of factors. For example, poverty may lead to a depreciation of human capital and employment skills, causing low-pay or unemployment spells and thus increasing the duration spent in poverty. We can also expect that there is a difference in the quality of education between those observed to be poor versus non-poor. Lastly, there may be a sorting effect to the extent that those with higher ability or better motivation at the same level of education tend to be overrepresented in the non-poor group.

With respect to household composition, the presence of economically dependent household members goes in line with an elevated vulnerability to poverty. The number of employed household members by contrast has a vulnerability-reducing effect, though this effect is smaller for the initially poor than the non-poor. In addition to the explanations suggested earlier, we may imagine that being poor leads to difficulties in finding good quality jobs, for example through social network effects, which in turn reduces the probability of exiting poverty.

With respect to labour market controls, we estimate that persons living in a household where the head is unemployed face a similar risk of falling into poverty to those with an economically inactive head. However, having a working household head does not necessarily result in a lower vulnerability to poverty. The effect rather seems to depend crucially on the type of employment that the head engages in, especially with regard to its stability and duration. Everything else being equal, we find that members of households where the head engages in personal agricultural work are just as vulnerable to poverty as those where the head is inactive. Those living in households where the head is casually employed or helps other people with their business are on average 4.1 per cent more likely to remain poor than those with inactive heads. More substantial yet is the difference among the presently non-poor, where such an unstable job position of the household head is associated with a 17.7 per cent higher risk of falling into poverty, thus constituting an important vulnerability factor.

Self-employment of the household head can provide an avenue out of poverty. However, while self-employment of the household head in the informal sector has no statistically significant effect on the chance of poverty exit, those living in households where the head runs a formal sector business (registered for income tax and/or VAT) face an 11.3 per cent higher chance of making it out of poverty.

Similarly, among the non-poor, self-employment of the household head in the informal sector is associated with an elevated risk of falling into poverty, while self-employment in the formal sector is associated with a 13 per cent lower risk of poverty entry. A similar pattern is observed among those in wage employment. Here, a poverty risk-reducing effect of employment is only observed for those with a permanent work contract and union coverage. In terms of geographic patterns, having access to basic services is associated with a 5 per cent lower vulnerability to poverty. We further observe that for the initially non-poor, the risk of falling into poverty is about 8.1 per cent lower in urban than in traditional areas, whereas the chances of escaping poverty are not significantly different between regions.

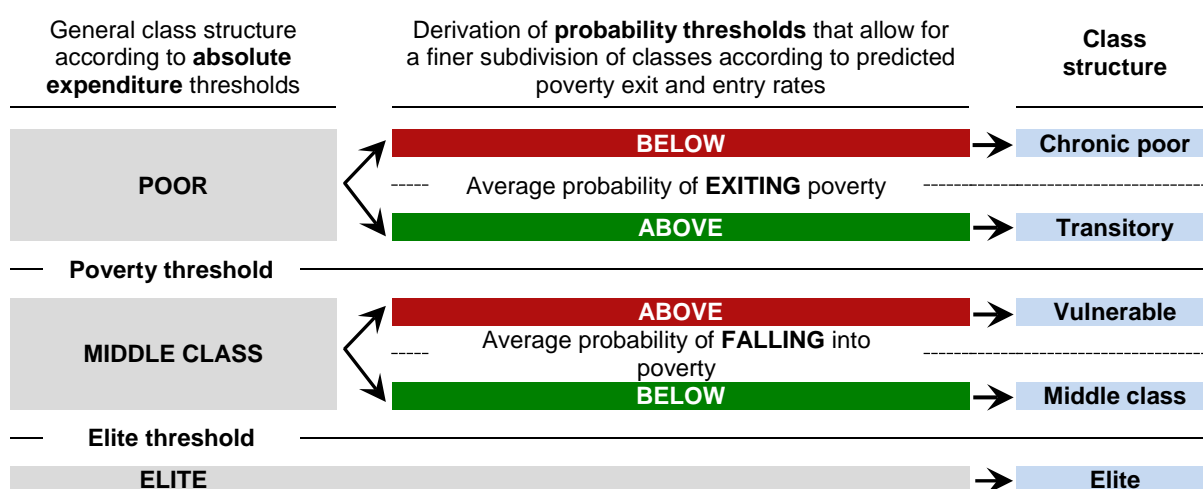
6 The stable middle class

In our prior research (Schotte et al. 2018b; Zizzamia et al. 2016), we argued that the availability of rich panel data in South Africa presents a unique opportunity to link the analysis of economic mobility to the study of social stratification. In the sense that this analysis identifies the relationship between individual and household characteristics and patterns of economic mobility, these schemas of social stratification can also reveal insights into the structured nature of inequality in South Africa.

The stratification schema suggested by Schotte et al. (2018b) begins by assuming a standard division of society into three main classes based on monetary thresholds: the poor or the lower class, the middle class, and the elite or the upper class. We understand the poor as those who are in an economically precarious situation in the present period, which does not allow them to satisfy their basic needs. In other words, the poor are those who fall below Stats SA’s UBPL, reflecting the average estimated cost of a consumption basket that is deemed to be adequate, with respect to both food and non-food components. Similarly, we understand the elite as those in society who enjoy a standard of living well above the national average. Following Schotte et al. (2018b), for the empirical application, we will arbitrarily fix the elite threshold at two standard deviations above the mean per capita household expenditure.

Taking on a dynamic perspective, we introduce two further sublayers (see Figure 1). Based on our model of poverty transitions, presented in Section 5, we can predict each person’s propensity to remain in or fall into poverty in the near future—based on the household characteristics and the observed poverty status at present. We believe that these forward-looking scores provide a more comprehensive understanding of a person’s (medium-term) welfare prospects than we could gain by focusing exclusively on reported expenditure levels. Based on these latent poverty propensities, we distinguish those with chances of exiting poverty below the observed average exit rate and thus a comparatively high risk of poverty persistence—the *chronic poor*—from those with above average chances of making it out of poverty—the *transient poor*. Analogously, among those currently above the poverty line, we distinguish those who face an above average risk of slipping into poverty—the *vulnerable*—from the more secure ‘actual’ *middle class*, whose members face a below average risk of falling into poverty and thus have better chances of sustaining a living above the subsistence level (see Figure 1).

Figure 1: Schema of social stratification—a poverty dynamics approach to structured inequality



Note: Solid lines denote absolute expenditure thresholds. Dashed lines denote probability thresholds.

Source: Schotte et al. (2018b), reproduced under Creative Commons licence [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/).

This approach to social stratification has advantages over both purely money-metric and multidimensional approaches, in that our schema remains anchored around money-metric thresholds, with the cost-of-basic-needs poverty line marking the crucial (and materially meaningful) distinction between those who can and those who cannot afford to meet their basic needs. At the same time, the further subdivision between the poor and non-poor is made not on the basis of monetary thresholds, but rather on propensities for poverty transitions, which are calculated on the basis of a set of individual and household characteristics. This set of household and individual characteristics can be interpreted as representing the multidimensional determinants of economic empowerment.

Perhaps more importantly, unlike multidimensional measures, which are theoretically assumed to represent ‘empowerment’ or ‘capabilities’ and in which different dimensions are weighted arbitrarily (as in the Alkire and Foster (2011) method), in our approach the relevance of the multidimensional determinants of empowerment are automatically weighted in the regression framework to reflect their ability to predict an outcome representing economic empowerment—that is, mobility patterns.

Furthermore, our regression framework allows us to include several employment characteristics as explanatory variables, thereby overcoming the limitation in many multidimensional approaches: that of overlooking the crucial role played by the labour market in determining economic empowerment. Finally, as discussed in Section 1, individual welfare is affected not only by one’s current consumption, but also by the uncertainty one faces in terms of the prospects of maintaining or improving one’s welfare. While in the standard division of society into the poor and not poor these issues are often overlooked, our regression framework explicitly accounts for the role of economic instability. Thus, by estimating the size of the vulnerable non-poor and transient poor groups, we are given the opportunity to identify those households which are most likely to churn around the poverty line—and for whom vulnerability and economic insecurity are perhaps more important elements in determining their economic welfare than their poverty status as observed at any single point in time.

Using the multivariate probit model presented in Section 5, for each individual we predict the probability of experiencing a poverty transition. Based on these probability scores, individuals are then sorted into each of the classes in Figure 1. Table 8 reports class sizes. As expected, the chronic poor make up the largest single class, with a population share approaching 50 per cent. The transient poor and vulnerable non-poor, combined, make up about a quarter of the population, indicating the large share of those who are affected by (or at least at high risk of) poverty as a transient state. The middle class is smaller than most previous studies have estimated: only about one-quarter of the population can be considered stably middle class or elite.

Table 8: Average class size and mobility patterns, 2008–2017

	Population share (%)	Share (%) that fell into poverty	Share (%) that moved out of poverty
Chronic poor	48.79	..	12.88
Transient poor	11.75	..	39.32
Vulnerable	15.09	49.00	..
Middle class	20.75	12.07	..
Elite	3.62	2.86	..

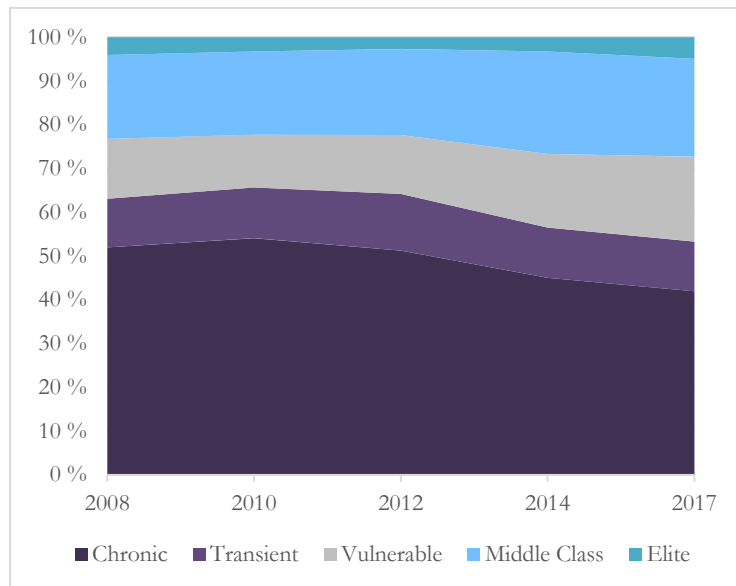
Source: Authors’ calculations using NIDS Waves 1 to 5 pooled sample (post-stratified weights corrected for panel attrition).

As Figure 1 illustrates, the class groupings mark a clear difference in terms of mobility patterns. While the chronic poor had an average chance of exiting poverty of 12.9 per cent, close to 40 per cent of the transient poor exited poverty between survey waves. Similarly, while only about 12.1

per cent of the stable middle class fell into poverty over time, the same applied to 49.0 per cent of those classified as being vulnerable to poverty.

Figure 2 reports trends in class sizes for the full period between 2008 and 2017. While it is encouraging that there seems to have been a decrease in chronic poverty between 2008 and 2017 in the order of approximately 10 percentage points, this decline has been accompanied primarily by growth in the size of the vulnerable class by approximately seven percentage points, while the middle class and elite grew only marginally—by about one percentage point each. Despite the overall decline in poverty observed using the data at hand (bearing in mind the caveats discussed in Section 3), it is important to acknowledge that those moving out of poverty mostly moved into a position in which they remained vulnerable to falling into poverty over time, rather than into the stable middle class.

Figure 2: Class sizes, 2008–2017



Source: Authors' calculations using NIDS Waves 1 to 5 pooled sample (post-stratified weights corrected for panel attrition).

Having defined social stratification in this way, we describe how these classes differ in terms of several relevant household- and individual-level characteristics (see Table 9 and Table 10). We find that chronically poor households tend to be disproportionately large and young. The concentration of South Africa's children in chronically poor households is particularly concerning, especially given that the mean consumption of these households is below the food poverty line—meaning that these households are struggling to meet their most basic caloric requirements and hence are at a high risk of malnourishment. The long-run risks for children in these households is substantial (Altman et al. 2009; Rose and Charlton 2002).

Chronically poor households are about twice as reliant on social grants as households in other classes, and much less reliant on income from the labour market. This reflects both the spatial markers of disadvantage, most of these households being concentrated in rural areas, and their structural exclusion from the labour market. These households are homogenously African, and household heads are poorly educated, 95 per cent having less than matric.

Table 9 and Table 10 illustrate that the transient poor are clearly distinct from the chronic poor. However, they are not as clearly distinct from the class above them—the vulnerable non-poor. In fact, the similarities in household- and individual-level characteristics between the transient poor

and vulnerable non-poor groups are striking. The households in these groups are similarly sized, rely heavily on the labour market for income (with 72.58 and 74.58 per cent, respectively, relying primarily on labour market income), are distributed geographically in similar proportions between rural and urban areas, have comparable levels of education, and are predominantly African (with a smaller share of coloured members).

Table 9: Average household characteristics by social class, 2008–2017

	Chronic poor	Transient poor	Vulnerable	Middle class	Elite	Total
Characteristics of the household (HH)						
Weighted share of respondents	48.79%	11.75%	15.09%	20.75%	3.62%	
Mean household expenditure per capita	517.77	745.13	2331.93	4536.20	25659.32	3765.76
Median household expenditure per capita	469.87	764.92	1804.97	3567.98	20556.23	1406.01
No. of members in HH	5.34	3.03	2.55	2.23	1.87	3.30
<i>Age composition</i>						
No. of children (<18 years)	2.50	0.95	0.74	0.53	0.22	1.19
No. of members in working age (18–60 years)	2.44	1.90	1.60	1.50	1.31	1.84
No. of elderly members (60+ years)	0.39	0.18	0.21	0.20	0.34	0.26
<i>Main source of income</i>						
Labour	41.02%	72.57%	74.58%	87.18%	84.81%	69.21%
Government grants	50.23%	18.36%	14.16%	3.97%	0.35%	21.21%
Remittances	6.51%	7.80%	8.86%	3.64%	1.19%	5.76%
Subsistence agriculture	0.26%	0.04%	0.11%	0.08%	0.02%	0.13%
Investments	1.84%	1.16%	1.79%	4.93%	13.63%	3.49%
Other	0.14%	0.07%	0.51%	0.20%	0.00%	0.20%
<i>Mean income from source</i>						
Labour	3326.16	4682.41	5366.17	13127.37	38223.13	10197.25
Government grants	1723.73	1138.51	1346.10	1456.27	1459.73	1531.09
Remittances	1493.51	1148.79	1747.26	2360.42	14413.17	2009.74
Subsistence agriculture	236.81	142.15	452.93	1301.08	1942.38	376.87
Investments	2083.96	2721.96	2904.47	14356.36	16086.26	11022.71
Other	1887.93	1138.60	4080.49	2377.57	2796.16	2463.98
<i>Access to services</i>						
House, cluster, town house	59.54%	60.29%	60.95%	64.88%	84.02%	63.18%
Tap water in house/on plot	56.65%	79.54%	75.23%	94.37%	98.39%	78.08%
Flush toilet in/outside house	30.46%	65.74%	58.19%	89.75%	97.38%	63.89%
Access to electricity	76.16%	83.81%	85.68%	94.14%	97.22%	86.13%
HH has basic needs satisfied (shelter/water/sanitation/electricity)	18.24%	42.12%	33.98%	57.13%	79.53%	40.91%
<i>Geographic location</i>						
Traditional	55.54%	20.55%	31.09%	7.47%	3.00%	27.35%
Urban	38.45%	74.19%	59.69%	89.79%	95.03%	67.54%
Farms	6.01%	5.26%	9.22%	2.75%	1.97%	5.11%

Notes: All monetary values are expressed in March 2017 rands.

^a Imputed rental income has been excluded. Government grants include (i) State Old Age Pension, (ii) Disability, (iii) Child Support, (iv) Foster Care, and (v) Care Dependency. Other income from government includes (i) Unemployment Insurance Fund and (ii) Workmen's Compensation. Investment income includes (i) interest/dividend income, (ii) rental income, and (iii) private pensions and annuities.

^b In line with the 2011 census, three settlement types are distinguished in NIDS: Urban—A continuously built-up area that is established through cities, towns, 'townships', small towns, and hamlets. Traditional—Communally owned land under the jurisdiction of traditional leaders; settlements within these areas are villages. Farms—Land allocated for and used for commercial farming including the structures and infrastructure on it. Those parts of the country falling under the jurisdiction of traditional authorities (or traditional chiefs) are considered as rural, mainly due to their lack of infrastructure due to past legacy.

Source: Authors' calculations using NIDS Waves 1 to 5 pooled sample (post-stratified weights corrected for panel attrition).

Table 10: Average characteristics of household head, by social class, 2008–2017

	Chronic poor	Transient poor	Vulnerable	Middle class	Elite	Total
Characteristics of the head of household (HoH)						
Age	49.79	39.39	40.41	42.41	49.00	44.28
Female	67.53%	46.71%	52.47%	31.34%	32.27%	47.89%
<i>Race</i>						
African	94.44%	86.39%	91.07%	66.23%	22.58%	78.89%
Coloured	5.56%	10.79%	8.69%	8.71%	5.58%	7.85%
Asian/Indian	0.00%	1.22%	0.20%	4.57%	6.46%	2.12%
White	0.00%	1.60%	0.05%	20.50%	65.38%	11.14%
<i>Education (average level if 25 years or older)</i>						
No schooling	25.14%	3.10%	9.14%	0.54%	0.36%	9.85%
Less than primary completed (grades 1 to 6)	28.54%	11.40%	18.85%	2.74%	0.93%	14.28%
Primary completed (grade 7)	11.03%	5.18%	9.01%	2.35%	1.39%	6.40%
Secondary not completed (grades 8 to 11)	32.26%	49.57%	49.19%	33.94%	11.66%	36.37%
Secondary completed (grade 12)	2.82%	18.85%	11.07%	23.79%	18.06%	14.26%
Tertiary	0.22%	11.91%	2.75%	36.64%	67.59%	18.84%
<i>Employment status</i>						
Inactive	54.96%	27.27%	29.02%	18.97%	22.47%	32.85%
- of which pensioners	33.55%	19.49%	25.59%	32.97%	39.12%	30.98%
Unemployed (discouraged)	3.50%	1.72%	1.60%	1.18%	0.72%	2.00%
Unemployed (strict)	10.48%	17.91%	11.98%	4.72%	1.33%	9.30%
Employed	31.06%	53.11%	57.41%	75.13%	75.48%	55.85%
- of which share with more than one economic activities	6.18%	5.77%	6.37%	5.65%	10.88%	6.27%
<i>Employment type (if employed)</i>						
Employee	52.36%	78.55%	64.86%	89.58%	79.24%	76.79%
- of which share in formal sector	51.96%	72.52%	62.49%	91.83%	93.92%	80.56%
- of which share with permanent contract	36.94%	52.79%	37.00%	75.71%	83.05%	63.02%
- of which share member in trade union	7.14%	30.30%	11.10%	48.49%	31.40%	34.48%
Self-employed	17.65%	13.77%	15.58%	8.74%	19.60%	12.90%
- of which share in formal sector	1.38%	8.26%	3.52%	46.47%	73.98%	24.68%
Casual worker/helping others	22.77%	6.97%	18.18%	1.30%	0.88%	8.58%
Subsistence agriculture	7.22%	0.70%	1.38%	0.38%	0.27%	1.74%

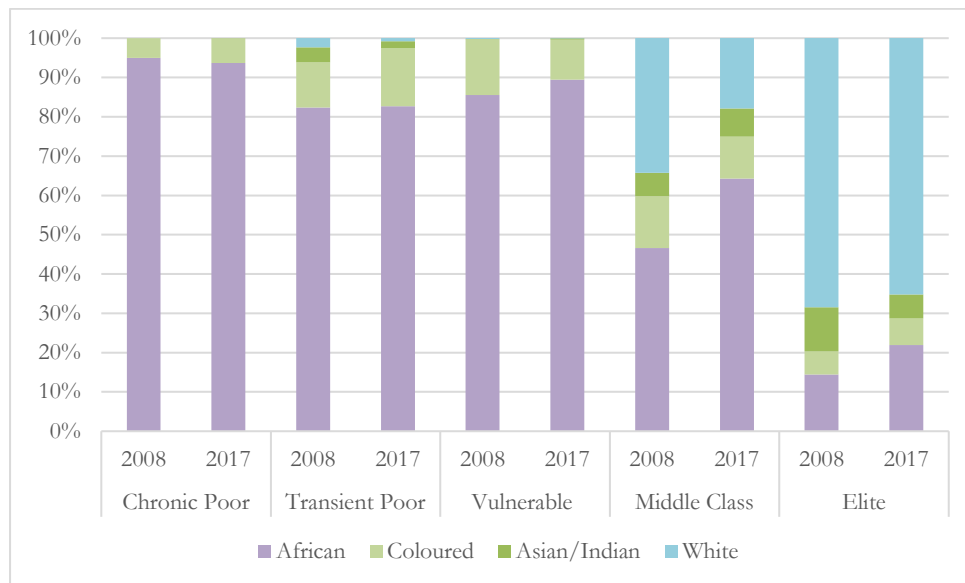
Source: Authors' calculations using NIDS Waves 1 to 5 pooled sample (post-stratified weights corrected for panel attrition).

The one exception to these similarities—the difference in mean consumption between these groups—is equally striking. The mean consumption of these groups differs dramatically, at R745.13 mean per capita expenditure among the transient poor compared with R2,331.93 among the vulnerable. The fact that these differences in observed income/expenditure are not reflected in differences in household and individual characteristics simply reflects the fact that, for these households, expenditure levels at any one point in time are highly volatile and difficult to sustain. As discussed elsewhere (Schotte et al. 2018b; Zizzamia 2018), this volatility in consumption is driven primarily by the highly tenuous attachment to the labour market and the lack of effective risk management mechanisms available to these households.

These observations serve to reinforce a point made throughout this paper—that in a context of high levels of economic precariousness even among the non-poor, distinctions between the poor and non-poor may be less meaningful from a dynamic perspective than is typically assumed. In other words, we may think of these households as being structurally similar, and only stochastically distinct in terms of their observed income/consumption.

A strength of our schema is that it allows us to distinguish a middle class which is *structurally* distinct from the vulnerable non-poor. Table 9 and Table 10 confirm this: Compared with transient poor and vulnerable households, middle-class households are smaller, have fewer children, have more workers, rely more heavily on income from the labour market and less on social grants, and are located almost entirely in urban areas. While approximately half of all middle-class households are African, whites are represented disproportionately high in the middle class relative to their population share, one in three middle-class households being white. At the same time, Figure 3 illustrates that there has been rapid growth in the African middle class in the last decade: in 2008 only 47 per cent of the middle class was African, compared with 64 per cent in 2017.

Figure 3: Racial composition of South Africa's social classes, 2008 and 2017



Source: Authors' calculations using NIDS Waves 1 to 5 pooled sample (post-stratified weights).

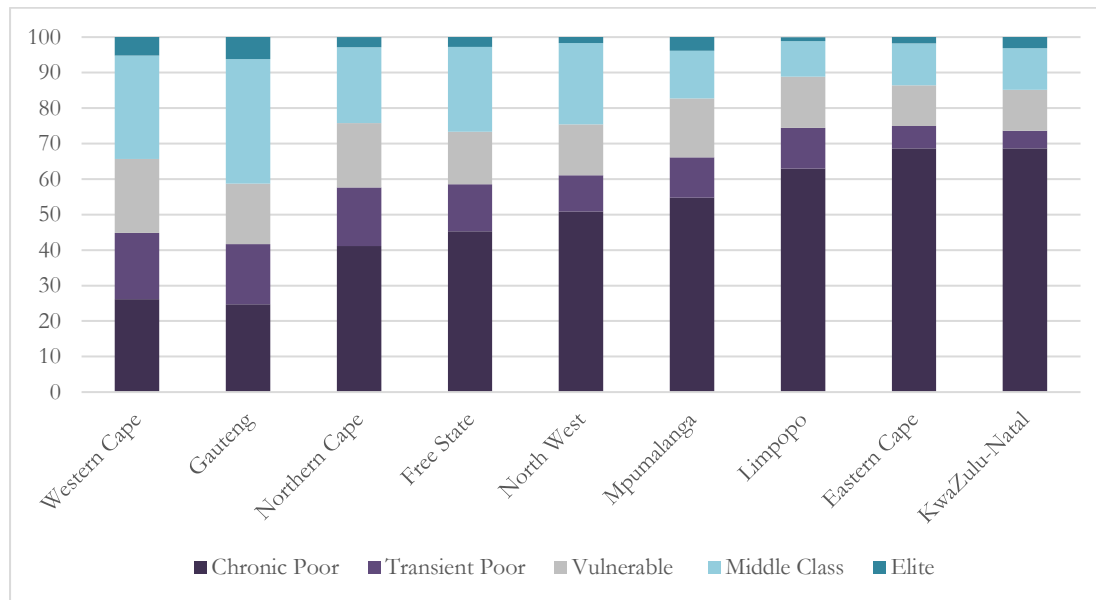
Two-thirds of middle-class household heads are educated at matric level or higher, and three-quarters are employed, typically as formal sector employees. Because of the higher quality and stability of their insertion into the labour market and their superior levels of human capital, middle-class households earn on average twice as much from the labour market as households in the vulnerable class (R5,366.17 compared with R13,127.37), and are much more likely to be able to sustain this income.

As expected in a high-inequality context like South Africa, the elite are distinct from the rest of the population. Their income/consumption is of an order of magnitude higher even than the middle class, households are smaller and more homogeneously white (although with some growth in the African share of the elite between 2008 and 2017, from 14 per cent to 22 per cent), and among household heads, tertiary education and formal employment is the norm. The elite is homogeneously urban-based. While NIDS data are not well suited to measuring wealth, in line with recent literature (Bassier and Woolard 2018; Orthofer 2016), it is also worth noting the substantial share of income the elite derives from capital investments.

In terms of geographical distribution, among South Africa's nine provinces, KwaZulu-Natal has the highest incidence of chronic poverty and the second smallest middle class after Limpopo (Figure 4). However, KwaZulu-Natal also has the fourth largest elite (after Gauteng, the Western Cape, and Mpumalanga), indicating a substantial degree of socio-economic inequality and polarization in this province. Chronic poverty is lowest in Gauteng and the Western Cape—which are also the two provinces with the largest middle class and elite. These differences are closely

related to urban/rural divisions, the majority of KwaZulu-Natal’s population living in traditional areas, while Gauteng and the Western Cape, in contrast, have the highest proportion of urban residents. While vulnerability is substantial in all provinces, including those provinces with low levels of chronic poverty, we observe a negative relationship between the extent of chronic and transient poverty across the provinces (Figure 4).

Figure 4: Geographic distribution of South Africa's social classes, 2008–2017



Source: Authors' calculations using NIDS Waves 1 to 5 pooled sample (post-stratified weights).

The nature of labour market insertion is a key distinguishing factor between classes—but also allows us to highlight relevant similarities between classes. Conditional on being employed, we differentiate between five types of employment: employment with a permanent work contract, employment with a temporary or time-limited work contract, self-employment, casual work, and subsistence agriculture. Figure 5 illustrates the distribution of these employment categories across the classes.

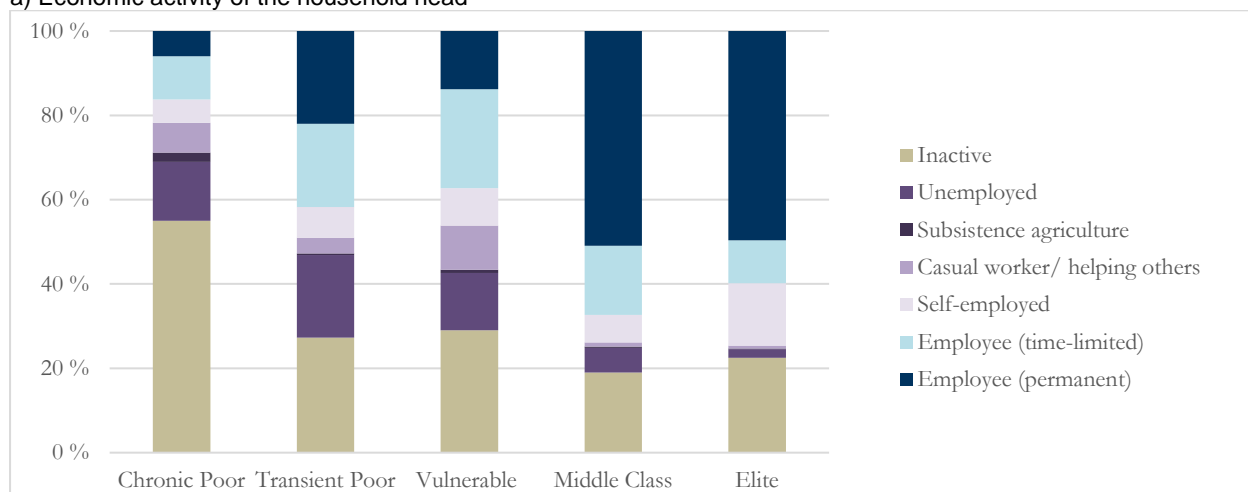
Chronically poor adults (and, to a lesser extent, transient poor and vulnerable adults) are far more likely to be economically inactive or unemployed than those in the middle class and elite. As expected, precarious forms of work such as casual employment and employment without a permanent work contract make up the largest share of jobs among the poor and vulnerable, while among the middle class and elite 80 per cent of all household heads who are employed have a permanent contract.

Differences in occupations across the classes reflect class differences in human capital, household heads of chronically poor households being most likely to be employed in elementary occupations. Elementary occupations and service and sales occupations also dominate among household heads in transient poor and vulnerable households. As expected, white-collar occupations are most common in middle-class and elite households.

Interestingly, across all classes, the closest similarities in terms of labour market insertion are between the transient poor and vulnerable non-poor—again affirming the structural affinity between these classes straddling the poverty line.

Figure 5: Social classes in the labour market, 2008–2017

a) Economic activity of the household head



b) Occupation of the household head (employees only)



Note: Figures represent employment status and occupational category of heads of households.

Source: Authors' calculations using NIDS Waves 1 to 5 pooled sample (post-stratified weights).

7 Conclusions

Unlike cross-sectional studies, the insight that longitudinal surveys can give into economic mobility allows us to understand not only how markers of (dis)advantage are consequential in determining material conditions in the present, but also how these markers structure economic opportunity over time. Poverty is experienced not only *in* time but also, crucially, *over* time. In this paper we show that this dynamic element—the risk of falling into (deeper) poverty and the ambition of moving up—looms large in the economic lives of both the poor and the non-poor in South Africa.

We update the results of Finn and Leibbrandt (2017) and Schotte et al. (2018a) with Wave 5 of NIDS data to provide a thorough and up-to-date analysis of poverty dynamics in South Africa between 2008 and 2017. This analysis focuses on the correlates of transitions into and out of poverty, and investigates how multidimensional inequalities in terms of household- and individual-level characteristics relate to both poverty persistence and vulnerability to poverty. We also update

the analysis of Schotte et al. (2018b) using NIDS Wave 5 data so as to directly link the dynamic study of poverty to the dynamic study of inequality through the lens of social stratification.

Five main empirical findings emerge from this analysis:

- First, in line with the earlier findings by Schotte et al. (2018b), we show that the share of South Africans who can be considered as stably middle class or elite—at 24.4 per cent on average between 2008 and 2017—is considerably smaller than most studies relying on less demanding, statically defined class criteria suggest.
- Second, we find that the transient poor and the vulnerable, at 26.8 per cent, constitute a considerable share of South Africa’s population. Interestingly, these two groups who straddle the poverty line are strikingly similar in terms of their average household characteristics. We argue that they differ from both the chronically poor and the stable middle class and elite not only in terms of household characteristics, but likely also in policy needs. In this regard, the perspective that our social-stratification schema affords us is valuable in that it challenges the meaningfulness, in a dynamic sense, of the standard division of society into poor and non-poor groups.
- Third, the number of household members in employment and, in particular, their employment status and type of employment are revealed to be key determinants of resilience or vulnerability to poverty. Specifically, households which are resilient to poverty (i.e. the middle class and elite) have household heads who are formally employed with a permanent work contract and with union coverage. Among those facing greater vulnerability, in contrast, unstable and informal employment relationships dominate and a larger share is either unemployed or economically inactive. From this we conclude that closing the skills gap and increasing both the quantity and quality of jobs will remain central challenges that South Africa’s government and the social partners will need to address in order to lift larger parts of the population into the middle class and prevent backslides into poverty. At the same time, for the foreseeable future many vulnerable households will not be on this positive trajectory. Explicit policy attention needs to be devoted to understanding and supporting those working in more precarious forms of work so as to raise the stability, productivity, and real earnings of their work, too.
- Fourth, the substantial extent of churn around the poverty line notwithstanding, poverty experienced as a persistent state still dominates the overall poverty landscape. In country contexts marked by enduringly high socio-economic inequality, like South Africa, despite the gains in tackling chronic poverty, policymakers should not lose sight of the large share of the population that remains locked in persistent poverty with very low chances of being fruitfully integrated into the labour market. In addition to the provision of basic services that ensure that this group’s health, education, and nutritional needs are met, social transfers will remain an indispensable source of income for many of the chronic poor.
- Finally, there is indicative evidence that the poor (and the vulnerable non-poor) are not only more exposed to several risk factors but, in addition, seem disproportionately deprived in terms of their access to effective formal and informal insurance mechanisms to confront these socio-economic risks. This higher risk exposure and inadequacy of existing coping strategies gives scope for targeted social protection interventions. However, to fill this space, policymakers will require a closer investigation into how social stratification is related to the distribution, frequency, and intensity of poverty-triggering events, on the one hand, and access to coping mechanisms, on the other.

A take-away from the above findings is that the most relevant distinction, from a policy perspective, may be between the chronic poor, on the one hand, and the transient poor and vulnerable, on the other, rather than between the poor and non-poor. It is the chronic poor who

are trapped in poverty, while the transient poor and vulnerable are more likely to experience poverty as a temporary state. While social grants are key to the survival of the chronic poor, they do not address the structural barriers to upward mobility. In this sense, creating opportunities for breaking these structural barriers will be imperative for dealing with chronic poverty. These may include facilitating migration as a way of accessing markets and services unavailable in rural areas, or targeting such groups with policies directed at changing the spatial distribution of economic opportunities so as to improve access to these opportunities within impoverished areas. For the transient poor/vulnerable, on the other hand, addressing labour market frictions and strengthening labour regulation and support for formal and informal small enterprises may improve employment prospects and employment quality. This group also stands to benefit from the provision of insurance mechanisms, which may help buffer shocks in the short and medium term, in turn facilitating upward structural mobility into the stable middle class in the longer run.

The approaches that we apply in this paper provide a bridge between the study of poverty over time and patterns of social stratification. Considering this analysis as a stepping stone, we believe that there is a need for future research that can provide stronger links—both theoretical and empirical—between the analysis of poverty dynamics and the study of inequality more broadly. With this in mind, we now highlight several open questions and potential avenues for further studies.

Given the analytic and policy benefits of a poverty dynamics lens on understanding stratification across the distribution, the first challenge consists in investigating innovative ways of translating these dynamics into an indicator which can be expressed more simply and intuitively. This will ensure a basis of comparability across both place and time. Schotte et al.'s (2018b) approach, which uses a predictive model of poverty risks to link the definition of social strata to an in-depth analysis of poverty transition, provides an important step in this direction. However, one of the main limitations of this approach consists in the specification of the probability thresholds, which separate the chronic poor from the transient poor, and the vulnerable from the stable middle class. These thresholds rely on the estimation of a panel data model in the individual country-specific context and will depend on the period under study, since the chances of upward and downward social mobility change over time.

Second, there is a need for excellent theoretical and methodological research on the dynamics of social inequalities, where best-practice approaches remain to be explored. A number of previous economic studies suggest estimating a dynamic measure of inequality by calculating the Gini coefficient (and/or other standard inequality indices) using an intertemporal income or consumption average. If households are able to smooth their income or consumption over time, this dynamic measure is going to return a lower level of inequality than would have been obtained using a static measure (Finn and Ranchhod 2017). On the other hand, a number of studies in the social sciences as well as in the psychology and health literature have shown that a situation of vulnerability and economic instability can be welfare-reducing, even if the expected drop in welfare does not materialize (Cafiero and Vakis 2006; Dercon 2006). In this sense, economic insecurity not only presents a source of considerable discomfort and bears the risk of negative psychological and health effects (Cafiero and Vakis 2006), but also tends to affect people's economic choices. An important example, which has been observed elsewhere in the world (Cafiero and Vakis 2006; Dercon 2006), is that of a low-income trap created when the vulnerable, in order to minimize risks, engage in economic activities that are low-risk and guarantee-constant, but low-return. Dynamic studies of inequality may want to take these factors into consideration.

A final issue which is worth flagging and which will require further research is the lack of engagement in our work thus far with top incomes and with wealth inequality—issues which are quickly becoming central in inequality research in South Africa (Bassier and Woolard 2018;

Orthofer 2016; Wittenberg 2017). Insofar as our approach here is focused on patterns of mobility into and out of poverty, less attention is being paid to the main determinants that differentiate the stable middle class and the elite. This is due not only to the poverty and vulnerability focus of this work; it is due also to a common limitation in existing income mobility research based on survey data; namely, the under-coverage of top incomes in household surveys (see, for example, Atkinson et al. 2011). As Bassier and Woolard (2018) highlight and as we have noted in earlier work (Zizzamia et al. 2016), distributional patterns of growth are increasingly leading to a divergence between the top 5 per cent of the income distribution and the rest. Accounting for this defining element of economic inequality remains out of reach of our approach as it currently stands, but it will be an important perspective to incorporate in future research.

References

- Adato, M., M.R. Carter, and J. May (2006). 'Exploring poverty traps and social exclusion in South Africa using qualitative and quantitative data'. *The Journal of Development Studies*, 42(2): 226–47.
- Adato, M., F. Lund, and P. Mhlongo (2007). 'Methodological innovations in research on the dynamics of poverty: A longitudinal study in KwaZulu-Natal, South Africa'. *World Development*, 35(2): 247–63.
- Aliber, M. (2003). 'Chronic poverty in South Africa: Incidence, causes and policies'. *World Development*, 31(3): 473–90.
- Alkire, S., and J. Foster (2011). 'Counting and multidimensional poverty measurement'. *Journal of Public Economics*, 95(7): 476–87.
- Altman, M., T.G. Hart, and P.T. Jacobs (2009). 'Household food security status in South Africa'. *Agrekon*, 48(4): 345–61.
- Atkinson, A.B., T. Piketty, and E. Saez (2011). 'Top incomes in the long run of history'. *Journal of Economic Literature*, 49(1): 3–71.
- Bassier, I., and I. Woolard (2018). 'Exclusive growth: Rapidly increasing top incomes amidst low national growth in South Africa'. REDI3x3 Working Paper 47. Cape Town: Research Project on Employment, Income Distribution and Inclusive Growth.
- Bigsten, A., and A. Shimeles (2004). 'Dynamics of poverty in Ethiopia'. Research Paper 2004/39. Helsinki: UNU-WIDER.
- Brooks-Gunn, J., and G.J. Duncan (1997). 'The effects of poverty on children'. *The Future of Children*, 7(2): 55–71.
- Budlender, J., M. Leibbrandt, and I. Woolard (2015). *South African poverty lines: A review and two new money-metric thresholds*. SALDRU Working Paper 151. Cape Town: Southern Africa Labour and Development Research Unit.
- Burger R., C. McAravey, and S. Van der Berg (2015). *The capability threshold: Re-examining the definition of the middle class in an unequal developing country*. Stellenbosch Economic Working Paper 16/15. Department of Economics, Stellenbosch University.
- Cafiero, C., and R. Vakis (2006). *Risk and vulnerability considerations in poverty analysis: Recent advances and future directions*. Social Protection Discussion Paper 0610. Washington, DC: World Bank.
- Carter, M., and J. May (2001). 'One kind of freedom: Poverty dynamics in post-apartheid South Africa'. *World Development*, 29(12): 1987–2006.
- Cappellari, L., and S.P. Jenkins (2002). 'Who stays poor? Who becomes poor? Evidence from the British Household Panel Survey'. *The Economic Journal*, 112(478): C60–C67.
- Cappellari, L., and S.P. Jenkins (2004). 'Modelling low-income transitions'. *Journal of Applied Econometrics*, 19(5): 593–610.
- Cappellari, L., and S.P. Jenkins (2008). 'Estimating low pay transition probabilities accounting for endogenous selection mechanisms'. *Journal of the Royal Statistical Society, Series C (Applied Statistics)*, 57(2): 165–86.
- Corral Rodas, P.A., V. Molini, and G.O. Siwatu (forthcoming). 'No condition is permanent: Middle class in Nigeria in the last decade'. *Journal of Development Studies*.
- De Vreyer, P., and S. Lambert (2018). 'By ignoring intra-household inequality, do we underestimate the extent of poverty?' PSE Working Paper 2018-12. Paris: Paris School of Economics.

- Deaton, A. (1997). *The analysis of household surveys: A microeconomic approach to development policy*. Washington, DC: World Bank Publications.
- Dercon, S. (2001). *Assessing vulnerability*. Oxford: Jesus College and CSAE, Department of Economics, Oxford University.
- Dercon, S. (2006). ‘Vulnerability: A micro perspective’. QEH Working Paper 149. Oxford: Department of International Development, University of Oxford.
- Finn, A., and M. Leibbrandt (2013). ‘The dynamics of poverty in the first three waves of NIDS’. SALDRU Working Paper 119/NIDS Discussion Paper 2013/1. Cape Town: Southern Africa Labour and Development Research Unit, University of Cape Town.
- Finn, A., and M. Leibbrandt (2017). ‘The dynamics of poverty in the first four waves of NIDS’. SALDRU Working Paper 174/NIDS Discussion Paper 2016/1. Cape Town: Southern Africa Labour and Development Research Unit, University of Cape Town.
- Finn, A., and V. Ranchhod (2017). ‘Short-run differences between static and dynamic measures of earnings inequality in South Africa’. REDI3x3 Working Paper 35. Cape Town: The Research Project on Employment, Income Distribution and Inclusive Growth.
- Finn, A., S. Franklin, M. Keswell, M. Leibbrandt, and J. Levinsohn (2009). *Expenditure: Report on NIDS Wave 1. National Income Dynamics Study Technical Paper, 4*. Cape Town: Southern Africa Labour and Development Research Unit.
- Finn, A., M. Leibbrandt, and J. Levinsohn (2014). ‘Income mobility in a high-inequality society: Evidence from the first two waves of the National Income Dynamics Study’. *Development Southern Africa*, 31(1): 16–30.
- Foster, J. (2009). ‘A class of chronic poverty measures’. In T. Addison, D. Hulme, and R. Kanbur (eds), *Poverty dynamics: Interdisciplinary perspectives*, pp. 59–76. Oxford: Oxford University Press.
- Foster, J., J. Greer, and E. Thorbecke (1984). ‘A class of decomposable poverty measures’. *Econometrica: Journal of the Econometric Society*, 52(3): 761–66.
- Hoddinott, J., and A. Quisumbing (2003). ‘Methods for microeconomic risk and vulnerability assessments’. Social Protection Discussion Paper 0324. Washington, DC: World Bank.
- Jenkins, S. (2011). *Changing fortunes: Income mobility and poverty dynamics in Britain*. Oxford: Oxford University Press.
- Klasen, S., and H. Waibel (eds) (2013). *Vulnerability to poverty: Theory, measurement and determinants, with case studies from Thailand and Vietnam*. Palgrave Macmillan.
- Leibbrandt, M., I. Woolard, A. Finn, and J. Argent (2010). ‘Trends in South African income distribution and poverty since the fall of apartheid’. OECD Working Paper 101. Paris: Organisation for Economic Co-operation and Development.
- López-Calva, L.F., and E. Ortiz-Juárez (2014). ‘A vulnerability approach to the definition of the middle class’. *Journal of Economic Inequality*, 12(1): 23–47.
- Meth, C. (2016). ‘Some Alkire-Foster (AF) global multi-dimensional poverty indexes (MPIs) are flawed – South Africa’s are garbage’. Monograph submitted to the South African National Statistics Council and the Oxford Poverty & Human Development Initiative (OPHI). Presented at SALDRU, 2 November.
- Orthofer, A. (2016). *Wealth inequality in South Africa: Evidence from survey and tax data*. REDI3x3 Working Paper 15. Cape Town: Research Project on Employment, Income Distribution and Inclusive Growth.

- Rose, D., and K.E. Charlton (2002). 'Prevalence of household food poverty in South Africa: results from a large, nationally representative survey'. *Public Health Nutrition*, 5(3): 383–89.
- SALDRU (2018a). National Income Dynamics Study 2008, Wave 1 [dataset]. Version 5.3. Cape Town: SALDRU [producer]; DataFirst [distributor].
- SALDRU (2018b). National Income Dynamics Study 2010–2011, Wave 2 [dataset]. Version 2.3. Cape Town: SALDRU [producer]; DataFirst [distributor].
- SALDRU (2018c). National Income Dynamics Study 2012, Wave 3 [dataset]. Version 1.3. Cape Town: SALDRU [producer]; DataFirst [distributor].
- SALDRU (2018d). National Income Dynamics Study 2014–2015, Wave 4 [dataset]. Version 1.0. Cape Town: SALDRU [producer]; DataFirst [distributor]; Pretoria: Department of Planning Monitoring and Evaluation [commissioner].
- SALDRU (2018e). National Income Dynamics Study 2017, Wave 5 [dataset]. Version 1.0.0. Pretoria: Department of Planning, Monitoring, and Evaluation [funding agency]; Cape Town: Southern Africa Labour and Development Research Unit [implementer]; Cape Town: DataFirst [distributor].
- Schotte, S., R. Zizzamia, and M. Leibbrandt (2018a). 'Assessing the extent and nature of chronic poverty, poverty dynamics, and vulnerability to poverty in South Africa'. Unpublished World Bank Technical Background Paper contributed to South African Poverty and Inequality Assessment Report.
- Schotte, S., R. Zizzamia, and M. Leibbrandt (2018b). 'A poverty dynamics approach to social stratification: The South African case'. *World Development*, 110: 88–103.
- Sen, A. (1999). *Development as freedom*. New York: Oxford University Press.
- Stats SA (2017). 'Poverty trends in South Africa: An examination of absolute poverty between 2006 and 2015'. Report 03-10-06. Pretoria: Statistics South Africa.
- Wittenberg, M. (2017). 'Measurement of earnings: Comparing South African tax and survey data'. REDI3x3 Working Paper 41. Cape Town: The Research Project on Employment, Income Distribution and Inclusive Growth.
- Woolard, I., and S. Klasen (2005). 'Determinants of income mobility and household poverty dynamics in South Africa'. *Journal of Development Studies*, 41(5): 865–97.
- Woolard, I., and M. Leibbrandt (2006). 'Towards a poverty line for South Africa: Background note'. SALDRU Background Note. Cape Town: Southern Africa Labour and Development Research Unit, University of Cape Town.
- Zizzamia, R. (2018). 'Is employment a panacea for poverty in South Africa? A mixed-methods investigation'. SALDRU Working Paper 229. Cape Town: Southern Africa Labour and Development Research Unit, University of Cape Town.
- Zizzamia, R., S. Schotte, M. Leibbrandt, and V. Ranchhod (2016). 'Vulnerability and the middle class in South Africa'. SALDRU Working Paper 188/NIDS Discussion Paper 2016/15. Cape Town: Southern Africa Labour and Development Research Unit, University of Cape Town.

Appendix

Table A1: Representativeness of panel—% poor and mean expenditure of panel vs cross-section

		Wave 1		Wave 5		Real wage growth
		<i>Cross-section</i>	<i>Balanced panel</i>	<i>Cross-section</i>	<i>Balanced panel</i>	<i>Cross-section</i>
Total	% poor	61.96%	64.91%	52.23%	51.34%	
	Ave. p.c. expenditure	2,452.346	1,899.253	3,027.143	2,360.003	2.37%
African	% poor	72.34%	69.83%	59.12%	56.44%	
	Ave. p.c. expenditure	1,292.969	1,345.556	1,889.206	1,826.745	4.30%
Less than matric	% poor	70.56%	73.17%	62.01%	62.25%	
	Ave. p.c. expenditure	1,552.586	1,149.503	1,781.355	1,385.001	1.54%
Matric	% poor	39.23%	51.29%	34.46%	40.80%	
	Ave. p.c. expenditure	3,930.486	2,676.179	4,124.481	2,928.45	0.54%
Tertiary	% poor	15.15%	24.54%	14.08%	19.60%	
	Ave. p.c. expenditure	8,743.679	6,341.585	9,021.342	5,506.569	0.35%
Youth (16-24)	% poor	66.45%	76.29%	45.50%	53.00%	
	Ave. p.c. expenditure	1,949.886	1,039.078	2,469.006	1,946.273	2.66%
Prime (25-49)	% poor	52.39%	58.96%	44.79%	49.13%	
	Ave. p.c. expenditure	2,966.045	2,005.545	2,687.754	2,417.204	-1.09%
Older (50-64)	% poor	51.43%	61.83%	56.34%	54.56%	
	Ave. p.c. expenditure	4,105.684	2,816.608	2,555.607	2,887.411	-5.13%
Female	% poor	64.65%	69.21%	55.68%	56.45%	
	Ave. p.c. expenditure	2,324.362	1,671.059	2,720.612	2,119.373	1.76%
Male	% poor	59.11%	57.22%	48.66%	42.74%	
	Ave. p.c. expenditure	2,588.357	2,307.271	3,343.808	2,764.437	2.89%
Rural	% poor	87.19%	84.82%	78.20%	73.75%	
	Ave. p.c. expenditure	734.4184	799.8068	995.9103	1,099.832	3.44%
Urban	% poor	46.33%	50.31%	38.83%	38.63%	
	Ave. p.c. expenditure	3,540.29	2,722.961	4,111.843	3,125.384	1.68%

Notes:

a) Cross-sectional cell proportions weighted using post-stratified weights, balanced panel cell proportions weighted using Wave 5 panel weights.

b) Age variables defined in Wave 1 (2008) with 'Youth' identifying those aged 16–24 in 2008, 'Prime' identifying those aged 25–49 in 2008, and 'Older' identifying those aged 50–64 in 2008. Thus, these categories are dynamic, with 'Youth' identifying those aged 24–33 in 2017, 'Prime' identifying those aged 34–58 in 2017, and 'Older' identifying those aged 59–73 in 2017.

c) Monetary figures are expressed in March 2017 rand values.

d) 'Rural' refers to communally owned land under the jurisdiction of traditional leaders, defined as 'traditional' land in the 2011 Census.

Source: Authors' calculations.