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ORIGINAL ARTICLE

Snakes and ladders and loaded dice: Poverty dynamics and inequality in South Africa between 2008 and 2017

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Abstract

Longitudinal surveys allow us to understand how markers of (dis)advantage determine present material welfare and economic upward or downward mobility over time. In this paper, we use five waves of panel data to empirically assess the extent and dynamics of poverty in South Africa between 2008 and 2017. Investigating the correlates of poverty entries and exits, we analyse how multidimensional inequalities in terms of household- and individual-level characteristics relate to these dynamics and identify markers of vulnerability. We utilise these markers to classify the South African population into five strata characterised by their present and future risk to poverty.

JEL CLASSIFICATION

I32, I3, J62

1 | INTRODUCTION

In a world of risk and uncertainty, poverty is experienced as a game of snakes and ladders. People move into and out of poverty over time, remain trapped in poverty or succeed in keeping their heads above water. Although some element of luck is involved, this is not a game of simple chance. Markers of advantage and disadvantage—such as race, education, parental background or geographic location—have loaded the dice in favour of some individuals compared with others.

Even though poverty is a dynamic and evolving phenomenon, with a past and a future, due to data limitations, most poverty analyses conducted in developing country contexts rely on cross-sectional surveys. Offering static snapshot assessments, these analyses remain blind to the ‘snakes’ that lead households or individuals to fall into poverty, the ‘ladders’ that facilitate poverty escapes and the contextual factors that condition these transitions. Importantly, the experience of poverty itself may constrain the opportunities available to a household and its economic choices, thus contributing to the persistence of poverty over time.

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In this study, we assess the extent and dynamics of poverty in South Africa from 2008 and 2017, using data from the National Income Dynamics Study—one of the few long-running nationally representative panel studies available in developing countries. In doing so, the paper expands on an established body of research on poverty dynamics by ourselves and other scholars in the South African context (Adato, Carter, & May, 2006; Adato, Lund, & Mhlongo, 2007; Aliber, 2003; Burger, McAravey, & van der Berg, 2017; Carter & May, 2001; Finn & Leibbrandt, 2013; Finn & Leibbrandt, 2017; Finn, Leibbrandt, & Levinsohn, 2014; Leibbrandt et al., 2010; Schotte, Zizzamia, & Leibbrandt, 2017, 2018; Stats SA, 2017; Woolard & Klasen, 2005; Zizzamia et al., 2016). Using the latest available data and bringing together a wide set of approaches, to our knowledge, this study provides the most up to date and comprehensive assessment of poverty dynamics in South Africa.

Our contribution evolves around three core dimensions:

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. Because persistent poverty and transient poverty represent distinctly different experiences that pose different challenges and needs, understanding the correlates of persistent versus transient poverty is essential for designing effective policy tools to target poverty alleviation measures appropriately.
b. Vulnerability: Being able to meet one’s basic needs in the present is not a sufficient condition to remaining out of poverty over time. Importantly, some non-poor households are at higher risk of falling into poverty than others, particularly in the event of adverse shocks against which they are unable to insure themselves adequately. By adopting a dynamic perspective, we are able to identify and characterise this group of *non-poor but vulnerable* households. Our analysis exposes key markers defining this state of economic precariousness, which is easily overlooked in simple poor/non-poor comparisons.
c. The stable middle class: Complementarily, the defined vulnerability criterion also allows us to identify those households who are non-poor in the present and have access to the human, economic and social capital that allows them to sustain this position over time. In previous work, we have termed this group as the ‘stable middle class’. We highlight the markers of economic stability that distinguish this group from the non-poor but vulnerable.

To assess poverty dynamics in South Africa along these three core dimensions, we combine a broad set of analytical tools: In the first part that studies the persistence of poverty, transition matrices are used to investigate the extent of mobility into and out of poverty between survey waves. In addition, we assess the accumulation of poverty spells in an individual’s poverty history across different population subgroups using a poverty spells approach. In the second part that investigates the markers of poverty vulnerability, observed characteristics of the household, the head of household and the individual are examined to identify the correlates of transitions into and out of poverty. The adopted multivariate probit model accounts for potential endogeneity arising from unobserved heterogeneity, initial conditions and selective attrition. Moreover, we descriptively assess the extent to which trigger events can be associated with entries into poverty. In the third part of the analysis that focuses on the stable middle class, we combine information on a household’s current and predicted future poverty status to identify, characterise and track the evolution of five social classes in South Africa, using the stratification schema originally suggested by Schotte et al. (2018).

Three main findings emerge. First, poverty is widespread and highly persistent in South Africa, with half of the population being trapped in chronic poverty. Poverty persistence can be associated with multidimensional deprivation in terms of education and employment opportunities interlinked with exclusion on the grounds of gender, race and locational disadvantage. Second, economic volatility constrains sustained poverty escapes and upward mobility. Adverse shocks can propel those who are just making ends meet into deep poverty, and their often insecure and unstable position in the labour market constitutes a key risk factor in this regard. Third and interrelatedly ‘good jobs’ are the dominant marker of economic stability in South Africa. Resilience to poverty is highest among those who derive their household income from secure jobs in the formal wage sector. Accordingly, closing the skills gap and increasing both the quantity and quality of jobs are identified as central challenges to be addressed in order to lift larger parts of the population into the stable middle class and prevent backslides into poverty. At the same time, 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.

Previous work in this field has focused either on a descriptive analysis of poverty dynamics (Aliber, 2003; Carter & May, 2001; Finn et al., 2014; Finn & Leibbrandt, 2013; Finn & Leibbrandt, 2017; Woolard & Klasen, 2005) or on the application of tools of poverty dynamics research to the conceptualisation and measurement of social stratification (Schotte et al., 2018; Zizzamia et al., 2016). This paper brings these two strands of research into conversation by providing an in-depth analysis of poverty dynamics using the latest available data and interpreting these results through the lens of the schema of social stratification first proposed by Schotte et al. (2018).

The remainder of this paper is structured as follows: Section 2 provides a brief description of the data and methods used for the analysis presented in this paper. Section 3 presents the results. It presents evidence on the duration and persistence of poverty, the correlates of poverty transitions and markers of vulnerability, and traces size and characteristics of the stable middle class in South Africa over the study period. The final section concludes.

2 | DATA AND METHODOLOGY

2.1 | Data source and variable definitions

This paper uses data from the National Income Dynamics Study (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. There are five waves of data available spanning the 9 years from 2008 to 2017, with each wave of data spaced approximately 2 years apart (SALDRU, 2018a, 2018b, 2018c, 2018d, 2018e).

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, denoted by $t-1$ and t, such that the analysis of changes over time represent changes between 2008 to 2010/11, 2010/11 to 2012, 2012 to 2014/15 and 2014/15 to 2017 respectively, controlling for period-specific changes (fixed effects). Only when looking at the accumulation of poverty spells over the full period in Section 3, we reduce the sample to the balanced panel of 15,673 respondents who were successfully observed in all five survey waves.

In this paper, we understand poverty as a state of economic deprivation in which basic needs remain unmet. The official poverty lines in South Africa are constructed by Statistics South Africa (Stats SA) using a cost-of-basic-needs approach. We classify households as poor if their per capita household consumption expenditure in time t, c_t, falls below Stats SA's upper bound poverty line (UBPL) set at R1,136 per person per month in March 2017 Rands.[1] The UBPL reflects the average estimated cost of a consumption basket that is deemed to be adequate, with respect to both food and non-food components, and is the focus of our analysis.[2] In addition, to reflect the depth of poverty that has particular relevance in the analysis of poverty persistence, extreme poverty (or 'food poverty') refers to those households falling below Stats SA's food poverty line (FPL) set at R515. The FLP captures the level of consumption below which individuals are unable to purchase sufficient food to fulfil their caloric requirements, even if all expenditure is dedicated to food.[3]

In deriving the national poverty lines, Stats SA uses a combination of recall and diary methods to collect data from sampled households that are fairly representative of national consumption patterns and levels at common prices (Stats SA, 2017, 2019). Consistent with this approach, in line with established precedent in the South African microeconomics literature (see Budlender, Leibbrandt, & Woolard, 2015), we use per capita household expenditure as the relevant measure of economic welfare approximating permanent household income.[4] Although per capita measures risk overcounting the welfare impact of adding an additional member to a household, the defined poverty measures are derived based on consumption patterns observed at the household level and thus at least partly account for the composition of households, especially those close to the poverty line. Therefore, adjusting expenditure for adult equivalents and economies of scale may lead to overadjustments, and the usefulness of these scales has been disputed in the South African context (Woolard & Leibbrandt, 2006). Also, in the international literature, no consensus has been reached on how to best implement such scales, and for example, Deaton (1997) has argued that these adjustments may raise as many issues as they resolve, considering their strong underlying assumptions and value judgements.

In this paper, panel weights are used to correct for the presence of non-random panel attrition in NIDS (constructed using the methodology suggested by Schotte et al. (2018)). 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%. However, between-wave attrition, which is most important in this study, is substantially lower, ranging from 9.3% to 21.1%. This is because it is fairly common that respondents who are missed in one wave are successfully recontacted in the next.

2.2 | Analytical tools to study poverty dynamics

In this paper, we apply a broad set of analytical tools that facilitate the dynamic study of poverty. By combining these approaches, we strive to provide a comprehensive and robust assessment of the extent of poverty persistence and mobility in South Africa over the 2008–2017 study periods.

2.2.1 | Poverty transition matrices

In the first part of the analysis, we present a set of poverty transition matrices to study the dynamics in poverty status between survey waves (spaced approximately 2 years apart), distinguishing between three gradations of economic well-being: extreme poverty ($c_t < \text{FPL}$), moderate poverty ($\text{FLP} \leq c_t < \text{UBPL}$) and non-poverty ($\text{UBPL} \leq c_t$). 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.

2.2.2 | Poverty spells approach

The analysis of between-wave mobility is complemented by a counting approach that exploits the full longitudinal scope of the NIDS data. Here, the data are limited to the balanced sample observed in all five survey waves ($T = 5$). We divide the sample into six groups according to the number of poverty spells experienced over the study period, ranging from zero ($\text{UBPL} \leq c_t \forall t \in T$) to five ($c_t < \text{UBPL} \forall t \in T$). We assess the accumulation of poverty spells in an individual's poverty history across different population subgroups, defined by five markers that commonly condition economic opportunity in South Africa: (i) race, (ii) educational attainment, (iii) household composition, (iv) gender and (v) geographic location. These are defined at the level of the household or the head of household in the first survey wave.

2.2.3 | Multivariate model of poverty transitions

In the second part of the analysis, we descriptively assess the extent to which trigger events can be associated with entries into poverty and investigate the individual- and household-level determinants of poverty risks (as defined by the UBPL), following an approach developed by Cappellari & Jenkins (2002, 2004, 2008). The strength of this approach to studying poverty transitions is that it explicitly allows for possible feedback effects from past poverty experiences and accounts for the potential endogeneity of initial conditions, unobserved heterogeneity and non-random panel attrition—four key factors that often remain unaccounted for in other existing studies (see Schotte et al. (2018) for an application to NIDS data up to 2014). The approach consists of the estimation of a multivariate probit model that jointly estimates a system of three equations, modelling (1) the likelihood of transitioning into or out of poverty between two consecutive panel waves, $t - 1$ and t (this being the equation of principle interest), (2) the likelihood of being poor in the base period, $t - 1$ (thereby endogenizing initial conditions) and (3) the likelihood of sample retention (thereby accounting for potential non-random attrition). This enables us to identify key markers of vulnerability that are associated with elevated risks of remaining in or falling into poverty in South Africa.

2.2.4 | Schema of social stratification

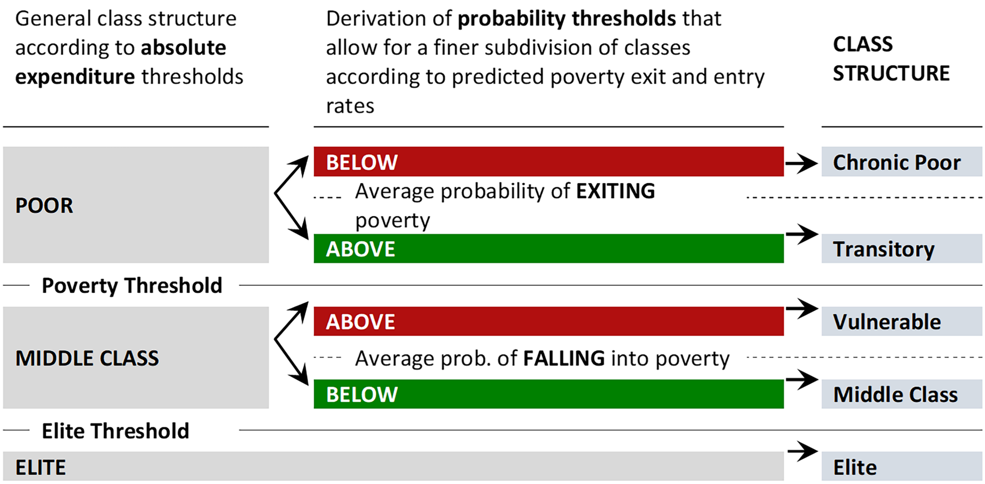
In the third part of the analysis, we divide the sample into five social classes following the stratification schema suggested by Schotte et al. (2018), building on López-Calva & Ortiz-Juárez (2014). Class status is defined at the household level, considering both the current standard of living, measured by household per capita consumption, and the likelihood of sustaining this standard of living in the near-term future, measured by the predicted risk to poverty considering the current poverty status and the human, economic and social capital available to the household in the present (calculated based on the earlier results from the multivariate probit model). We believe that these forward-looking scores provide a more comprehensive understanding of a person's (medium-term) welfare prospects than what we could gain by focusing exclusively on reported expenditure levels.

The schema 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.[5] On the basis of the latent poverty propensities derived from the poverty transition model estimates, we then 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 *stable 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).

This approach to social stratification has advantages over both purely money-metric and multidimensional approaches: First, the schema remains anchored around money-metric thresholds, with the UBPL 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 subdivisions among the poor and non-poor draw on poverty propensities that are calculated on the basis of a set of household characteristics that can be interpreted as representing multidimensional determinants of economic empowerment. Importantly, unlike other multidimensional measures in which different dimensions are weighted arbitrarily (as in the Alkire & Foster, 2011 method), in this approach, the relative relevance of these determinants is defined by the regression framework. Second, this framework allows us to include employment characteristics of the head of household as explanatory variables, thereby overcoming the limitation in many multidimensional approaches that overlook the crucial role played by the labour market in determining economic empowerment. Third, the schema accounts for the role played by economic instability and churning around the poverty line, which are overlooked in simple poor/non-poor comparisons.

2.3 | Limitations to the analysis

Before moving on to the analysis, it is important to briefly highlight some of the limitations of the data and methodology used in this paper.


General class structure according to **absolute expenditure** thresholds
Derivation of **probability thresholds** that allow for a finer subdivision of classes according to predicted poverty exit and entry rates
CLASS STRUCTURE
POOR
BELOW
Average probability of **EXITING** poverty
ABOVE
Chronic Poor
Transitory
Poverty Threshold
MIDDLE CLASS
ABOVE
Average prob. of **FALLING** into poverty
BELOW
Vulnerable
Middle Class
Elite Threshold
ELITE
Elite

Source: Schotte et al. (2018).
Note: Solid lines denote absolute expenditure thresholds. Dashed lines denote probability thresholds.

FIGURE 1 Schema of social stratification: A poverty dynamics approach to structured inequality [Color figure can be viewed at wileyonlinelibrary.com]

First, the 2008 sample was drawn on a nationally representative basis and the poverty headcount (UBPL) calculated from these data based on 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 5 percentage points in the share of households being pushed below the food poverty line. From 2010/11 to 2017, poverty levels decreased, with the strongest fall 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 from 2012 to 2014/15 in NIDS may raise doubts, given that it was not mirrored by a major event at the macrolevel and it does not match the official statistics on poverty trends as reported by Stats SA in 2017 (see Table 1).[6] 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 subpopulation that was somewhat more likely to be upwardly mobile, and our estimates of the chances of poverty exit should thus be treated as an upper bound.[7] Table A1 shows the (UBPL) poverty incidence and mean expenditure for the NIDS balanced panel versus cross sections. Poverty rates in the balanced panel are three percentage points higher than in the cross-section in Wave 1, and slightly lower in Wave 5, pointing to a stronger reduction in poverty observed in the balanced panel.

Second, 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 between waves $t-1$ and t will be observed at the level of the individual and will not necessarily be identical across members belonging to the same household in $t-1$, as households may split and individuals may form new households. As these changes in household composition—just as other shocks experienced at the households or individual level—may either determine or be the result of changes in economic welfare, most of our analysis will focus on predetermined variables observed in the base period $(t-1)$. We assume that the base characteristics of the household and the head of the household are important determinants of individual welfare trajectories, and class status will be defined at the household level. The household head[8] will often be the main income earner, such that the head's employment status will be a key determinant of the welfare trajectory of the household as a unit. Moreover, assuming educational assortative mating and a correlation between children's and parent's education, the head's level of

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

	NIDS					Stats SA (2017)				
Poverty line (PL)	**2008**	**2010/11**	**2012**	**2014/15**	**2017**	**2006**	**2009**	**2011**	**2015**	**2017**
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: Stats SA (2017) and authors' calculations using NIDS Waves 1–5 (post-stratified weights applied).Abbreviation: NIDS, National Income Dynamics Study.

education may approximate the education level of other household members. Nonetheless, as a robustness check, we provide a specification of the poverty transitions model including individual-level characteristics, as well as a set of shock variables for the $t - 1$ to t period.

Finally, two constraints concerning the consumption measure underlying the poverty estimates should be highlighted, and the findings in this paper need to be interpreted keeping these limitations in mind. First, we have no information on changes in household consumption for the period between survey waves. It is possible that some of those observed to be poor (or non-poor) in two consecutive waves were transitioning into and out of poverty between the points in time in which these households were surveyed. This would lead to an underestimation of poverty mobility. Second, the consumption estimate underlying the poverty assessment is measured with noise. This implies that some transitions may be attributable to measurement error, instead of reflecting actual transitions in economic welfare. This would lead to an overestimation of poverty mobility in the presented transition matrices (see e.g. Lee, Ridder, & Strauss, 2017). However, to the extent that this noise is random (i.e. there is no clear association with the variables included in the transitions model), this would not affect our model estimates and classification.

3 | RESULTS

3.1 | Poverty persistence

This section assesses the persistence of poverty in South Africa. Table 2 presents five poverty transition matrices—for 2008 to 2010/11, 2010/11 to 2012, 2012 to 2014/15, 2014/15 to 2017, as well as the pooled sample of wave-to-wave transitions between time $t - 1$ and t.

As expected, the depth of poverty is correlated with chances of upward mobility. Those living in extreme poverty (below the FLP) were the most likely to be trapped in poverty. Their chance of moving out of poverty completely by moving above the UBPL was just above 10% on average over the full time horizon. In contrast, those with consumption levels between the FLP and the UBPL experienced particularly high levels of both upward and downward mobility with only about 40% 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% of the extreme poor and 76.9% 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 3 reports the results of the poverty spells approach. The top row reports statistics for the population as a whole. We find that only a small portion (14.7%) of panel members remained consistently non-poor through the five waves of NIDS. In contrast, 36.1% of all panel members remained consistently below the poverty line in all five waves, with an additional 21.3% being poor in four out of five waves. In the rows below, results are reported for several subsamples of households based on different

TABLE 2 Poverty transition matrices

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

Source: Author's calculations using NIDS balanced panel for Waves 1–5 (weights corrected for panel attrition). *Note*: Shaded cells identify cases in which there was no between-wave mobility between poverty states.

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% were observed to be consistently non-poor. In the African sample, in contrast, 62.9% were observed to be poor in four or five waves, with only 8.9% 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 who start out living in households with household heads with less than matric are much more likely to experience multiple spells of poverty than those in households with better educated household heads. In contrast, those who start out living in households with household 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 strikingly small 2.5% of individuals who start out living in rural households remained non-poor throughout 2008 to 2017, while 82.9% were poor in four or five waves. In contrast, 24.7% of those who started out living in urban households remained stably non-poor (and 34.2% being non-poor in four or five

TABLE 3 Number of spells poor by various characteristics

		No. of spells in poverty					
	Always poor	**4**	**3**	**2**	**1**	**Never poor**	**No. of obs.**
Total	36.06%	21.27%	13.28%	7.78%	6.86%	14.74%	16,786
Race							
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
Education (household head)							
<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
Household type							
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
Gender (household head)							
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
Area							
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

Note: Group variables are defined using Wave 1 values (2008). (a) All cell proportions are weighted using Wave 5 panel weights. (b) Age variables are defines 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.

periods), and 42.7% were poor in four or five periods. Although 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 & Leibbrandt (2017), we also find that those initially living in 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 patters. We try to address this somewhat by restricting the sample by the gender of the household head in all periods. 71.8% of households that are female headed in all five waves remained in poverty in four or five waves, compared with only 29.1% of those in 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.

Although 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 time spent in poverty. To do so, in Table 4, we decompose the standard set of Foster, Greer, & Thorbecke (1984) poverty measures into persistent and transient components following an approach developed by Foster (2009). This allows us to investigate the link between the duration of time spent in poverty and the standard FGT dimensions of incidence, depth and severity. Because 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% 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% of the overall poverty headcount.

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

	Share in poverty headcount (%)					Share in poverty gap (%)					Share in poverty severity (%)				
# of waves in poverty	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: Author's calculations using NIDS balanced panel for Waves 1–5 (weights corrected for panel attrition).

TABLE 5 Multivariate probit model

Probability of being poor in *t*	**Poverty persistence**			**Poverty entry**		
Conditional on poverty status in *t* − 1	**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)
HoH race group (base: African)						
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)
HoH education (base: no schooling)						
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)
HoH employment status (base: inactive)						
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)
Characteristics of the household (HH) in *t* − 1						
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 services (shelter/water/sanitation/electricity)	−0.038	−0.141***	(0.033)	−0.025	−0.087**	(0.043)
Geographic location (base: traditional)[b]						
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)

(Continues)

TABLE 5 (Continued)

Probability of being poor in t	Poverty persistence			Poverty entry		
Conditional on poverty status in $t-1$	**Average marginal effect**	**Coeff. Estimate**	**Std. err.**	**Average marginal effect**	**Coeff. Estimate**	**Std. err.**
Province and time fixed effects	Yes	Yes				
Log-likelihood	−98,265,170					
Model χ^2 ($d.f. = 173$)	19,756					
Number of observations	60,951					

Note: Asymptotic standard errors are robust for the presence of repeated observations on the same individual. Simulated pseudo-maximum likelihood estimation with 250 random draws. The sample has been restricted to all individuals aged 15 years and above.

[a] For self-employed, formal businesses are 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.

$^{*}p < 0.1$. $^{**}p < 0.05$. $^{***}p < 0.01$.

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 in any given period. While distressing, this is also unsurprising, given that the further the distance to the poverty line, the lower the chances someone has to escape poverty.

3.2 | Vulnerability

This section attempts to understand the determinants of vulnerability to poverty—understood as the risk to remaining in or falling into poverty. The main results of the multivariate model of poverty transitions are reported in Table 5.

Although the specification presented in Table 5 is limited to characteristics of the household or the head of household observed in $t-1$, Table A2 expands the model to include individual-level characteristics observed in $t-1$ and shock variables for the $t-1$ to t period. For this purpose, the sample is limited to the adult population aged 25 years and above who are expected to have completed education and entered working life.[9] Two sets of estimates are reported, depending on the initial poverty status: Poverty persistence is the likelihood of being poor in t for someone who was poor in $t-1$, which is opposed to the likelihood of exiting poverty, while poverty entry is the is the likelihood of being poor in t for someone who was non-poor in $t-1$.[10]

In terms of demographic characteristics, we find that members of female-headed households are on average up to 6.8% more likely to slip into poverty and 1.5% less likely to escape poverty than members of households where the head is male. Interestingly, the individual's gender does not appear to affect poverty entry risks, although being female constrains the chances of exiting poverty, in addition to the head's gender. As widely acknowledged in the literature, race remains a strong predictor of poverty in South Africa, with Black Africans being most vulnerable to poverty.[11] In comparison, Whites are 26.6% less likely to fall into poverty and 42.6% less likely to remain poor, even after controlling for differences in education.

Higher levels of education are strong predictors for a lower vulnerability to poverty. Although at the individual level, the relationship is similar for those who start off from a poor versus non-poor position (see Table A2), the association between poverty risks and the household head's level of education is much more pronounced in the initially non-poor group. This may be good news for social upward mobility in South Africa. It implies that acquiring higher education may put poor individuals on a trajectory to escape poverty—independent of the level of education of the household head—and enable them to sustain this position. At the same time, the weaker association between the head's education and the chances of escaping poverty may be explained by a number of factors—including a depreciation of human capital and employment skills over extended periods spent in poverty, differences in the quality of education between those observed to be poor versus non-poor, and sorting effects reflecting differences in ability or motivation, for example.

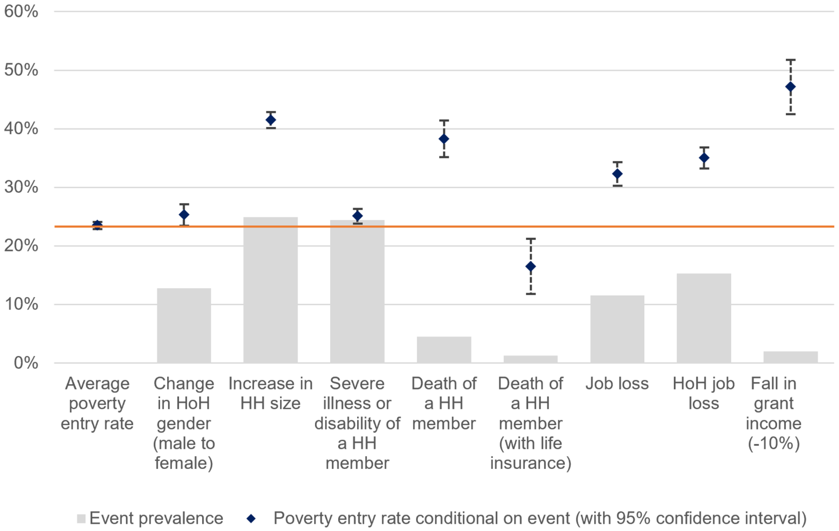
A similar pattern is observed with respect to the labour market. For the initially poor, the association between the employment status of either the household head or the individual is somewhat mixed and insignificant for most employment categories. In addition to the explanations suggested earlier, 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. However, we find that being in personal agricultural work (which accounts for a marginal share of total employment in South Africa) is associated with an elevated risk of experiencing poverty persistently, while being in formal wage employment (permanent work contract and/or union coverage) relates to an elevated chance of escaping poverty. Among the initially non-poor, the employment characteristics of the household head appear more relevant, and we observe a strong divide between the poverty-risk-increasing effect of informal work, and poverty-risk-reducing effect of formal work—be it in wage or self-employment. At the level of the individual, unemployment appears to be a key risk factor associated with poverty-entry risks. Generally, losing a job is strongly associated with higher risks to poverty. If the job loss is experienced by the head of household, this has a 1.6-times larger effect on the risk of poverty persistence, and a 2.5-times larger effect on the risk of poverty entry, than if the job loss is experienced by the individual.

At the household level, we observe that members of households that lack access to basic services, reside in rural areas, and are larger, face higher poverty risks. Holding the household size constant, the number of employed household members has a vulnerability reducing effect, though this effect is smaller for the initially poor than the non-poor. Interestingly, having a larger share of elderly members reduces the risk of poverty persistence, although it increases the risk of poverty entry. The former may be explained by the receipt of the old age pension grant and elderly members taking care of children in the household, thus allowing other adult members to work, whereas in the latter case, the dependency effect may dominate. Furthermore, we find that the death of a household member tends to increase poverty persistence, although there is no significant association with poverty entry risks. This may not only relate to the role played by elderly members in these households but may also be explained by initially non-poor households being in a better position to buffer these shocks, for example by investing in funeral policies or life insurances.

Lastly, we find indicative evidence that access to finance—in the form of formal or informal loans—may facilitate poverty exits. However, this finding should be treated with caution, as we do not observe the direction of the effect (the loan could have been taken on before or after exiting poverty), and consumption credit may temporally raise expenditures.

Figure 2 further investigates the association between trigger events and entries into poverty. For each event, the grey bar reports the prevalence with which the event occurred among those who were non-poor in the base period. The point estimates display the average poverty entry rate conditional on event occurrence—that is, the poverty entry rate for the subsample that experienced the respective trigger event—including the 95% confidence interval of the calculated average. This is compared with the average poverty entry rate of 23.1% across the sample, marked by the leftmost point/horizontal line. Importantly, this analysis does not warrant causal interpretations.

Although female-headed households tend to be at higher risk of poverty, we observe an only marginally higher poverty entry rate among those who saw a change in the household composition from male headed to female headed. Similarly, those who experienced the onset of a severe illness or disability of a household member saw only marginally elevated poverty risks, while those experiencing the death of a household member saw an elevated probability of falling into poverty at 38.3%. This latter effect was



Source: Author's calculations using NIDS waves 1 to 5 pooled sample (post-stratified weights corrected for panel attrition)

FIGURE 2 Poverty entry probability conditional on experience of trigger events [Color figure can be viewed at wileyonlinelibrary.com]

importantly mediated when households had spent money on life insurances in the previous period, which however may also be explained by the overall better economic position of these households. Increases in household size were frequent and in 41.5% of the cases coincided with a transition into poverty. This link should, however, be treated with caution, as the effect may be somewhat mechanic (due to the use of per capita measures), and the direction of the relationship cannot be determined. Job losses, experienced by the individual or the head of household, coincided in one third of all cases with an entry into poverty, pointing to a potentially strong role played by labour market events. Reductions in grant income (for example caused by the death of a grant recipient) were rather rare (experienced by 2% of the sample), but in almost every second case (47.2%) coincided with an entry into poverty.

3.3 | The stable middle class

In this section, we divide the sample into five social classes according to the stratification schema presented in Section 2.2. We characterise each class and track their evolution over the study period.

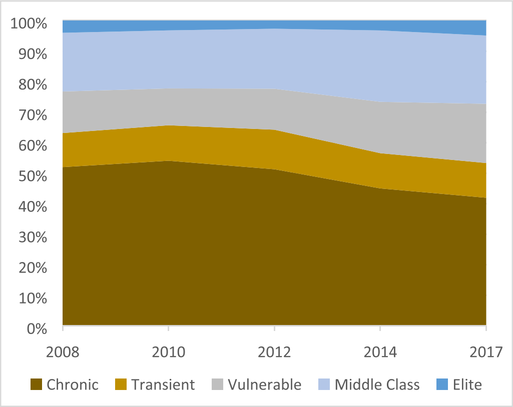
Given that social or class status is usually experienced at the family or household level, individuals are classified based on the characteristics of the household they currently live in—specifically, per capita household expenditure and household-level poverty risk scores derived from the coefficient estimates reported in Table 5 above. Although the scores are forward looking, we find these to be consequential in terms of materialised mobility patterns, which endorse the approach. Specifically, as Table 6 reports, the chronic poor had an average chance of exiting poverty of 12.9% (i.e. 87.1% remained in poverty), while close to 40% of the transient poor exited poverty between survey waves. Similarly, although only about 12.1% of the stable middle fell into poverty over time, the same applied to 49.0% of those classified as vulnerable.

The distribution of the population by class largely matches the patterns observed in Section 3.1 concerning the experience of poverty spells. The chronic poor make up the largest single class, with a population share approaching 50%. The transient poor and vulnerable non-poor, combined, make up about a quarter of the population. Thus, three quarters are either affected by or vulnerable to poverty in South Africa. The remaining quarter can be considered stably middle class or elite (see Table 6). This

TABLE 6 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: Author's calculations using NIDS Waves 1–5 pooled sample (post-stratified weights corrected for panel attrition).



Source: Author's calculations using NIDS waves 1 to 5 pooled sample (post-stratified weights corrected for panel attrition)

FIGURE 3 Class sizes, 2008–2017 [Color figure can be viewed at wileyonlinelibrary.com]

share is considerably smaller than the estimated size of the South African middle class suggested by other studies, ranging from 30% to 55% (Burger et al., 2015; Burger et al., 2017; Visagie & Posel, 2013).

Figure 3 reports trends in class sizes over the 2008–2017 periods (bearing in mind the caveats discussed in Section 2.3). Chronic poverty fell by approximately 10 percentage points. However, this decline was accompanied primarily by growth in the size of the vulnerable class by about seven percentage points, while the middle class and elite only grew by about 1 percentage point each. This suggests that those moving out of poverty mostly remained in a position of vulnerability, rather than joining the ranks of the stable middle class.

Tables 7 and 8 describe the classes in terms characteristics of the household and the head of household. 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 are substantial (Altman, Hart, & Jacobs, 2009; Rose & 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, where most of these households are concentrated in rural areas, as well as their structural exclusion from the labour market. These households are predominantly African, and household heads are poorly educated, with 95% having less than matric.

TABLE 7 Average household characteristics by social class, 2008–2017

Characteristics of the household (HH)	Chronic poor	Transient poor	Vulnerable	Middle class	Elite	Total
Weighted share of respondents	48.79%	11.75%	15.09%	20.75%	3.62%	
Mean household expenditure per capita	517.77	745.13	2,331.93	4,536.20	25,659.32	3,765.76
Median household expenditure per capita	469.87	764.92	1,804.97	3,567.98	20,556.23	1,406.01
No. of members in HH	5.34	3.03	2.55	2.23	1.87	3.30
Age composition						
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
Main source of income						
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%
Mean income from source [a]						
Labour	3,326.16	4,682.41	5,366.17	13,127.37	38,223.13	10,197.25
Government grants	1,723.73	1,138.51	1,346.10	1,456.27	1,459.73	1,531.09
Remittances	1,493.51	1,148.79	1,747.26	2,360.42	14,413.17	2,009.74
Subsistence agriculture	236.81	142.15	452.93	1,301.08	1,942.38	376.87
Investments	2,083.96	2,721.96	2,904.47	1,4356.36	16,086.26	1,1022.71
Other	1,887.93	1,138.60	4,080.49	2,377.57	2,796.16	2,463.98
Access to services						
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%

(Continues)

TABLE 7 (Continued)

Characteristics of the household (HH)	Chronic poor	Transient poor	Vulnerable	Middle class	Elite	Total
HH has access to basic services (shelter/water/sanitation/electricity)	18.24%	42.12%	33.98%	57.13%	79.53%	40.91%
Geographic location [b]						
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%

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

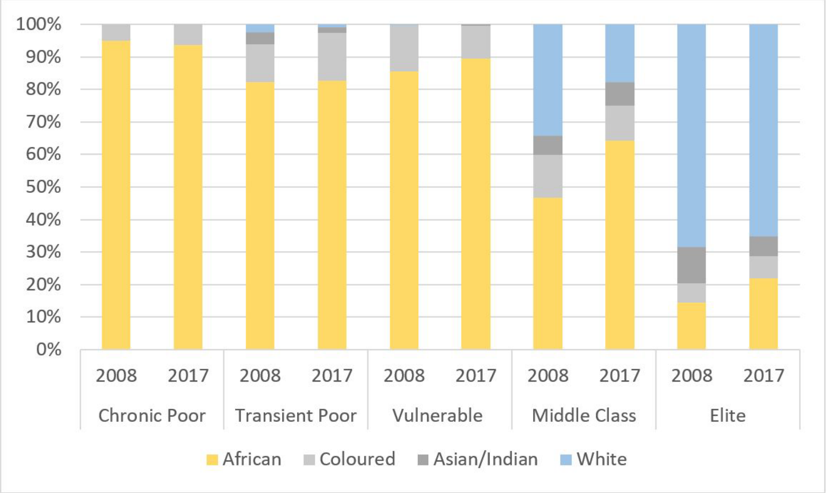
TABLE 8 Average characteristics of household head, by social class, 2008–2017

Characteristics of the head of houshold (HoH)	Chronic poor	Transient poor	Vulnerable	Middle class	Elite	Total
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%
Race						
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%
Education (average level if 25 years or older)						
No schooling	25.14%	3.10%	9.14%	0.54%	0.36%	9.85%
Less than primary completed	28.54%	11.40%	18.85%	2.74%	0.93%	14.28%
Primary completed	11.03%	5.18%	9.01%	2.35%	1.39%	6.40%
Secondary not completed	32.26%	49.57%	49.19%	33.94%	11.66%	36.37%
Secondary completed	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%
Employment status						
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%
Employment type (if employed)						
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 1–5 pooled sample (post-stratified weights corrected for panel attrition).

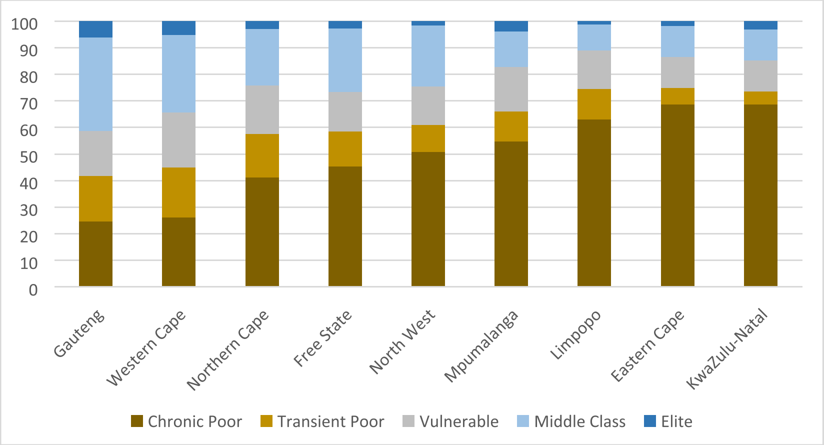
The transient poor are clearly distinct from the chronic poor. However, they share a number of similarities with the vulnerable non-poor. The households in these groups are similarly sized, both rely heavily on the labour market for income (with 72.6% and 74.6% relying primarily on labour market income), are distributed geographically in similar proportions between rural and urban areas, have comparable levels of education and are both predominantly African.

Considering these similarities, the difference in mean consumption between the two groups is striking—with the vulnerable reporting more than three times higher expenditures than the transient poor. Being structurally similar, these differences in expenditures may be largely stochastic. That is,



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

FIGURE 4 Racial composition of South Africa's social classes, 2008 and 2017 [Color figure can be viewed at wileyonlinelibrary.com]

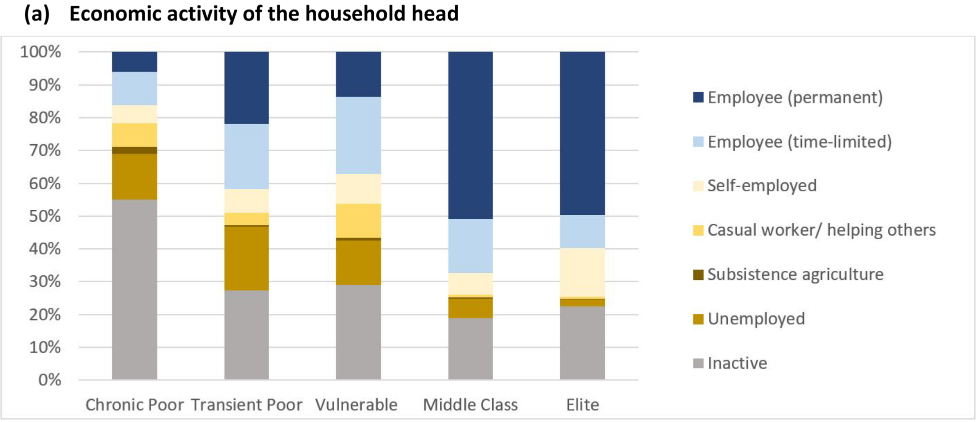


Source: Authors' calculations using NIDS waves 1 to 5 pooled sample (post-stratified weights).

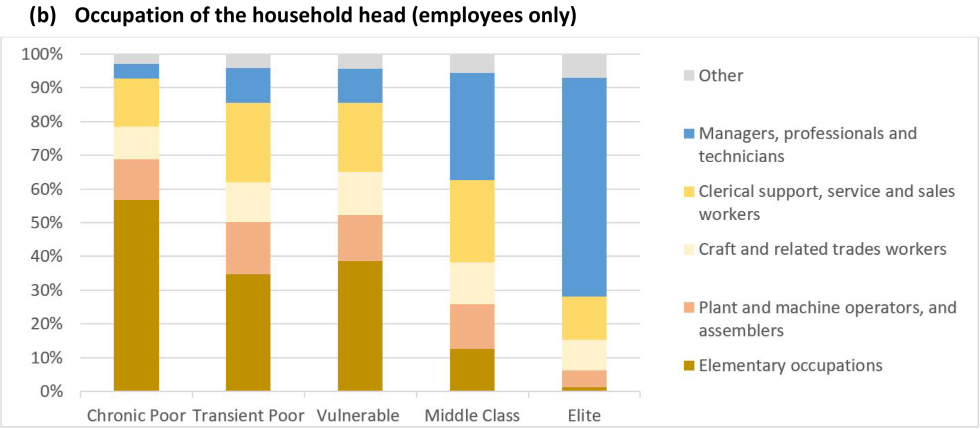
FIGURE 5 Geographic distribution of South Africa's social classes, 2008 to 2017 [Color figure can be viewed at wileyonlinelibrary.com]

vulnerable households may not be able to sustain a consumption level above the poverty line over time. Importantly, some characteristics of the transient poor appear to put them in a favourable position compared with the vulnerable non-poor group. Specifically, the transient poor more often reside in urban areas and have better access to sanitation and housing, and household heads more frequently hold wage jobs, especially in the formal sector. This may suggest that, on the one hand, some households among the transient poor are structurally non-poor and were only temporarily pushed below the poverty line, with good chances of exiting poverty and sustaining a non-poor position afterwards. On the other hand, some of the vulnerable may descend into persistent poverty in the event of negative economic shocks.

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



(a) Economic activity of the household head



(b) Occupation of the household head (employees only)

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

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

FIGURE 6 Social classes in the labour market, 2008 to 2017. (a) Economic activity of the household head. (b) Occupation of the household head (employees only) [Color figure can be viewed at wileyonlinelibrary.com]

social grants, and are located almost entirely in urban areas. Although approximately half of all middle-class households are African, Whites are represented disproportionately highly in the middle class relative to their population share, with one in three middle class households being White. At the same time, there has been rapid growth in the African middle class in the last decade, as Figure 4 illustrates: In 2008, only 47% of the middle class was African, compared with 64% in 2017.

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 their higher education and better position in the labour market, middle class households earn on average twice as much from the labour market as households in the vulnerable class (R13,127 compared with R5,366) 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 consumption is on average more than five times higher than the middle class, households are smaller, predominantly White and urban (although with growth in the African share from 14% to 22% over the 2008–2017 period), and among household heads, tertiary education and formal employment are the norm.

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 5). 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 polarisation 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, with the majority of KwaZulu-Natal's population living in traditional areas, although Gauteng and the Western Cape, in contrast, have the highest proportion of urban residents. Although 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 (see Figure 4).

Figure 6 illustrates the labour market position of household heads across classes. Household heads of chronically poor households (and to a lesser extent, transient poor and vulnerable household heads) are far more likely to be economically inactive or unemployed than those of 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 held by heads of household among the poor and vulnerable, whereas among the middle class and elite 80% of all household heads who are employed have a permanent contract.

Differences in occupations across classes reflect class differences in human capital, with 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.

4 | CONCLUSION

In this paper, we provide a thorough and up-to-date analysis of poverty dynamics in South Africa between 2008 and 2017. Three key findings emerge:

First, poverty experienced as a persistent state dominates the poverty landscape in South Africa. About one in two South Africans are trapped in a position of persistent or chronic poverty with little chance of exiting or of sustaining poverty escapes. Chances of escaping poverty are lowest among those experiencing 'deep' poverty, with just about one out of 10 South Africans moving out of extreme poverty to a non-poor position. Persistent poverty, also experienced as a lack of opportunity, affects particularly rural, African, single-parent and female-headed households, and is associated with poor levels of education and long-term unemployment. 'Intersecting inequalities' (Kabeer, 2016)—specifically, the intersection of unequal opportunities to acquire human capital with exclusion on the grounds of gender, race and locational disadvantage—is likely to play a key role in this regard.

Second, economic volatility—particularly afflicting the urban African population—is a key constraint to upward mobility and sustaining poverty escapes over time. Individuals in households with per capita expenditures just below or above the poverty line experience high degrees of economic volatility, often moving into and out of poverty over time. Moreover, even those at the edge of poverty remain vulnerable to drifting into deep poverty in the event of adverse shocks and often come close to or fall below the minimum consumption threshold demarcating extreme poverty. Labour market instability, fixed-term contracts and precarious forms of employment—predominantly found in the informal sector—constitute a key risk factor in this regard.

Third and related to this latter point, 'good jobs', are the dominant marker of economic stability in South Africa. We find that about 20%–25% of South Africans can be considered as stably middle class or elite—thus being not only non-poor, but also able to sustain this position. Heads of households in these groups are commonly higher educated and hold wage jobs in the formal sector with a permanent work contract and with union coverage. 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 social partners will need to address in order to lift larger parts of the population into the middle class and prevent backslides into poverty.

Despite the gains in tackling chronic poverty, a takeaway from the above findings is that 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. However, creating opportunities to break structural barriers—in terms of access to education and employment opportunities—will be imperative for facilitating sustained upward mobility. For the transient poor and the vulnerable, addressing labour market frictions and strengthening labour regulation and support for formal and informal small enterprises may improve employment prospects and quality of employment. These groups 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.

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ENDNOTES

[1] To adjust for inflation, all monetary figures presented in this paper are calibrated to March 2017 prices using the Stats SA consumer price index (CPI). For each poverty line, the food component (equal to the FPL) is adjusted using the food specific Stats SA CPI, and the non-food component (equal to the difference between the FPL and the UBPL) is adjusted using the non-food specific Stats SA CPI.

[2] It is important to note that the poverty headcount estimates presented in this paper depend both on the data and the poverty line chosen. The UBPL in South Africa is tailored to the national context and significantly exceeds the international poverty line set by the World Bank at $1.90 a day (2011 PPP).

[3] 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 conceptualisation, this indicator appears conceptually weak as a cost of basic needs indicator (see Budlender et al., 2015, for a more detailed discussion).

[4] 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).

[5] In this analysis, we understand the elite as those in society who enjoy a standard of living well above the national average. Accordingly, we follow Schotte et al. (2018) in arbitrarily fixing the elite threshold at two standard deviations above the mean per capita household expenditure. The definition of this group is not the focus of this paper, and the implemented ad hoc threshold is not consequential for the main conclusions derived here. However, in light of recent work on elite divergence in South Africa (Bassier & Woolard, 2020; Chatterjee, Czajka, & Gethin, 2021), future work in this domain might consider attempting to identify a more formal approach to differentiating the middle class from the elite.

[6] Please note that by using a panel of pooled wave-to-wave transitions, we attempt to limit the influence of the last two survey waves.

[7] We are grateful to Victor Sulla and Kanishka Kacker for pointing this out.

[8] Household headship is determined by the response to the question "Who is the head of the household?", included in the NIDS household questionnaire. The NIDS household questionnaire is administered to the 'oldest woman in the household and/or another household member who is knowledgeable about the living arrangements and spending patterns of the household'.

[9] To ease comparisons, we reestimate our base specification including only characteristics of the household and head of household for this reduced sample aged 25 years and above, with information available on individual level characteristics and shock variables.

[10] It is important to note that poverty persistence and poverty exit are mutually exclusive events. This implies that any variable that is estimated to increase (reduce) the likelihood of poverty persistence will automatically reduce (increase) the chances of poverty exit to exactly the same extent.

[11] We do not include separate controls for individual's race because this often coincides with the head's race.

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APPENDIX A.

TABLE A1 Share in poverty (upper bound poverty line [UBPL]) and mean expenditure, National Income Dynamics Study (NIDS) panel versus cross-section

		Wave 1		**Wave 5**		**Real wage growth**
		Cross-section	**Balanced panel**	**Cross-section**	**Balanced panel**	**Cross-section**
Total	% poor	62.0%	64.9%	52.2%	51.3%	
	Ave. p.c. expenditure	2,452	1899	3,027	2,360	2.4%
African	% poor	72.3%	69.8%	59.1%	56.4%	
	Ave. p.c. expenditure	1,293	1,346	1889	1827	4.3%
Less than matric	% poor	70.6%	73.2%	62.0%	62.3%	
	Ave. p.c. expenditure	1,553	1,150	1781	1,385	1.5%
Matric	% poor	39.2%	51.3%	34.5%	40.8%	
	Ave. p.c. expenditure	3,930	2,676	4,124	2,928	0.5%
Tertiary	% poor	15.2%	24.5%	14.1%	19.6%	
	Ave. p.c. expenditure	8,744	6,342	9,021	5,507	0.4%
Youth (16–24)	% poor	66.5%	76.3%	45.5%	53.0%	
	Ave. p.c. expenditure	1950	1,039	2,469	1946	2.7%
Prime (25–49)	% poor	52.4%	59.0%	44.8%	49.1%	
	Ave. p.c. expenditure	2,966	2006	2,688	2,417	−1.1%
Older (50–64)	% poor	51.4%	61.8%	56.3%	54.6%	
	Ave. p.c. expenditure	4,106	2,817	2,556	2,887	−5.1%
Female	% poor	64.7%	69.2%	55.7%	56.5%	
	Ave. p.c. expenditure	2,324	1,671	2,721	2,119	1.8%
Male	% poor	59.1%	57.2%	48.7%	42.7%	
	Ave. p.c. expenditure	2,588	2,307	3,344	2,764	2.9%
Rural	% poor	87.2%	84.8%	78.2%	73.8%	
	Ave. p.c. expenditure	734	800	996	1,100	3.4%
Urban	% poor	46.3%	50.3%	38.8%	38.6%	
	Ave. p.c. expenditure	3,540	2,723	4,112	3,125	1.7%

Note: (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 to 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.

TABLE A2 Multivariate probit model, including individual characteristics and trigger events

	(1) Base specification		(2) Including individual-level variables		(3) Including individual-level variables and shock variables	
Probability of being poor in t conditional on poverty status in $t-1$	**Coeff. Estimate**	**Std. Err.**	**Coeff. Estimate**	**Std. Err.**	**Coeff. Estimate**	**Std. Err.**
Poverty persistence (poor in $t-1$)						
HoH age	0.015***	0.006	0.011*	0.007	0.010	0.007
HoH age squared (× 0.01)	−0.017***	0.005	−0.012*	0.006	−0.011*	0.006
Age			0.009	0.007	0.010	0.007
Age squared (× 0.01)			0.000	0.000	0.000	0.000
HoH is female	0.067**	0.032	0.062*	0.034	0.055	0.034
Female			0.069**	0.033	0.065**	0.033
HoH race group (base: African)						
Coloured	0.084	0.071	0.063	0.071	0.062	0.072
Asian/Indian	−1.208***	0.237	−1.243***	0.239	−1.270***	0.239
White	−1.378***	0.398	−1.485***	0.401	−1.515***	0.403
HoH education (base: no schooling)						
Less than primary completed	−0.004	0.043	0.062	0.053	0.066	0.053
Primary completed	0.053	0.061	0.158**	0.073	0.156**	0.073
Secondary not completed	−0.090*	0.047	0.063	0.060	0.063	0.061
Secondary completed	−0.240***	0.071	−0.017	0.087	−0.033	0.088
Tertiary	−0.613***	0.096	−0.196*	0.110	−0.173	0.110
Education (base: no schooling)						
Less than primary completed			−0.116*	0.061	−0.124**	0.062
Primary completed			−0.171**	0.079	−0.173**	0.079
Secondary not completed			−0.242***	0.064	−0.249***	0.065
Secondary completed			−0.352***	0.081	−0.356***	0.081
Tertiary			−0.687***	0.093	−0.694***	0.094
HoH employment status (base: inactive)						
Unemployed (discouraged)	0.041	0.095	−0.096	0.107	−0.100	0.106
Unemployed (strict)	−0.053	0.055	−0.069	0.065	−0.077	0.065
Personal agricultural work	0.255***	0.082	0.107	0.094	−0.026	0.101
Paid casual work	0.163	0.109	0.077	0.135	−0.157	0.147
Self-employed	−0.010	0.073	−0.023	0.087	−0.159*	0.092
Self-employed # Formal[a]	−0.284	0.210	−0.321	0.249	−0.288	0.243
Employee	0.004	0.057	−0.055	0.064	−0.167**	0.069
Employee # Permanent contract	−0.055	0.064	0.018	0.079	0.037	0.080
Employee # Union member	−0.148*	0.078	−0.086	0.093	−0.081	0.094
Employment status (base: inactive)						
Unemployed (discouraged)			0.206**	0.092	0.213**	0.092
Unemployed (strict)			0.004	0.057	0.003	0.057

(Continues)

TABLE A2 (Continued)

	(1) Base specification		(2) Including individual-level variables		(3) Including individual-level variables and shock variables	
Probability of being poor in t conditional on poverty status in $t - 1$	**Coeff. Estimate**	**Std. Err.**	**Coeff. Estimate**	**Std. Err.**	**Coeff. Estimate**	**Std. Err.**
Personal agricultural work			0.183**	0.089	0.129	0.094
Paid casual work			0.053	0.144	−0.082	0.155
Self-employed			−0.031	0.091	−0.101	0.096
Self-employed # Formal[a]			0.005	0.289	0.044	0.266
Employee			0.046	0.060	0.021	0.064
Employee # Permanent contract			−0.130*	0.073	−0.124*	0.073
Employee # Union member			−0.120	0.090	−0.111	0.090
Composition of the HH						
No. of members in HH	0.064***	0.012	0.077***	0.013	0.078***	0.013
No. of workers in HH (excl. HoH)	−0.117***	0.020	−0.103***	0.023	−0.105***	0.023
No. of children (<18 years)	0.063***	0.017	0.052***	0.017	0.052***	0.017
No. of elderly members (60+ years)	0.009	0.027	−0.019	0.028	−0.023	0.029
HH has access to basic services (shelter/water/sanitation/electricity)	−0.201***	0.041	−0.210***	0.042	−0.217***	0.042
Geographic location (base: traditional)[b]						
Urban	−0.051	0.042	−0.041	0.042	−0.032	0.043
Farms	0.069	0.066	0.076	0.067	0.103	0.068
Shocks from $t - 1$ to t						
Illness or disability of a household member					−0.025	0.032
Death of a household member					−0.086*	0.049
HoH job loss					0.273***	0.057
Job loss					0.170***	0.059
Potential coping mechanism from $t - 1$ to t						
Took out formal or informal loan					−0.085*	0.043
Constant	0.411**	0.180	0.262	0.207	0.298	0.207
Province and time fixed effects	Yes	Yes	Yes			
Poverty entry (non-poor in $t - 1$)						
HoH age	−0.009	0.010	0.003	0.012	0.000	0.012
HoH age squared (× 0.01)	−0.005	0.010	−0.013	0.012	−0.011	0.012
Age			−0.024**	0.012	−0.020*	0.012
Age squared (× 0.01)			0.000	0.000	0.000	0.000
HoH is female	0.289***	0.047	0.301***	0.051	0.289***	0.051
Female			0.012	0.052	0.012	0.052
HoH race group (base: African)						
Coloured	−0.161**	0.078	−0.156**	0.076	−0.211***	0.076

(Continues)

TABLE A2 (Continued)

	(1) Base specification		(2) Including individual-level variables		(3) Including individual-level variables and shock variables	
Probability of being poor in t conditional on poverty status in $t-1$	**Coeff. Estimate**	**Std. Err.**	**Coeff. Estimate**	**Std. Err.**	**Coeff. Estimate**	**Std. Err.**
Asian/Indian	−1.237***	0.154	−1.295***	0.156	−1.293***	0.161
White	−1.186***	0.169	−1.183***	0.178	−1.211***	0.180
HoH education (base: no schooling)						
Less than primary completed	−0.264***	0.100	−0.295**	0.137	−0.288**	0.140
Primary completed	−0.410***	0.124	−0.386**	0.178	−0.401**	0.182
Secondary not completed	−0.628***	0.102	−0.463***	0.142	−0.471***	0.148
Secondary completed	−0.882***	0.122	−0.561***	0.162	−0.558***	0.170
Tertiary	−1.303***	0.129	−0.838***	0.175	−0.835***	0.183
Education (base: no schooling)						
Less than primary completed			0.045	0.137	0.017	0.140
Primary completed			−0.018	0.170	−0.042	0.175
Secondary not completed			−0.246*	0.138	−0.278*	0.143
Secondary completed			−0.455***	0.152	−0.478***	0.157
Tertiary			−0.671***	0.159	−0.685***	0.166
HoH employment status (base: inactive)						
Unemployed (discouraged)	−0.340**	0.155	−0.707***	0.180	−0.711***	0.178
Unemployed (strict)	0.176*	0.093	−0.043	0.126	−0.079	0.124
Personal agricultural work	0.755***	0.172	0.457**	0.178	0.290	0.197
Paid casual work	0.060	0.194	0.092	0.279	−0.235	0.283
Self-employed	0.354***	0.102	0.250*	0.131	0.036	0.143
Self-employed # Formal[a]	−0.466***	0.180	−0.211	0.218	−0.268	0.236
Employee	0.270***	0.092	0.194*	0.116	−0.003	0.122
Employee # Permanent contract	−0.112	0.077	−0.102	0.113	−0.063	0.113
Employee # Union member	−0.164**	0.068	−0.108	0.101	−0.135	0.100
Employment status (base: Inactive)						
Unemployed (discouraged)			0.588***	0.166	0.585***	0.164
Unemployed (strict)			0.264**	0.118	0.246**	0.115
Personal agricultural work			0.249	0.167	0.179	0.172
Paid casual work			−0.217	0.295	−0.380	0.290
Self-employed			0.003	0.132	−0.071	0.140
Self-employed # Formal[a]			−0.360	0.247	−0.213	0.262
Employee			−0.024	0.105	−0.041	0.109
Employee # Permanent contract			−0.032	0.100	−0.023	0.101
Employee # Union member			−0.089	0.098	−0.048	0.099
Composition of the HH						
No. of members in HH	0.180***	0.028	0.152***	0.028	0.148***	0.029

(Continues)

TABLE A2 (Continued)

	(1) Base specification		(2) Including individual-level variables		(3) Including individual-level variables and shock variables	
Probability of being poor in t conditional on poverty status in $t-1$	**Coeff. Estimate**	**Std. Err.**	**Coeff. Estimate**	**Std. Err.**	**Coeff. Estimate**	**Std. Err.**
No. of workers in HH (excl. HoH)	−0.193***	0.038	−0.123***	0.040	−0.138***	0.041
No. of children (<18 years)	−0.095***	0.035	−0.057	0.036	−0.050	0.036
No. of elderly members (60+ years)	0.092*	0.048	0.113**	0.050	0.099**	0.049
HH has access to basic services (shelter/water/sanitation/electricity)	−0.044	0.056	−0.051	0.057	−0.067	0.056
Geographic location (base: Traditional)[b]						
Urban	−0.303***	0.065	−0.291***	0.065	−0.244***	0.066
Farms	0.074	0.112	0.073	0.114	0.131	0.120
Shocks from $t-1$ to t						
Illness or disability of a household member					−0.019	0.050
Death of a household member					−0.002	0.104
HoH job loss					0.471***	0.089
Job loss					0.185*	0.102
Potential coping mechanism from $t-1$ to t						
Took out formal or informal loan					−0.044	0.062
Constant	0.534*	0.277	0.930***	0.318	1.043***	0.317
Province and time fixed effects	Yes	Yes	Yes			
Log-likelihood	−55,692,383	−55,267,349	−54,923,872			
Model χ^2	11,937 (*d.f.* = 173)	11,876 (*d.f.* = 207)	11,854 (*d.f.* = 217)			
Number of observations	37,640	37,640	37,640			
AIC	111,385,123	110,535,121	109,848,187			
BIC	111,386,642	110,536,931	109,850,082			
Joint significance individual-level variables						
χ^2 (*d.f.* = 34)			205.92	198.45		
Prob > χ^2			0.0000	0.0000		
Joint significance shock variables						
χ^2 (*d.f.* = 10)					134.45	
Prob > χ^2					0.0000	

Note: Simulated pseudo-maximum likelihood estimation with 250 random draws. The sample has been restricted to all individuals aged 25 years and above with non-missing information across all three models estimated. Asymptotic standard errors robust for presence of repeated observations on the same individual.

$^{*}p < 0.1$. $^{**}p < 0.05$. $^{***}p < 0.01$. [a]For self-employed, formal businesses are 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.