

South African labour market transitions during the global financial and economic crisis: Micro-level evidence from the NIDS panel

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Abstract

Well-integrated into the world economy, South Africa has not been able to escape the trembles of the 2008-2009 global financial and economic crisis. The country entered recession late 2008, and its growth has not reached pre-crisis levels ever since. One can expect such an adverse economic trajectory to have real consequences for South African households and individuals. This paper looks at labour market transitions and their determining factors in particular, thereby employing 2008 and 2010/11 data from the National Income Dynamics Study (NIDS), South Africa's first nation-wide panel survey. The longitudinal character and richness of the NIDS allow us to complement and go beyond existing studies, which rely on the analysis of repeated cross-sections. First, and in line with previous studies, we find that there is considerable mobility in South African labour markets, with many individuals entering as well as exiting jobs in the 2008-2010/11 period. Second, while many of these transitions may be related to individual choice, evidence from probit models suggests that the chances of retaining employment during the crisis significantly varied between different types of workers.

JEL codes: F61; J64; O12

Keywords: global financial crisis; labour markets; employment; survey data; South Africa

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1 Introduction

The last few years have seen a multitude of studies dissecting the macro-level impacts of the 2008-2009 global financial and economic crisis on developing and emerging countries, focusing on reduced private capital flows, shrinking trade and lower international remittances (well-known examples include IMF, 2009, 2010; ODI, 2010; World Bank, 2009). Because of its integration in the world economy, South Africa also did not escape the trembles emanating from developed country financial sectors and the resulting slowdown in real economic activity. Figure 1, which plots real annualised quarter-on-quarter GDP growth for 2007Q1-2012Q2, gives an idea of how the country has navigated throughout this period of global economic turbulence. It shows that in 2008Q4, following the collapse of Lehman Brothers, South Africa entered recession, and that for the first time since the demise of apartheid. From industry-level data it is apparent that the slump in economic activity was driven to a large extent by a fall in manufacturing output, next to contractions in the mining sector, wholesale and retail trade, and financial, real estate and business services.¹ After three quarters of negative growth, the South African economy by 2009Q3 picked up again. However, and despite an ambitious government action plan, including monetary policy easing and new public investment, economic revival has been less than spectacular. Growth has moreover been punctuated by renewed global slowdown, due to the unfolding eurozone crisis and a disappointing recovery in the US.

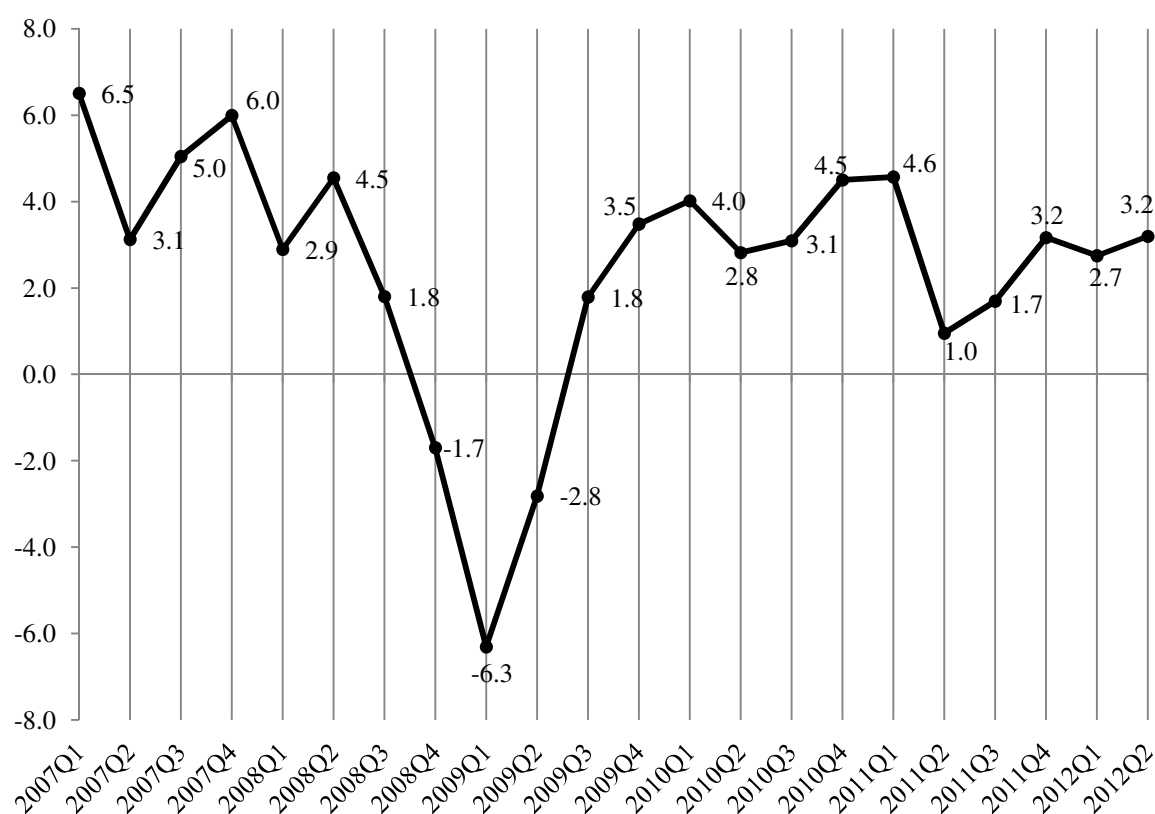
Recent work by Harper, Jones, Perezniето, and McKay (2011), Heltberg, Hossain, and Reva (2012) and Lundberg and Wuermli (2012) provides a useful overview of the various potential micro-level impacts external shocks, like those associated with the global economic crisis, and policy responses to them may have on developing country households and individuals (see also e.g., Fallon & Lucas, 2002; McKenzie, 2003; Thomas & Frankenberg, 2007). Some channels of transmission can be directly linked to the macro-level shocks in question, such as a decline in remittances from family members working in financially troubled (developed) countries or a reduction in the export price of cash crops that provide for the household's livelihood. Other crisis effects are more indirect, operating through meso-level economic and socio-political structures, e.g. lower availability of credit, reduced

¹ Manufacturing alone contributed approximately -2.9, -3.8 and -1.5 percentage points to the -1.7%, -6.3% and -2.8% quarter-on-quarter growth in 2008Q4, 2009Q1 and 2009Q2, respectively (calculated from Statistics South Africa, 2012a).

government spending on social services, and increases in unemployment and underemployment because of companies closing down or disinvesting.

Evidently, South Africa's adverse economic course has also not been without consequences for its citizens (see e.g., Mabugu *et al.*, 2010; Ngandu *et al.*, 2010). According to Statistics South Africa (2012b)'s Quarterly Labour Force Survey (QLFS), total employment decreased from 14.0 million individuals in 2008Q4 to 13.1 million in 2010Q4, reversing the (modest) gains made during the boom.² It is these labour market transitions on which we will focus here.

Figure 1. Annualised growth of (seasonally-adjusted) quarterly GDP at constant prices 2007Q1-2012Q2 (%)



Source: Statistics South Africa (2012a).

Labour market status is a critical determinant of household and individual well-being, in normal times and during stresses (World Bank, 2012). In South Africa this has been no

² Total employment is defined by Statistics South Africa (2012b) as the number of people aged 15-64 that are 'engaged in market production activities'; this excludes subsistence farming and most other domestic activities. Estimates for 2012Q2 put total employment at 13.4 million individuals.

different. Leibbrandt, Finn, and Woolard (2012), who offer an overview of inequality trends in post-apartheid South Africa, calculate that the contribution of labour market earnings to total household income inequality was 85% in 2008 (and 88% back in 1993).

Described as its ‘Achilles’ heel’, South Africa’s extraordinary high, structural unemployment and its segmented labour markets (along dimensions of race, gender, formality and urban/rural divisions) have been the subject of an enormous literature (see Banerjee, Galiani, Levinsohn, McLaren, & Woolard, 2008; Bhorat & Kanbur, 2006; Heintz & Posel, 2008; Hofmeyr, 2000; Kingdon & Knight, 2004, 2006, 2007, 2009; Leibbrandt, Woolard, McEwen, & Koep, 2010; Rodrik, 2008, just to name a few key references).³ We believe it is an interesting undertaking to examine in greater detail how this already troublesome labour market situation further evolved during the global economic crisis. As is well-documented for both previous and the most recent crisis episode, economic recessions tend to have heterogeneous impacts across workers with different demographic backgrounds and employed in different sectors and sorts of occupations (Cho & Newhouse, 2011; Clark & Summers, 1981; Hoynes, Miller, & Schaller, 2012; Kydland, 1984; Verick, 2009).

The research question of this paper is therefore simple and straightforward: which household-level, individual and job-specific characteristics are associated with staying employed, or not, in South Africa during the global crisis? In attempting to answer that question we make use of a recent, hitherto still relatively unexplored, nation-wide panel survey: the National Income Dynamics Study (NIDS), which covers the 2008-2010/11 period. We argue that an analysis of NIDS labour market data offers a useful complement to existing studies. The nature of the current paper is mostly exploratory; while most of the correlations we uncover seem to make good sense, further robustness testing will be needed before we can draw firm conclusions.

The remainder of the paper is structured as follows. Section 2 briefly summarises the findings of previous research on the impact of the crisis on South African labour markets and the remaining knowledge gaps. Section 3 first describes the overall structure of the South African NIDS dataset and explains the rationale for using this dataset in addressing our research question. Second, we employ the NIDS data to give a descriptive overview of South African labour market changes, both from a cross-sectional and longitudinal perspective, and to calculate and decompose measures of labour market mobility. A third sub-section details

³ For a recent, very extensive review and meta-analysis of this body of literature and its different discourses, see Fourie (2012).

the set-up of our empirical model to analyse the determinants of labour market transitions. Section 4 presents the model estimates and discusses the main findings. Section 5 concludes.

2 Related literature

Our empirical paper is most closely related to three recent studies on South African labour markets during the crisis. The first study by Leung, Stampini, and Vencatachellum (2009) uses six rounds of the above-mentioned QLFS over 2008-2009 as repeated cross-sections to analyse the likelihood of employment and number of hours worked.⁴ They pool these cross-sections together and include in their probit and tobit models a variable measuring the deviation of GDP growth from its long-term trend. To evaluate the effect of different individual characteristics on employment and hours worked during the crisis, Leung *et al.* (2009) interact this crisis variable with other regressors in their models: gender, race, years of schooling and experience (as measured by the difference between an individual's current age and the age at which he/she quitted school or a lower bound of 14). They conclude that human capital, both in the form of education and work experience, significantly reduced the negative impact of the crisis on employment and hours worked. Female workers were also found to be less affected than men. Race, on the other hand, while in itself highly significant in determining labour market outcomes, did not further compound the pressures of the crisis. Leung *et al.* (2009) acknowledge that their approach does not allow to control for job-specific variables.

A second related paper is Verick (2010), who employs the same QLFS data to construct multinomial logit models with five distinct labour market statuses: formal sector employment, informal sector employment, unemployment, discouragement (willing to work but not actively searching) and out of the labour force. Including as regressors age, education, marital status, household size, race and province dummies, he estimates, separately for men

⁴ Between 2000 and 2007 South Africa's Labour Force Survey (LFS) was implemented bi-annually. From 2008Q1 onwards Statistics South Africa has collected data on a quarterly basis, hence re-baptising the survey QLFS. The QLFS is designed as a rotating panel (of about 30,000 dwellings) with replacement of one fourth of the sampled dwellings in each quarter. For a number of practical reasons, the most important being that between different rounds identifiers are only maintained for households and not for the individuals within them, it is not straightforward to use the (Q)LFS for longitudinal analysis (see Ranchod & Dinkelman, 2008 on matching LFS data).

and women, three such cross-sectional models for 2008Q2, 2009Q2 and 2009Q3 and then compares the resulting average predicted probabilities for unemployment, discouragement and informal sector employment between quarters. The results for women indicate that there was on average little change in the likelihood of having a certain labour market status over the crisis period. For African men and males with below-tertiary education, however, the estimates suggest a significant increase in the probability of discouragement.

In the third and last study Verick (2012) expands on his earlier analysis. Updated multinomial logit models using QLFS data, now pooled over four ‘pre-crisis’ quarters (2008Q1-2008Q4) and eight ‘crisis’ quarters (2009Q1-2010Q4), corroborate the main result of Verick (2010): rising discouragement, particularly among poorly educated African men. In addition, Verick (2012) uses matching on observable characteristics to create a QLFS panel, which allows him to observe quarter-to-quarter transition rates between labour market statuses. He finds that mobility between statuses was higher before the crisis than during. The low matching rate of the newly constructed panel (48.7%) is said to limit more in-depth analysis of the determinants of labour market transitions. For that, one would need a better-matched panel, Verick (2012) notes.

The following section shows how the NIDS, a large, detailed panel data set, can be used to mitigate some of the limitations of the just-described papers.

3 Data description and empirical strategy

3.1 The National Income Dynamics Study (NIDS)⁵

Modelled partly on the long-standing Panel Study on Income Dynamics (PSID) of American households, The National Income Dynamics Survey (NIDS) is South Africa’s first nationwide panel data survey. Following a request from the South African Presidency in 2005 and a series of trials, researchers from the Southern Africa Labour and Development Research Unit (SALDRU) at the University of Cape Town (UCT) in January 2008 started a first round or ‘wave’ of data collection on households and their members living across the country. The

⁵ This subsection provides only a short, basic introduction to the NIDS dataset. For a more elaborate overview, please consult the NIDS wave 1 fieldwork manual and wave 2 user manual (Brown, Daniels, De Villiers, Leibbrandt, & Woolard, 2012). Other documentation as well as the NIDS data and questionnaires are available for download from <http://www.nids.uct.ac.za>.

sampling of households took a clustered, two-stage design⁶: first, from a master sample supplied by Statistics South Africa, 400 geographically defined ‘primary sampling units’ (PSUs) were drawn at random; then, in a second stage, 24 (or, in some cases, 48) dwellings were randomly selected (based on a list compiled in 2006). All household living in these dwellings were visited for interviews. By December 2008, when the first wave of NIDS was completed, a total baseline of 7,301 households, representing 28,247 resident individuals, had been interviewed.⁷ Approximately two years later, from May 2010 to September 2011, a second wave of inquiries was organised; this time 28,641 individuals from 6814 households were successfully interviewed. The result is a panel dataset of 21,098 individuals who appear both in wave 1 and 2.⁸ Leaving out those that died or moved outside South Africa in between waves, the overall attrition rate is an acceptable 19% (see Brown *et al.*, 2012). Non-respondents in wave 2 are however not lost forever to the NIDS sample, as they will be contacted again in future interview rounds. At the moment of writing, a third wave was still in the field.

NIDS combines household-level interviews (administered to the oldest woman in the household) with questionnaires addressed at individual household members. There are separate questionnaires for adults (aged 15 or older) and children (directed to the mother or caregiver). For adult household members that were out of scope when NIDS enumerators visited the household, for which interview was not feasible (e.g., because of health problems), or that refused to be interviewed (but allowed another household member to take his/her place) ‘proxy’ questionnaires were processed. Each questionnaire consists of several modules; NIDS collects detailed information on, among other topics, household expenditure and consumption,

⁶ Wittenberg (2009) gives more details on the NIDS sampling design and the construction of weights, which can be used by the researcher to make the interviewed NIDS sample representative of the South African population (in terms of its age-sex-race and provincial distribution).

⁷ In the NIDS questionnaires an individual is defined as a household member when this person, at the moment of interview, has lived at least 15 days (or is now usually residing) in the same dwelling; shares food with other household members from a common source; and contributes to or shares in a common resource pool. Only resident household members, staying typically four or more nights a week in the household dwelling, and non-residents that are classified as ‘out-of-scope’ at the moment of interview (e.g., prisoners, people staying in hospitals and students in hostels) were included in the final sample. Unlike other, temporary residents, they constitute the ‘continuing sample members’ that are contacted for re-interview in subsequent waves of NIDS.

⁸ Importantly, and unlike the QLFS, NIDS is a panel of individuals and *not* of households; household identifiers are only meaningful within (and not between) waves. In fact, one of the purposes for which NIDS was originally conceived is to enable longitudinal study of new household formation, splitting and (re)grouping.

demographics, education, health, wellbeing and social cohesion, personal asset ownership and debt, various income sources, intra-household decision-making, and essential for this paper's purposes, on individual labour market participation (see e.g., the descriptive papers by Borat, van der Westhuizen, & Cassim, 2009; Burns, 2009; Finn, Leibbrandt, & Woolard, 2009; Ranchod, 2009).

There are several good reasons to use NIDS as an instrument to gauge labour market transitions during the global financial and economic crisis. First and most importantly, the timing of the two waves of interviews, while not perfect, matches reasonably well with that of the most intense phase of the crisis. Wave 1 collected information around the time the banking crises in the US and Europe took a turn for the worse and before the South African economy entered recession. Wave 2 was undertaken when economic recovery had already set in, but only timidly so (see Figure 1).⁹

Second, the two first waves of NIDS form a large, nationally representative panel dataset which enables the researcher to evaluate *gross* changes in labour market participation (with individuals entering and exiting particular states), rather than the netted-out picture offered by repeated cross-sections.¹⁰ It is therefore a natural complement to existing studies on South Africa's labour market over 2008-2010/11 (see Section 2).

Third, the labour market module in the NIDS questionnaires contains much richer information than the QLFS implemented by Statistics South Africa. Next to employment status, NIDS records details on adults' job history, the occupation and industry of employment, hours worked, earnings and extra benefits, the type of contract, unionisation, job search strategies and future labour market expectations. Because of the multidimensional nature of NIDS, all this can moreover be linked to numerous other individual and household-level characteristics. As stated earlier, the current paper will limit itself to examining the determinants of labour market status transitions between 2008 and 2010/11. An analysis of hours worked and wage earnings is left for future research.

⁹ Whereas the first wave was strictly speaking only completed in December 2008, more than 90% of all interviews (with non-missing dates) were conducted over February-June 2008 (before Lehman Brothers' failure mid-September). By the time of wave 2 economic growth had indeed picked up again, although it did not yet reach pre-crisis levels. Moreover, various studies have documented the typical lag between economic and labour market recovery from crises (see e.g., Reinhart & Rogoff, 2009).

¹⁰ Other studies modelling labour market transitions in South Africa have mostly relied on one particular, geographically focused panel dataset, that of the KwaZulu-Natal Income Dynamics Study (KIDS), which combines surveys conducted in 1993, 1998 and 2004 (see e.g., Cichello, Fields, & Leibbrandt, 2005; Dinkelman, 2004).

The remainder of this section describes the NIDS data on labour market statuses and transitions and constructs decomposable measures of mobility, before specifying our multivariate empirical model.

3.2 Labour market descriptives¹¹

Table 1 gives a cross-sectional overview of employment statuses in 2008 and 2010/11 as well as percentage point changes over that period. Following Cichello *et al.* (2012) we restrict ourselves, here and in the rest of the paper, to adults aged between 20 and 55 years in 2008 that were successfully interviewed in both waves of NIDS (i.e. balanced panel members). The official working age in South Africa is 15 to 64, but we want to make sure our analysis of employment status transitions is not unduly influenced by school leavers, first-time employees, pensioners and/or people preparing for retirement.

We also stay as close as possible to the broader literature on South Africa's labour markets, the majority of which categorises individuals, explicitly or implicitly, into four mutually exclusive groups (Kingdon & Knight, 2006; Leibbrandt *et al.*, 2010; see also Ranchod, 2009). First, 'employed' are those that are engaged in productive activity, generally for the purpose of earning money; within NIDS this category comprises people in regular wage employment, the self-employed, casual workers, and those active in subsistence agriculture or that assist others with their business activities (see further). Second, 'searching employed' are those that are not employed but have actively searched for work in the four weeks prior to interview. They can be distinguished from the third group, the 'discouraged unemployed', who would have liked to work in the past four weeks but did not actively look for a job. Fourth and lastly, the 'not economically active (NEA)' are not interested in finding employment, as they are, for example, full-time students, sick or disabled, fulfil unpaid domestic duties or consider themselves too old. This last group of people is per definition outside the labour force.

¹¹ This subsection draws heavily on existing descriptive analysis of NIDS labour market data (see Cichello, Leibbrandt, & Woolard, 2012; Ranchod, 2009). The minor differences between the data presented here and in earlier papers are due to different versions of the NIDS datasets (we use version 4.1 of wave 1 and version 1.0 of wave 2) and the application of other (panel) survey weights, which we believe are more suitable in the context of our paper.

Table 1. A cross-sectional view on employment status 2008-2010/11: proportions and changes

	Proportions 2008 (%)				Unempl. rate 2008 (%)		Proportions 2010/11 (%)				Unempl. rate 2010/11 (%)		Δ proportions 2008- 2010/11				Δ unempl. rate 2008-2010/11	
	Empl.	Unempl. search.	Unempl. disc.	NEA	Narrow	Broad	Empl.	Unempl. search.	Unempl. disc.	NEA	Narrow	Broad	Empl.	Unempl. search.	Unempl. disc.	NEA	Narrow	Broad
Aggregate	53.1	18.3	6.5	22.2	25.7	31.8	51.3	11.8	4.9	32.0	18.7	24.6	-1.7	-6.5	-1.6	9.8	-6.9	-7.3
Male	65.5	15.0	4.2	15.3	18.7	22.7	63.3	10.5	4.0	22.2	14.2	18.7	-2.2	-4.6	-0.2	7.0	-4.5	-4.1
Female	44.2	20.7	8.0	27.1	31.9	39.4	42.3	12.9	5.5	39.3	23.3	30.3	-1.9	-7.8	-2.5	12.2	-8.6	-9.1
Black/African	49.4	20.6	6.8	23.2	29.4	35.7	47.8	13.2	5.3	33.7	21.7	28.0	-1.7	-7.4	-1.5	10.5	-7.8	-7.7
Coloured	64.5	11.3	8.0	16.2	14.9	23.0	59.8	8.1	4.4	27.7	11.9	17.3	-4.7	-3.2	-3.6	11.4	-3.0	-5.7
Asian/Indian	63.5	6.5	4.8	25.2	9.3	15.1	60.4	8.4	6.7	24.4	12.3	20.1	-3.1	2.0	1.9	-0.8	3.0	5.0
White	76.1	5.1	2.0	16.8	6.2	8.5	75.6	2.9	0.4	21.2	3.6	4.1	-0.6	-2.2	-1.6	4.4	-2.6	-4.4
Age 20-25	35.1	24.7	7.8	32.3	41.3	48.1	39.6	18.4	6.3	35.7	31.8	38.5	4.5	-6.3	-1.5	3.3	-9.5	-9.7
Age 26-35	54.6	23.1	6.8	15.5	29.7	35.3	54.9	13.7	4.9	26.5	20.0	25.3	0.3	-9.3	-1.9	11.0	-9.7	-10.1
Age 36-45	64.2	13.2	6.4	16.2	17.0	23.4	59.1	8.6	4.0	28.4	12.6	17.5	-5.1	-4.6	-2.5	12.2	-4.4	-5.9
Age 46-55	57.5	9.3	4.3	28.9	13.9	19.1	49.2	5.0	4.4	41.4	9.3	16.1	-8.3	-4.3	0.1	12.5	-4.6	-3.0
Urban	59.9	18.4	5.6	16.2	23.5	28.6	59.3	11.0	4.1	25.6	15.7	20.3	-0.6	-7.3	-1.5	9.4	-7.8	-8.2
Rural	41.6	18.3	7.9	32.2	30.5	38.6	37.8	13.2	6.2	42.9	25.9	33.9	-3.9	-5.1	-1.7	10.6	-4.6	-4.7
Western Cape	67.5	10.3	7.4	14.9	13.3	20.8	62.2	5.4	2.6	29.8	8.0	11.4	-5.3	-4.9	-4.8	15.0	-5.3	-9.3
Eastern Cape	39.3	18.0	5.5	37.2	31.5	37.5	46.1	13.4	3.6	36.9	22.5	26.9	6.8	-4.6	-1.9	-0.2	-8.9	-10.6
Northern Cape	56.8	14.9	6.3	22.1	20.8	27.1	54.4	12.5	4.9	28.3	18.6	24.1	-2.4	-2.4	-1.4	6.2	-2.1	-3.0
Free State	53.1	23.5	7.7	15.7	30.7	37.1	52.3	15.2	4.3	28.2	22.5	27.2	-0.8	-8.4	-3.4	12.5	-8.2	-9.9
KwaZulu- Natal	52.2	16.0	10.0	21.9	23.4	33.2	38.7	11.6	10.5	39.2	23.1	36.3	-13.5	-4.4	0.5	17.4	-0.3	3.2
North West	55.0	20.4	10.0	14.6	27.0	35.6	50.2	11.7	7.4	30.7	18.9	27.6	-4.9	-8.7	-2.6	16.1	-8.1	-8.0
Gauteng	59.5	20.0	4.4	16.1	25.1	29.1	63.2	11.7	2.4	22.8	15.6	18.2	3.7	-8.3	-2.0	6.7	-9.6	-10.9
Mpumalanga	58.5	19.0	5.2	17.3	24.5	29.3	55.8	9.6	4.6	30.0	14.6	20.3	-2.6	-9.4	-0.6	12.6	-9.9	-9.0
Limpopo	35.4	21.5	3.1	40.0	37.7	40.9	36.2	16.7	3.1	44.0	31.6	35.4	0.8	-4.8	0.0	4.0	-6.2	-5.6

Source: Own calculations using NIDS data and following the format of Cichello *et al.* (2012).

Notes: Sample includes only adult panel members aged 20-55 in 2008. All figures have been weighted using the NIDS panel survey weights (*w2_pweights*) that account for between-wave attrition. NEA='not economically active'. Narrow unemployment rate is calculated as (unempl. search.)/(unempl. search + empl.); broad unemployment rate as (unempl. search. and disc.)/(unempl. search and disc. + empl.).

Table 1 shows that for our NIDS panel the overall proportion of employed people went down with about 1.7 percentage points, from 53.1% in 2008 to 51.3% in 2010/11. The decline in employment was rather similar for men and women, but greater for Coloured and Indian respondents than for Africans (i.e. Blacks) and Whites. If we disaggregate the data by age cohort, urban/rural sector and province of residence (all evaluated in 2008) we notice that the drop in employment proportions was most outspoken for those aged 46-55 (-8.3 percentage points), in rural sectors (-3.9) and in the province of KwaZulu-Natal (-13.5). On the other hand, employment proportions *increased* for those aged 20-35 in 2008 and in the provinces of Eastern Cape, Gauteng and Limpopo.

Unexpectedly, there was also an important, across-the-board decline in the proportion of unemployed people, especially the searching unemployed (-6.5 percentage points on aggregate).¹³ The flipside of both declining employment and unemployment is of course a dramatic increase in the remaining NEA category (9.8 percentage points on aggregate and up to 17.4 in KwaZulu-Natal). As the drop in unemployment proportions often dominates the fall in employment, the ultimate picture that arises is one of declining rather than (the expected) increasing unemployment rates. Cichello *et al.* (2012), who compares the two waves of NIDS labour market data with similar data from Statistics South Africa's QLFS over the same period, do not find such trends in the latter data and argue that there are no compelling reasons for the spectacular decline in the proportion of searching unemployed observed in NIDS to be accurate. Elsewhere it is suggested that, most probably, some of the individuals that were in reality actively searching for unemployment at the time of the NIDS wave 2 have been incorrectly classified by fieldworkers (see SALDRU, 2012). The proportions of the employed and reported changes in this category between the two NIDS waves are therefore more credible than those for the different non-employment statuses. We will keep these limitations in mind when constructing our empirical model in Section 3.3.

Leaving aside data concerns, Table 1 does also not provide insights into the changes in employment status that take place at the individual level or the identity of those that switched between statuses (entering or exiting employment) over 2008-2010/11.¹⁴ To study individual

¹³ The exception here is the Indian population group, where the proportion of unemployed increased over the period under consideration. Because of their very limited sample size any estimates for this group are unavoidably imprecise (Ranchod, 2009).

¹⁴ From Table 1 it is, for example, not clear whether the very small decrease in the proportion of employed in urban sectors is due to people in those places remaining put in their initial status of employment or to the outflow of the initially employed and the inflow of new workers cancelling each other out.

transitions, one needs to exploit the longitudinal, panel character of NIDS. The simplest way of doing so is to construct transition matrices, which detail for each possible initial status in period 1 what percentage of individuals finds itself again in the same status (or not) by period 2. Table 2 represents such a transition matrix for the four primary labour market categories, augmented on its borders with the overall proportion of individuals belonging to the different categories in each of both periods (an idea we borrow from Cichello *et al.*, 2012).¹⁵

It is clear from this matrix that, underneath the often small changes in Table 1 (e.g. the 1.7 percentage point drop in employment), there is considerable individual movement. This observation is in line not only with Verick (2012) but also with other studies adopting (short- or medium-term) longitudinal views on South African labour markets (Banerjee *et al.*, 2008; Cichello *et al.*, 2005; Ranchod & Dinkelman, 2008). Here, almost 30% of those employed in 2008 were no longer employed in 2010/11. Over 40% of the NEA in 2008 were in the labour force by 2010/11, most of them in employment. Among those who were (searching or discouraged) unemployed in the first period mobility is even greater. It can be calculated from Table 2 that, overall, almost 45% of all individuals switched employment status from wave 1 to wave 2 (see further), and that after limiting the analysis to those aged 20-55 in 2008. To be sure, this is only a lower-bound estimate of mobility, as most probably many more individuals changed status *in between* both waves (but had returned to their original 2008 employment status by 2010/11).

Table 2. Transition matrix for employment status 2008-2010/11: row proportions (%)

			Employment status in 2010/11			
			50.6	12.0	5.0	32.4
			Employed	Unemployed, search.	Unemployed, disc.	NEA
Employment status in 2008	53.0	Employed	71.6	6.7	3.2	18.5
	18.5	Unemployed, search.	32.3	21.6	6.5	39.7
	6.3	Unemployed, disc.	28.0	18.1	10.8	43.1
	22.1	NEA	22.1	15.0	6.1	56.8

Source: Own calculations using NIDS data and following the format of Cichello *et al.* (2012).

Notes: Sample includes only adult panel members aged 20-55 in 2008. All figures have been weighted using the NIDS panel survey weights (*w2_pweights*) that account for between-wave attrition. Outer left column (top row) gives the overall proportions of each category in 2008 (2010/11).

¹⁵ The proportions of individuals in the four different employment categories differ slightly from those reported in Table 1 as not all panel members had non-missing employment statuses in *both* waves.

Table A1 and A2 in Appendix reproduce the Table 2 transition matrix for male and female adults separately. Most notably, many more men (nearly 78%) than women (just over 65%) that were initially employed remained so in period 2. Conversely, NEA was a more stable state for women than it was for men. Overall employment status mobility was greater for women than for men (49.9% versus 37.5% changed their status over 2008-2010/11).

It is also valuable to study in greater detail the different types of employment in which individuals were involved, in one or both waves. As indicated above, an individual is defined as employed by NIDS if he/she is paid a wage or salary to work on a regular basis for an employer, whether full- or part-time ('regular wage employment'); if he/she works for himself/herself, including in partnership with others ('self-employment'); if he/she works for an employer on an irregular and short-term basis ('casual employment'); if he/she works on the household's own plot or food garden ('subsistence agriculture'); or if he/she assists other people, such as family and friends, with their business activities ('assistance with others' business'). Table 3 gives again the 2008-2010/11 transition matrix, which now also accounts for transitions *between* these different types of employment. Since these groups are not mutually exclusive (e.g. it is possible for an individual to combine part-time regular wage employment with casual work) we classify as being self-employed those that engage in self-employment activities but not in regular wage employment, and as being casually employed those that do casual work but have no regular wage employment or self-employment. In Table 3 we moreover pool with casual employment the categories of subsistence agriculture and assistance with others' business, as there were reportedly some problems in the field with adequately capturing engagement in these activities during wave 2 of NIDS (Cichello *et al.*, 2012).¹⁶

One directly observes that regular wage employment is a relatively stable state when compared to self- or casual and other employment. Just over 3% of adults with regular wage employment in 2008 moved to self-employment, and another 3% to casual or other work in 2010/11, much less than the flow into non-employment states. In contrast, for those employed in both waves there was a clear trend away from self-employment and, especially, casual employment into regular wage jobs. Although it is difficult to draw direct causal links, the limited inflow into and considerable flow out of self-employment and casual work may partly reflect the relatively limited size of South Africa's informal sector, which traditionally has not

¹⁶ Since the latter two activity types only account for a minor share of overall employment in 2008, the transition matrix of Table 3 looks very similar when excluding them altogether.

absorbed those outside (formal) wage employment (see Kingdon & Knight, 2004).¹⁷ With 51.4% of individuals changing status, overall mobility in Table 3 is significantly greater than in Table 2 (which does not consider transitions between different employment types).

Table 3. Transition matrix for employment status and type 2008-2010/11: row proportions (%)

			Employment status/type in 2010/11					
			39.8	6.0	4.7	12.0	5.0	32.5
			Regular wage employment	Self-employment	Casual and other employment	Unemployed, search.	Unemployed, disc.	NEA
Employment status/type in 2008	37.1	Regular wage employment	76.4	3.2	3.2	5.3	2.7	9.3
	7.4	Self-employment	16.6	34.0	5.3	7.8	2.6	33.8
	8.6	Casual and other employment	24.1	6.4	6.1	12.1	6.1	45.3
	18.5	Unemployed, search.	21.7	3.9	6.5	21.6	6.5	39.8
	6.3	Unemployed, disc.	18.0	3.2	6.8	18.1	10.8	43.1
	22.2	NEA	14.0	3.8	4.4	15.0	6.1	56.8

Source: Own calculations using NIDS data.

Notes: Sample includes only adult panel members aged 20-55 in 2008. Subsistence agriculture and assistance with business activities of others are pooled together with casual employment to form 'casual and other employment'. All figures have been weighted using the NIDS panel survey weights (*w2_pweights*) that account for between-wave attrition. Outer left column (top row) gives the overall proportions of each category in 2008 (2010/11).

Again there are noticeable differences between men and women. Table A3 and A4 in Appendix show that regular wage jobs and casual work are more stable states for men than for women. The opposite is true for self-employment. As in Tables A1-A2, women are more mobile than men (54.3% versus 47.1% changed employment status or type).

¹⁷ NIDS does not allow for an unambiguous division of employment into formal and informal sector jobs (which is usually done on the basis of income tax/VAT registration criteria), unlike the QLFS. The small size of the informal sector in South Africa is often ascribed to legacies of the apartheid regime, which historically repressed and disempowered the informal activities of Black South Africans, and inadequate government support to small entrepreneurs (Kingdon & Knight, 2004).

Another interesting exercise is to more formally decompose overall labour market mobility, defined as the percentage of individuals that change employment status/type, into ‘upward’, ‘downward’ and ‘within’ mobility components. Note that when restricting ourselves to the four main labour market statuses, overall mobility can be written as:

$$m_{\text{total}} = \sum_{i=1}^4 \sum_{j=1}^4 s_i t_{ij} \mid i \neq j$$

where s_i is the i^{th} element of the 4×1 vector S containing the proportions of each labour market category for wave 1, and t_{ij} is the element on the i^{th} row and in the j^{th} column of the 4×4 transition matrix T between waves as depicted in Table 2. This expression can be easily decomposed as follows:

$$\begin{aligned} m_{\text{total}} &= \sum_{i=2}^4 s_i t_{i1} + \sum_{j=2}^4 s_1 t_{1j} + \sum_{i=2}^4 \sum_{j=2}^4 s_i t_{ij} \mid i \neq j \\ &= m_{\text{upward}} + m_{\text{downward}} + m_{\text{within non-employment}} \end{aligned}$$

with upward mobility being the mobility from different non-employment states into employment; downward mobility the transition from employment into non-employment; and within non-employment mobility the movement between distinct forms of non-employment. Similarly, using the more detailed taxonomy of labour market states (differentiating between regular wage, self- and casual or other employment) we can write:

$$m_{\text{total (detailed)}} = \sum_{i=1}^6 \sum_{j=1}^6 s_i t_{ij} \mid i \neq j$$

where S is now a 6×1 vector of wave 1 proportions, and T is the 6×6 transition matrix of Table 3. This is again decomposable into:

$$\begin{aligned} m_{\text{total (detailed)}} &= \sum_{i=4}^6 \sum_{j=1}^3 s_i t_{ij} + \sum_{i=1}^3 \sum_{j=4}^6 s_i t_{ij} + \sum_{i=4}^6 \sum_{j=4}^6 s_i t_{ij} \mid i \neq j + \sum_{i=1}^3 \sum_{j=1}^3 s_i t_{ij} \mid i \neq j \\ &= m_{\text{upward}} + m_{\text{downward}} + m_{\text{within non-employment}} + m_{\text{within employment}} \end{aligned}$$

We now obtain an additional component, i.e. the mobility within the different employment types, and therefore necessarily a greater measure of total mobility.

Table A5 in Appendix lists the labour market mobility measures and their different subcomponents based on the basic employment status and employment status/type transition

matrices, calculated for the whole adult panel member sample and for men and women separately. In accordance with the cross-sectional overview given before, we observe a downward mobility which is slightly larger than upward mobility, and little difference between men and women in this regard. Within employment, mobility is greater for men than for women, while within non-employment it is the other way around.

Having described some important facets of labour market transitions in South Africa over the 2008-2010/11 period covered by the NIDS, both in terms of employment status and employment types, we now move to an analysis of the determinants of such transitions in a multivariate context. This will enable us to identify whether there are noticeable differences between particular types of workers. The next subsection spells out our empirical model.

3.3 Model set-up

There are several possible ways to evaluate econometrically the impact of specific individual and household characteristics on labour market transitions, including linear probability models (LPM), binary logit/probit or multinomial models. In this paper we follow Leung *et al.* (2009) and opt for a simple binary probit model of the following form¹⁸:

$$\Pr(y = 1 \mid X, Z) = \Phi(X'\beta + Z'\delta),$$

where y is the binary outcome variable of the transition under study; Φ is the standard normal cumulative density function; and X and Z are vectors with potential determinants of transition outcome y .

In this paper we will estimate two sorts of probit models, the sample of which we again restrict to panel members aged 25 to 55 (cf. section 3.2). In models of the first kind, the outcome variable y takes the value 1 if a person employed in 2008 is again employed in 2010/11 and the value 0 if not. People that were not employed at the time of NIDS wave 1, be it unemployed or NEA, are excluded in this case. Alternatively, in the second kind of probit

¹⁸ Estimating a binary logit model yields very similar results in practice. There are two problems with estimating multinomial models (whether probit or logit) here. First, because of the likely misclassifications in wave 2 of some of the non-employed individuals (see section 3.2), estimating models that differentiate between different types of non-employment may lead to distorted results. Second, most of the multinomial models we have tried to estimate, even those that lump together all the non-employed, do not converge. This is probably because the use of many dummy regressors makes maximum likelihood estimation computationally very demanding.

models, y takes the value 1 for individuals that are in regular wage employment in both waves and 0 for those no longer in regular wage employment in wave 2 (i.e. the self-employed, casual workers, those in subsistence agriculture or helping with others' business activities, the searching and non-searching unemployed, and the NEA). Individuals that do not have a regular wage job in 2008 are left out of the analysis here.¹⁹

X is a vector of demographic individual- and household-level characteristics as well as locational variables; in our baseline model this includes age cohort dummies, educational attainment, race, marital status, household size, and urban/rural and provincial dummies (thereby following the studies summarised in Section 2). In other specifications we will add a household head dummy, the number of other household members in employment and real per capita household income (in log form). In our second set of probit models, which focus on regular wage employment transitions only, we also consider Z , a vector of job-specific variables; these are occupation and industry types, a trade union membership dummy, contract type/duration, the length of wage employment at the time of interview, and initial wage earnings. For all variables included in X and Z we extract 2008 values from the NIDS; we want to find out how the initial situation of an employed individual (before the recession) impacts on whether that individual is again employed (after the recession, in the early recovery period). In view of the gender differences in labour market dynamics (evident from Section 3.2 and the broader South African literature) separate models are estimated for men and women.

Table A6 in Appendix describes the baseline explanatory variables, comparing their distribution for the different employment status transition outcomes. It is clear that male workers that make the transition out of employment by 2010/11 tend to be younger, less educated, part of larger households, and more likely to be Black, unmarried and living in rural areas compared to their compatriots remaining employed. These differences seem to hold also for female workers and for male and female regular wage workers, with some notable

¹⁹ In terms of the transition matrices presented in section 3.2 (and the Appendix), both kinds of models can be understood as concentrating on the first matrix rows only, on the individuals who were employed (or in regular wage employment) in 2008. Individuals that are still employed (or in regular wage employment) in 2010/11, i.e. those in cell (1,1) of the transition matrices, are assigned a value of 1. The individuals represented by the other first row cell are assigned a value of 0. In other words, this paper focuses on downward mobility only, as we are particularly interested in the characteristics of workers that were laid off (or, alternatively, chose to quit employment) during the difficult economic climate of 2008-2010/11. The study of upward or within labour market mobility during this period falls outside the scope of the paper.

exceptions however. For example, the racial distribution is relatively similar for male workers employed in regular wage jobs in 2008, regardless of whether they are still in regular wage employment in 2010/11.

The next section presents and discusses our findings for the different multivariate model specifications mentioned above.

4 Findings and discussion

4.1 Employment transitions

Table 4 displays the probit estimation results for our first kind of models. In column (1a) and (1b) the baseline model is estimated, for men and women respectively. Columns (2a) to (4b) show the results when adding extra household-level variables. All specifications include provincial dummies, the coefficients of which are omitted from the table.²⁰

Instead of reporting probit coefficients or marginal effects at the mean, we list the estimated average marginal (or partial) effects, the interpretation of which seems more convenient here.²¹ For categorical variables, each parameter in Table 4 should be read as the survey-weighted average, percentage point difference in the probability of being employed in 2010/11 between the category of individuals in question and the omitted reference/base category, given that all individuals were employed in 2008 and holding all other regressors constant at their actual sample values.

²⁰ Provincial effects are not significant for the specifications in Table 4, apart from those on dummies for KwaZulu-Natal (negative) and Northern Cape (positive for men and negative for women) (Western Cape being the reference province).

²¹ For more on the interpretation of parameter estimates from categorical (including binary) dependent variable models, see Long and Freese (2003). In this paper, like Verick (2012), we use the *margins*, *dydx()* post-estimation command of Stata, combined with the *svy* prefix, to calculate average marginal effects.

Table 4. Probit estimates for employment transitions 2008-2010/11 (baseline and extra household variables): average marginal effects

	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
	Male	Female	Male	Female	Male	Female	Male	Female
<i>Omitted: age 20-25</i>								
Age 26-35	0.0751*	0.0494	0.0414	0.0356	0.0652*	0.0558	0.0723*	0.0502
	[0.0387]	[0.0497]	[0.0354]	[0.0491]	[0.0381]	[0.0497]	[0.0374]	[0.0497]
Age 36-45	0.1298***	0.0975*	0.0833*	0.0678	0.1123**	0.1036**	0.1198***	0.0949*
	[0.0479]	[0.0523]	[0.0457]	[0.0514]	[0.0495]	[0.0522]	[0.0461]	[0.0523]
Age 46-55	0.0777	0.0494	0.0221	0.0124	0.0703	0.0465	0.0630	0.0363
	[0.0630]	[0.0559]	[0.0632]	[0.0594]	[0.0638]	[0.0547]	[0.0623]	[0.0564]
<i>Omitted: no education</i>								
Primary education	0.0217	0.0481	0.0227	0.0521	0.0328	0.0403	-0.0110	0.0110
	[0.0429]	[0.0346]	[0.0421]	[0.0361]	[0.0418]	[0.0344]	[0.0390]	[0.0338]
Secondary education	0.1367***	0.1620***	0.1358***	0.1618***	0.1455***	0.1578***	0.0841**	0.0785
	[0.0449]	[0.0457]	[0.0443]	[0.0460]	[0.0449]	[0.0451]	[0.0427]	[0.0476]
Tertiary education	0.1881***	0.3032***	0.1870***	0.3075***	0.1880***	0.2943***	0.1153**	0.1990***
	[0.0486]	[0.0461]	[0.0478]	[0.0457]	[0.0485]	[0.0452]	[0.0532]	[0.0545]
<i>Omitted: Black/African</i>								
Coloured	0.1071**	-0.0461	0.1182***	-0.0443	0.1057***	-0.0425	0.1039**	-0.0732
	[0.0425]	[0.0469]	[0.0397]	[0.0495]	[0.0395]	[0.0461]	[0.0428]	[0.0445]
Asian/Indian	0.1467***	0.0984	0.1613***	0.1054	0.1673***	0.0963	0.1151*	-0.0122
	[0.0561]	[0.1918]	[0.0485]	[0.1871]	[0.0429]	[0.1840]	[0.0609]	[0.2221]
White	0.1149**	0.0548	0.1141**	0.0622	0.1282***	0.0584	0.0668	-0.0363
	[0.0493]	[0.0555]	[0.0488]	[0.0541]	[0.0428]	[0.0541]	[0.0584]	[0.0618]
Married	0.0639*	-0.0273	0.0437	0.0065	0.0632*	-0.0210	0.0488	-0.0488
	[0.0342]	[0.0338]	[0.0337]	[0.0401]	[0.0346]	[0.0329]	[0.0332]	[0.0336]
Household size	-0.0170***	-0.0123**	-0.0102**	-0.0081	-0.0105**	-0.0156**	-0.0092**	-0.0061
	[0.0042]	[0.0061]	[0.0048]	[0.0063]	[0.0049]	[0.0065]	[0.0046]	[0.0058]
Rural	0.0246	-0.1367***	0.0239	-0.1326***	0.0225	-0.1415***	0.0429	-0.1151***
	[0.0351]	[0.0342]	[0.0348]	[0.0344]	[0.0341]	[0.0339]	[0.0345]	[0.0343]
Household head			0.1024***	0.0806**				
			[0.0308]	[0.0356]				
<i>Omitted: No other workers in household</i>								
1 other worker					-0.0016	-0.0356		
					[0.0284]	[0.0338]		
2 or more other workers					-0.1562***	0.0670		
					[0.0602]	[0.0459]		
Household per capita income (log)							0.0572***	0.0767***
							[0.0165]	[0.0200]
Observations	1576	1933	1572	1918	1576	1933	1576	1933

Source: Own calculations using NIDS data.

Notes: Average marginal effects based on survey-weighted binary probit regression where the dependent variable takes value 1 if individual was employed in both periods and 0 if only in the first. Sample includes only adult panel members aged 20-55 who were employed in 2008. All models include provincial dummies (not reported). Survey design-adjusted standard errors in brackets. Significance levels: ***1% **5% *10%.

Column (1a) of Table 4 indicates that men aged 36-45 had a 13 percentage point higher chance of being in employment than their 20-25 year-old peers. There was no significant difference between the latter age cohort and older workers (aged 46-55). We find these age differences also with female workers (although statistical significance is lower; see column (1b)). Greater educational attainment, i.e. a completed secondary level or more, seems to protect both men and women from losing their job, a result which mirrors the findings of Leung *et al.* (2009). These education effects are stronger for female than for male workers. African men employed in 2008 were much more likely to be out of work in 2010/11 than Coloured, Indian or White men. For women, however, there seems to be no racial dimension to employment transitions. Married men (but not women) had a greater likelihood to remain employed than non-married (i.e. single, cohabiting, divorced or widowed) men, which corresponds well with Verick (2010)'s cross-sectional results but may not be readily interpretable. Household size has a small but significant negative effect on male and female workers keeping their job in 2010/2011. This could reflect the importance of intra-household transfers (see Verick, 2012), a topic we do not further pursue in the current paper. Lastly, rural women's likelihood of employment in 2010/11, given that they had a job in 2008, was almost 14 percentage points lower than that of women in urban-based households.

Including additional household characteristics to the baseline specifications does not alter most of the just-mentioned estimation results. Columns (2a) to (4b) of Table 4 confirm that secondary-level (and especially tertiary) education was a good buffer; racial differences were prevalent for men and not for women; and living in a rural area harmed female workers' prospects of staying employed.

The extra variables introduced also seem to tell a coherent story. Being the household head is positively associated with remaining in employment (columns (2a) and (2b)), a possible explanation being that those who are expected to take care of the household are under pressure not to give up their job (or to immediately seek new employment when losing it).²² The consequences of having other workers in the household for employment (transitions) is, *ex ante*, ambiguous. Simply put, on the one hand, living together with other workers could reduce incentives to also engage in employment. On the other hand, these co-habiting workers may possess useful social networks increasing employment chances for each other

²² Being the household head is of course correlated with age cohorts. This collinearity shows itself in the decline in the statistical and economic significance of the 36-45 age group dummy in columns (2a) and (2b).

individual.²³ From our estimation results in Table 4 it looks as if the first effect dominates the latter for men (at least when the household had two or more additional workers in 2008), whereas for women there is no significant net impact (columns (3a) and (3b)). The presence in the household of children under the age of five or pensioners receiving a state-provided old age pension in 2008 have no significant impact on employment in 2010/11 (results not shown). Also local unemployment rates at the district council level (the lowest echelon at which such rates can be deemed representative in NIDS), whether broadly or narrowly defined, do not seem to matter much.

From columns (4a) and (4b), which add (the log of) real 2008 household per capita income (deflated to September 2008) as an extra variable, it appears that workers hailing from richer households were more likely to remain employed; including this variable however complicates the analysis as it is highly collinear with race, educational attainment and household size, hence making it difficult to disentangle the precise, independent effects of the different variables. Replacing the log-transformed variable with quartile dummies for household per capita income suggests that the positive correlation of employment security with income can be ascribed mainly to the upper income quartiles (results not shown).

4.2 Regular wage employment transitions

Table 5 and 6 collect the average marginal effects estimated from our second class of probit models.²⁴ Most results in Table 5, for the baseline model and models with extra household-level variables, point in the same direction as those in Table 4, with some important differences. Whereas restricting our analysis to individuals that were in regular wage employment before the recession substantially reduces sample sizes, it also allows us to include in Table 6 a number of extra variables (vector Z; cf. section 3.3). These additional, job-specific variables do not feature in other (cross-sectional) econometric studies of South African labour markets during the crisis (see Leung *et al.*, 2009; Verick, 2010, 2012).

In columns (1a) to (4b) of Table 5 the probit models of Table 4 were re-estimated for regular wage workers only. Most notably, and in contrast with Table 4 results, we find that

²³ See Dinkelman (2004) for a discussion and formalisation of the South African household as fulfilling the roles of private safety net and work/search culture-generator, among other functions.

²⁴ Again, all specifications in Tables 5 and 6 include provincial dummies. For regular wage employment transitions only the Northern Cape dummy comes out significantly positive for men (over all different specifications).

secondary or higher education did not shield male regular wage workers from job losses. Of course, by restricting the analysis to those in regular wage employment in 2008 we are already focussing on the relatively better-educated. The beneficial effect of education on remaining in regular wage employment is however still present for women. A second important difference with Table 4 is that race does not seem to matter for (male or female) regular wage employment transitions, a finding in line with Leung *et al.* (2009). Other effects that lose their significance when considering only regular wage employment are those associated with being the household head (for women) and those of co-habiting with two or more (regular wage) workers (for men) (columns (2b) and (3a)). Conversely, the positive (network) effect of two or more other working household members gains significance for women (column (3b)).

Table 5. Probit estimates for regular wage employment transitions 2008-2010/11 (baseline and extra household variables): average marginal effects

	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
	Male	Female	Male	Female	Male	Female	Male	Female
<i>Omitted: age 20-25</i>								
Age 26-35	0.0550 [0.0625]	0.0467 [0.0442]	0.0258 [0.0596]	0.0608 [0.0471]	0.0627 [0.0619]	0.0643 [0.0448]	0.0488 [0.0612]	0.0510 [0.0426]
Age 36-45	0.1335* [0.0695]	0.0827* [0.0488]	0.0985 [0.0666]	0.0989* [0.0516]	0.1423** [0.0685]	0.1054** [0.0483]	0.1245* [0.0684]	0.0816* [0.0465]
Age 46-55	0.0855 [0.0860]	0.0414 [0.0511]	0.0439 [0.0845]	0.0418 [0.0584]	0.0935 [0.0841]	0.0567 [0.0518]	0.0718 [0.0865]	0.0267 [0.0506]
<i>Omitted: no education</i>								
Primary education	-0.0976** [0.0436]	0.005 [0.0487]	-0.0940** [0.0438]	0.0147 [0.0480]	-0.0980** [0.0432]	-0.0036 [0.0487]	-0.1035** [0.0415]	-0.0433 [0.0463]
Secondary education	0.0084 [0.0521]	0.1621*** [0.0527]	0.0093 [0.0520]	0.1588*** [0.0530]	0.0095 [0.0517]	0.1544*** [0.0517]	-0.0156 [0.0532]	0.0544 [0.0513]
Tertiary education	0.0228 [0.0539]	0.2621*** [0.0495]	0.0272 [0.0531]	0.2634*** [0.0492]	0.0241 [0.0534]	0.2549*** [0.0486]	-0.0199 [0.0588]	0.1246** [0.0552]
<i>Omitted: Black/African</i>								
Coloured	0.0352 [0.0635]	-0.0389 [0.0584]	0.0467 [0.0606]	-0.0423 [0.0592]	0.0386 [0.0627]	-0.0321 [0.0566]	0.0401 [0.0617]	-0.0694 [0.0532]
Asian/Indian	-0.0311 [0.0981]	0.045 [0.1023]	-0.0202 [0.0967]	0.0399 [0.0997]	-0.0408 [0.0995]	0.0445 [0.1101]	-0.0615 [0.1058]	-0.1140 [0.1077]
White	-0.0367 [0.0890]	0.0489 [0.0703]	-0.0397 [0.0873]	0.0392 [0.0701]	-0.0400 [0.0911]	0.0436 [0.0701]	-0.0741 [0.0976]	-0.0647 [0.0781]
Married	0.0989** [0.0399]	0.051 [0.0340]	0.0807** [0.0408]	0.0522 [0.0414]	0.1012** [0.0399]	0.0407 [0.0329]	0.0903** [0.0396]	0.0142 [0.0354]
Household size	-0.0154*** [0.0059]	-0.0106 [0.0070]	-0.0093 [0.0070]	-0.0082 [0.0072]	-0.0176*** [0.0061]	-0.0155** [0.0065]	-0.0085 [0.0069]	-0.0018 [0.0063]
Rural	-0.0471 [0.0398]	-0.1486*** [0.0379]	-0.0485 [0.0392]	-0.1483*** [0.0380]	-0.0487 [0.0397]	-0.1483*** [0.0372]	-0.0275 [0.0414]	-0.1194*** [0.0383]
Household head			0.0865** [0.0432]	0.0247 [0.0394]				
<i>Omitted: No other regular wage workers in household</i>								
1 other regular wage worker					-0.0067 [0.0436]	0.026 [0.0291]		
2 or more other regular wage workers					0.0649 [0.0553]	0.1159*** [0.0407]		
Household per capita income (log)							0.0415* [0.0229]	0.1057*** [0.0269]
Observations	1122	1199	1118	1189	1122	1199	1122	1199

Source: Own calculations using NIDS data.

Notes: Average marginal effects based on survey-weighted binary probit regression where the dependent variable takes value 1 if individual was in regular wage employment in both periods and 0 if only in the first. Sample includes only adult panel members aged 20-55 who were in regular wage employment in 2008. All models include provincial dummies (not reported). Survey design-adjusted standard errors in brackets. Significance levels: ***1% **5% *10%.

Starting again from the Table 5 baseline model we include in Table 6 a series of job-specific variables of interest: i.e., in turn, occupation type, industry of employment, union membership, contract type, contract duration, length of wage employment in 2008, and initial wage earnings.

The results of this exercise show that female wage workers were more than 10 percentage points less likely to be out of a regular wage job in 2010/11 if they practised semi-skilled or managerial/professional rather than elementary occupations (column (1b)).²⁵ For men there seem to be no significant differences between occupation types (column (1a)). The inclusion of industry dummies in columns (2a) and (2b), whereby we exclude private household workers and take agriculture, hunting, forestry and fishing as the reference industry, suggests that men active in the construction and wholesale and retail trade sectors in 2008 were less likely to still be in regular wage employment by 2010/11.²⁶ This seems to make sense, given the high labour intensity of these industries and the fact that, in terms of economic value added, they took a hit (trade) or stagnated (construction) during the years under consideration (see Statistics South Africa, 2012a). What is puzzling, however, and calls for more in-depth analysis in future research, is the insignificance of the marginal effect on the manufacturing industry dummy, the industry whose contribution to South African GDP suffered most during the global economic crisis and which reportedly shed thousands of workers in 2009 and 2010 (Ngandu *et al.*, 2010). Perhaps workers in the manufacturing sector have overall more transferable skills than, say, construction workers, which would give them an advantage in finding new employment when made redundant. To further investigate such hypotheses one would need more detailed data on the actual job tasks of individuals and the specific subsectors in which they are employed.

Columns (3a) and (3b) indicate that union membership is positively associated with regular wage employment in 2010/11, but only significantly so for women. For men, working under a written, and even more, under a permanent contract increases the probability of retaining regular wage employment (columns (4a) and (5a)).²⁷ The last four columns of Table

²⁵ We rely on Cichello *et al.* (2012) to classify occupations as either elementary, semi-skilled or managerial/professional.

²⁶ The significant marginal effects for men in the utility industry (in column (2a)) and women in the mining and quarrying industry (in column (2b)) should be viewed with caution because of the very small subsample of individuals on which these estimates are based.

²⁷ When all contract-related variables are simultaneously incorporated in the model, only contract permanence retains its significance (for men).

6 ((6a) to (7b)) examine the role of work experience, proxied by the log of the number of months an individual was employed in his/her wage job prior to interview, and initial wage earnings, i.e. the log of real monthly take-home pay. Both turn out to be highly significant in explaining male and female job security, but again pose problems of collinearity in view of their correlation with age, education and household size.

Table 6. Probit estimates for regular wage employment transitions 2008-2010/11 (extra job variables): average marginal effects

	(1a) Male	(1b) Female	(2a) Male	(2b) Female
<i>Omitted: age 20-25</i>				
Age 26-35	0.0501 [0.0630]	0.0353 [0.0455]	0.0638 [0.0669]	0.0743 [0.0473]
Age 36-45	0.1258* [0.0705]	0.0804 [0.0500]	0.1245* [0.0743]	0.1230** [0.0525]
Age 46-55	0.0863 [0.0840]	0.0425 [0.0520]	0.0796 [0.0889]	0.1125** [0.0553]
<i>Omitted: no education</i>				
Primary education	-0.1008** [0.0431]	-0.0179 [0.0485]	-0.0695 [0.0493]	0.0029 [0.0727]
Secondary education	0.0101 [0.0511]	0.1010* [0.0551]	0.0369 [0.0580]	0.1492* [0.0788]
Tertiary education	0.0290 [0.0542]	0.1942*** [0.0611]	0.0220 [0.0642]	0.2197*** [0.0759]
<i>Omitted: Black/African</i>				
Coloured	0.0342 [0.0651]	-0.0445 [0.0587]	-0.0162 [0.0758]	-0.0100 [0.0599]
Asian/Indian	-0.0361 [0.1007]	0.1309 [0.0917]	-0.0188 [0.0935]	0.0407 [0.0808]
White	-0.0422 [0.0934]	0.0245 [0.0695]	-0.0226 [0.0881]	-0.0011 [0.0693]
Married	0.0999** [0.0411]	0.0481 [0.0326]	0.0926** [0.0416]	0.0355 [0.0345]
Household size	-0.0159*** [0.0061]	-0.0108 [0.0066]	-0.0145** [0.0063]	-0.0094 [0.0064]
Rural	-0.0501 [0.0394]	-0.1384*** [0.0379]	-0.0645 [0.0459]	-0.1732*** [0.0379]
<i>Omitted: elementary occupation</i>				
Semi-skilled	-0.0311 [0.0445]	0.1014** [0.0475]		
Managerial/professional	-0.0495 [0.0689]	0.1081** [0.0538]		
<i>Omitted: agriculture, hunting, forestry and fishing</i>				
Mining and quarrying			-0.0899 [0.0783]	0.1725*** [0.0523]
Manufacturing			-0.0285 [0.0485]	-0.0869 [0.0608]
Utilities			0.1200*** [0.0440]	
Construction			-0.2723*** [0.0735]	-0.0392 [0.0769]
Wholesale and retail trade			-0.1678** [0.0713]	-0.0181 [0.0643]
Transport, storage and communication			-0.0814 [0.0813]	-0.1041 [0.1147]
Financial intermediation, insurance, real estate and business services			-0.0854 [0.0681]	-0.0146 [0.0730]
Community, social and personal services			-0.0491 [0.0630]	-0.0225 [0.0609]
Observations	1096	1183	995	891

Table 6. (Continued)

	(3a)	(3b)	(4a)	(4b)	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
<i>Omitted: age 20-25</i>										
Age 26-35	0.0431	0.0396	0.0577	0.0481	0.0325	0.0338	0.0578	0.0194	0.0230	0.0298
	[0.0578]	[0.0453]	[0.0616]	[0.0441]	[0.0584]	[0.0444]	[0.0629]	[0.0423]	[0.0589]	[0.0442]
Age 36-45	0.1271**	0.0747	0.1430**	0.0829*	0.1149*	0.0763	0.0884	0.0296	0.0915	0.0517
	[0.0623]	[0.0501]	[0.0643]	[0.0483]	[0.0628]	[0.0476]	[0.0727]	[0.0490]	[0.0657]	[0.0494]
Age 46-55	0.0533	0.0255	0.0870	0.0426	0.0718	0.0236	0.0216	-0.0745	0.0360	0.0062
	[0.0792]	[0.0535]	[0.0833]	[0.0507]	[0.0779]	[0.0496]	[0.0912]	[0.0547]	[0.0835]	[0.0519]
<i>Omitted: no education</i>										
Primary education	-0.0950**	-0.015	-0.0997**	-0.0002	-0.0919**	-0.0032	-0.0983**	-0.0197	-0.1086***	-0.0459
	[0.0434]	[0.0464]	[0.0417]	[0.0480]	[0.0421]	[0.0477]	[0.0445]	[0.0540]	[0.0385]	[0.0439]
Secondary education	0.0121	0.1193**	-0.0074	0.1480***	0.0139	0.1347**	-0.0199	0.1465***	-0.0414	0.0437
	[0.0504]	[0.0508]	[0.0506]	[0.0544]	[0.0502]	[0.0565]	[0.0523]	[0.0528]	[0.0508]	[0.0501]
Tertiary education	0.0135	0.2055***	0.0027	0.2459***	0.0235	0.2419***	0.0048	0.2317***	-0.0659	0.0981*
	[0.0551]	[0.0509]	[0.0532]	[0.0525]	[0.0544]	[0.0542]	[0.0568]	[0.0507]	[0.0601]	[0.0570]
<i>Omitted: Black/African</i>										
Coloured	0.0392	-0.0522	0.0414	-0.0385	0.0326	-0.0489	0.0277	-0.0781	0.0447	-0.0682
	[0.0638]	[0.0599]	[0.0631]	[0.0587]	[0.0598]	[0.0596]	[0.0698]	[0.0644]	[0.0598]	[0.0603]
Asian/Indian	0.1012	0.0442	0.0947	0.0403	0.0804	0.029	-0.0426	0.0026	-0.1039	-0.0829
	[0.0710]	[0.1081]	[0.0736]	[0.1010]	[0.0821]	[0.1118]	[0.1032]	[0.1136]	[0.1086]	[0.0960]
White	-0.0395	0.0547	-0.0363	0.0484	-0.0737	0.0585	0.0158	0.0074	-0.1079	-0.0372
	[0.0868]	[0.0672]	[0.0864]	[0.0702]	[0.0945]	[0.0660]	[0.0818]	[0.0686]	[0.1012]	[0.0753]
Married	0.0969**	0.0426	0.0892**	0.0493	0.0962**	0.0321	0.0722*	0.0312	0.0728*	0.033
	[0.0389]	[0.0347]	[0.0381]	[0.0348]	[0.0393]	[0.0338]	[0.0424]	[0.0356]	[0.0408]	[0.0346]
Household size	-0.0153***	-0.0118*	-0.0143**	-0.0109	-0.0136**	-0.0106	-0.0131*	-0.0096	-0.0131**	-0.0110*
	[0.0058]	[0.0070]	[0.0059]	[0.0072]	[0.0059]	[0.0072]	[0.0070]	[0.0077]	[0.0060]	[0.0065]
Rural	-0.0491	-0.1484***	-0.0529	-0.1465***	-0.0635	-0.1359***	-0.0482	-0.1345***	-0.0194	-0.1128***
	[0.0403]	[0.0377]	[0.0403]	[0.0381]	[0.0397]	[0.0385]	[0.0439]	[0.0377]	[0.0398]	[0.0396]
Union member	0.0548	0.0981***								
	[0.0371]	[0.0374]								
Written contract			0.0710*	0.0341						
			[0.0384]	[0.0292]						
<i>Omitted: limited contact duration</i>										
Unspecified contract duration					0.0499	0.0157				
					[0.0728]	[0.0746]				
Permanent contract					0.1609**	0.101				
					[0.0720]	[0.0620]				
Months in wage employment (log)							0.0381***	0.0556***		
							[0.0128]	[0.0124]		
Monthly take-home pay (log)									0.0812***	0.1011***
									[0.0231]	[0.0231]
Observations	1092	1179	1110	1192	1117	1190	954	1023	1122	1199

Source: Own calculations using NIDS data.

Notes: Average marginal effects based on survey-weighted binary probit regression where the dependent variable takes value 1 if individual was in regular wage employment in both periods and 0 if only in the first. Sample includes only adult panel members aged 20-55 who were in regular wage employment in 2008. All models include provincial dummies (not reported). Survey design-adjusted standard errors in brackets. Significance levels: ***1% **5% *10%.

5 Concluding remarks

This paper has employed the NIDS dataset, a nation-wide panel of South African individuals interviewed in 2008 and again in 2010/11, to study labour market transitions and their determining factors during the global financial and economic crisis. Building on descriptive analysis by Cichello *et al.* (2012), we have shown that there is considerable mobility in South African labour markets, with many individuals exiting as well as entering jobs in the 2008-2010/11 period, echoing the findings of longitudinal research considering other time periods. This, in the first place, suggests that not only the external environment, but also individual choices play an important role in these markets.

Nevertheless, in attempting to unravel the determinants of continued employment over the two NIDS waves we did find evidence suggestive of significant differences between types of workers. Given employment before the crisis, both young (20-35) and old (46-55) workers were less likely to again have a job in 2010/11. The same goes for workers with less than secondary education. Restricting the sample to those individuals that started out in regular wage employment, the buffering effect of education is only apparent for female workers. The inclusion of additional, job-specific variables, not present in earlier studies, indicates that women in elementary occupations and men employed in construction or wholesale and retail trade more easily dropped out of regular wage jobs. Having a permanent contract also greatly improved the odds of male workers retaining their job. We further find that work experience and initial wage earnings are associated with higher job security during the crisis. It seems difficult to argue that individuals have full control over these factors. In fact, a simple comparison between those leaving employment and those remaining employed of changes in self-perceived life satisfaction and economic status of the household, as well as differences between the economic status anticipated in 2008 and the actual (subjective) economic status in 2010/11, shows that these are often significantly better for the latter group (see Table A7 in Appendix).

That said, a great deal of work remains to be done. The richness of the NIDS dataset can and should be further exploited to examine the robustness of our initial findings and refine the models presented, for example by allowing for interaction terms or by using more detailed information on job types (which is currently not publicly available). Information on changes in wage earnings and hours worked also needs to complement the analysis, in order to get a fuller picture of labour market transitions over the course of the global financial and economic

crisis. This may require cross-checking with other datasets. There are indications that the hours worked variable was not properly captured in wave 2 of NIDS (Cichello *et al.*, 2012). Also, the fact that a significant share of the NIDS data on wage earnings is imputed rather than observed directly makes it less suitable for an in-depth study. Finally, extending the NIDS panel with a third wave, currently in the field, is expected to contribute to our understanding of how labour market transitions may differ during ‘normal’ and difficult economic times.

Appendices

Table A1. Transition matrix for employment status (male only) 2008-2010/11: row proportions (%)

			Employment status in 2010/11			
			63.0	10.6	4.0	22.4
			Employed	Unemployed, search.	Unemployed, disc.	NEA
Employment status in 2008	65.9	Employed	77.5	6.7	3.3	12.5
	15.0	Unemployed, search.	38.7	22.3	3.2	35.9
	3.8	Unemployed, disc.	44.1	13.6	12.0	30.3
	15.4	NEA	29.2	14.9	5.9	50.0

Source: Own calculations using NIDS data and following the format of Cichello *et al.* (2012).

Notes: Sample includes only male adult panel members aged 20-55 in 2008. All figures have been weighted using the NIDS panel survey weights (*w2_pweights*) that account for between-wave attrition. Outer left column (top row) gives the overall proportions of each category in 2008 (2010/11).

Table A2. Transition matrix for employment status (female only) 2008-2010/11: row proportions (%)

			Employment status in 2010/11			
			42.0	13.0	5.6	39.4
			Employed	Unemployed, search.	Unemployed, disc.	NEA
Employment status in 2008	44.2	Employed	65.4	6.7	3.2	24.7
	21.0	Unemployed, search.	29.1	21.2	8.2	41.6
	8.0	Unemployed, disc.	22.7	19.5	10.3	47.5
	26.8	NEA	19.2	15.1	6.2	59.5

Source: Own calculations using NIDS data and following the format of Cichello *et al.* (2012).

Notes: Sample includes only female adult panel members aged 20-55 in 2008. All figures have been weighted using the NIDS panel survey weights (*w2_pweights*) that account for between-wave attrition. Outer left column (top row) gives the overall proportions of each category in 2008 (2010/11).

Table A3. Transition matrix for employment type and status (male only) 2008-2010/11: row proportions (%)

			Employment status/type in 2010/11					
			50.1	6.6	6.2	10.6	4.0	22.5
			Regular wage employment	Self-employment	Casual and other employment	Unemployed, search.	Unemployed, disc.	NEA
Employment status/type in 2008	48.7	Regular wage employment	77.9	4.2	4.1	5.1	2.5	6.2
	7.6	Self-employment	22.2	31.2	8.2	8.3	4.4	25.7
	9.6	Casual and other employment	27.5	7.5	10.6	14.0	6.4	34.1
	14.9	Unemployed, search.	26.1	3.8	8.4	22.4	3.2	36.1
	3.8	Unemployed, disc.	26.3	5.3	12.9	13.7	12.0	29.8
	15.4	NEA	18.7	4.9	5.6	14.9	5.9	50.0

Source: Own calculations using NIDS data and following the format of Cichello *et al.* (2012).

Notes: Sample includes only male adult panel members aged 20-55 in 2008. Subsistence agriculture and assistance with business activities of others are pooled together with casual employment to form 'casual and other employment'. All figures have been weighted using the NIDS panel survey weights (*w2_pweights*) that account for between-wave attrition. Outer left column (top row) gives the overall proportions of each category in 2008 (2010/11).

Table A4. Transition matrix for employment type and status (female only) 2008-2010/11: row proportions (%)

			Employment status/type in 2010/11					39.4
			32.8	5.5	3.6	13.0	5.6	
			Regular wage employment	Self- employment	Casual and other employment	Unemployed, search.	Unemployed, disc.	
Employment status/type in 2008	29.0	Regular wage employment	74.6	2.0	2.1	5.5	3.0	12.9
	7.2	Self- employment	12.5	36.1	3.2	7.4	1.2	39.6
	7.9	Casual and other employment	21.2	5.5	2.4	10.5	5.8	54.6
	21.0	Unemployed, search.	19.5	4.0	5.6	21.2	8.2	41.6
	8.0	Unemployed, disc.	15.3	2.5	4.8	19.5	10.3	47.5
	26.8	NEA	12.1	3.3	3.9	15.1	6.2	59.5

Source: Own calculations using NIDS data and following the format of Cichello *et al.* (2012).

Notes: Sample includes only female adult panel members aged 20-55 in 2008. Subsistence agriculture and assistance with business activities of others are pooled together with casual employment to form 'casual and other employment'. All figures have been weighted using the NIDS panel survey weights (*w2_pweights*) that account for between-wave attrition. Outer left column (top row) gives the overall proportions of each category in 2008 (2010/11).

Table A5. Mobility measures and decomposition 2008-2010/11

Panel A: Measures for employment status transitions					
	Immobility	Mobility			
		<i>overall</i>	<i>upward (into employment)</i>	<i>downward (out of employment)</i>	<i>within non- employment</i>
All adults	55.2	44.8	12.6	15.1	17.1
Male	62.5	37.5	12.0	14.8	10.7
Female	50.1	49.9	13.1	15.3	21.5

Panel B: Measures for employment type and status transitions						
	Immobility	Mobility				
		<i>overall</i>	<i>upward (into employment)</i>	<i>downward (out of employment)</i>	<i>within non- employment</i>	<i>within employment</i>
All adults	48.6	51.4	12.6	15.1	17.1	6.6
Male	52.9	47.1	11.9	14.8	10.7	9.7
Female	45.7	54.3	13.1	15.3	21.5	4.4

Source: Own calculations using NIDS data.

Notes: Based on transition matrices Table 2-3 and Table A.1-A.4. For decomposition method, see main text.

Table A6. Summary statistics for main explanatory variables 2008, by gender and transition outcome in 2010/11

	Male			Female			Male			Female		
	Not em- ployed	Em- ployed	<i>F-stat.</i>	Not em- ployed	Em- ployed	<i>F-stat.</i>	Not wage em- ployed	Wage em- ployed	<i>F-stat.</i>	Not wage em- ployed	Wage em- ployed	<i>F-stat.</i>
Age 20-25	0.2609 [0.0303]	0.1399 [0.0163]	5.59***	0.1388 [0.0186]	0.1210 [0.0166]	1.07	0.2284 [0.0358]	0.1167 [0.0169]	4.62***	0.1431 [0.0238]	0.1248 [0.0209]	0.80
Age 26-35	0.3525 [0.0352]	0.3630 [0.0207]		0.3136 [0.0242]	0.3316 [0.0205]		0.4281 [0.0467]	0.3793 [0.0245]		0.3273 [0.0359]	0.3368 [0.0241]	
Age 36-45	0.1972 [0.0259]	0.3033 [0.0197]		0.2833 [0.0247]	0.3219 [0.0193]		0.1963 [0.0283]	0.3227 [0.0235]		0.2734 [0.0307]	0.3232 [0.0229]	
Age 46-55	0.1894 [0.0301]	0.1938 [0.0180]		0.2643 [0.0208]	0.2255 [0.0182]		0.1471 [0.0340]	0.1812 [0.0191]		0.2562 [0.0339]	0.2153 [0.0185]	
No education	0.2335 [0.0280]	0.1450 [0.0163]	11.94***	0.2551 [0.0201]	0.1187 [0.0119]	29.95***	0.1015 [0.0181]	0.1349 [0.0193]	3.92**	0.2044 [0.0249]	0.0987 [0.0128]	21.15***
Primary edu.	0.5112 [0.0369]	0.3519 [0.0226]		0.4712 [0.0254]	0.3405 [0.0201]		0.4799 [0.0443]	0.3277 [0.0254]		0.5213 [0.0392]	0.2985 [0.0236]	
Second.edu.	0.1884 [0.0268]	0.2863 [0.0229]		0.1950 [0.0222]	0.2604 [0.0171]		0.2634 [0.0388]	0.3005 [0.0265]		0.1921 [0.0292]	0.2868 [0.0220]	
Tertiary edu.	0.0669 [0.0202]	0.2168 [0.0240]		0.0787 [0.0160]	0.2804 [0.0257]		0.1552 [0.0377]	0.2369 [0.0280]		0.0822 [0.0211]	0.3160 [0.0277]	
Black/Afr.	0.9192 [0.0235]	0.7545 [0.0318]	8.20***	0.8246 [0.0329]	0.7011 [0.0360]	4.07**	0.8222 [0.0415]	0.7490 [0.0347]	0.95	0.7962 [0.0379]	0.6828 [0.0390]	3.98**
Coloured	0.0451 [0.0147]	0.0955 [0.0190]		0.0983 [0.0208]	0.1072 [0.0214]		0.0735 [0.0205]	0.1049 [0.0233]		0.1361 [0.0323]	0.1271 [0.0255]	
Asian/Indian	0.0111 [0.0106]	0.0282 [0.0109]		0.0200 [0.0180]	0.0401 [0.0152]		0.0259 [0.0169]	0.0285 [0.0105]		0.0136 [0.0106]	0.0269 [0.0139]	
White	0.0246 [0.0131]	0.1217 [0.0241]		0.0571 [0.0175]	0.1516 [0.0292]		0.0784 [0.0356]	0.1175 [0.0254]		0.0541 [0.0218]	0.1631 [0.0326]	
Not married	0.7243 [0.0318]	0.5513 [0.0267]	15.07***	0.6323 [0.0275]	0.5895 [0.0260]	1.40	0.6927 [0.0410]	0.5109 [0.0307]	11.80***	0.7140 [0.0327]	0.5856 [0.0297]	9.98***
Married	0.2757 [0.0318]	0.4487 [0.0267]		0.3677 [0.0275]	0.4105 [0.0260]		0.3073 [0.0410]	0.4891 [0.0307]		0.2860 [0.0327]	0.4144 [0.0297]	
Hh size	4.7230 [0.3773]	3.3700 [0.1278]	13.93***	5.4888 [0.2375]	4.3910 [0.1773]	16.85***	3.9732 [0.3115]	3.2282 [0.1473]	4.74**	5.2662 [0.2545]	4.2588 [0.2032]	10.64***
Urban	0.6062 [0.0450]	0.749 [0.0265]	12.36***	0.5277 [0.0399]	0.7745 [0.0231]	51.82***	0.6763 [0.0422]	0.7641 [0.0291]	5.04**	0.5953 [0.0481]	0.8088 [0.0224]	27.06***
Rural	0.3938 [0.0450]	0.251 [0.0265]		0.4723 [0.0399]	0.2255 [0.0231]		0.3237 [0.0422]	0.2359 [0.0291]		0.4047 [0.0481]	0.1912 [0.0224]	

Source: Own calculations using NIDS data.

Notes: Survey-weighted proportions in age cohort/education/race/marital status/location categories of male/female adults, compared along employment status transition outcomes in 2010/11. For household size, means are compared. Sample includes only adult panel members aged 20-55 who were in employment/regular wage employment in 2008. Survey design-adjusted standard errors in brackets. F-statistics are converted from Pearson χ^2 -tests of independence with corrections of Rao and Scott (1984) for survey design; except for comparison of mean household sizes, for which survey-adjusted Wald F-statistics are reported. Significance levels: ***1% **5% *10%.

Table A7. Comparison of changes in subjective measures of well-being, by gender and transition outcome in 2010/11

		Male			Female			Male			Female					
		Not em- ployed	Em- ployed	<i>F-stat.</i>	Not em- ployed	Em- ployed	<i>F-stat.</i>	Not wage em- ployed	Wage em- ployed	<i>F-stat.</i>	Not wage em- ployed	Wage em- ployed	<i>F-stat.</i>			
Change in life satisfaction	-	0.5939	0.5335	0.94	0.5300	0.4638	2.86*	0.5441	0.5273	0.28	0.5909	0.4819	2.63*			
		[0.0384]	[0.0225]			[0.0335]		[0.0285]			[0.0459]	[0.0281]			[0.0420]	[0.0324]
	0	0.1141	0.1244		0.1201	0.1846		0.1531	0.1330		0.1440	0.1715				
		[0.0218]	[0.0148]		[0.0188]	[0.0198]		[0.0374]	[0.0165]		[0.0270]	[0.0223]				
	+	0.2920	0.3421		0.3498	0.3516		0.3027	0.3398		0.2651	0.3467				
		[0.0349]	[0.0230]		[0.0307]	[0.0262]		[0.0426]	[0.0293]		[0.0417]	[0.0294]				
Change in economic status	-	0.3638	0.2830	2.60*	0.3625	0.3298	1.71	0.3942	0.2775	4.73***	0.3527	0.3229	0.26			
		[0.0430]	[0.0205]			[0.0282]		[0.0230]			[0.0523]	[0.0258]			[0.0395]	[0.0244]
	0	0.3389	0.3340		0.2753	0.3406		0.3613	0.3330		0.3185	0.3469				
		[0.0352]	[0.0227]		[0.0264]	[0.0225]		[0.0439]	[0.0270]		[0.0405]	[0.0264]				
	+	0.2974	0.3830		0.3622	0.3296		0.2446	0.3895		0.3288	0.3301				
		[0.0349]	[0.0238]		[0.0281]	[0.0230]		[0.0370]	[0.0292]		[0.0327]	[0.0265]				
Difference between actual and anticipated economic status	-	0.7132	0.5899	6.07***	0.6468	0.6390	0.11	0.7801	0.5645	11.17***	0.6932	0.6461	0.70			
		[0.0343]	[0.0268]			[0.0319]		[0.0244]			[0.0376]	[0.0321]			[0.0332]	[0.0262]
	0	0.1487	0.2676		0.2102	0.2050		0.1112	0.2749		0.1770	0.2180				
		[0.0257]	[0.0216]		[0.0228]	[0.0181]		[0.0228]	[0.0233]		[0.0313]	[0.0212]				
	+	0.1380	0.1425		0.1430	0.1560		0.1087	0.1606		0.1298	0.1359				
		[0.0255]	[0.0197]		[0.0234]	[0.0191]		[0.0325]	[0.0251]		[0.0224]	[0.0198]				

Source: Own calculations using NIDS data.

Notes: Survey-weighted proportions of male/female adults for which negative/zero/positive changes in different self-reported measures of well-being are found, compared along employment status transition outcomes in 2010/11. ‘Change in life satisfaction’ is calculated as the change in 1-10 scores assigned by individuals to the question ‘How do you feel about your life as a whole right now?’, between 2008 and 2010/11. ‘Change in economic status’ is calculated as the change in 1-6 scores assigned by individuals to the question ‘Please imagine a six step ladder where the poorest people in South Africa stand on the bottom and the richest people on the highest step. On which step are you today?’, between 2008 and 2010/11. ‘Difference between actual and anticipated economic status’ is calculated as the difference in 1-6 scores assigned by individuals to the questions ‘Please imagine... On which step are you today?’ in 2010/11 and ‘Please imagine... On which step do you expect to be 2 years from now?’ in 2008. Sample includes only adult panel members aged 20-55 who were in employment/regular wage employment in 2008. Survey design-adjusted standard errors in brackets. F-statistics are converted from Pearson χ^2 -tests of independence with corrections of Rao and Scott (1984) for survey design. Significance levels: ***1% **5% *10%.

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