A poverty dynamics approach to social stratification: The South African case

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ABSTRACT

The wave of upbeat stories on the developing world's emerging middle class has reinvigorated a debate on how social class in general and the middle class in particular ought to be defined and measured. In the economics literature, most scholars agree that being middle class entails being free from poverty, which means being able to afford the basic things in life – not only today, but also tomorrow. In consequence, there is an increasing tendency to define the middle class based on a lack of vulnerability to poverty. In this paper, we strengthen and expand on these existing approaches in three ways: First, we incorporate the differentiation between the middle class and a (non-poor) vulnerable group into a broader social-stratification schema that additionally differentiates between transient and chronic poverty. Second, in estimating the risk of poverty, we employ a multivariate regression model that 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 factors insufficiently addressed in existing studies. Third, we highlight the value of paying attention to these conceptual and modelling issues by showing that class divisions based on monetary thresholds inadequately capture a household's chances of upward and downward mobility. We then apply our conceptual framework to the South African case. We find that only one in four South Africans can be considered stably middle class or elite. Access to stable labor market income is a key determinant of achieving economic stability. A lack of jobs as well as the prevalence of precarious forms of work drive high levels of vulnerability, which in turn constrains the development of an emergent middle class – not only in South Africa but potentially also in other parts of the developing world that face similar labor market challenges.

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1. Introduction

What defines the middle class? While countless interpretations appear to exist, most definitions of what constitutes the middle class relate in some way to the degree of economic security and self-sufficiency that people experience. Correspondingly, it is their confidence in their economic stability which many people name first when asked what makes them self-identify as middle class (see Phadi & Ceruti, 2011). They also cite the opportunities they are given to move ahead in life, which some people never get, and the financial cushion that allows them to take risks and cope with adverse shocks.

In spite of this notion, more than a few studies in the economics literature locate the middle class just above the poverty line (for an extensive review of different approaches, see Zizzamia, Schotte, Leibbrandt, & Ranchhod, 2016). These studies, however, fail to acknowledge 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 near future, and that some of those who are currently non-poor may face a non-negligible risk of falling into poverty. Moreover, most of these studies are blind to the fact that not all households below the poverty line are alike. Poverty tends to be self-perpetuating, but while some households may have always been poor, others may have suffered some negative financial shock that either temporarily or permanently pushed them into poverty (see, inter alia, Dercon, 2006; Glewwe & Gibson, 2005; Klasen & Povel, 2013). Taking on this dynamic perspective, we aim in this study to incorporate the unequal distribution of

poverty risks into a coherent framework of social stratification that accounts for both current living standards and mobility patterns.

Accordingly, we link the demarcation of social strata to an in-depth analysis of poverty transitions. In doing so, we aim to bridge the gap between the poverty dynamics literature and the middle class literature in economics, which – in our understanding – should not be treated in isolation. Our contribution is therefore both conceptual and empirical: The *conceptual contribution* consists of the proposal of a multilayered schema of social stratification with particular relevance for contexts marked by high inequality paired with high socioeconomic risks, as in many low- and middle-income countries. While the idea of defining the middle class using a vulnerability criterion is not novel (see López-Calva & Ortiz-Juarez, 2014), we aim to strengthen and broaden the scope of existing approaches in the economics literature in three ways: *First*, our approach provides a thorough link between the poverty dynamics and the middle class literatures. To our knowledge, this paper is the first to incorporate the differentiation between the middle class and a non-poor but vulnerable group into a social-stratification schema that additionally differentiates between transient and chronic poverty. *Second*, we argue that the simple modeling framework used by existing studies to derive a vulnerability index that identifies the middle class lacks robustness, as it ignores several important findings from the poverty dynamics literature. Following Cappellari and Jenkins (2002, 2004, 2008), we employ a multivariate regression model that 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 factors insufficiently addressed in existing studies when estimating poverty risks. *Third*, we show that traditional social stratification variables (such as education and occupation) and demographic characteristics (such as race, gender, and household composition) are important predictors of poverty risks, which cannot be fully captured by current income or consumption levels alone. Therefore, we refrain from the definition of absolute monetary thresholds to identify class layers and instead base our analysis directly on estimated risk cut-offs.

The *empirical contribution* consists of the application of the proposed conceptual framework to the South African case. The multivariate model of poverty transitions is fitted to four waves of panel data from the National Income Dynamics Study (NIDS) covering the period from 2008 to 2014/15. Four key findings emerge from this analysis: First, only one in four South Africans can be considered stably middle class or elite. This share is considerably smaller than the range of 30 to 55 percent that other studies suggest (Burger, McAravey, & Van der Berg, 2017; Burger, Steenekamp, van der Berg, & Zoch, 2015; Visagie & Posel, 2013). Second, poverty in South Africa exhibits substantial genuine state dependence. That is, the experience of poverty itself, independent of other household characteristics and resources, leads to a higher risk of future poverty. Third, a higher level of education on the part of the household head and access to stable labor market income are key determinants for achieving economic stability in South Africa, while casual and precarious forms of work do little to reduce poverty risks. Fourth, there are two strata – the temporarily poor and the vulnerable – which are characterized by comparatively high volatility and frequent movements into and out of poverty. These two relatively similar groups are clearly distinguishable from both the chronic poor and the stable middle class and elite – not only in terms of their household characteristics, but also likely in terms of their policy needs.

The remainder of this paper is structured as follows: In Section 2 we develop our schema of social stratification in relation to the existing literature. The empirical application of the conceptual framework to the South African case is provided in Section 3. On

this basis, Section 4 profiles the five social classes identified for the South African case in terms of their relative size, growth, racial composition and other demographic characteristics, geographic location, labor market resources, and mobility patterns. Section 5 summarizes and concludes.

2. A Multilayered schema of social stratification

In this section, we propose a social-stratification schema that aims to capture the existence of structured inequalities both in present living standards and in the distribution of opportunities to sustain a living above the subsistence level in the medium term. The proposed schema is anchored in the definition of an absolute poverty threshold designed to represent the cost of satisfying basic consumption needs. As such, it is tailored to low- and middle-income countries rather than high-income countries, where relative-poverty concepts dominate. Its relevance is highest in contexts marked by systematized and enduring (or even rising) socioeconomic inequality – including an unequal distribution of risks and access to coping mechanisms as well as of opportunities for upward mobility. It can be applied to economies experiencing fast growth spurts that are not sustained, with the consequence that those rising out of poverty may remain vulnerable to falling back, as well as to countries experiencing slow growth that occurs in a context marked by significant churning around the poverty line.

2.1. Conceptual foundations

In the economic literature, class analyses commonly draw on a monetary indicator to approximate a person's social status. Most commonly used are absolute thresholds that (often arbitrarily) locate the middle class within a particular income or expenditure range, which eases comparisons across countries. It is clear that the way in which these thresholds are set can have qualitatively different implications, and in particular the lower cut-off point separating the poor from the middle class has been heatedly debated in the literature (for a detailed discussion, see Giesbert et al. 2016, Zizzamia et al. 2016).

Some of the dominant definitions suggest that the middle class starts just where poverty ends (for example, see Ravallion, 2010). By contrast, recent studies increasingly advocate the introduction of an intermediate group that separates those who can satisfy their most basic needs but remain on the verge of falling into poverty from a more economically stable middle class (Ncube, Lufumpa, & Kayizzi-Mugerwa, 2011). Among the latter, López-Calva and Ortiz-Juarez (2014) propose an approach to defining the middle class that is anchored in the notion of economic security. They argue that middle-class households should face a maximum risk of 10 percent of falling into poverty, which they define as the maximum acceptable degree of vulnerability for being considered middle class. For a set of Latin American countries, the authors associate this vulnerability threshold with a minimum income requirement of USD 10 per capita per day. Replicating the approach, Zizzamia et al. (2016) identify a similar vulnerability threshold of USD 13 for the specific case of South Africa.[1]

This paper takes the conceptually appealing approach of defining the middle class based on a vulnerability criterion as a starting point. In our view, in the low- and middle-income country context, any discussion on the middle class cannot be detached from a discussion of poverty dynamics. In line with the arguments brought forward by López-Calva and Ortiz-Juarez (2014) and others, we

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[1] The income range of the middle class identified by Zizzamia et al. (2016) overlaps with another recent attempt at defining the middle class in South Africa based on occupation-based affluence criteria (compare Visagie & Posel, 2013).

consider a close investigation of vulnerability to be of prime importance for any discussion of social stratification, for two main reasons: First, the economic insecurity associated with being vulnerable to poverty reduces the well-being of households, even if a deterioration in material well-being does not materialize (for evidence from the psychological and health literature, see Cafiero & Vakis, 2006). In other words, it is not only current income or consumption that matter for actual welfare, "but also the risks a household faces, as well as its (in)ability to prevent, mitigate and cope with these" (Klasen & Povel, 2013: 17). Second, vulnerability has the potential to create poverty traps. Households facing a high ex-ante risk of deterioration in well-being are more likely to opt for stable, low-return sources of income than to invest in activities with more lucrative but also more uncertain outcomes (see Dercon, 2006; Cafiero & Vakis, 2006). These arguments, however, apply equally to households above and below the poverty line. That is, vulnerability not only concerns the risk of slipping into poverty but can also be understood as the risk of remaining poor or falling deeper into poverty. Thus, as in the tradition of poverty analysis, it is essential to differentiate not only between the vulnerable and the more stable middle class, but also between the chronic poor and the transient poor, each of which may have very different policy needs. That is, it is important to identify not only those at greatest risk of slipping into poverty, but also those with the highest chances of (re-)escaping from poverty. For these reasons, we aim to imbed the definition of the middle class in a broader schema of social stratification that looks at mobility patterns not only above but also below the poverty line.

2.2. Multilayered social-stratification schema

The proposed multilayered social-stratification schema is presented in Fig. 1. We define five social classes that diverge both in their absolute average standard of living and their risk of remaining in or falling into poverty.

We begin by assuming a standard division of society into three main classes: 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 some commodity-based poverty line reflecting the average estimated cost of a consumption basket that is deemed to be adequate, with respect to both food and non-food components, in the respective national context (compare Section 3.1). Similarly, we understand the elite as those in society who enjoy a standard of living well above the national average. For the empirical application, we will arbitrarily fix the elite threshold at two standard deviations above the mean per capita household expenditure.[2]

Taking on a dynamic perspective, we introduce two further sublayers (see Fig. 1). Based on our model of poverty transitions, presented below, 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 what 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.[3] 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.

2.3. Econometric modeling of the risk of poverty

In order to operationalize the conceptual framework presented above, an econometric approach to modeling the chances of poverty entry and exit is required. We follow an approach developed by Cappellari and Jenkins (2002, 2004, 2008) drawing on Stewart and Swaffield (1999). The strength of this approach is that it simultaneously accounts for initial condition effects, unobserved heterogeneity, and non-random panel attrition. Section 3.1 illustrates the importance of these four key factors, which have been insufficiently addressed in existing studies that define the middle class based on a simpler model of poverty risks. The approach consists of the estimation of a multivariate probit model that jointly estimates a system of three equations, including (1) a first-order Markov process of poverty transitions between two consecutive panel waves, $t - 1$ and t, (2) the poverty status at $t - 1$ (to account for the potential endogeneity of initial conditions), and (3) an equation for sample retention (to consider potential non-random attrition), allowing free correlation between the unobservables affecting each of these three processes (see Appendix A for details). By specifying the current poverty status to be a function of the realized discrete poverty outcome in the last period (following a standard approach pioneered by Heckman, 1976), we allow the impact of the variables that explain current poverty to vary according to whether or not the individual or household was initially poor. This way, the specification provides estimates for both poverty persistence and entry rates.

While previous studies that define the middle class based on a simpler model of poverty risks have neglected to do so, controlling for the observed and unobserved determinants of initial poverty status is essential in the presence of state dependence – that is, if households that have experienced poverty in the past are more prone to experiencing poverty in the future. In this regard, genuine state dependence would imply that the poverty experience itself increases future poverty risks – for example, due to poverty- or risk-related changes in behavior, constraints posed to future choices, or the depreciation of human capital. However, the persistence of poverty may also be attributed at least partly to sorting effects, given that individuals or households with more favorable characteristics tend to leave poverty earlier. This implies that those who are observed to be poor in each survey wave tend to be a non-random sample of the population, as individuals with a higher tendency to remain permanently poor are likely to be overrepresented in the sample. Similarly, non-random panel attrition may lead to a bias in poverty risk estimates if individuals or households with more favorable characteristics are more (or less) likely to leave in the sample. For these reasons, it is important to account for the endogeneity of both initial conditions and panel retention, a

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[2] The definition of the upper or elite threshold is not the focus of this paper. The size of the middle class can be expected to be relatively robust to minor variations in this threshold, given that it lies in the upper tail of the distribution. However, while we consider the exact cut-off point to be less of a concern, we believe the definition of an elite group to be particularly relevant in the South African context, which is marked by an outstanding concentration of wealth at the top of the distribution, particularly in the top quintile (see Zizzamia et al., 2016).

[3] Note that the extent of chronic poverty according to this relative, forward-looking definition will be approximately five percentage points lower than what standard measures of chronic poverty – such as the spells (see, e.g., Bane & Ellwood, 1986) or the components approach (see Jalan & Ravallion, 1998) – would suggest for South Africa.
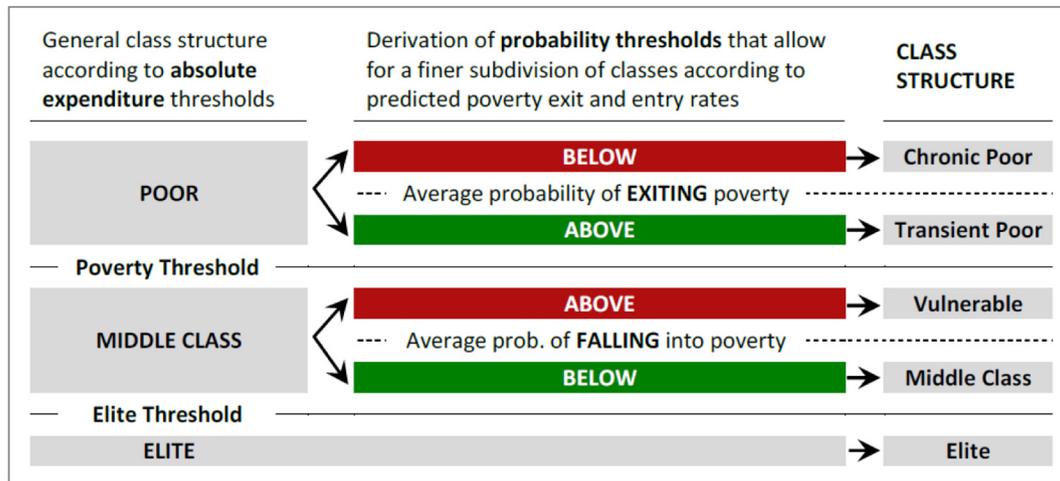
Fig. 1. Schema of social stratification based on current living standards and mobility patterns *Source:* Authors' representation. *Note:* Solid lines denote absolute expenditure thresholds. Dashed lines denote probability thresholds.

consideration which has motivated our choice of modeling approach (for a detailed discussion, see Heckman, 1981).

3. An empirical application of the stratification schema: The case of South Africa

In the following, we provide an empirical application of the multilayered stratification schema introduced above. South Africa is chosen as a case study for three reasons: *First*, it has been identified as one of the countries in sub-Sahara Africa with a relatively large and growing middle class (Ncube et al., 2011). *Second*, despite important advances towards poverty reduction over the past two decades, the level of economic inequality in the country remains among the highest in the world (see inter alia Leibbrandt, Finn, & Woolard, 2012; Özler, 2007). *Third*, while panel datasets are becoming available for an increasing number of low- and middle-income countries, South Africa is among the few countries where multiple survey rounds have been collected at regular and not too widely spaced intervals.

3.1. Data, definitions and descriptive poverty transitions

Our econometric analysis uses panel data from the South African National Income Dynamics Study (NIDS) implemented by SALDRU at the University of Cape Town (SALDRU 2016a, b, c, d). NIDS is South Africa's first national panel study, which started with a nationally representative sample of over 28,000 individuals in 7,300 households. At present, there are four waves of data available, each of which is spaced approximately two years apart, with the first survey having been conducted in 2008. For the dynamic analysis, individuals need to be successfully tracked over at least two consecutive survey waves. Data from pairs of consecutive waves have been pooled, such that transitions that occurred from wave 1 to wave 2, wave 2 to wave 3, and wave 3 to wave 4 are treated identically in the analysis, controlling for period-specific fixed effects. The restricted sample of individuals with two consecutive waves of non-missing expenditure data contains 74,217 observations.

All monetary values used in this paper are deflated to January 2015 prices using the Statistics South Africa (Stats SA) headline consumer price index (Stats SA, 2015a). Following Stats SA's general practice, poverty is defined in terms of per capita household expenditure, which is assumed to provide a better approximation

of permanent household income than the reported income. We understand the satisfaction of basic needs as a necessary condition for being considered middle class. Households are thus classified as being poor versus non-poor using Stats SA's (2015b) upper-bound poverty line (UBPL), which is set at R963 per person per month, equivalent to approximately USD 5.5 a day (in 2011 PPPs). I few use a cost-of-basic-needs (CoBN) approach, the line represents the consumption level at which both food and non-food needs should be met.[4]

Before we proceed to the model, Table 1 illustrates the relevance of issues such as state dependence, initial conditions, and selective attrition. Panel (a) shows the raw poverty transition matrix. As can be seen, the chance of being poor is on average 57.4 percentage points higher for those who were poor in the previous survey wave than for the non-poor. The applied modeling approach will allow us to separate the extent to which this average poverty persistence is explained by heterogeneities in the characteristics of the initially poor versus the non-poor from the extent to which it can be ascribed to the past poverty experience itself (genuine state dependence).

Panel (b) of Table 1 draws attention to the potential issue of non-random panel attrition. While the 2008 sample was drawn on a nationally representative basis and the poverty headcount (UBPL) calculated from this data closely matches official statistics, the poverty trends observed over subsequent waves appear to overstate the reduction in poverty, particularly in the last two waves of the NIDS. This makes it likely that individuals with a lower risk of poverty where somewhat more likely to remain in the sample. As discussed above, the applied approach explicitly controls for the observable and unobservable factors that are associated with both poverty dynamics and panel retention. In this way, we aim to limit the effect of potential attrition bias on our estimates.

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[4] The line is one of three national poverty lines published by Stats SA in 2015 using a cost-of-basic-needs (CoBN) approach to capture different degrees of poverty. Of these, the food poverty line (FPL) is 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. The lower-bound poverty line (LBPL) allows for spending on non-food items, but requires that individuals sacrifice some food consumption in order to fulfil these non-food needs. Only at the upper-bound poverty line (UBPL) can individuals purchase both adequate food and non-food items.

Table 1
Poverty inflow and outflow rates (row %) between survey waves.

Poverty status, year $t-1$	Poverty status, year t		
	Non-poor	Poor	Missing
(a) Sample with non-missing expenditure at t			
Non-poor	73.97	26.03	
Poor	16.59	83.41	
All	*35.55*	*64.45*	
(b) All individuals			
Non-poor	55.34	19.47	25.19
Poor	14.20	71.42	14.37
All	*29.05*	*52.67*	*18.28*

Source: Author's calculations using NIDS waves 1 to 4 pooled sample (post-stratified weights).
Notes: Respondents are classified as poor if their household's per capita expenditure falls below the Stats SA UBPL of R992 (in January 2015 prices). Missing expenditure data at t arise either from sample attrition or incomplete response (see text for further details). The post-stratified survey weights used here have not been corrected for panel attrition.

3.2. Model specification and test statistics

As the NIDS is an individual-level panel, individuals can switch households between waves. This implies that members of the same initial household may take different poverty trajectories. Nevertheless, all explanatory variables entering the poverty transitions equation are measured at the household level. This decision was necessary as the subsequent class analysis requires the predicted poverty scores (determining class membership) to be identical across household members. However, to check the robustness of this approach, we ran two alternative specifications: In one we included individual level controls, which were largely statistically insignificant. In the other, we reduced the sample to household heads only. The parameter estimates were largely consistent across specifications, giving some confidence that the chosen approach did do not cause any systematic bias in coefficient estimates.[5]

The choice of regressors follows the previous literature. The explanatory variables either refer to the household head, including demographics (age, age squared, gender, and race), level of education, labor market status, and job type, or to the household itself, including a set of variables capturing the composition and age structure of the household, the number of employed household members, the household's access to basic services, and controls for geographic location. Importantly, all variables were measured in the base year (wave $t-1$) prior to a potential poverty transition (experienced in wave t) and, in line with most of the poverty modeling literature, are thus assumed to be predetermined. For this very reason, variables summarizing the occurrence of economic shocks or other types of events triggering poverty descents are not used in this specification. However, given that the existing literature has identified a high extent of churning in the South African labor market (for example, see Kerr, 2018), which is likely to have important dynamic implications for households' welfare, we have paid particularly close attention to capturing the stability of employment relationships, approximated by formality, contract type, unionization, and public sector share.

Statistical identification of the model parameters requires exclusion restrictions. Specifically, we need to find a set of instrumental variables that affect initial poverty status or sample retention, but have no direct effect on poverty transitions (see Appendix A for details). This is not an easy task, given that these are intricate social processes. For the base-year poverty status, Cappellari and

Jenkins (2002) use parental occupation to proxy for parental socioeconomic status during childhood. Diverging slightly from their original approach, we suggest using a set of instruments summarizing both the mother's and the father's highest level of education attained (also including variables to indicate missing information on the items of interest). In the psychological literature investigating the long-term effect of parents' education, it has been shown that the parental educational level during childhood significantly affects educational aspirations and the educational level in late adolescence, but – beyond these indirect effects – has no direct effects on children's educational and occupational outcomes in adulthood (Dubow et al., 2009). Similarly, the key assumption here is that parental schooling affects the initial poverty status, but has no direct effect on the wave-to-wave transition probabilities. We add controls for the kind of work usually done by the parent in the current or last job in order to separate those labor market effects likely adding to the current income situation from the factors determining the respondent's parental background. Thus, the explanatory variables for initial conditions include all the variables that explain poverty transitions plus the parental background indicators, which are assumed to have a direct impact on the initial poverty status in the base period, but not on poverty entry or exit in subsequent waves.

Following Cappellari and Jenkins (2002, 2004, 2008), the set of instruments for sample retention includes a binary variable indicating whether the respondent is an original sample member (OSM) who has been in the NIDS panel since the first wave, or joined the survey later as temporary sample member (TSM) by moving into or being born into an OSM household. Our key assumption here is that OSMs are more stable survey members compared to TSMs and that sample membership status has no direct effect on the poverty transition propensity. Thus, the explanatory variables for the panel retention equation include all the variables to explain poverty transitions plus the sample membership control, which is assumed to affect panel retention or attrition, but be orthogonal to the poverty transition propensity.[6]

Regarding the parental background indicators, the test results reported in Table 2 indicate that mothers' schooling is significantly correlated with the initial poverty status and excludable from the poverty transition equation, whereas fathers' schooling does not satisfy the exclusion restriction. The variable for original sample membership can be excluded from the poverty transition equation, and is statistically significant in the sample retention equation. We are confident that the controls for mothers' schooling and original sample membership allow for the identification of the system of equations.

In order to assess the exogeneity of the two selection mechanisms to the process of poverty transitions, we tested the separate and joint significance of the correlation coefficients. In line with previous findings in the literature, we observe a negative and statistically significant correlation between the unobservables affecting initial and conditional current poverty (ρ_{21}). This can be interpreted as an example of Galtonian regression towards the mean (Stewart & Swaffield, 1999). The correlation between the unobservables affecting poverty transitions and sample retention (ρ_{32}) is not significantly different from zero. However, there is a significant positive correlation between the unobservables affecting initial poverty and sample retention (ρ_{32}) (see Table 2, panel (a)).

The related exogeneity tests are reported in panel (b) of Table 2. Exogeneity of initial conditions would imply that ρ_{23} and ρ_{32} are jointly zero – a hypothesis that is strongly rejected (Wald test

[6] We tried adding a dummy variable to the set of instruments for whether or not the respondent was classified by the interviewer as friendly and very attentive. However, this variable did not fulfil the exclusion restriction.

Table 2
Estimates of model correlations, and model test statistics.

	Estimate	s.e.
(a) Correlation coefficients between unobservables		
Base year poverty status and conditional current poverty status (ρ_{21})	−0.319[***]	0.053
Sample retention and conditional current poverty status (ρ_{31})	0.018	0.025
Sample retention and base year poverty status (ρ_{32})	0.059[*]	0.025

Null hypotheses for tests	Test statistic	p-value
(b) Wald test for exogeneity of selection equations		
Exogeneity of initial conditions, $\rho_{21} = \rho_{32} = 0$	41.48[***]	0.0000
Exogeneity of sample retention, $\rho_{31} = \rho_{32} = 0$	6.09[**]	0.0476
Joint exogeneity, $\rho_{21} = \rho_{31} = \rho_{32} = 0$	43.83[***]	0.0000
(c) Instrument validity		
Exclusion of mother's schooling from transition equation (d.f. = 10)	8.97	0.5397
Exclusion of sample membership status from transition equation (d.f. = 2)	4.69	0.1157
Exclusion of mother's schooling and sample membership status from transition equation (d.f. = 20)	13.74	0.3176
Inclusion of mother's schooling in initial conditions equation (d.f. = 5)	28.49[***]	0.0000
Inclusion of sample membership status in retention equation (d.f. = 1)	352.74[***]	0.0000
(d) Test of state dependence		
No state dependence, $\gamma_1 = \gamma_2$	249.59[***]	0.0000

Asymptotic standard errors are robust for the presence of repeated observations on the same individual.
[***]p < 0.01, [**]p < 0.05, [*]p < 0.1.
Source: Author's calculations using NIDS waves 1 to 4 pooled sample (post-stratified weights).
Note: Simulated pseudo maximum likelihood estimation with 250 random draws.

$p < 0.000$). Exogeneity of sample retention in return would imply that ρ_{31} and ρ_{32} are jointly zero. Here, the null hypothesis is rejected at the 5 percent significance level (Wald test $p < 0.0476$). Both initial conditions and sample retention will thus be considered endogenous to the model. We will use the coefficient estimates from the panel retention equation to adjust the survey weights in the pooled panel to account for unfolding attrition. That is, respondents who were tracked over two consecutive waves will receive a new weight, calculated as the product of the original post-stratified weight of the initial period and the inverse of the conditional probability of re-interview.

Last but not least, a test of whether the two sets of coefficient estimates are identical for initially poor versus non-poor individuals can be rejected at all common significance levels (see Table 2, panel (d)). That is to say, we cannot reject the hypothesis that there is significant genuine state dependence, with past poverty experiences affecting the likelihood of future poverty.

3.3. Estimated effects of the explanatory variables on transition probabilities

The coefficient estimates from the poverty transitions equation are reported in Table 3. (The estimates for the initial poverty status and sample retention are provided in Tables B.1 and B.2 in the Appendix). Two sets of estimates are reported, depending on the initial poverty status. The first (second) set shows the marginal effect of a change in the respective characteristics of the household on the probability of poverty persistence (entry), which is the likelihood of being poor in the current survey wave for someone who was poor (non-poor) in the past survey wave. 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. The same logic applies to the estimated chances of poverty entry as opposed to resilience to poverty.

In terms of demographic characteristics, the findings reported in Table 3 indicate that households with younger heads tend to be more prone to changes in poverty status. As expected, members of households that are female headed, rural, and have a larger number of dependents face a higher risk of poverty. Race remains a strong predictor of poverty in South Africa, with Africans being at the highest risk, even after controlling for differences in education and employment. Higher levels of household-head education are associated with a lower vulnerability to poverty, although effect sizes vary considerably between initially poor and non-poor households.

With respect to the labor market, we find that having a working head does not necessarily mean lower vulnerability to poverty. Amongst those who are employed, we differentiate between five types of economic activity, including subsistence agriculture (which accounts for a marginal share of total employment in South Africa), casual work, self-employment, employees with a temporary or time-limited work contract, and employees with a permanent work contract. The effect depends crucially on the type of employment that the head engages in, and especially its stability and duration. Specifically, members of households where the head works as a regular employee with a permanent work contract face a significantly lower risk of poverty. By contrast, for those with temporary work contracts or a contract of unspecified duration, the effect is not statistically significant. Also self-employment on the part of the household head can reduce the risk of poverty. The effect is, however, substantially larger if the business is in the formal and not the informal sector. Those living in households where the head is casually employed or works in a family business (without pay) are up to 4 percent more likely to remain poor than those in households with inactive heads.

While the effects for most of the explanatory variables point in the same direction for both sets of estimates, the size of the effect on the poverty propensities differs substantially for some variables, depending on whether or not the individual was already poor in the initial period. Specifically, we observe that both education and employment (including the employment status of the household head and the number of other employed household members) have a smaller poverty-risk reducing effect for the initially poor than the non-poor. One of the channels through which a past poverty experience could increase the risk of future poverty is the depreciation of human capital, as well as potential signaling effects for employers and the potential acceptance of low quality job offers that may be associated with future unemployment spells.

Table 3
Multivariate probit model: Poverty transitions.

Probability of being poor in t conditional on poverty status in $t-1$	Poverty persistence			Poverty entry		
	Average Marginal Effect	Coeff. Estimate	s.e.	Average Marginal Effect	Coeff. Estimate	s.e.
Characteristics of the household head (HoH) in $t-1$						
HoH age	0.001	0.006	(0.004)	−0.005	−0.018[**]	(0.008)
HoH age squared (x0.01)	−0.002	−0.009[**]	(0.004)	0.000	−0.001	(0.008)
HoH is female	0.017	0.070[***]	(0.024)	0.095	0.330[***]	(0.041)
HoH race group (base: African)						
Colored	−0.005	−0.022	(0.053)	−0.121	−0.411[***]	(0.064)
Asian/Indian	−0.407	−1.278[***]	(0.153)	−0.293	−1.144[***]	(0.116)
White	−0.426	−1.336[***]	(0.279)	−0.287	−1.109[***]	(0.107)
HoH education (base: no schooling)						
Less than primary completed	0.011	0.050	(0.032)	−0.110	−0.356[***]	(0.088)
Primary completed	0.023	0.102[**]	(0.044)	−0.128	−0.415[***]	(0.096)
Secondary not completed	−0.027	−0.113[***]	(0.034)	−0.202	−0.656[***]	(0.085)
Secondary completed	−0.067	−0.265[***]	(0.051)	−0.288	−0.952[***]	(0.101)
Tertiary	−0.215	−0.752[***]	(0.078)	−0.340	−1.147[***]	(0.107)
HoH employment status (base: inactive)						
Unemployed (discouraged)	0.021	0.094	(0.059)	−0.066	−0.233[**]	(0.110)
Unemployed (strict)	0.002	0.007	(0.039)	0.056	0.194[**]	(0.079)
Subsistence farmer	0.010	0.045	(0.064)	0.003	0.010	(0.149)
Casual worker/helping others	0.029	0.127[**]	(0.061)	0.148	0.511[***]	(0.181)
Self-employed	−0.021	−0.087	(0.054)	0.076	0.262[***]	(0.079)
Self-employed # Formal[a]	−0.066	−0.322[*]	(0.174)	−0.217	−0.493[***]	(0.134)
Employee	0.000	0.001	(0.041)	0.047	0.161[**]	(0.069)
Employee # Permanent contract	−0.032	−0.128[**]	(0.052)	−0.090	−0.150[**]	(0.061)
Employee # Union member	−0.025	−0.101[*]	(0.062)	−0.098	−0.178[***]	(0.057)
Employee # Share public sector[b]	−0.057	−0.225[**]	(0.093)	−0.153	−0.372[***]	(0.093)
Characteristics of the household (HH) in $t-1$						
Composition of the HH						
No. of members in HH	0.007	0.027[***]	(0.008)	0.037	0.125[***]	(0.020)
No. of workers in HH (excl. HoH)	−0.021	−0.087[***]	(0.015)	−0.058	−0.208[***]	(0.029)
No. of children (<18 years)	0.024	0.099[***]	(0.011)	0.005	0.016	(0.025)
No. of elderly members (60+ years)	−0.002	−0.007	(0.021)	0.057	0.200[***]	(0.037)
HH has access to basic goods and services (shelter/water/ sanitation/electricity)	−0.040	−0.165[***]	(0.032)	−0.027	−0.095[**]	(0.046)
Geographic location (base: traditional) [c]						
Urban	−0.006	−0.026	(0.032)	−0.058	−0.198[***]	(0.055)
Farms	0.031	0.138[***]	(0.048)	0.060	0.205[**]	(0.091)
Constant		0.825[***]	(0.123)		0.923[***]	(0.205)
Province fixed effects	YES			YES		
Time fixed effects	YES			YES		
Log-likelihood	−97,980,000					
Model chi2 (d.f. = 174)	23,842					
Number of observations	67,117					

Asymptotic standard errors are robust for the presence of repeated observations on the same individual.
[***]$p < 0.01$, [**]$p < 0.05$, [*]$p < 0.1$.
Source: Author's calculations using NIDS waves 1 to 4 pooled sample (post-stratified weights).
Notes: Simulated pseudo maximum likelihood estimation with 250 random draws.

1. Urban – A continuously built-up area that is established through cities, towns, 'townships', small towns, and hamlets.
2. Traditional – Communally owned land under the jurisdiction of traditional leaders. Settlements within these areas are villages.
3. 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 as a result of historical events.

[a] For self-employed, formal businesses are registered for income tax &/or VAT.
[b] The average share of public sector employment by industry and survey year has been calculated from the 2008, 2010/11, 2012, and 2014/2015 Quarterly Labor Force Surveys.
[c] In line with the 2011 census, three settlement types are distinguished in NIDS:

There may also be a difference in the quality of education between poor and non-poor household heads.

3.4. Class thresholds

We use the estimates from the switching model presented to predict the poverty exit and entry probabilities of initially poor versus non-poor individuals. These are evaluated against two probability thresholds, displayed in Table 4 panel (a), based on the actual observed rates of poverty exit and entry in our data. We observe that, on average, 16.5 percent of the initially poor escaped poverty between one wave and the next in the pooled sample. This observed average rate of poverty exit is set as the cut-off point sep-

arating the chronic poor from the transient poor. Analogously, we observe that the average probability of falling into poverty for those who were initially non-poor was 25.9 percent in our pooled sample. This observed average rate of poverty entry is set as the cut-off point separating the vulnerable from the middle class.[7]

For comparative purposes, we also give an indication of the monetary thresholds associated with these probability cut-offs. To do so, we calculate the average monthly per capita household expenditure of those respondents whose predicted poverty transi-

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[7] Note the slight difference from the transition probabilities reported in Table 1, which arises from the use of attrition-adjusted weights derived from the retention equation (see p.13 for details).

Table 4
Probability thresholds and associated monetary thresholds.

	(a) Probability threshold (%)			(b) Associated monetary threshold		
	Mean	Std. Err.	[95% Conf. Int.]	Mean	Std. Err.	[95% Conf. Int.]
Average probability of **EXITING** poverty for those who were poor in the last period	16.52	0.16	16.21 16.84	543	6	532 555
Average probability of **FALLING** into poverty for those who were non-poor in the last period	25.91	0.36	25.21 26.61	2590	85	2422 2757

Source: Author's calculations using NIDS waves 1 to 4 pooled sample (post-stratified weights corrected for panel attrition).
Note: Poverty transition probabilities are predicted using parameter estimates from our regression model. The associated monetary thresholds are calculated as the average per capita household expenditure of those falling into the 95% confidence interval around the respective probability threshold. All monetary values are expressed in January 2015 rands.

tion probability falls within the 95 percent confidence interval of the respective probability threshold. We find that the average probability of exiting poverty is associated with a monetary threshold of R543 per person per month, which falls between Stats SA's food poverty line (R441) and the lower-bound poverty line (R647). The average probability of entering poverty is associated with a monetary threshold of R2,590 per person per month. Thus, on average, respondents living in households with expenditure levels above this threshold could be considered reasonably secure against falling into poverty.

Using these monetary thresholds as cut-off points, however, would mask a substantial degree of variation in the predicted poverty propensities among individuals living in households with similar current expenditure levels, as Table 5 illustrates. Although the transient poor tend, on average, to be better off than the chronic poor, members of both groups can be found anywhere below the poverty line. Similarly, while the middle class is on average better off than the vulnerable, members of both groups can be located anywhere between the poverty line and the elite cut-off (R10,484).

In consequence, by applying a monetary threshold to distinguish those who are non-poor but vulnerable from those who are stably middle class, we would risk making two misclassification errors. First, there may be households that fall below the vulnerability thresholds, but have access to a relatively secure income flow, which will help them to sustain their living standard over time. As Table 6 illustrates, almost four out of 10 individuals who would be classified as vulnerable by their income position would be classified by us as middle class given their household characteristics. Second, there may be households for which we observe a current consumption level above the vulnerability threshold, but which face an elevated risk of poverty and will likely not be able to sustain their current living standard over time. This applies to two out of 10 individuals, who would be classified as middle class based on their income position but whom we would consider to be vulnerable given their household characteristics. The same logic applies to the distinction between chronic versus transient poverty. For approximately one out of 10 individuals with per capita household expenditures of less than R543 we would predict above average chances of escaping poverty, while we would view five out of 10 individuals with expenditures above that threshold as having an above average risk of remaining poor.

In Table 7 we compare the relative size of the five social classes when probability thresholds, as opposed to monetary thresholds, are used to distinguish the class sublayers. We observe that the middle class, which we identify using the latent poverty propensity, is approximately five percentage points larger (and, accordingly, the group of the vulnerable is five percentage points smaller) than when a monetary threshold is applied. That is, by using a monetary threshold to identify the middle class, we risk missing out on a non-negligible share of the population that falls below that threshold but is nevertheless relatively secure against falling into poverty. Despite the middle class identified in this

way being larger, on average, only 9.5 percent (as compared to 9.7 percent when identified using the monetary threshold) fell below the poverty line within a two-year time horizon. Furthermore, by directly basing the classification on the latent poverty propensity scores, we are better able to identify those with an elevated risk of poverty than when we rely on monetary measures alone. Almost every second person who we classify as vulnerable actually fell into poverty within two years' time. Table 7 also shows that the extent of chronic poverty would have been underestimated if a monetary threshold had been used.

4. Class formations, social inequality and mobility in South Africa

In this section, we provide a profile of the five social strata – the chronic poor, the transient poor, the vulnerable, the middle class, and the elite – identified specifically for South African case.

4.1. Class characteristics and inequality patterns

As Fig. 2 illustrates, we find that according to the suggested stratification schema, approximately one in four (24 percent) South Africans could be classified as stably middle class or elite. Their combined share remained relatively stable between 2008 and 2014/15. In addition, over this period approximately 14 percent of the population fell within the group of the vulnerable. That is, a substantial share of the non-poor still faced a considerable risk of falling into poverty. On the other hand, among the poor, approximately 80 percent could be considered chronic poor (comprising half of the total population), whereas the remaining 20 percent (accounting for 13 percent of the total population between 2008 and 2014/15) could be classified as transient poor.[8]

Tables 8 and 9 provide an overview of the key average characteristics of households in general and household heads in particular among the five social classes. By construction, the characteristics closely mirror the determinants of poverty transitions reported in Section 3.3.

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[8] The 2008 NIDS sample was drawn on a nationally representative basis and the poverty headcount (UBPL) calculated from this data based on per capita household income (56.7) or expenditure (60.1 percent) closely matches official statistics (56.8 percent). However, the poverty trends observed over subsequent waves should be treated with caution. Using household expenditure, poverty increased up to 2010/11, with a remarkable rise of five percentage points in the share of households being pushed below the food poverty line. From 2010/11 to 2014/15 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. When using incomes instead of expenditures, an even stronger fall in the poverty headcount by more than 10 percentage points between 2008 and 2014/15 is observed. A similar pattern emerges when the sample is restricted to respondents that were successfully interviewed in all four waves. However, particularly the strong reduction in poverty over the last two years of NIDS may raise doubts, given that it was not mirrored by any major event at the macro level. The trend might in part be explained by changes in the NIDS sample (see Section 3.1), and should therefore be interpreted with caution.

Table 5
Monthly household expenditure per person by social class, 2008 to 2014/15.

	Min	Max	Median	Mean	[95% Conf. Interval]	
Chronic Poor	29	992	342	390	388	391
Transient Poor	24	991	617	617	613	620
Vulnerable	992	10,418	1586	2045	2024	2066
Middle class	993	10,470	3319	3987	3946	4029
Elite	10,488	131,514	15,347	19,251	18,693	19,809

Source: Author's calculations using NIDS waves 1 to 4 pooled sample (post-stratified weights corrected for panel attrition).
Note: All monetary values are expressed in January 2015 rands.

Table 6
Classes identified by poverty propensity versus monetary thresholds, 2008 to 2014/15.

Pooled Sample (two consecutive waves)		Probability Threshold					
		Chronic	Transient	Vulnerable	Middle Class	Elite	Total
Monetary	Chronic poor	88.72	11.28	0	0	0	100
	Transient poor	58.39	41.61	0	0	0	100
	Vulnerable	0	0	60.44	39.56	0	100
	Middle class	0	0	18.53	81.47	0	100
	Elite	0	0	0	0	100	100
	Total	49.44	12.80	14.37	19.69	3.70	100

Source: Author's calculations using NIDS waves 1 to 4 pooled sample (post-stratified weights corrected for panel attrition).

Table 7
Average class size and mobility patterns by identification method, 2008 to 2014/15.

	Probability Thresholds			Monetary Thresholds		
	Population Share (%)	Share (%) that fell into poverty	Share (%) that moved out of poverty	Population Share (%)	Share (%) that fell into poverty	Share (%) that moved out of poverty
Chronic Poor	49.44	..	10.63	43.21	..	10.53
Transient Poor	12.80	..	40.28	19.03	..	31.02
Vulnerable	14.37	49.72	..	19.24	40.24	..
Middle class	19.69	9.54	..	14.82	9.72	..
Elite	3.70	2.80	..	3.70	2.80	..

Source: Author's calculations using NIDS waves 1 to 4 pooled sample (post-stratified weights corrected for panel attrition).
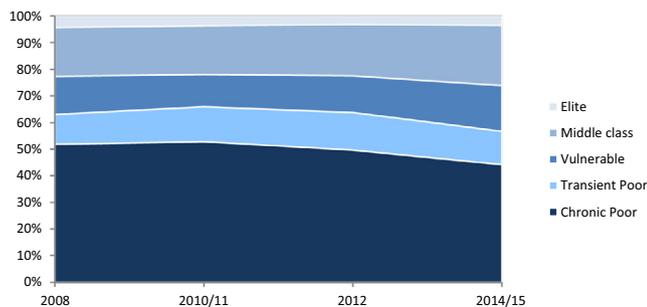*Note:* All monetary values are expressed in January 2015 rands.

Fig. 2. Class sizes, 2008 to 2014/15. *Source:* Author's calculations using NIDS waves 1 to 4 pooled sample (post-stratified weights corrected for panel attrition).

In terms of household composition, those classified as chronically poor live in households that count five members on average, which is approximately twice the size of households in the middle class. Of the five members, about half (2.5) are below age 18 and two are below age 15. Accordingly, we observe that poverty in general and chronic poverty in particular overproportionately affect children in South Africa. Approximately three in four children (74.6 percent) below age 15 live in poverty, with approximately two in three (64.9 percent) growing up in a situation of persistent poverty. By contrast, only 14 percent of all children below 15 years can be classified as stably middle class or elite. This finding is particularly worrisome given that being raised in poverty tends to increase the risk of poverty in adulthood, likely contributing to a cycle of chronic poverty. Moreover, given our observation that most households, independent of their size, rely on a single-income earner, this implies that the working poor not only have substantially lower labor incomes but generally also need to take care of a substantially higher number of dependents (see Table 8).

A key finding from the application of our stratification schema to the South African case is that there is a close similarity between the transient poor and the vulnerable in terms of both household composition and the composition of income sources available to the household. From a static perspective, these two groups are distinct in terms of their realized consumption, which falls below or exceeds the cost-of-basic-needs poverty line, respectively. However, as our stratification schema shows, the distinction between these groups is much less meaningful in a dynamic sense, with large parts of both groups predicted to swap places on either side of the poverty line over time. Compared to the transient poor, household size is somewhat smaller for the vulnerable. This suggests that simply acquiring a dependent in the household may be enough to push those among the vulnerable below the poverty line. Taking this dynamic perspective into account, these two groups can essentially be considered two sides of the same coin.[9]

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[9] We are thankful to an anonymous reviewer for suggesting this notion, which – in our view – very well reflects the structural affinity of transient poor and vulnerable households.

Table 8
Average household (HH) characteristics by social class, 2008 to 2014/15.

	Chronic Poor	Transient Poor	Vulnerable	Middle Class	Elite	Total
Weighted share of respondents	49.4%	12.8%	14.4%	19.7%	3.7%	100%
As percentage of poor	79.4%	20.6%	n.a.	n.a.	n.a.	n.a.
Weighted share of respondents under 15 years old	64.9%	9.7%	11.4%	12.7%	1.3%	100%
Mean household expenditure per capita	445	646	2161	4030	20,159	3054
Median household expenditure per capita	399	663	1651	3,368	16,364	1141
No. of members in HH	5.2	3.2	2.4	2.4	2.0	3.4
No. of workers in HH	0.7	1.0	0.9	1.2	1.0	1.0
Age composition						
No. of children (<18 years)	2.5	0.9	0.7	0.6	0.3	1.2
No. of members of working age (18–60 years)	2.4	2.0	1.6	1.6	1.4	1.9
No. of elderly members (60+ years)	0.3	0.3	0.2	0.2	0.3	0.3
Income by source [a]						
Share of income derived from source						
Labor	37.8%	64.8%	69.5%	81.9%	79.1%	62.9%
Government grants	51.3%	25.1%	16.9%	6.8%	2.1%	25.2%
Remittances	7.4%	7.9%	10.2%	3.8%	1.5%	6.6%
Subsistence agriculture	0.8%	0.3%	0.3%	0.1%	0.1%	0.4%
Investments	1.8%	1.2%	2.5%	7.1%	17.0%	4.3%
Mean income from source (if non-zero)						
Labor	2798	4249	4843	12,642	32,342	8948
Government grants	1438	1167	1087	1408	1313	1334
Remittances	1333	1019	1592	1870	14,226	1812
Subsistence agriculture	178	133	410	545	1691	259
Investments	1845	1452	2308	13,095	14,281	9607
Access to services						
House, cluster, town house	56.4%	65.5%	58.2%	69.4%	84.9%	63.4%
Tap water in house/on plot	56.1%	83.5%	79.2%	96.2%	98.2%	78.2%
Flush toilet in/outside house	30.4%	70.6%	63.1%	93.7%	97.4%	64.2%
Access to electricity	73.9%	84.5%	85.7%	95.9%	96.0%	85.2%
HH has access to basic goods and services (shelter/water/sanitation/electricity)	17.0%	49.0%	35.5%	64.0%	79.9%	42.0%
Geographic location [b]						
Traditional	53.6%	17.8%	25.7%	5.2%	3.4%	26.5%
Urban	40.1%	77.3%	66.6%	91.9%	94.4%	68.3%
Farms	6.3%	4.9%	7.7%	2.9%	2.2%	5.2%

Source: Author's calculations using NIDS waves 1 to 4 pooled sample (post-stratified weights corrected for panel attrition).
Notes: All monetary values are expressed in January 2015 rands.

1. Urban – A continuously built-up area that is established through cities, towns, 'townships', small towns, and hamlets.
2. Traditional – Communally owned land under the jurisdiction of traditional leaders. Settlements within these areas are villages.
3. 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 as a result of historical events.

[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:

Interestingly, in absolute terms, income from government grants is fairly stable across all five classes (probably because of very broad access to old-age pensions). It is highest among the chronic poor, at R1,438 (though this income is shared among substantially larger households), and lowest among the (relatively young) vulnerable group, at R1,087 (see Table 8). While fairly constant in absolute terms, the relative importance of social grants in the lives of the poor cannot be overstated. Specifically, the chronic poor derive more than half their income from government grants. By comparison, grant money makes up one fourth of the income of the transient poor and one sixth of the income of the vulnerable. In the middle class, 6.8 percent of total household income is derived from grants. In accordance with the existing literature, we find that the middle class is the class that relies most heavily on the labor market for its welfare (see Table 8).

A key difference between the chronic poor and the transient poor appears to lie in their geographic location. Half of the chronic poor reside in "traditional" areas, comprising traditional villages and communally owned land, including those areas where the former "homelands" were located. The same applies to only 17.8 percent of the transient poor. Relatedly, the chronic poor are the most deprived in their access to basic goods and services. Only
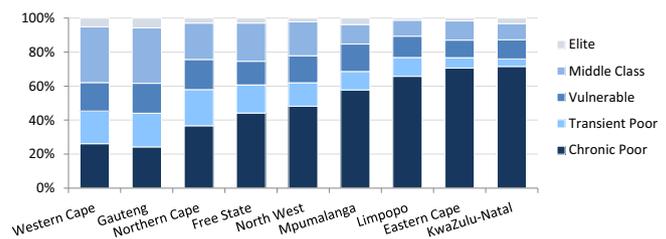

Fig. 3. Population share of South Africa's five social classes by province, 2008 to 2014/15. *Source:* Authors' calculations using NIDS waves 1 to 4 pooled sample (post-stratified weights).

17 percent of the chronically poor households had access to electricity, flowing water, a flushable toilet and formal housing, as compared to 50 percent of the transient poor and 64 percent of the middle class.

Fig. 3 displays the distribution of the five social classes across South Africa's nine provinces. KwaZulu-Natal has the highest incidence of chronic poverty and the second smallest middle class (after Limpopo). At the same time, however, KwaZulu-Natal also

Table 9
Average characteristics of the head of household (HoH) by social class, 2008 to 2014/15.

	Chronic Poor	Transient Poor	Vulnerable	Middle Class	Elite	Total
Age	50	45	42	46	48	47
Female	69.4%	51.6%	58.3%	31.4%	28.1%	56.5%
Race						
African	94.8%	81.6%	89.7%	45.7%	17.7%	79.9%
Colored	5.2%	14.0%	9.2%	14.0%	7.0%	8.7%
Asian/Indian	0.0%	2.5%	1.0%	7.7%	10.0%	2.3%
White	0.0%	1.9%	0.1%	32.7%	65.4%	9.1%
Education (average level if 25 years or older)	5	9	9	12	14	8
No schooling	25.5%	10.0%	8.7%	0.2%	0.7%	15.2%
Less than primary completed (grades 1 to 6)	27.0%	14.0%	15.5%	2.5%	1.3%	17.8%
Primary completed (grade 7)	11.7%	3.2%	8.3%	2.0%	1.9%	7.8%
Secondary not completed (grades 8 to 11)	31.0%	43.1%	45.6%	32.6%	8.9%	34.0%
Secondary completed (grade 12)	4.6%	14.3%	13.0%	24.0%	16.2%	11.3%
Tertiary	0.2%	15.4%	8.9%	38.8%	71.1%	13.8%
Employment status						
Inactive	53.6%	34.9%	29.2%	19.9%	19.7%	39.9%
of which share of pensioners	35.6%	37.5%	27.3%	33.3%	35.6%	34.7%
Unemployed (discouraged)	3.6%	1.3%	2.0%	1.8%	0.5%	2.6%
Unemployed (strict)	12.0%	12.7%	12.0%	3.5%	1.2%	10.1%
Employed	30.8%	51.2%	56.7%	74.8%	78.6%	47.4%
Employment type (if EMPLOYED)	6.5%	6.3%	8.6%	6.9%	10.2%	7.2%
Employee	55.3%	77.3%	69.9%	85.5%	75.5%	71.4%
of which share in formal sector	52.6%	75.6%	71.2%	94.8%	92.3%	77.3%
of which share with permanent contract	36.2%	63.4%	48.9%	81.2%	79.6%	61.8%
of which share member in trade union	13.8%	33.3%	23.9%	51.0%	29.7%	33.3%
of which expected share in public sector	12.9%	21.1%	15.0%	28.9%	23.7%	21.1%
Self-employed	17.7%	14.7%	16.3%	9.4%	18.1%	14.5%
of which share in formal sector	2.6%	14.4%	12.6%	63.1%	70.0%	23.0%
Casual worker/ helping others	15.7%	4.6%	9.6%	1.0%	0.7%	7.7%
Subsistence agriculture	9.1%	1.3%	1.8%	0.3%	0.3%	3.5%

Source: Author's calculations using NIDS waves 1 to 4 pooled sample (post-stratified weights corrected for panel attrition).

has the fourth largest elite (after Gauteng, the Western Cape, and Mpumalanga), indicating a substantial degree of local social inequality. Chronic poverty is lowest in the Western Cape and in Gauteng, which are also the two provinces with the strongest middle class and elite. 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 (see Fig. 3).

Table 9 explores the average characteristics of the head of household by social class. With an average age of 42 years, household heads in the vulnerable class tend to be younger than those in the other classes, which may be associated with a less stable position in the labor market. With an average age of 50 years, household heads tend among those living in chronic poverty tend to be the oldest. This may be linked to processes of household formation, where adult children or grandchildren cohabit with (grand)parents who receive a government old-age pension, thus forming larger, intergenerational households (see Klasen & Woolard, 2009). Furthermore, seven out of 10 chronically poor individuals live in households where the household head is female, as compared to five to six out of 10 among the transient poor and vulnerable classes, and three out of 10 among the middle class and elite. This in part reflects the higher incidence of poverty and vulnerability to poverty among single mothers in South Africa.

Given that race tends to be a strong predictor of poverty in South Africa, it is unsurprising that the chronically poor group is almost exclusively made up of black Africans. Coloreds,[10] by contrast, seem to be more heavily concentrated amongst the transient poor and the stable middle class, facing somewhat lower risks of downward mobility. Although Africans constitute the largest proportion of the middle class today – with a trend of growth in recent

years, as illustrated in Fig. 4 – their share among the two top groups remains far from demographically representative. That is, while Africans make up approximately 80 percent of the total population, in 2014/15 they made up just above 50 percent of the middle class. On the other hand, while whites constitute a mere 10 percent of the population, almost one in three members of the middle class and two in three members of the elite are white.

As may be expected, Table 9 reveals a strong relationship between the educational attainment of household heads and class membership (similar patterns are observed when we look at individual education levels). Heads of chronically poor households are on average the least educated, with no more than five years of primary education, while the transient poor and the vulnerable tend to have some secondary education. Household heads in the middle class have generally completed secondary schooling, while those in the elite likely have some tertiary education.

There is also a clear differentiation between classes in terms of access to the labor market: The more disadvantaged the class that a household belongs to, the more likely it is that the household head is unemployed or economically inactive. Only 30.8 of house-
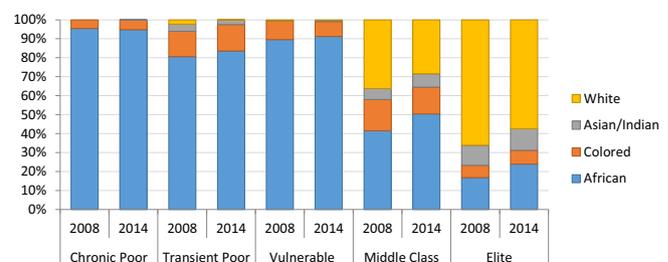

Fig. 4. Racial composition of South Africa's five social classes, 2008 and 2014/15. *Source:* Authors' calculations using NIDS waves 1 to 4 pooled sample (post-stratified weights).

hold heads amongst the chronic poor are in employment, with the remainder being economically inactive or unemployed. Among the transient poor and the vulnerable, approximately 50 percent are in employment. By contrast, approximately 80 percent of the household heads in the middle class and the elite are economically active, and the employment rate in these two classes is high at over 75 percent. Precarious forms of work including casual and temporary employment constitute the largest share of all jobs among the poor and the vulnerable, whereas 80 percent of all household heads among the middle class and the elite have a permanent work contract (see Table 9).

4.2. A dynamic perspective on the determinants of class membership and inter-class transitions

In the following, we aim to further investigate the determinants of class membership and inter-class transitions. For this purpose, we use the point estimates of the poverty transition equation reported in Table 3 above to examine how the predicted probabilities of poverty entry and exit vary for persons with different combinations of characteristics. For illustrative purposes, we also predict the average per capita expenditure based on household characteristics for the respective person using a linear income model (see Table B.3 Appendix). The results are summarized in Table 10.

Our reference person, case (1), represents a "typical" member of the middle class in South Africa. In line with the average class characteristics reported in Tables 8 and 9 above, a typical middle class household has two working adults and one child. The household head is male, African, 46 years old, has completed secondary education (12 years of schooling), is employed with a permanent contract and union coverage, and resides in an urban area in Gauteng. This reference person, if initially non-poor, faces a predicted probability of falling into poverty within two years' time of 8 percent, and if initially poor would have had a 37.8 percent chance of exiting poverty. The predicted expenditure level for this middle-class reference person is R2,959 per month, which is approximately three times the basic-needs requirement captured by the poverty line (R992). An even more stable job in the public sector would further halve the risk of poverty (case (2)).

In the following, we first investigate how the predicted poverty entry and exit probabilities and the expenditure level change, as we gradually modify the reference person's household characteristics (case (1)) to represent a "typical" member of the vulnerable class (case (7)).[11] Compared to the middle class, household heads in the vulnerable group are often somewhat younger and female, which leads to a moderate decline in the predicted expenditure level (from R2,959 to R2,495), but almost doubles the predicted likelihood of falling into poverty from 8 to 15.8 percent. Reducing the level of education attained by the head to nine years of schooling (secondary education not completed) leads to a further contraction of the predicted expenditure level to R1,812 and an increase in the propensity to enter poverty to 24 percent, which pushes the person from being middle class to the edge of entering the group of the vulnerable (note that the probability cut-off value is fixed at a poverty entry rate of 25.9 percent). Vulnerable households are moreover larger, normally counting two adults and two children, and often there is only a single earner. This is associated with an increase in the risk of slipping into poverty to 36.1 percent, and a reduction in the probability of escaping poverty once it has been entered to 22.6 percent (see Table 10).

Greater job insecurity also represents an important source of vulnerability. A typical member of the vulnerable class living in a household where the head has a time-limited work contract and no union coverage would face an average risk of poverty to 48.9 percent – confirming that the vulnerable group is often only one income shock away from falling into poverty. Having fallen into poverty, this stylized person would have an average probability of exiting poverty of 16.3 percent, indicating a substantial degree of poverty persistence that places the members of this stylized household just at the edge of chronic poverty. If the head loses her job and is forced to move into casual employment, the predicted risk of falling into poverty surges to 62.6 percent. Once in poverty, the probability of escaping it is reduced to 13.4 percent (see Table 10).

In line with the preceding simulations, we also investigate the effects of modifying the middle-class reference person's characteristics to represent a "typical" member of the elite in South Africa. Here we observe that, while higher levels of education and smaller household sizes play a role, race remains key in explaining elite status. Merely being white dramatically increases predicted per capita household expenditure and decreases the probability of falling into poverty. Like middle-class households, a job loss in an elite household head tends to correspond to a notable scaling down of living standards. However, this generally implies a descent into the middle class, leaving the household with a risk of falling into poverty of less than 1 percent.

4.3. The distribution of risks and coping mechanisms across class categories

This section aims to analyze in greater depth the routes by which individuals and households move into and out of the middle class. Building on the conceptual foundations laid out in the vulnerability literature – which, with few exceptions (see, for example, Azomahou & Yitbarek, 2015), is mostly agriculture-oriented and focuses on the occurrence of covariate weather-related shocks (see, e.g., Carter & May, 2001; Dercon, 2006; Klasen & Povel, 2013; Ward, 2016) – we attempt to identify shocks and insurance mechanisms with particular relevance to inter-class transitions and stability in the South African urban setting.

Our approach closely follows Jenkins' (2011) version of a method originally developed by Bane and Ellwood (1986) that has been used repeatedly to study the determinants of poverty transitions and low-income dynamics (see e.g. Jenkins and Schulter, 2003). To our knowledge, ours is the first study that applies this approach to provide an assessment of the events that may trigger middle class entries and exists. The approach relies on a simple correlation exercise, which links poverty transitions – or in our case class transitions – to the occurrence of important life-course events. While the analysis of these associations is undoubtedly informative, we are aware that issues such as reverse causation, confounding shocks and simultaneity impede any causal interpretation. Our aim is thus to provide an initial idea of the potential mechanisms at play, as well as an understanding of the kinds of issues that will need to be taken up in further research.

For the correlation exercise presented in this section, we group together the middle class and the elite on the one hand and the poor and vulnerable on the other.[12] All inter-class movements refer to wave-to-wave transitions in the pooled panel dataset using the first four waves of NIDS.

The tabulation of entries into the middle class or elite by event type is shown in Table 11. In total, 7.3 percent of the individuals who were classified as poor or vulnerable in 2008, 2010, or 2012,

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[11] As discussed in Section 4.1, we observe striking similarities in the average characteristics of the transient poor and the vulnerable.

[12] We include the elite here for completeness. However, it should be noted that of those who escape from poverty or vulnerability, only 6.5 percent move above the elite threshold. Similarly, of those who fall into poverty or vulnerability, only 5.9 percent emerged from the elite.

Table 10
Predicted poverty probabilities for persons with different combinations of characteristics.

		Predicted per capita household expenditure	Predicted probability of FALLING into poverty	Predicted probability of EXITING poverty	Class
(1)	A typical middle-class household has two working adults and one child. The head of household is male, African, 46 years old, has completed secondary education, is employed with a permanent work contract and union coverage, and resides in an urban area in Gauteng.	2959	8.01%	37.82%	Middle Class
(2)	As (1), except household head employed in public sector	3474	3.78%	46.60%	Middle Class
	Gradually adjust the characteristics in (1) to represent a typical member of the vulnerable group				
(3)	As (2), except household head is female and 42 years	2495	15.84%	34.91%	Middle Class
(4)	As (3), except household head did not complete secondary schooling	1812	24.04%	29.46%	At the edge of vulnerability
(5)	As (4), except one additional child in the household	1570	28.65%	25.25%	Vulnerable
(6)	As (5), except only the household head is in employment	1366	36.13%	22.55%	Vulnerable
(7)	As (6), except no union coverage of the household head	1091	42.95%	19.62%	At the edge of transient poverty
	As in (7), but higher job insecurity				
(8)	As (7), except household head has a time-limited (i.e., non-permanent) work contract	900	48.88%	16.27%	At the edge of chronic poverty
(9)	As (8), except household head is in casual employment	706	62.60%	13.35%	Chronic Poor
	Gradually adjust the characteristics in (1) to represent a typical member of the elite				
(10)	As (1), except household head is 48 years old	2995	7.48%	38.00%	Middle Class
(11)	As (10), except household head has tertiary education	4549	5.09%	57.22%	Middle Class
(12)	As (11), except household head is white	14,480	0.30%	93.55%	Elite

Source: Authors' own simulations based on coefficient estimates reported in Table 3.
Note: To be considered middle class, individuals must have a maximum predicted risk of falling into poverty of 25.89%. Transient poor have a chance of exiting poverty of 16.54% or above.

Table 11
Events associated with entries into the middle class (or elite), 2008 to 2014/15.

Entries into the middle class (or elite) from below			Number of cases	Weighted Share (%)	
Individuals who were poor or vulnerable to poverty in $t-1$:			57,571		
Entries into middle class from below between $t-1$ and t:			2,850	7.26	
	Event prevalence		Middle-class entries conditional on event		Middle-class entries associated with event
Household event type	Number of cases	Weighted Share (%)	Number of cases	Weighted Share (%)	Weighted Share (%)
Labor market events					
■ Rise in the number of workers	17,268	31.69	1062	9.54	41.66
■ Rise in the number of workers (household size constant)	5993	12.05	487	14.51	24.07
■ Rise in labor income ($\geq$10%) (number of workers constant)	5975	10.99	540	9.84	14.90
Non-labor income events					
■ Rise in income from public grants ($\geq$10%)	4762	7.75	74	1.25	1.34
■ Rise in income from remittances ($\geq$10%)	286	0.57	11	6.42	0.50
Demographic events					
■ Change in the household head(from female to male)	7069	13.05	871	18.09	32.52
■ Decrease in the household size	18,116	29.51	1265	9.27	37.71
■ Movement from traditional to urban area	1736	2.49	248	15.42	5.30
■ Movement to Gauteng or Western Cape from other provinces	787	1.26	162	22.94	3.98

Source: Author's calculations using NIDS waves 1 to 4 pooled sample (post-stratified weights corrected for panel attrition).

entered into the middle class or the elite within a two-year time span. This small share is primarily explained by the fact that the chronic poor, who constitute the largest share of the poor group, had on average less than a 1 percent chance of moving up into the middle class or the elite. Entries into the middle class or elite were considerably more common among the transient poor and the vulnerable.

We observe that more than every third entry into the middle class or elite in our dataset can be associated with a rise in the number of workers present in the household. On average, those households which experienced this trigger event had an average

likelihood of moving into the middle class or elite of 9.5 percent, which is slightly higher than the unconditional average of 7.3 percent. Some of these switches arose because a working adult joined the household (or the individual moved to another household with a larger number of working adults) and some arose because existing members found employment. The associated likelihood of entering the middle class or elite is substantially higher in cases where the increase in the number of workers occurs without an accompanying change in the household size. While this conditional event tends to occur less frequently, those households for which we can assume that an existing member found a job have an

Table 12
Events associated with exits out of the middle class (or elite), 2008 to 2014/15.

Exits out of the middle class (or elite) into poverty or vulnerability			Number of cases	Weighted Share (%)	
Individuals who were middle class (or elite) in $t-1$:			7052		
Exits out of the middle class (or elite) between $t-1$ and t:			1709	18.81	
	Event prevalence		Middle-class exit conditional on event		Middle-class exit associated with event
Household event type	Number of cases	Weighted Share (%)	Number of cases	Weighted Share (%)	Weighted Share (%)
Labor market events					
■ Fall in the number of workers	1648	21.25	577	30.17	34.09
■ Fall in the number of workers (household size constant)	767	9.46	251	31.35	15.77
■ Fall in labor income (≥10%) (number of workers constant)	1115	17.37	276	18.30	16.90
Non-labor income events					
■ Fall in income from public grants (≥10%)	80	0.36	43	34.21	0.66
■ Death of a non-resident family member who assisted financially	247	3.24	73	14.82	2.55
Demographic events					
■ Change in household head (from male to female)	1175	16.82	522	34.34	30.70
■ Increase in the household size	1638	20.38	707	35.46	38.41
■ Birth of a child (0 to 2 years)	994	11.98	472	40.96	26.10
■ Death of a household member	306	3.82	93	22.72	4.61
■ Death of a household member (with life insurance)	125	1.58	24	7.69	0.65

Source: Author's calculations using NIDS waves 1 to 4 pooled sample (post-stratified weights corrected for panel attrition).

average chance of making it to the middle class or elite of 14.5 percent. In addition, increases in labor earnings (by at least 10 percent), holding the number of workers in the household unchanged, can be associated with an average likelihood of entering the middle class or elite of 9.8 percent. By contrast, those who experience an increase in their non-labor incomes, particularly government grants and remittances, will most likely not enter the middle class or the elite. While these increases may play an important role in buffering negative economic shocks and securing the lives of the poor and the vulnerable, they generally do not present an avenue into the middle class or the elite.

With regard to the household composition, decreases in household size and changes from a female to a male household head are among the most frequently experienced events. Especially the latter tends to be associated with elevated chances of entering the middle class or elite. We may note that there is some overlap between those households that experience a change in the household head from a female to a male and those that experience an increase in the number of workers. These would be cases in which either an existing male member found employment and took over the headship or a working male joined the household and became the head. While geographic movement from traditional to urban areas as well from other provinces of the country to Gauteng or the Western Cape appear much less frequently than other trigger events, those who move see their chances of entering the middle class or elite increase considerably. One reason behind this pattern may be that people decide to move because they find new or better paying jobs in these areas.

Mirroring the analysis of the potential determinants of entries into the middle class or elite, in Table 12 we report the correlations between exits out of the middle class or elite and specified trigger events. We observe that 30.2 percent of all exits out of the middle class or elite are associated with a fall in the number of workers present in the household. When the household size is held constant, the associated risk is somewhat higher at 31.4 percent. By contrast, cuts in labor earnings (by at least 10 percent), while holding the number of workers unchanged, do not seem to be a driving force behind exits out of the middle class or elite. Similarly, we also cannot relate the observed exits out of the middle class or elite to a decline in non-labor income sources.

In terms of demographic trigger events, changes from a male to a female household headship can be associated with approximately every third exit out of the middle class or elite. This event often coincides with the loss of an adult working household member. Overall, 20.4 percent of all middle class or elite households experienced an increase in household size and, of those who did, more than every third household fell into poverty or vulnerability. Despite the negative association between household size and risk of poverty, the death of a household member can trigger a fall out of the middle class, especially when the deceased household member brought in income in the form of labor earnings. However, life insurance can help to moderate this negative shock.

Finally, the association between the chances of staying in the middle class or elite and the possession of selected insurance mechanisms and credit instruments is reported in Table 13. Among the formal insurance mechanisms, health and life insurance are widely used and can be related to 42.8 and 45.5 percent of the cases where individuals stayed in the middle class or elite, respectively. Individuals in possession of a private pension, retirement annuity, unit trusts, stocks and/or shares also have above average chances of staying in the middle class or elite. Regarding ex post consumption smoothing strategies, personal loans from banks are the most frequently used instrument associated with a higher chance of staying in the middle class or elite. However, access to these financial services is limited to a relatively small, better-off portion of the population. The higher financial stability observed among this group may be a simple reflection of their rather elevated economic standing and is not necessarily a direct outcome of the possession of financial assets and insurance mechanisms.

In contrast, belonging to a Stokvel or savings club appears insufficient to buffer larger economic shocks and does not relate to a higher likelihood of staying in the middle class or elite. Informal loans from family members or friends also appear insufficient to keep someone in the middle class or elite. These instruments, however, tend to be concentrated amongst the lower middle class and may thus primarily reflect the already compromised economic position of this group. Unfortunately, we did not observe sufficient cases to provide an indication of the stabilizing effect that loans from micro-lenders or from informal money lenders could have. Asset sales, which may offer a potential coping strategy for

Table 13
Instruments associated with staying in the middle class (or elite), 2008 to 2014/15.

Staying in the middle class (or elite)			Number of cases	Weighted Share (%)	
Individuals who were middle class (or elite) in $t-1$:			7052		
Continuance in the middle class (or elite) between $t-1$ and t:			5343	81.19	
	Event prevalence		Middle-class persistence conditional on event		Middle-class persistence associated with event
Household event type	Number of cases	Weighted Share (%)	Number of cases	Weighted Share (%)	Weighted Share (%)
Insurance mechanisms					
■ Have health insurance	2573	38.72	2196	89.72	42.78
■ Have life insurance	3023	42.09	2496	87.79	45.52
■ Have a pension/retirement annuity	572	9.59	493	91.93	10.86
■ Have unit trusts, stocks and shares	160	2.77	154	97.79	3.34
■ Belong to a Stokvel/ savings club	232	2.94	165	78.35	2.83
Credit instruments					
■ Personal loan from bank (in t and not in $t-1$)	520	7.72	441	89.04	8.46
■ Loan from a family member/friend (in t and not in $t-1$)	84	1.46	62	83.89	1.51

Source: Author's calculations using NIDS waves 1 to 4 pooled sample (post-stratified weights corrected for panel attrition).
Notes: Insurance mechanisms are identified ex ante (in $t-1$), while credit instruments are identified ex post (in t).

households without access to financial markets, were also barely observed in the data.

5. Conclusion

This paper has shown how existing empirical strategies used to identify the middle class based on a vulnerability criterion can be usefully extended and operationalized in the analysis of patterns of structured inequality. We propose a multilayered schema of social stratification that explicitly takes both the risk of falling into poverty and the chances of (re-)escaping from poverty into consideration. In this way, the proposed schema not only distinguishes the stable middle from a non-poor but vulnerable group, but also differentiates between transient and chronic poverty and allows for the investigation of mobility patterns between these groups. Our suggested approach thus not only extends the applicability of the empirical methodology to the study of social stratification and social mobility more broadly, but also bridges the gap between the poverty dynamics literature and the middle-class literature in economics, which, as we argue, should not be treated in isolation.

We believe the classification schema developed in this paper to be relevant to any low- and middle-income country in which economic progress is modest and/or intermittent, with the consequence that those rising out of poverty may remain vulnerable to falling back. While convenient in terms of cross-country comparability, we purposefully refrain from the definition of absolute monetary thresholds to identify class layers. We show that class divisions based on monetary thresholds inadequately capture a household's chances of upward and downward mobility and would lead to non-negligible misclassification errors. That is, by directly basing our classification on the latent poverty propensity scores from the regression design, we are better able to identify those with an elevated risk of poverty than if we were to rely on monetary measures alone. In consequence, any replication of the suggested methodological approach will require at least two waves of panel data to estimate poverty entry and exit risks based on observed household characteristics. The scope for fruitful adoption of this methodology will increase as such panel data becomes increasingly available across the developing world.[13]

Our application of the conceptual framework to the South African case illustrates the usefulness of the proposed approach. Based on the social-stratification schema derived in this paper, we argue that only 24 percent of all South Africans can be considered stably middle class or elite. The middle class is thus considerably smaller and its growth has been more sluggish than most existing studies suggest – especially those that locate the middle class just above the poverty line (compare Zizzamia et al., 2016). At the same time, we find that the transient poor and the vulnerable, at 27 percent, constitute a substantial share of the population. These two groups straddle the poverty line – with their members frequently moving in and out of poverty – and are similar in their observed characteristics. 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. The transient poor and vulnerable groups nevertheless remain outnumbered by the chronic poor, who – given the past decade's slow economic growth – still constitute the lion's share of the South African population at close to 50 percent.

Having said this, it is important to note that in the proposed framework, economic growth per se is no guarantee for the emergence a stable middle class. For example, in a different country context marked by stronger poverty reduction driven by faster growth at the bottom of the income distribution, applying this framework may merely reveal a surge in the relative share of the transient poor and the vulnerable without a concomitant increase in the size of the middle class. Whether economic growth leads to the expansion of the middle class, in return, will depend on its distributional nature, sustainability and employment intensity.[14]

From a policy perspective, we find that casual and precarious forms of work do little to reduce poverty risks, while access to stable labor market income is a key prerequisite for households to achieve economic stability. In consequence, policymakers are likely to face an important trade-off between flexible labor market arrangements to foster job creation and the creation of fewer, but better and more stable jobs that will allow more people to escape poverty over the longer term. This is likely to be true not only in

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[13] Alternatively, following a very similar idea, Schotte (2017) recently suggested a multidimensional approach to the definition of social class, which combines a measure of absolute living standards with a measure of self-perceived chances of social upward mobility. This approach has been applied to cross-sectional opinion survey data.

[14] Unlike the situation when working with simple income or consumption thresholds, we do not expect to observe substantial short-run changes in the variables used to calculate estimated poverty risks (such as the distribution of education levels, job types, or access to basic service). In consequence, when applying the approach to a different country setting, survey waves should cover a period of five or more years, as changes will need some time to materialize.

South Africa but also in other parts of the developing world. Moreover, in contexts marked by enduringly high socioeconomic inequality – as observed in the South African case – policymakers will also need to consider the large share of the population stuck in chronic poverty with very low chances of being fruitfully integrated into the labor 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.

Last but not least, our analysis indicates that the poor and the vulnerable are not only more exposed to several risk factors, but they also seem to be disproportionately deprived in terms of their access to effective insurance mechanisms and coping strategies for dealing with socioeconomic shocks. Noting the importance of events triggering poverty descents and the inadequacy of existing coping mechanisms opens up the possibility of improving the efficiency of targeted social protection measures. However, for this to be accomplished, 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 formal and informal coping strategies on the other.

Acknowledgements

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at https://doi.org/10.1016/j.worlddev.2018.05.024.

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