

Low-wage mobility in the South African labour market

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Abstract

Access to the labour market is a key determinant of well-being for individuals and households, therefore it is crucial to understand labour market dynamics. This paper uses the six waves of Statistics South Africa's Labour Force Survey panel to assess low-wage mobility between September 2001 and March 2004. On aggregate, rates of low-wage work fell substantially over this period. Transitions between employment states are shown to be important, as employment is more precarious for the working poor than for higher-earning workers. Low-wage workers who retain employment are substantially more likely to experience upward than downward earnings mobility. However, there is evidence of working poverty traps amongst women, and amongst workers with less education or employed in the informal sector. There is a clear improvement in earnings mobility over time for vulnerable workers in domestic and agricultural occupations.

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1. Introduction

Expanding access to employment, and hence earnings, is often viewed as a key solution to high levels of poverty in South Africa. However, the distribution of earnings remains extremely unequal, and thus the effectiveness of the labour market in providing a living wage is highly variable. A particular focus on the wellbeing of workers at the bottom of the earnings distribution is therefore crucial in understanding the relationship between labour markets and poverty.

Concerns with the incidence of low wage work within the South African labour market, which focus primarily on the living standards of workers and the extent of earnings inequality, implicitly centre on a static representation of the wage distribution. Here, the analysis focuses on the proportion of workers that are low paid at a particular point in time. While such an analysis of the overall distribution of earnings provides an aggregate snapshot, it omits a crucially important aspect of economic wellbeing: the persistence of low pay at the individual level. The long-term wellbeing of individual workers is clearly affected not only by their position in the earnings distribution at a point in time, but also by whether they move upwards or downwards in the distribution over time. This paper therefore examines the extent to which there is earnings mobility amongst the working poor in South Africa.

A high degree of persistence in low pay implies that individual workers tend to be chronically poor, spending a large proportion of their working life in low-paid employment. In contrast, a low degree of low-pay persistence implies that being low-paid is a transitory state, and that such workers are likely either to progress to higher-paying jobs, or to exit employment altogether. The welfare implications of workers being located at the bottom of the earnings distribution are thus highly contingent on their degree of earnings mobility and the extent to which low-pay traps exist.

The focus of the analysis thus shifts from a static assessment of the earnings distribution at a point in time, or of how the aggregate incidence of low pay has changed between periods, to a dynamic assessment of individual wage mobility. This necessitates the use of panel, rather than cross-sectional, data. By repeatedly observing the same individual workers across time, it is possible to identify how workers move into and out of employment, and to track the progress of their earnings over time.

Most empirical studies of earnings mobility have been conducted on developed countries, due to the reliance of such studies on the availability of panel data. Despite the differing labour markets and time periods studied, some common themes emerge. In the US, it has been shown that there is lower mobility amongst older and less educated workers, while the probability of earnings persistence has increased over time, especially in the lower quintiles (Gottschalk, 1982 and 1997; Buchinsky and Hunt, 1999). In a number of European countries, which have lower earnings inequality and more regulated labour markets than the US, there is nonetheless a similarly high degree of immobility amongst low-wage workers. Studies conducted using annual data for Britain from the 1990s, within a context of rising earnings inequality, find a high degree of

immobility, and that there is a cycle of low wages and unemployment. Workers are fairly immobile both within earnings deciles and within states of non-employment, with women slightly more mobile than men (Dickens, 2000). Movements between employment states are important, as excluding individuals who exit employment from the analysis results in an under-estimation of the degree of low-pay persistence. Having more education, or belonging to a union, increases the likelihood that a worker will move up the earnings distribution (Stewart and Swaffield, 2000). Similarly, in Italy, roughly 50 percent of low-paid workers persist in this category across the two-year panel, while there is also evidence of a low-pay/no-pay cycle and of a positive effect of education on mobility (Cappellari, 2000). In a study at the aggregate level for three Latin American countries, individuals in lower earnings quintiles experience greater mobility than do individuals who start higher up the earnings distribution (Fields *et al*, 2007).

Empirical evidence on wage mobility in South Africa is limited. Cichello *et al* (2001; 2005) analyse earnings dynamics amongst Africans in KwaZulu-Natal between 1993 and 1998, using the KwaZulu-Natal Income Dynamics Study (KIDS) data, and find that African workers experienced large and progressive wage gains. Transitions between the informal and formal sector are strongly associated with upward mobility, but education levels and demographic characteristics are not found to account for changes in earnings. In contrast to the region-specific KIDS data, the current paper uses the six waves of Statistics South Africa's Labour Force Survey panel, which enables an assessment of wage dynamics across the country as a whole, between September 2001 and March 2004.

The remainder of this paper is organised as follows. The next section examines the available data in South Africa and how the thresholds for low pay are defined. Section 3 compares estimates of low-paid work from the available cross-sectional and panel data sources, and examines the issue of attrition within the panel. Section 4 examines transitions between labour market states, and the extent of vulnerability to unemployment amongst low-wage workers. Section 5 goes on to assess earnings mobility amongst the employed, and considers who (if any) among the working poor is upwardly mobile. Finally, Section 6 presents conclusions.

2. Data sources and definitions

The key data source that has been used to examine earnings in South Africa is the Labour Force Survey (LFS). Conducted biannually by Statistics South Africa (StatsSA) between March 2000 and September 2007, this nationally representative survey of roughly 30 000 households has the advantage of using a consistent survey instrument across time. This allows researchers to identify changes in South Africa's labour market over this time frame, without too much concern about such changes being artefacts of the data collection process. After September 2007, the biannual LFS was replaced by a quarterly LFS (QLFS), which no longer regularly collects earnings information.

The LFSs were initially released to the public as a cross-sectional survey, and thus allowed for estimates of working poverty to be made at particular points in time, and for such aggregate

estimates to be compared over time. However, in order to examine earnings mobility, it is necessary to use a panel survey. The second type of data used by this study is therefore the Labour Force Survey panel (LFS panel), released by StatsSA in 2006. The LFS panel consists of the September 2001 to March 2004 rounds of the LFS, matched on individuals into a six-wave panel. However, since the survey was designed as a rotating panel of dwelling units, in which the same dwellings were visited in subsequent waves, with a 20 percent rotation, no attempt was made to track individuals or households that moved out of their initial dwelling unit. The LFS panel is thus likely to be subject to attrition to a greater extent than a panel of individuals or households. This issue is examined further in Section 3.

Earnings data collected in the LFS consist of the total salary at the worker's main job, including overtime, allowances and bonus, but before tax or deductions. Respondents may report their earnings as a weekly, monthly or annual figure; for this study, reported earnings values were converted to monthly values for comparison purposes. As is common in many household surveys, however, the LFSs contain earnings data that consist of a mixture of (i) point-reported earnings responses, (ii) interval-censored responses and (iii) missing values. In addition, (iv) a number of workers report zero earnings, despite working non-zero hours.² In order to create a single continuous earnings variable with which to analyse poverty, while simultaneously making use of the largest possible sample, the natural logarithm of monthly earnings was multiply imputed for all but the first of these four earnings categories³, using the sequential regression multivariate imputation approach developed by Raghunathan *et al* (2001). Estimates of interest are obtained separately from each imputed dataset, and then combined⁴ using Rubin's rules (Rubin, 1987). This approach, and its effect on estimates of the working poor in South Africa, is discussed in detail in Vermaak (2010). Within the LFS panel, earnings were imputed separately for each wave. All of the panel estimates presented here represent the combined estimates, unless stated otherwise.

Low-wage or low-earning workers are defined in this study as those individuals aged 15 and older who were employed for at least one hour of the week preceding the survey, but whose real monthly earnings fall below a certain threshold. This definition includes both the wage-employed and the self-employed. Since all the analysis is carried out on earnings at the level of the individual, without regard to other household sources of income, low-wage workers are synonymous here with the working poor.

It is helpful to use more than one threshold of low pay in an analysis of earnings mobility, in order to assess changes in wage amongst the poor, as well as to assess the sensitivity of estimates of transitions into and out of low pay to the threshold applied. This study uses four thresholds,

² Most of these are workers engaged in subsistence agriculture or working without pay in a family business.

³ Thus the variable of interest in this study, the natural logarithm of monthly earnings, consists of the following combination of observations: existing point earnings observations have been retained; interval-censored observations have been imputed to a value within their reported interval, following a truncated normal distribution; and missing and zero-reported earnings observations have been imputed to any value, following a normal distribution.

⁴ Multiple imputation was implemented in Stata using the downloadable function 'ice', and the resulting datasets were analysed using the function 'mim'.

all expressed in terms of 2000 prices⁵, namely R150, R300, R500 and R800 per month. The approximate positions of these thresholds in terms of the quantiles of the earnings distribution in the first and last waves of the LFS panel are displayed in Table 1 below. The quantile value of each threshold declines between the first and sixth wave, which is indicative of a rightward shift in the real distribution of earnings over time.

Table 1. Low-wage thresholds in the LFS panel

Low-wage threshold	Wave 1 (September 2001)	Wave 6 (March 2004)
R150	5 th percentile	3 rd percentile
R300	15 th percentile	11 th percentile
R500	40% of median	36% of median
	26 th percentile	21 st percentile
R800	60% of median	58% of median
	38 th percentile	35 th percentile

Source: LFS panel, September 2001 and March 2004

Notes: (i) Low-wage thresholds measured in real 2000 prices; (ii) Quantile estimates are at the level of the sample.

The post-apartheid period has witnessed numerous substantive changes in the legislative framework of the South African labour market, aimed at setting minimum employment standards, regulating organised bargaining and redressing discrimination. It is of particular interest to study the September 2001 to March 2004 period covered by the LFS panel, as it encompasses the passage of the 2002 amendment to the Basic Conditions of Employment Act (BCEA). In particular, the BCEA was accompanied by sectoral determinations in which minimum wages were extended to a number of sectors in which workers traditionally have been vulnerable, such as domestic work and agricultural wage employment (Department of Labour, 2002a and 2002b). This legislation can be expected to have benefitted workers who retained employment over this period, and thus the extent of poverty amongst the employed can be expected to have declined. However, there is also a concern that employers may have responded to this legislation by reducing their demand for labour, which, coupled with other labour market trends over this period, may have acted to distribute such gains unevenly amongst the employed. The feminisation of the labour force, growing unemployment, informalisation of work and growth in self-employment suggest that some types of workers may be crowded into self-employment or jobs in the informal sector which are not covered by the new legislation (Casale, 2004; Casale *et al*, 2004; Borat and Cassim, 2006). This study thus aims to uncover not only the extent of earnings mobility, but how such mobility varies amongst different types of low-wage workers.

3. Aggregate estimates of low-paid work

The nature of, and trends in, low-paid work remains an under-researched area in South Africa, even at a purely descriptive level, but the self-employed in the informal sector seem to be

⁵ Similarly, earnings values have been converted into real terms using each year's annual average CPI for metropolitan areas (Statistics South Africa, 2007). It was not possible to account for the differing levels of inflation encountered by households at different income levels, by using quintile deflators, as these only exist for South Africa from January 2008 onwards.

particularly vulnerable to poverty. In a wider study of labour market issues focusing on the informal sector, Valodia *et al* (2006) find that more than half of all workers earned less than R1000 per month, and three-quarters of workers earn less than R2500 per month in 2000. Low-wage workers tend to be African, low-skilled, and employed in domestic work, farm work or the informal sector. The number of the employed earning less than \$2 a day in real terms (2000 prices) was estimated by Casale *et al* (2004) to have increased from less than one million in 1995 to more than two million in 2003. Self-employed workers in the informal sector were increasingly vulnerable to poverty: the proportion of such workers who were poor increased from 18 percent in 1995 to 42 percent in 2003.

This section of the paper compares the estimates of low-paid work that derive from the available cross-sectional and panel data sources, and briefly examines the issue of attrition within the panel. Although estimates from the cross-section can be weighted to be representative of the population of South Africa, it is not possible to do the same with the panel.⁶ Therefore, for comparability purposes, all low-wage estimates derived from the cross-sections are presented here at the level of the sample.

Table 2 shows that, using the LFS cross-section for September 2001, 4.5 percent of workers earned less than R150 per month, while 39 percent earned less than R800 per month. With the exception of an increase in the proportion of work that is low-wage between September 2001 and March 2002, the working poverty rate falls consistently between each subsequent six-month period. Using the cross-sectional data, the proportion of workers earning less than R800 falls by five percent across the entire period (and by 15 percent from its peak in March 2002). The proportional decline in working poverty is larger at each lower threshold, reaching a decline of almost 30 percent over the entire period at the R150 threshold (and 45 percent from its peak). It is therefore clear that the extent of low-wage work has declined, and that the greatest relative improvement has occurred at the very bottom of the earnings distribution.

Table 2. Working poverty rates in the LFS cross-sections, September 2001 – March 2004

Threshold	Sep 2001	Mar 2002	Sep 2002	Mar 2003	Sep 2003	Mar 2004	% Change
R 150	4.55 (0.14)	5.82 (0.21)	4.93 (0.18)	4.34 (0.13)	3.65 (0.15)	3.23 (0.13)	-29.0
R 300	14.62 (0.25)	17.07 (0.23)	14.93 (0.24)	14.29 (0.23)	11.55 (0.22)	11.00 (0.23)	-24.7
R 500	26.83 (0.29)	29.67 (0.29)	27.34 (0.29)	27.21 (0.29)	22.90 (0.28)	22.18 (0.28)	-17.4
R 800	38.63 (0.31)	42.96 (0.30)	40.31 (0.32)	40.13 (0.31)	37.13 (0.32)	36.51 (0.31)	-5.5

Source: LFS cross-sections, September 2001 to March 2004

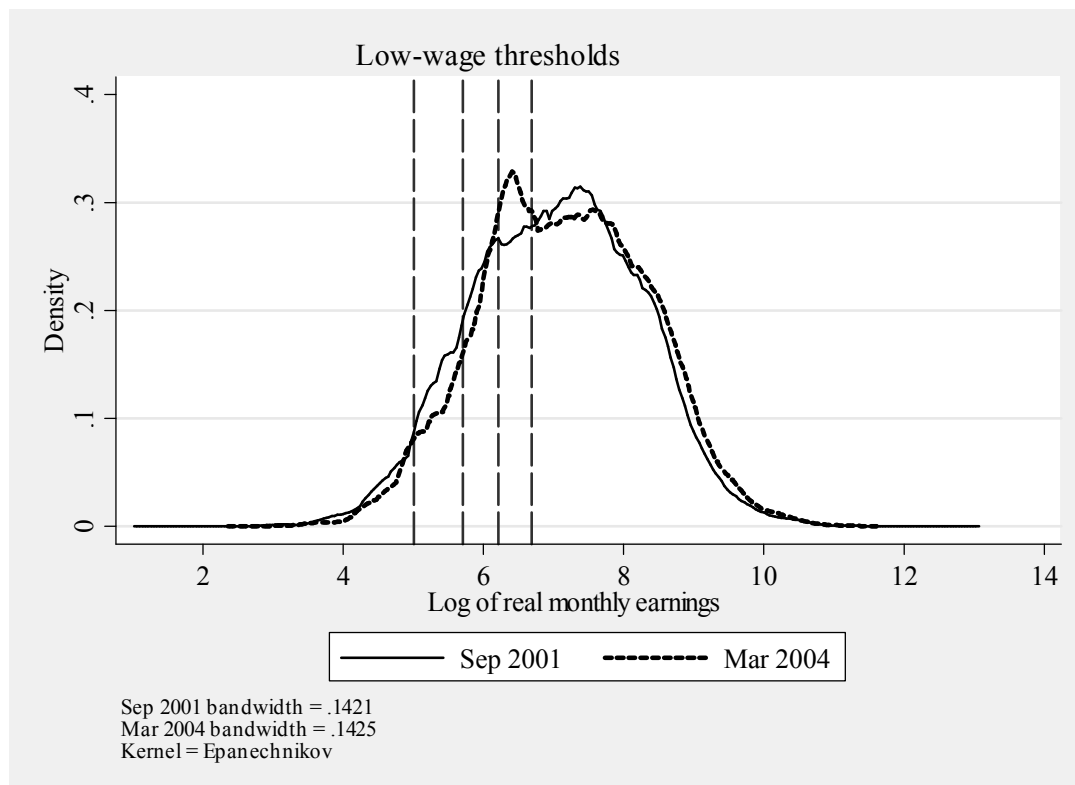
Notes: (i) Poverty thresholds measured in real 2000 prices; (ii) Standard errors in parentheses; (iii) All estimates are at the level of the sample.

The distributions of the natural logarithm of real monthly earnings for the September 2001 and March 2004 LFSs are shown by the kernel density plots in Figure 1. As indicated by the poverty

⁶ The StatsSA methodology document released with the panel states that “at this stage it is not possible to determine meaningful sampling weights for the panel sample” (StatsSA, 2006b: 26).

estimates in Table 2, the improvement in earnings at the bottom of the distribution is clearly visible by the extent of the rightward shift of the lower part of the distribution over time. It is also clear, however, why a much smaller improvement in the working poverty rate occurs at the R800 threshold than at any of the lower poverty lines: a far larger proportion of workers is located between the R500 and R800 thresholds in March 2004 than was the case in September 2001. Thus it appears that a large proportion of earnings values increased from below R500 to between R500 and R800 per month, without breaking through the upper threshold. Although not the focus of this study, an improvement in real earnings is also clearly visible at the upper end of the distribution.

Figure 1. Kernel density plots of the natural logarithm of real monthly earnings, September 2001 and March 2004



Source: LFS cross-sections, September 2001 and March 2004

Notes: (i) Earnings are measured in real 2000 prices; (ii) Density estimates are shown for the first imputed dataset for each data source; (iii) The low-wage thresholds are R150, R300, R500 and R800 per month respectively.

A major potential concern when using a panel dataset to examine working poverty, rather than the cross-sectional data analysed thus far, is that attrition from the panel may be non-random. If low-earning workers are more likely to be lost from the panel than higher-earning workers, then the panel will underestimate working poverty rates, and transition probabilities estimated from the panel will be valid for the specific types of low-wage workers who do not attrite, rather than for all low-wage workers. In particular, in the LFS panel, individuals attrite from the panel if they leave the dwelling place, since the survey was designed as a panel of dwelling places rather than households or individuals (StatsSA, 2006: 5). Non-random attrition would thus imply that low-wage workers are more (or less) likely to change place of residence than higher-earning

workers. For example, low-wage workers may be more likely to seek work in other locations, either in search of higher wages or because low-wage work is more vulnerable to unemployment.

The characteristics of the first and last waves of the panel subsamples, and their parent LFS cross-sections are shown in Table 3. The upper part of the table describes the sample composition for all individuals aged 15 and older, while the lower part summarises selected job characteristics for individuals aged 15 and older who are employed. The full samples are predominantly female and located in urban areas. More than a third of individuals in each of the full samples is employed, while approximately 40 percent are economically inactive, according to the strict definition of unemployment. Among the employed, wage-employment (rather than self-employment) and formal sector work dominate, and most workers are employed in semi-skilled occupations.

Table 3. Sample description, September 2001 and March 2004 LFS cross-sections and corresponding panel waves

	September 2001		March 2004	
	Cross-section	Panel	Cross-section	Panel
Full sample N =	70 590	39 703	67 340	32 125
Age (mean)	36.22 (16.74)	37.05 (16.99)	36.92 (17.05)	38.52 (17.14)
Percentage of individuals aged 15 and older:				
Male	46.19	45.04	46.30	45.94
African	77.59	76.12	75.91	74.11
Coloured	11.52	12.56	11.40	12.33
Indian	2.380	3.007	2.735	2.640
White	8.513	8.314	9.924	10.92
Urban	57.17	57.87	57.22	57.38
No schooling	11.10	10.40	10.14	9.391
Grade 1 – grade 7	28.20	28.01	24.52	21.77
Grade 8 – grade 11	36.95	38.49	38.43	42.85
Matric	16.52	15.95	19.92	17.40
Diploma/degree	7.228	7.156	6.988	8.591
Employed	36.78	35.68	36.51	36.96
Unemployed (strict definition)	15.39	14.60	13.58	12.80
Non-searching unemployed	9.790	9.558	11.72	11.16
Economically inactive	37.92	40.16	38.12	39.08
Employed subsample N =	25 274	14 168	24 371	11 872
Percentage of the employed who are:				
Wage-employed	81.76	80.51	82.93	81.22
Formal sector	69.05	69.69	73.48	74.49
Working in large firm (>50 employees)	26.42	25.32	29.12	29.09
Unskilled	32.23	29.88	33.51	31.05
Semi-skilled	49.63	50.30	46.25	46.73
Skilled	18.14	19.81	20.25	22.22
Domestic workers	9.685	8.491	8.430	7.328
Agricultural wage workers	7.065	6.218	9.655	8.389

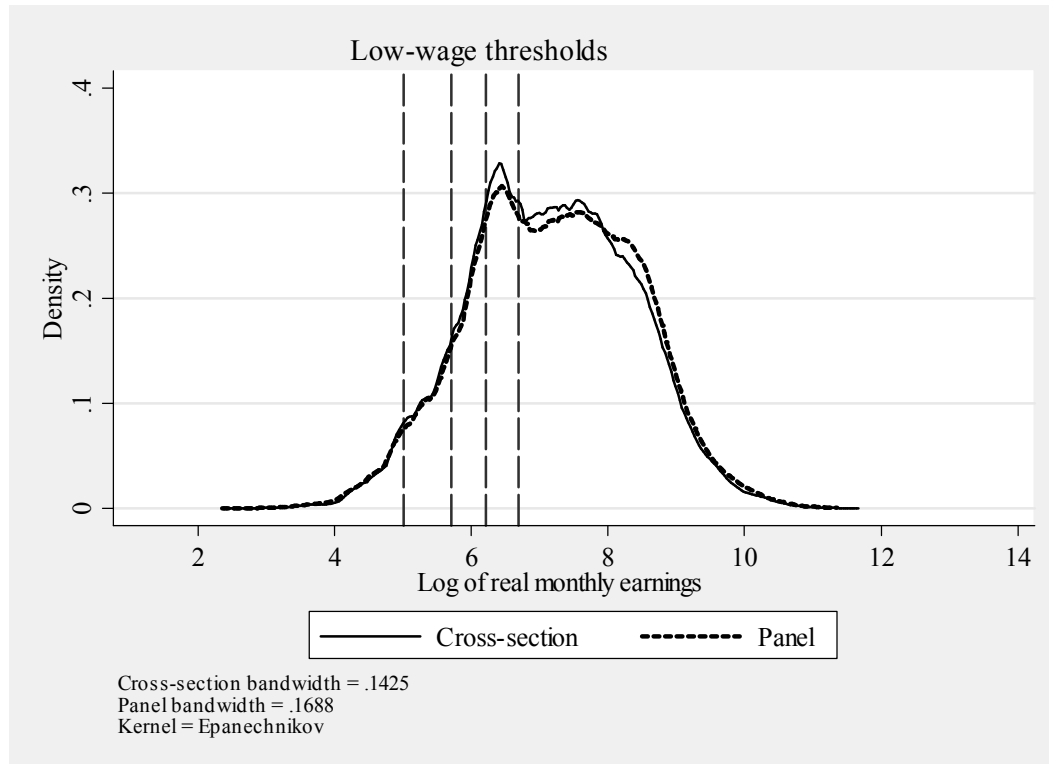
Source: LFS cross-sections, September 2001 and March 2004; LFS panel, September 2001 and March 2004

Notes: (i) Individuals aged 15 and older; (ii) To be included in the panel, an individual must be interviewed in at least two waves; (iii) Standard deviations in parentheses.

Table 3 also illustrates that the first and last waves of the panel subsamples exhibit very similar characteristics to their parent LFS cross-sections, suggesting that attrition is unlikely to be a major concern. A few differences can be noted: individuals who are economically inactive are slightly over-represented in the panel compared to the cross-sections, suggesting that they are less likely to leave the dwelling place than economically active individuals. The panel subsamples do not appear to be systematically more educated, to work in the formal sector or in larger firms than the cross-sections, all of which would be indicative of greater labour market attachment. However, skilled workers are over-represented in the panel, while occupations such as domestic work and agricultural wage employment are under-represented. This suggests that panel attrition may have some effect on the structure of the sample, which may lead to under-estimation of rates of working poverty, and may affect the estimation of low-pay transitions.

Another way of assessing the randomness of attrition from the panel is in terms of the distribution of earnings. Figure 2 compares kernel density plots of the distribution of the log of real earnings for March 2004 from the LFS cross-section and the corresponding panel wave (wave six). Up to the R500 threshold, the distributions are virtually indistinguishable. However, a slightly smaller portion of respondents in the panel earns somewhat above R500 per month than do so in the cross-section, and again between and R800 and approximately R3000 per month, while the reverse is true at the upper end of the distribution. This suggests that geographical mobility is low amongst the lowest-earning workers (those earning below R500 per month tend to remain in the same dwelling unit over time), while geographical mobility is greatest amongst workers earning R500 to R3000 per month. Nonetheless, these differences between the density plots for the two datasets are small relative to the full distribution of earnings. The similarity between the distributions does not rule out the possibility that more geographically mobile individuals, who attrite from the panel, are replaced by individuals with a similar distribution of earnings but who differ in terms of other important (observable or unobservable) characteristics. However, it does suggest that panel attrition is less of a concern here than it would be in a case where the distribution of earnings amongst low-wage workers differed substantially between the cross-section and the panel.

Figure 2. Kernel density plots of the natural logarithm of real monthly earnings, March 2004 LFS cross-section and panel wave six

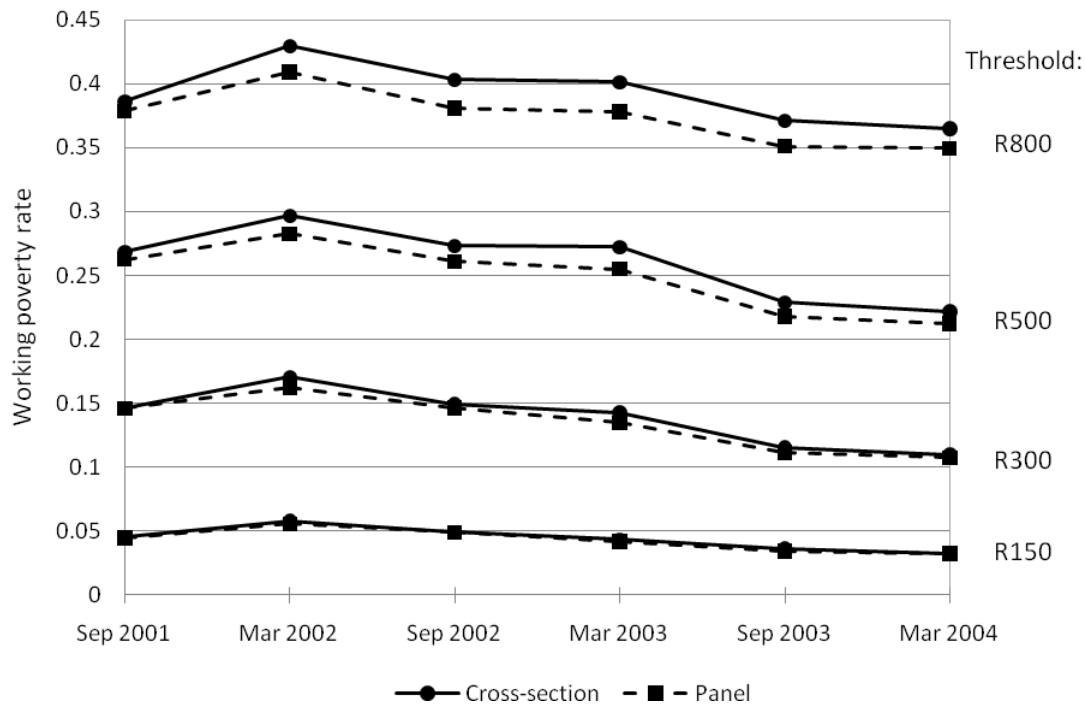


Source: LFS cross-section, March 2004; LFS panel, March 2004

Notes: (i) Monthly earnings are measured in real 2000 prices; (ii) Density estimates are shown for the first imputed dataset for each data source; (iii) The low-wage thresholds are R150, R300, R500 and R800 per month respectively.

In terms of estimates of low-wage work, a comparison of each wave of the panel to its corresponding LFS cross-section produces similar estimates of working poverty rates, as shown in Figure 3. Rates of low-wage work estimated from the cross-sections are typically slightly larger than from the panel across all waves, indicating that low-wage workers are somewhat under-represented in the panel. However, the trend in poverty amongst the employed is consistent for both datasets: working poverty declines at all poverty lines used, and the decline is largest in relative terms at the lowest poverty line, suggesting that the greatest improvements occurred amongst workers located at the very bottom of the earnings distribution. Thus although the panel under-estimates the poverty rate compared to the cross-sections, by an average of four percent, this underestimation does not increase substantially over time. Non-random attrition amongst low-earning workers therefore appears to be neither a sizeable nor an increasing problem in the LFS panel.

Figure 3. Working poverty rates in the LFS panel waves and corresponding cross-sections



Source: LFS cross-sections, September 2001 to March 2004; LFS panel, September 2001 to March 2004

Notes: (i) Poverty thresholds measured in real 2000 prices; (ii) All estimates are at the level of the sample.

Because the extent of the under-representation of low skilled work shows little change over the period, it is likely that the analysis of earnings mobility will not be compromised by attrition. However, another type of sample selection could possibly bias the findings: if low wage workers are particularly vulnerable to unemployment, then an analysis of earnings mobility among those who remain employed may underestimate low wage persistence. To address this, the paper considers transitions for two main estimation samples: (i) those workers who retain employment between waves and (ii) including also those individuals who exit or enter employment. In addition, the paper will show that the transition probabilities are similar when considering individuals who appear only in consecutive waves of the panel, or including individuals who are absent for one or more waves between appearances.

4. Transitions between labour market states

The remainder of the paper focuses exclusively on the panel, and examines the extent and nature of transitions between labour market states and earnings levels. An analysis of earnings mobility which focuses purely on those who retain employment implicitly ignores any movements into and out of employment. This focus would not affect transition probabilities only if workers in all parts of the earnings distribution are equally at risk of unemployment, or are equally likely to exit the labour force. However, if low-paid workers are more vulnerable to unemployment, such a focus would tend to overstate the stability of the earnings distribution. Therefore, this section

examines transitions between labour market states, and the extent of vulnerability to unemployment amongst low-wage workers.

Individuals are classified here into eight categories. The first five categories consist of earnings categories for the employed, depending on whether their monthly earnings are less than R150, R150 to R299, R300 to R499, R500 to R799, or R800 or more, in real 2000 terms. The final three categories consist of non-employment states, namely individuals who are unemployed (according to the strict definition), discouraged work-seekers (those individuals who would additionally be classified as unemployed according to the broad definition) and the economically inactive. Table 4 illustrates aggregate transition probabilities amongst these eight categories, by comparing the individual's current and previous appearance in the panel.⁷ Each cell value represents the conditional probability⁸, expressed in percentage form, that individuals find themselves in the specified column category in period t , given that they were in the specified row category in period $t-1$. Values in the cells on the downward diagonal indicate the probability that an individual remains in the same category between two appearances in the panel.

⁷ These appearances do not necessarily need to be in consecutive waves i.e. $t-1$ is the previous occasion on which the individual was interviewed.

⁸ The probability displayed is the average of the transition probabilities calculated separately for each of the five imputed datasets.

Table 4. Aggregate transition patterns for all individuals older than 15, in percentages

	<R150	R150-R299	R300-R499	R500-R799	At least R800	Searching unemployed	Non-searching	Inactive	Total	% of t-1
<R150	15.03	13.58	7.87	5.24	5.64	11.89	11.53	29.23	100	1.69
R150-R299	6.09	24.84	14.05	6.95	7.63	12.04	10.47	17.95	100	3.49
R300-R499	3.24	10.10	29.46	15.91	11.95	10.18	6.85	12.32	100	4.19
R500-R799	1.66	4.31	11.53	34.50	23.18	10.28	5.86	8.69	100	4.47
At least R800	0.35	1.06	2.10	4.25	80.12	5.07	2.15	4.92	100	22.75
Searching	1.56	3.13	3.17	3.56	8.86	46.38	19.45	13.89	100	14.72
Non-searching	1.94	3.28	3.11	2.72	4.92	28.13	34.84	21.06	100	9.65
Inactive	1.08	1.51	1.20	0.91	2.42	6.61	6.62	79.64	100	39.05

Source: LFS panel, September 2001 to March 2004

Notes: (i) N = 80 774; (ii) Monthly earnings are measured in real 2000 prices; (iii) Transitions are for individuals who appear in at least two (not necessarily consecutive) waves.

Less than 37 percent of individuals in wave t-1 are employed. Approximately 39 percent are economically inactive, while the remaining 24 percent form part of either the searching or the non-searching unemployed. Examining the earnings categories first, there is a large degree of persistence in earnings at or above R800 per month, but a large amount of mobility from all of the earnings categories below this level. The degree of earnings persistence increases consistently as the level of earnings increases, from 15 percent in the lowest earnings category to 35 percent amongst those earning R500 – R799. Consistent with the cross-sectional evidence of a rightward shift of the earnings distribution over time, there is substantially more evidence of upward earnings mobility than downward mobility. For example, workers in all of the earnings categories between R150 and R799 are more likely to experience transitions into any of the higher earnings categories than they are to move into any of the lower earnings categories.⁹

However, most transitions for low-wage workers are not into higher earnings categories, but rather into non-employment. Thus it appears that, in addition to being lower paid, employment is also more precarious for the working poor than for higher-earning workers. More than half of all adults who earn less than R150 per month in one period are no longer employed in the subsequent period, while almost a quarter of those earning R500 – R799 exit employment. In contrast, only 12 percent of those earning more than R800 in one period are no longer employed in the subsequent period. While a substantial proportion of individuals exit the labour force altogether, particularly from the lowest earnings category, transitions into unemployment are also common, and low-earning workers are more vulnerable than non-poor workers. In particular, workers earning less than R800 per month are more than twice as likely to move into either of the two unemployment categories in the subsequent period as non-poor workers. Transitions into employment are uncommon, from any of the three non-employment states. However, among the non-employed, entry into employment in a subsequent period is most likely among the searching unemployed. Nonetheless, from any initial non-employment category, individuals who are able to enter employment are more likely to find themselves in jobs that pay less than R800 per month, than in higher-paying jobs. Overall, there is thus evidence of substantial churning in the low-earning part of the labour market: low-wage work is more often a transitional state between periods of unemployment or economic inactivity than it is a platform into better-paid employment. This is consistent with evidence from other countries of workers being trapped in a cycle of low-pay or no pay.

However, it does not appear that churning in the labour market alone is sufficient to account for the decline in low-wage work over time. If the lowest earning workers left employment between waves, and were either not replaced or replaced by better-quality workers, this would result in a decline in the prevalence of low-wage work. However, we would then expect to see a substantial improvement in average worker characteristics over time, which is not evident from Table 3. Thus the greater precariousness of low-wage work does not solely explain the decline in working poverty over time, and other contributory factors must also exist.

⁹ Limiting the sample to individuals who appear in consecutive waves (estimates not shown here) reduces the sample size from 80 774 to 70 458 and slightly increases the degree of persistence across all categories. However, the general conclusions remain the same.

Tables 5 and 6 present the transition estimates disaggregated by gender. Females in wave t-1 are substantially more likely than males to be economically inactive and more likely to be unemployed, particularly in the non-searching category. Amongst the employed, females are over-represented amongst the low-wage categories, and under-represented amongst workers earning at least R800 per month. In addition, there is more persistence in the three lowest earnings categories amongst females than males, and females are less likely to be upwardly mobile, from any initial earnings category. For example, amongst workers earning R500 to R799 per month in wave t-1, 26.04 percent of males, but only 20.33 percent of females, earn at least R800 per month in the following period. In addition, 20.18 percent of females in this category earn less than R500 per month in the subsequent period, while the same is true of only 14.81 percent of males. As a whole, the transition patterns by gender suggest that low-wage traps are more evident amongst women than amongst men. However, the extent to which employment is precarious does not appear to differ by gender, as the probability of becoming unemployed in the next period is at most one percentage point higher amongst females than amongst males across all earnings categories.

Table 5. Aggregate transition patterns for all males older than 15, in percentages

	t									
	<R150	R150-R299	R300-R499	R500-R799	At least R800	Searching unemployed	Non-searching	Inactive	Total	% of t-1
<R150	11.83	12.32	9.22	5.45	8.58	12.03	10.42	30.16	100	1.18
R150-R299	5.05	21.53	15.01	9.00	10.94	13.08	9.46	15.93	100	2.78
R300-R499	2.46	8.42	28.51	17.55	15.96	11.11	6.19	9.80	100	3.86
R500-R799	1.27	3.45	10.08	35.43	26.04	11.61	4.96	7.15	100	4.96
At least R800	0.33	0.93	1.88	4.14	81.52	5.46	1.96	3.78	100	30.56
Searching	1.17	2.65	2.99	4.16	12.32	47.96	16.97	11.79	100	14.86
Non-searching	1.56	2.78	3.14	3.51	8.15	31.25	31.31	18.31	100	7.53
Inactive	0.88	1.19	0.98	0.96	2.87	6.76	5.42	80.95	100	34.27

Source: LFS panel, September 2001 to March 2004

Notes: (i) N = 36 834; (ii) Monthly earnings are measured in real 2000 prices; (iii) Transitions are for individuals who appear in at least two (not necessarily consecutive) waves.

Table 6. Aggregate transition patterns for all females older than 15, in percentages

	t									
	<R150	R150-R299	R300-R499	R500-R799	At least R800	Searching unemployed	Non-searching	Inactive	Total	% of t-1
<R150	16.48	14.15	7.26	5.14	4.32	11.82	12.03	28.80	100	2.12
R150-R299	6.66	26.68	13.51	5.80	5.78	11.46	11.03	19.07	100	4.07
R300-R499	3.78	11.29	30.13	14.75	9.11	9.51	7.31	14.11	100	4.45
R500-R799	2.04	5.17	12.97	33.56	20.33	8.94	6.76	10.23	100	4.06
At least R800	0.38	1.25	2.42	4.40	77.98	4.46	2.44	6.67	100	16.37
Searching	1.88	3.54	3.33	3.05	5.98	45.07	21.51	15.64	100	14.60
Non-searching	2.15	3.55	3.10	2.29	3.17	26.44	36.75	22.55	100	11.39
Inactive	1.21	1.73	1.35	0.88	2.13	6.51	7.41	78.80	100	42.95

Source: LFS panel, September 2001 to March 2004

Notes: (i) N = 43 940; (ii) Monthly earnings are measured in real 2000 prices; (iii) Transitions are for individuals who appear in at least two (not necessarily consecutive) waves.

5. Earnings mobility and transition probabilities amongst the employed

Having considered the extent of labour market churning, the remainder of the paper assesses earnings mobility amongst the employed, and considers who (if any) among the working poor is upwardly mobile.¹⁰ The transition matrices presented in this section are thus conditional on individuals being employed in at least two waves of the panel. In order to take labour market churning and panel attrition into account, transitions are discussed for both the subsample where individuals are employed in two consecutive waves, and where the waves are non-consecutive (where individuals were either not interviewed, or were not employed, in the intervening wave/s).

Before proceeding to examine transitions between the low-wage threshold categories, the extent of mobility across the full earnings distribution is presented in Tables 7 and 8. Here, workers are classified according to their relative position within each wave's earnings distribution, and their mobility between the deciles of the distribution is examined. Table 7 compares the position of 27 475 individuals between two appearances in the panel. The degree of persistence of earnings ranges from just under 30 percent in decile six to 56.6 percent in the top decile. Other than the top decile, the highest rates of persistence in earnings are in the lowest two deciles, and workers in deciles two to five are more likely to move downwards by one decile than into the decile above. The highest levels of mobility are from the fifth to eighth deciles, although movement by more than one decile remains rare. However, this is unsurprising as it would constitute quite a large change in earnings in a short period.

Table 8 restricts the analysis to individuals who are employed in consecutive waves of the panel, which reduces the sample size to 22 619 individuals. Here, individuals who are not employed or absent from the panel for one or more waves are excluded, such that all comparisons are made at six-monthly intervals. The degree of earnings persistence observed here thus increases slightly, but the general conclusions made on the basis of Table 7 remain otherwise unchanged. In order to standardise comparisons across six-month periods, the remainder of the analysis presented is conditional on individuals being employed in at least two consecutive waves of the panel, unless stated otherwise.

¹⁰ This focus on individuals who retain employment excludes one perspective on vulnerability: individuals who fall out of employment are lost from the study. It is therefore not possible, for example, to say anything about which characteristics of workers are associated with regaining work, after previously having exited employment. However, across the six waves of the panel, most individuals make at most one movement into or out of employment. Indeed, of the 7 573 individuals who exit employment (to any other labour market state) between any two waves of the panel, only 443 individuals, or 5.85 percent, regain employment in any later wave. Similarly, of all workers earning less than R800 per month who exit employment, only 5.14 percent re-enter employment in any later wave.

Table 7. Aggregate transition patterns between earnings deciles, employed in at least two waves, in percentages

		t										
Earnings decile		1	2	3	4	5	6	7	8	9	10	Total
t-1	1	48.62	23.15	11.03	6.61	4.84	2.27	1.80	0.90	0.45	0.34	100
	2	21.05	41.77	17.41	8.30	4.87	2.59	1.75	1.14	0.75	0.39	100
	3	10.08	18.97	36.12	17.88	7.20	4.06	2.80	1.38	1.01	0.48	100
	4	6.05	8.47	17.05	35.83	15.26	7.80	4.68	2.36	1.35	1.15	100
	5	3.23	5.40	6.65	17.40	29.97	17.03	11.15	5.02	2.59	1.55	100
	6	1.88	2.65	3.46	7.84	18.44	29.86	20.11	8.73	4.51	2.54	100
	7	1.45	1.66	2.03	4.50	9.83	20.08	30.50	16.55	8.93	4.47	100
	8	0.79	0.99	1.30	2.49	4.70	8.43	18.93	31.15	21.36	9.88	100
	9	0.28	0.65	0.79	1.36	2.22	3.68	8.49	22.11	40.56	19.86	100
	10	0.22	0.39	0.35	1.20	1.44	2.36	5.07	9.80	22.57	56.60	100

Source: LFS panel, September 2001 to March 2004

Notes: (i) N = 27 475; (ii) Monthly earnings are measured in real 2000 prices; (ii) Transitions for individuals employed in at least two (not necessarily consecutive) waves.

Table 8. Aggregate transition patterns between earnings deciles, employed in consecutive waves, in percentages

		t										
Earnings decile		1	2	3	4	5	6	7	8	9	10	Total
t-1	1	48.84	23.29	11.03	6.43	4.85	2.28	1.63	0.85	0.40	0.40	100
	2	20.30	43.14	17.05	7.99	4.79	2.68	1.78	1.15	0.77	0.37	100
	3	8.82	18.09	37.93	18.45	7.01	4.08	2.71	1.40	1.05	0.47	100
	4	5.45	7.92	16.77	37.84	15.13	7.28	4.58	2.52	1.29	1.23	100
	5	2.87	4.62	6.34	16.75	32.15	16.97	10.89	5.08	2.68	1.65	100
	6	1.52	2.26	2.98	7.34	18.58	30.89	20.37	8.98	4.55	2.53	100
	7	1.39	1.39	1.75	4.07	9.33	19.68	31.44	17.31	9.13	4.50	100
	8	0.64	0.87	1.28	2.33	4.48	8.10	18.70	32.56	21.52	9.53	100
	9	0.19	0.50	0.72	1.12	2.08	3.37	8.43	22.30	41.74	19.56	100
	10	0.11	0.33	0.35	0.98	1.31	2.10	4.98	9.66	22.42	57.75	100

Source: LFS panel, September 2001 to March 2004

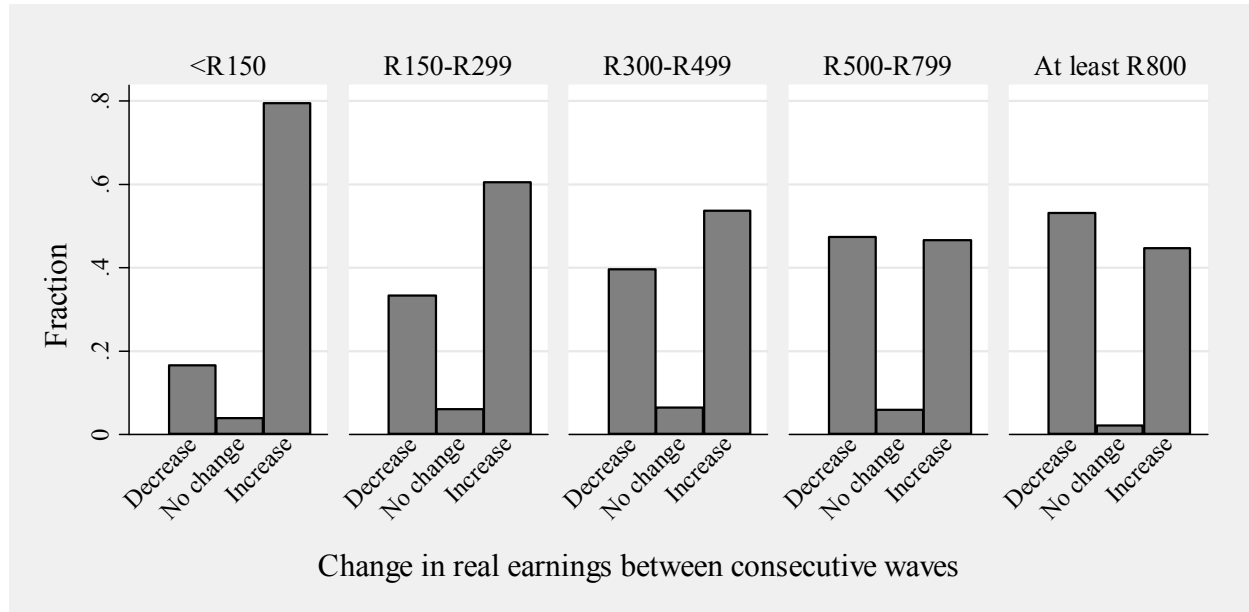
Notes: (i) N = 22 619; (ii) Monthly earnings are measured in real 2000 prices; (ii) Transitions for individuals employed in at least two consecutive waves.

Comparing mobility across deciles does not take into account the fact that the overall distribution of real earnings improves over time, such that each decile represents a better level of earnings in later waves than in earlier ones. Therefore, the remainder of this section considers transitions between earnings categories rather than deciles, and focuses once again on the lower end of the distribution.

The scope of the improvement in earnings, particularly amongst those at the bottom of the distribution, is evident in Figure 4. Almost 80 percent of workers who remain in employment and who start in the lowest earnings category experience an increase in real earnings between waves, whilst stagnant or decreasing earnings are uncommon. The proportion of workers, whose wages rise between waves, is lower at each higher earnings category, such that wage gains and losses are experienced by equal proportions of workers who initially earn from R500 to R799 per

month. Amongst workers initially earning at least R800 per month, a decrease in earnings is more common than an increase.

Figure 4. Proportion of workers who experience a decrease, no change or increase in earnings between waves, by initial earnings category



Source: LFS panel, September 2001 to March 2004

Notes: (i) N = 22 619; (ii) Monthly earnings are measured in real 2000 prices; (ii) Wage changes are for individuals employed in at least two consecutive waves.

The magnitude of the improvement in real earnings is evident in Table 9. Here, the median value of the change in real earnings between successive waves is presented according to the individual's initial earnings category. The largest absolute improvement occurs at the bottom of the earnings distribution, where workers who initially earn less than R150 per month experience a median gain in earnings of R121 in a six-month period. This represents a median wage gain of almost 1.2 times the initial wage for the poorest workers. The median wage gain declines in each higher earnings category, such that workers who initially earn at least R800 per month experience a median decrease in earnings of R65 per month in a six-month period.

Table 9. Median value of absolute and relative earnings changes, by initial earnings category

Initial earnings category	Earnings change (Rands)	Ratio of earnings change to initial earnings
<R150	121.36	1.198
R150-R299	43.33	0.208
R300-R499	23.41	0.062
R500-R799	0	0
At least R800	-65.28	-0.027

Source: LFS panel, September 2001 to March 2004

Notes: (i) N = 22 619; (ii) Monthly earnings are measured in real 2000 prices; (ii) Wage changes are for individuals employed in at least two consecutive waves.

In contrast to the decile analysis, in which earnings persistence declines as the level of earnings increases until the sixth decile, Table 10 indicates that persistence increases, and transitions between the low-wage categories become less likely, as the low-wage threshold increases. However, this apparent contradiction is consistent with the changes in the overall distribution of earnings illustrated in Section 3. When the earnings distribution shifts to the right, a worker whose earnings improve in absolute terms may experience a transition into the next earnings category, while remaining within the same decile in terms of the relative distribution. The largest improvement in earnings between September 2001 and March 2004 occurred at the very bottom of the distribution, thus this is also where the differences in transition probabilities between the decile and earnings category analysis are most apparent.

Table 10. Aggregate transition patterns between earnings categories for all employed, in percentages

		t					Total	% of t-1
		<R150	R150-R299	R300-R499	R500-R799	R800+		
	<R150	32.64	28.56	17.28	10.48	11.05	100	2.78
	R150-R299	10.81	43.33	22.84	10.76	12.26	100	7.00
t-1	R300-R499	4.84	14.53	42.70	21.15	16.79	100	9.96
	R500-R799	2.30	5.93	15.41	46.57	29.80	100	11.56
	At least R800	0.38	1.16	2.28	4.73	91.45	100	68.70

Source: LFS panel, September 2001 to March 2004

Notes: (i) N = 22 619; (ii) Monthly earnings are measured in real 2000 prices; (ii) Transitions are for individuals employed in at least two consecutive waves.

The transition probabilities indicate that less than one third of workers who earn below R150 per month in one period remain in the lowest earnings category in the next period; in contrast, 47 percent of those who earn R500-R799 per month remain in this category. In contrast to the decile analysis, workers who remain in employment are substantially more likely to experience upward than downward earnings mobility when examining the wage categories. This is to be expected given the general improvements in earnings in the lower tail of the distribution that were indicated by cross-sectional analysis, but which were obscured in the decile analysis. All four categories of low-wage workers have more than a 20 percent probability of moving up the distribution by one category, while 11 percent of even the lowest-earning workers move into the non-poor category by the next period. In addition, there is strong evidence of earnings stability for non-poor workers: 91 percent of workers earning R800 or more will continue to do so in the subsequent period.

However, there is more evidence of working poverty traps amongst female workers than amongst male workers, as shown in Table 11. In comparison to males, females experience considerably more earnings persistence, particularly in the lowest two categories, and are more likely to move down the earnings distribution. In particular, while only 25 percent of males who earn less than R150 continue to do so in the following wave, the same is true of 36 percent of females. Upward mobility remains more common than downward mobility for both genders, but females have a three to five percentage point higher likelihood of moving down by one category, from any earnings value between R150 and R799, than males. In terms of escaping from low-

wage work, males are up to twice as likely as females to move above R800 per month, from any lower category.

Table 11. Aggregate transition patterns between earnings categories for all employed, by gender, in percentages

		t					Total	% of t-1
		<R150	R150-R299	R300-R499	R500-R799	R800+		
Males:								
t-1	<R150	25.42	26.40	20.46	10.93	16.80	100	1.52
	R150-R299	8.72	37.21	23.26	13.13	17.68	100	4.58
	R300-R499	3.60	11.84	40.81	21.89	21.87	100	7.64
	R500-R799	1.77	4.67	13.20	47.81	32.56	100	10.55
	At least R800	0.38	1.04	1.99	4.52	92.07	100	75.72
Females:								
t-1	<R150	35.70	29.47	15.93	10.29	8.60	100	4.30
	R150-R299	11.97	46.74	22.61	9.44	9.24	100	9.92
	R300-R499	5.74	16.47	44.06	20.61	13.12	100	12.76
	R500-R799	2.83	7.19	17.61	45.33	27.05	100	12.79
	At least R800	0.38	1.35	2.72	5.05	90.51	100	60.23

Source: LFS panel, September 2001 to March 2004

Notes: (i) Males N = 12 341; Females N = 10 278; (ii) Monthly earnings are measured in real 2000 prices; (ii) Transitions are for individuals employed in at least two consecutive waves.

The fact that women are more likely than men to experience low-wage persistence suggests that there is little upward earnings mobility in the types of jobs in which women are concentrated, and little mobility into better-paying types of occupations. It is not only that females are crowded into specific low-wage occupations – in particular, domestic work – but also that women are 50 percent more likely than men to be self-employed in the informal sector. Employment in such small-scale, mostly survivalist activities provides few prospects of upward earnings transitions, either within the current job or through movement into more highly-paid work. Therefore, in order to investigate such potential poverty traps, the remainder of this section provides a closer examination of the characteristics of workers, and of the work that they do, and how these characteristics are associated with earnings persistence, or with earnings mobility.

(a) Education

As expected, education increases not only a worker's level of earnings at a given time, but also the likelihood of upward earnings mobility over time, as illustrated in Table 12. The degree of persistence of low earnings decreases consistently with the level of education. Workers without secondary education (less than grade seven) are more likely to remain in an earnings category, or to move into a lower category, than those with some secondary education (grades eight to 11). Even amongst workers without any secondary education, however, upwards earnings mobility is more likely than downward mobility. Education is nonetheless a predictor of mobility: regardless of their initial earnings, workers with some secondary education and who remain in employment have a roughly ten percentage point higher probability of moving into the highest earnings category in the next period than those without secondary education.

Table 12. Aggregate transition patterns between earnings categories for all employed, by highest level of education completed, in percentages

		t					Total	% of t-1
		<R150	R150-R299	R300-R499	R500-R799	R800+		
Up to grade 7:								
t-1	<R150	37.09	30.45	17.12	9.19	6.14	100	6.50
	R150-R299	11.64	48.07	22.71	9.90	7.69	100	15.93
	R300-R499	5.62	16.61	46.94	20.61	10.23	100	20.18
	R500-R799	2.78	6.27	17.15	52.92	20.88	100	19.86
	At least R800	1.01	3.09	5.60	10.36	79.93	100	37.53
Grade 8 – 11:								
t-1	<R150	25.71	27.14	17.81	13.03	16.31	100	2.41
	R150-R299	10.14	38.36	23.11	12.10	16.29	100	6.17
	R300-R499	4.24	12.99	38.90	22.14	21.73	100	10.01
	R500-R799	2.00	5.87	14.62	43.70	33.82	100	13.75
	At least R800	0.45	1.39	2.70	6.45	89.01	100	67.67
At least matric:								
t-1	<R150	20.39	17.14	16.62	11.87	33.98	100	0.50
	R150-R299	6.91	25.45	22.95	12.57	32.12	100	1.50
	R300-R499	2.77	8.76	32.95	20.88	34.64	100	2.82
	R500-R799	1.50	4.91	11.60	32.82	49.17	100	3.96
	At least R800	0.15	0.47	1.06	2.05	96.26	100	91.22

Source: LFS panel, September 2001 to March 2004

Notes: (i) Up to grade 7 N = 6 810; Grade 8 – 11 N = 7 784; At least matric N = 9 363; (ii) Monthly earnings are measured in real 2000 prices; (ii) Transitions are for individuals employed in at least two consecutive waves.

For workers who have completed high school, the benefits are even greater. Less than nine percent of the sample of workers with at least a matric education earns less than R800 per month in the initial period, and at least one third of these workers move into the highest earnings category in the subsequent period. The high rates of transition into the R800 per month and above earnings category, for workers with at least some secondary education, is consistent with the notion that, for well-educated individuals, low-earning work may act as a stepping stone into better quality employment, perhaps by allowing the individual concerned to gain work experience or to form networks.

(b) Employment type

In the LFS cross-sections, on aggregate, greater declines in working poverty occurred amongst wage-employed workers and those working in the formal sector¹¹, compared to their counterparts in self-employment and in the informal sector. This is consistent with improvements in labour legislation, and particularly the 2002 amendment to the BCEA, which offers protection for wage-employed and formal sector workers, although it is not possible to attribute improvements directly to this legislation. Longitudinal analysis conducted here shows that wage-employed and

¹¹ The definition of the formal sector used here is somewhat different than has been used in previous chapters. Individuals are defined here as working in the formal sector either through self-identification, or if the enterprise in which they work is a registered company or registered for VAT. The variables necessary for the identification of informality based on job characteristics have not been released as part of the LFS panel.

formal sector workers are likely to experience upward earnings mobility, while poverty traps are more evident amongst their counterparts in self-employment or in the informal sector.

There is relatively little movement between these employment types: 20 percent of workers in the informal sector move into the formal sector in the subsequent period, although only six percent of workers move in the opposite direction. Fifteen percent of self-employed workers move into wage employment in the subsequent period, and just three percent of workers move in the opposite direction. Amongst workers who remain in one type of employment, the benefits of formal sector employment are apparent from Table 13, in terms of both higher earnings and greater upward mobility. More than 80 percent of workers who remain employed in the formal sector earn at least R800 in the initial period. In addition, more than 20 percent of the small number of formal sector workers in each earnings category below R800 earn at least R800 in the following period.

Table 13. Aggregate transition patterns between earnings categories for all employed, by formal or informal sector, in percentages

		t					Total	% of t-1
		<R150	R150-R299	R300-R499	R500-R799	R800+		
Formal:								
	<R150	19.17	18.18	12.65	14.27	35.73	100	0.42
	R150-R299	2.50	38.02	23.86	13.76	21.86	100	2.03
t-1	R300-R499	0.72	7.55	45.22	25.03	21.48	100	5.43
	R500-R799	0.54	2.27	12.05	50.38	34.77	100	9.20
	At least R800	0.13	0.53	1.21	3.46	94.67	100	82.92
Informal:								
	<R150	35.98	31.06	17.35	8.79	6.82	100	11.73
	R150-R299	14.17	46.30	22.34	9.30	7.90	100	24.85
t-1	R300-R499	8.63	21.20	41.23	18.08	10.87	100	25.64
	R500-R799	5.30	12.45	22.48	39.80	19.97	100	17.92
	At least R800	3.68	8.96	15.18	17.84	54.34	100	19.87

Source: LFS panel, September 2001 to March 2004

Notes: (i) Formal sector N = 16 389; Informal sector N = 4 766; (ii) Monthly earnings are measured in real 2000 prices; (ii) Transitions are for individuals employed in the same sector in at least two consecutive waves.

In contrast, earnings are far more precarious in the informal sector. Here, more than 60 percent of all workers earn less than R500 in the initial comparison period. Only 20 percent of all informal sector workers earn at least R800 in the initial period, and only 54 percent of such workers maintain these earnings into the next period. Workers earning R300-R799 per month in the informal sector are more likely to have their earnings decline than rise in the subsequent period. However, there is some evidence (not shown here) in the panel that informal sector work may provide future access to better pay: the 20 percent of workers who are able to move from the informal to the formal sector are more likely to experience upward earnings mobility between subsequent waves than workers who remain in either sector.

The benefits of wage employment, relative to self-employment, appear similar to those of formal sector work, which is unsurprising since 93 percent of formal sector workers in the LFS panel are wage-employed. Wage-employed workers experience earnings stability, with high levels of

earnings persistence, and most transitions are upwards by one wage category. In contrast, earnings in the initial period for the self-employed are more widely distributed across the low-earnings categories than for the wage-employed. The earnings of self-employed workers are also unstable: there is a high likelihood of transition from each low-wage category to almost any other category. Downward earnings mobility is considerably more common amongst the self-employed than amongst the wage-employed.

Table 14. Aggregate transition patterns between earnings categories for all employed, by wage- or self-employment, in percentages

		t					Total	% of t-1
		<R150	R150-R299	R300-R499	R500-R799	R800+		
Wage-employed:								
	<R150	37.66	27.05	13.80	9.37	12.13	100	1.53
	R150-R299	6.29	49.21	24.51	9.20	10.79	100	5.52
t-1	R300-R499	2.24	11.87	48.84	22.74	14.31	100	9.25
	R500-R799	0.96	3.74	14.55	51.73	29.03	100	11.84
	At least R800	0.20	0.77	1.62	4.45	92.96	100	71.87
Self-employed:								
	<R150	29.47	30.35	20.61	10.78	8.79	100	8.73
	R150-R299	19.08	33.68	19.73	13.67	13.84	100	14.08
t-1	R300-R499	13.25	25.28	24.01	16.52	20.94	100	13.57
	R500-R799	9.44	18.71	20.53	19.48	31.84	100	10.08
	At least R800	1.52	3.46	6.18	6.09	82.75	100	53.54

Source: LFS panel, September 2001 to March 2004

Notes: (i) Wage-employed N = 18 378; Self-employed N = 3 330; (ii) Monthly earnings are measured in real 2000 prices; (ii) Transitions are for individuals in the same employment type in at least two consecutive waves.

(c) Occupation

Accompanying the 2002 Amendment to the BCEA, the Department of Labour issued sectoral determinations, which set out minimum wages and working conditions for vulnerable sectors of the workforce (Department of Labour, 2002a and 2002b). Although sectoral determinations are applicable to workers in a wide range of sectors, they would be expected to have a particularly large impact on domestic workers and agricultural wage workers, since these workers were initially especially vulnerable to low pay and exploitative working conditions. Indeed, it has been shown at a cross-sectional level that monthly wages for domestic workers increased by 15 percent in the two years following the implementation of the sectoral determination, although employment levels fell somewhat (Hertz, 2005). The final part of this paper therefore examines transition probabilities and wage mobility amongst these two types of workers, in order to assess whether any improvements can be observed that are particular to these specific types of workers.

The sectoral determination for domestic workers took effect from 1 November 2002, and was thus in force for the fourth, fifth and sixth waves of the LFS panel. However, the sectoral determination for farm workers only took effect from effect from 1 March 2003, and thus the minimum wages that it sets out may not yet have affected the earnings reported by farm workers during the fourth wave of the LFS panel, which was conducted during March 2003. The minimum wages applicable as a result of this legislation are detailed in Table 15. To comply with the legislation, full-time workers should have earnings within at least the R500-R799 category, although part-time workers may earn less.

Table 15. *Applicable monthly minimum wages in Rands, by occupational sector*

	March and September 2003	March 2004
Domestic workers: ⁽ⁱⁱ⁾		
Urban areas	432-655	460-696
Rural areas	351-535	373-565
Farm workers:		
Urban areas	655	704
Rural areas	532	576

Source: Department of Labour (2002a and 2002b), author's calculations

Notes: (i) Minimum wages are expressed in Rands per month in real 2000 prices; (ii) The upper end of the range is applicable to those who work at least 27 hours per week. The lower end is the monthly minimum wage applicable to those who work 27 hours per week. Domestic workers who work fewer than 27 hours must be paid at the same hourly rate, but will be paid less per month.

At the time of the implementation of the sectoral determinations, an employer who was previously paying this type of worker less than the newly-implemented minimum wages was faced with several possible responses: continue to pay the same, now-illegal, wage; pay at least the prescribed minimum wage; reduce the number of hours for which the worker was employed; or dismiss the worker. This section examines these possibilities by considering individuals who were employed as either a domestic or agricultural wage worker in the initial period, and estimates their transition probabilities amongst the low-wage categories or to states of non-employment.

Table 16 indicates that domestic and farm workers¹² earn substantially less than other workers, with a much larger proportion of such workers falling into all of the low-wage categories. Indeed, almost 30 percent of domestic and farm workers earn between R300 and R499 in the initial period. There are also far higher levels of low-wage persistence amongst domestic and agricultural wage workers than amongst the employed in general. While for the workforce at large, wage persistence is greatest for non-poor workers, domestic and farm workers experience the largest degree of persistence if they earn R500-R799 per month. This is the earnings category which encompasses the minimum wage for these types of workers. However, domestic and farm workers who earn less than R500 are also slightly more likely to move upwards by one earnings category than are all of the employed. Domestic and farm workers in the lowest two earnings categories are no more likely to become unemployed than workers in general, while higher-earning domestic and farm workers are substantially less likely to become unemployed than the workforce as a whole.

¹² Domestic and agricultural wage workers are presented here as one category, as disaggregating the two types of workers produces very small sample sizes in some categories. Similar patterns to those described above are observed for both types of worker, although, in general, domestic workers work fewer hours and earn somewhat less than farm workers.

Table 16. Aggregate transition patterns for all employed in period $t-1$, by occupation, in percentages

	t									
	<R150	R150-R299	R300-R499	R500-R799	At least R800	Searching unemployed	Non-searching	Inactive	Total	% of t-1
All workers:										
<R150	15.70	13.74	8.32	5.04	5.32	12.38	11.26	28.25	100	4.67
R150-R299	6.55	26.27	13.85	6.53	7.44	12.01	9.96	17.40	100	9.33
R300-R499	3.46	10.39	30.53	15.12	12.01	10.30	6.56	11.62	100	11.25
R500-R799	1.75	4.51	11.72	35.42	22.67	10.20	5.68	8.06	100	12.28
At least R800	0.34	1.03	2.02	4.20	81.26	4.72	1.99	4.43	100	62.47
Domestic and agricultural wage workers:										
<R150	25.33	14.12	5.16	3.33	1.41	12.89	10.68	27.08	100	9.43
R150-R299	4.98	39.18	16.09	4.63	1.96	10.75	9.54	12.88	100	23.70
R300-R499	2.21	11.25	43.96	18.48	3.61	7.78	4.56	8.16	100	29.52
R500-R799	0.64	3.26	14.91	54.51	10.59	5.46	4.95	5.68	100	26.32
At least R800	0.90	3.16	7.94	22.11	49.13	5.02	4.51	7.22	100	11.02

Source: LFS panel, September 2001 to March 2004

Notes: (i) All workers $N = 29\ 273$; Domestic and agricultural wage workers $N = 4\ 080$; (ii) Monthly earnings are measured in real 2000 prices; (iii) Transitions are for individuals employed in either domestic or agricultural work in period $t-1$ and either domestic or agricultural work or non-employment in period t , in at least two consecutive waves.

Table 17. Aggregate transition patterns for all domestic and agricultural wage workers in period $t-1$, in percentages

	t										
	<R150	R150-R299	R300-R499	R500-R799	At least R800	Other job type	Searching unemployed	Non-searching	Inactive	Total	% of t-1
<R150	22.79	13.46	5.03	2.93	1.24	10.03	11.33	9.38	23.80	100	9.21
R150-R299	4.60	34.83	14.79	4.17	1.77	11.25	9.27	8.22	11.10	100	23.60
R300-R499	2.04	10.20	39.60	16.81	3.20	10.20	6.82	3.99	7.15	100	28.92
R500-R799	0.61	2.99	13.24	48.23	9.25	11.72	4.74	4.29	4.93	100	26.05
At least R800	0.70	2.45	6.27	17.27	38.63	21.72	3.89	3.49	5.59	100	12.21

Source: LFS panel, September 2001 to March 2004

Notes: (i) $N = 4\ 827$; (ii) Monthly earnings are measured in real 2000 prices; (iii) Transitions are for individuals employed in either domestic or agricultural work in period $t-1$, and any activity in period t , in at least two consecutive waves.

In addition, some individuals who are domestic or farm workers in one period may retain employment while moving to a different occupation in the subsequent period, which is accounted for in Table 17. Indeed, at least ten percent of domestic or farm workers who earn less than R800 per month change to a different occupation in the subsequent period, while the same is true of more than 20 percent of workers above the low-wage threshold. Earnings persistence is highest amongst workers earning R500 to R799, while less than 40 percent of domestic or farm workers who are initially above the low-pay threshold are able to retain this employment and earnings status into the next period.

Finally, as a means of assessing whether any trends in transition probabilities can be identified, which might correlate with employers' adherence to the requirements of the sectoral determinations, Table 18 disaggregates the transition probabilities for domestic and farm workers into the periods before, during and after the implementation of the legislation. In each of the three time periods, workers earning less than R150 per month are more likely to exit employment than to move up the earnings distribution or into a different occupation. However, there is no consistent trend in the likelihood of moving to a different occupation, or of becoming unemployed, from any initial category, either at the time of or after the implementation of the legislation. This suggests that employers did not respond to the implementation of the sectoral determinations by dismissing workers. However, there is a decline in average working hours amongst these types of workers, particularly in the lowest two earnings categories. Average hours worked for domestic workers decrease from 33 to 23 hours per week for those earning less than R150 per month, and from 41 to 37 hours per week for those earning R150 to R299 per month. Amongst farm workers, the declines are from 48 to 40, and 51 to 45, hours per week respectively. This suggests that the extent of upward earnings mobility for these types of workers would be even higher if estimated using hourly, rather than monthly, earnings. It also suggests that employers may have responded to minimum wage legislation by reducing the number of hours of employment.

Table 18. Aggregate transition patterns for domestic and agricultural wage workers, by wave, in percentages

	<R150	R150- R299	R300- R499	R500- R799	At least R800	Other job type	Searching unemployed	Non- searching	Inactive	Total	% of t-1
From waves 1 & 2:											
<R150	29.63	11.79	2.72	2.90	0.74	9.01	11.85	9.63	21.73	100	10.55
R150-R299	5.61	36.70	13.34	3.15	1.61	10.01	8.92	8.96	11.70	100	26.23
R300-R499	2.65	11.83	42.11	13.63	2.10	10.41	6.80	3.92	6.56	100	29.78
R500-R799	0.57	3.36	16.83	44.81	8.37	12.81	5.30	2.79	5.18	100	22.88
At least R800	0.92	3.88	8.99	19.47	33.89	19.41	3.21	3.76	6.47	100	10.57
Wave 3 to 4:											
<R150	16.62	18.86	3.38	1.41	1.14	14.05	11.38	6.31	26.85	100	11.29
R150-R299	2.98	36.03	12.95	4.99	2.85	11.19	9.97	6.73	12.29	100	24.51
R300-R499	2.37	9.97	40.31	16.19	4.57	9.64	6.94	3.69	6.33	100	28.83
R500-R799	1.02	4.75	16.03	49.80	10.53	7.07	3.87	3.67	3.26	100	23.37
At least R800	0.66	1.58	8.19	16.25	40.82	22.19	4.22	3.30	2.77	100	12.02
From waves 4 & 5:											
<R150	15.42	12.22	10.47	4.18	2.21	8.70	10.35	11.35	25.10	100	6.73
R150-R299	4.04	31.38	17.98	5.21	1.39	13.10	9.39	7.96	9.54	100	20.19
R300-R499	1.14	8.34	36.23	20.96	3.86	10.21	6.77	4.23	8.25	100	28.00
R500-R799	0.50	2.06	9.23	50.56	9.54	12.44	4.58	5.78	5.30	100	30.91
At least R800	0.52	1.57	3.19	15.79	41.79	23.48	4.34	3.35	5.96	100	14.17

Source: LFS panel, September 2001 to March 2004

Notes: (i) N by wave: 1 & 2 = 2 489; 3 to 4 = 1 260; 4 & 5 = 2 209; (ii) Monthly earnings are measured in real 2000 prices; (iii) Transitions are for individuals employed in either domestic or agricultural work in period t-1, and any activity in period t.

Although the sample sizes here are relatively small, there are nonetheless some trends that can be identified. Low pay is common, but the persistence of low-earnings declines substantially across time. This is especially the case in the first earnings category, where earnings persistence decreases from almost 30 percent before the implementation of the minimum wage determinations, to 15.4 percent afterwards. Amongst those workers who retain their occupation, there is an increase over time in the probability of an upward transition into the third and fourth earnings categories, which might indicate compliance with the minimum wage legislation. Conversely, the likelihood of downward earnings mobility declines across time for most earnings categories. In contrast, for all other workers, while low-pay is rare, its persistence rises over time, and there is little change in earnings mobility across the waves amongst those with the same occupation. Therefore, there is a clear improvement in earnings mobility over time for domestic and farm workers, which is not evident for other types of workers. However, although this improvement is observed amongst the types of workers who could be expected to have been most affected by the sectoral determinations, it is not possible to attribute the improvement causally to the effects of the protective labour legislation without controlling for other changes over time, such as changes in the supply-side characteristics of workers.

6. Concluding comments

This paper examines wage mobility in South Africa during a period of the implementation of protective labour legislation. The paper examined three main questions, and came to the following general conclusions. First, what estimates can be made of the rate of low-paid work from South African data, and how has this rate changed over time? Using cross-sectional Labour Force Survey data, about 4.5 percent of workers earned less than R150 per month in September 2001 (in 2000 prices), while 27 percent earned less than R500. These rates of low-wage work fell considerably by March 2004, with the largest relative decline occurring at the bottom of the earnings distribution, to 3.2 percent and 22 percent of workers, respectively, by the end of the period.

The second question was the extent to which transitions occur between labour market states, and whether low-wage workers are more vulnerability to unemployment than better paid workers. It is necessary to use panel data for such an analysis, in order to track the progress of the same individuals over time, and to have some control for the unobservable characteristics of individuals, in order to isolate which observable characteristics are associated with employment vulnerability or with mobility out of low-wage work. Most transitions for low-wage workers are shown not to be into higher earnings categories, but rather into states of non-employment. Thus in addition to being lower paid, employment is also more precarious for the working poor than for higher-earning workers. Low-wage workers are more than twice as likely to become unemployed in the subsequent period as workers earning at least R800 per month.

The third question concerned the extent of earnings mobility amongst the employed, and who (if any) among the working poor is upwardly mobile. While levels of earnings persistence are fairly high, low-wage workers who retain employment are found to be substantially more likely to

experience upward than downward earnings mobility. However, upward mobility is less common, and there is some evidence of working poverty traps, amongst women, and amongst workers with less education or those located in the informal sector. There is a clear improvement in earnings mobility over time for domestic and farm workers, although this cannot be directly attributed to the implementation of minimum wage determinations for these types of workers without controlling for other changes over time.

All of the transition analysis conducted in this paper took the form of aggregate transition matrices. It would be desirable to conduct further analysis at a multivariate level, through the estimation of an econometric model for transition probabilities, conditional on the initial pay state. Such multivariate estimation (not shown here) largely confirms the evidence presented in the transition matrices: even after controlling for other factors, working poverty traps are evident amongst females, amongst African and coloured workers, and amongst individuals with less education, working in the informal sector and in low-skilled jobs. However, in general, the initial pay state (low-wage or high-wage) cannot be treated as exogenous to the likelihood of transition, and thus the initial pay state and transition probability should be estimated jointly. This requires the identification of exclusion restrictions for the initial pay state, which usually take the form of indicators of the worker's parental background (see, for example, Cappellari, 2000). Since the public release of the LFS panel does not include any parental or household characteristics whatsoever, it is not possible to identify exclusion restrictions using these data, and thereby control for endogeneity of the initial pay state. However, the future availability of new panel data from the National Income Dynamics Study, which addresses these limitations of the LFS panel, will enable future research to take this endogeneity into account in order to model transition probabilities and earnings mobility.

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