Mobility among the Low Paid Workforce

Australia, 2001 to 2008

Report for the ACTU

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Introduction

For many years those responsible for deciding the level of the Federal Minimum Wage (hereafter, the FMW) have taken account of the employment effects of increases in the FMW.[1] Much of the concern around this issue has been based on neo-classical economic theory which suggests, at its simplest level, that a rise in the price of a commodity (labour) will lead to less of that commodity being purchased (unemployment). There are, of course, rival theoretical positions which argue that increasing minimum wages can enhance employment growth; as well as positions which argue that only wage increases of a substantial magnitude will have any impact on employment growth.

When it comes to the real world, there is a vast literature now dealing with the minimum wage. Much of this is based on empirical studies emanating from the United States. The ability to generalise from that labour market to those in other countries is quite limited, given the very large differences in labour market institutions and social security systems between the United States and other countries.

For this reason, the best way to assess whether increases in the FMW have had adverse employment impacts is to look closely at what has actually happened in Australia in recent years, using the most detailed data available. We are fortunate in this respect because a rich source of labour market data has become available over the last decade thanks to the Federal Government and the Melbourne Institute of Applied Economic and Social Research. This data, based on the Household, Income and Labour Dynamics in Australia (HILDA) Survey, now spans 8 waves, covering the period 2001 to 2008. The details of this dataset are discussed in Appendix A. The relevant aspect here is the fact that the collection of this data has been designed in such a way that the survey remains representative of the Australian population year after year. In other words, even as people drop out of the survey (sample attrition), new recruits enter and appropriate weighting schemes are developed

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[1] This report uses unit record data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA Project was initiated and is funded by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) and is managed by the Melbourne Institute of Applied Economic and Social Research (MIAESR). The findings and views reported in this report, however, are those of the author and should not be attributed to either FaHCSIA or the MIAESR.

which make the cross-sectional estimates from this survey representative for that particular period.

What this means is that a series of reliable cross-sectional snapshots of the Australian labour market is available for each of these years. What's more, because detailed wage and salary earnings data is available from HILDA, earnings categories like the FMW, or the bottom quinitile, can be constructed and this allows one to analyse trends in these categories over time. By using the appropriate weights, it is possible to develop transition matrices, that is, tables which show where a person in any particular year was in the following year, and whether they changed from one earnings category to another. This strategy, of constructing and analysing transition tables is the basis for most of this report.[2] While these tables are shown in great detail in Appendix B, the main focus in the following chapters is on movements between the FMW category (or the bottom quintile) and unemployment. In order to draw conclusions about the nexus between these two labour market situations, I look at both entries from unemployment into the FMW category, as well as departures from the FMW into unemployment.

This comparison is carried out for the period 2001 to 2008 and the general finding is that employment growth for the FMW category was strong throughout this period, with just the first ripples of the global financial crisis becoming evident in 2008. Between 2001 and 2007 the proportion of the unemployed who entered FMW jobs doubled, and this occurred over a period when increases in the FMW hourly rate averaged about 4 per cent per year. At the same time, departures from the FMW into unemployment also declined.

To make the findings of this report comprehensive and robust, a number of different approaches to the data are also taken. For the FMW analysis, an all-persons population (Chapter 2) is compared with an adult population (Chapter 3). Because of the unique characteristics of the FMW, with its adjustment to pay scales percolating upward through the bottom of the earnings distribution, is it also important to consider low paid workers more generally.[3] This is done in Chapter 4, where the bottom quintile is examined. Again, an all-persons population is compared with an adult population. Finally, as well as looking at 'head counts', the report also examines a volume measure of employment: hours worked (Chapter 5). These data are largely consistent with the head count findings, and reinforce the positive picture of employment growth which has characterised much of the last decade.

As well as descriptive accounts of the labour market and earnings mobility, based on these transition tables, there is also some regression modelling in Chapter 6. This chapter exploits the longitudinal nature of the HILDA data, the fact that the same people are tracked over long periods of time. This kind of data confers on the researcher a number of methodological advant-

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[2] All of the statistical analysis in this report, both the descriptive statistics and the regression modelling have been carried out using R, version 2.10.1 (R Development Core Team 2009).

[3] The terminology in this area can be confusing. Prior to 2006, FMW decisions affected some Award classification rates of pay. From March 2006 onward, the concept of 'Pay Scales' was used. The ABS Employee Earnings and Hours surveys refer *to award or Pay Scale reliant employees* (Rozenbes 2010, p. 51).

ages, and allows the analysis to probe questions of causality. In this case, I pursue the question of the extent to which low paid workers in Australia remain low paid because of the 'self perpetuating' nature of low paid work ('state dependence'), and to what extent their duration in low paid jobs can be explained by other factors. I briefly compare these regression modelling results with similar overseas studies and I touch on some of the policy implications of this research.

I find that, compared with countries like Britain, Australia fares well in this regard, with low paid jobs in this country less likely to create 'earnings traps'. One possible reason for this is the nature of the wage determination system in Australia with its (mostly) regular increases in the FMW and adjustments to pay scales.

The overall findings of this report are both positive and negative. One the one hand, there is a positive story: the current wage fixing system in Australia has prevented high levels of state dependence among the low paid workforce. Where workers remain low paid for long periods of time, the factors behind this lie in areas of disadvantage which span the personal, the workplace, the labour market and the region. All are amenable to policy innovation. The wage fixing system itself—provided it regularly maintains the minimum wage at a reasonable level, vis a vis, the wages distribution as a whole, and provided it allows adjustments of minimum wages to percolate upwards through the lower echelons of the earnings distribution—is likely to keep a lid on state dependence.

On the other hand, there is a negative story which also emerges from the data presented in this report. Large numbers of workers remain low paid for considerable periods of time. In this sense the well-documented deleterious effects of low wages—in terms of standards of living, personal wellbeing and future aspirations—impinge upon large numbers of people over considerable periods of time. Low wages are not simply a transitory stage in the life-cycle whose negative consequences are minimal.

As to the core issue of unemployment, it has always been the case that there is a complex relationship between wage increases and employment outcomes. There is certainly no simplistic trade-off involved in this issue. One of the most encouraging aspects of the findings in this report is that we have witnessed seven of the last eight years (of the period 2001 to 2008) producing strong employment growth. Not only did the unemployed enter FMW jobs in increasing numbers during this period, but departures from the low paid workforce into unemployment declined. All of this took place during a period in which the FMW rate, and the associated pay scales, increased regularly each year.

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Mobility of FMW workers

2.1 OVERVIEW

What have been the mobility patterns amongst the employee workforce in Australia over the last decade? For example, if we were to follow employees who were earning at or below the Federal Minimum Wage for a year, would they still be employed on the FMW the following year, or might they have moved up into a higher wage category? Might they have become unemployed, or have left the labour market? And what about the unemployed? To what extent did they move into FMW jobs? This report answers these kinds of questions.

The analysis in this report covers both earnings mobility and labour market destinations. That is, it looks at both transitions within the employee workforce according to earnings categories, as well as transitions in and out of work, and in and out of the labour force.

In this chapter I focus on the population composed of 'all persons'. The next chapter restricts the population to adults (persons 21 or over). A full set of mobility tables—which enable the reader to trace the patterns for any of the categories examined here for any particular sub-period—can be found in Tables B.1 and B.2 in Appendix B. The table shown below (Table 2.1) presents averages for the period 2002 to 2008.

Table 2.1: Mobility tables for FMW workers, averages for 2002–2008, percentages

	At or below FMW	Above FMW	Self-employed	Unemp-loyed	NILF	Total	n
Situation	*Destinations in following year*						
At or below FMW	43	41	3	4	9	100	875
Above FMW	5	86	3	1	5	100	5,098
Self-emp	2	9	81	1	7	100	1,311
Unemploy	17	30	2	25	26	100	382
NILF	3	6	2	3	85	100	3,852
Total	7	45	11	3	34	100	11,518

Notes: Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File). NILF is 'not in the labour force'. Note that the sample size ('n') column is also an average for the period.
Source: HILDA Release 8.
Population: All responding persons in all waves (unbalanced panels).

FMW workers were almost evenly split between those who stayed FMW in the following year (43 per cent) and those who moved up into the above-FMW category (41 per cent). Only a small percentage—some 4 per cent—moved into unemployment and a further 9 per cent left the labour market. Another small group—some 3 per cent—entered self-employment. Not surprisingly, there was little movement in the above-FMW category—some 86 per cent stayed there, with just 5 per cent dropping down into the FMW category.[1]

2.2 THE MOVEMENT OF THE UNEMPLOYED INTO JOBS

Among the unemployed, one quarter remained unemployed the following year and another quarter left the labour market. Of this remaining half, most went into the above-FMW category. Some 17 per cent of all unemployed persons found work in the FMW category. Another way of looking at this is to say that about one third of those who did find jobs entered FMW jobs.

This figure of 17 per cent is an average for the period; the actual trend has been an increase, with more unemployed persons finding employment at the FMW towards the end of the period. This has coincided with steady increases in the rate of the FMW. These trends are shown in Table 2.2.

Table 2.2: Changes in hourly rates and employment outcomes

	2001	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
FMW rate ($)	10.88	11.35	11.80	12.30	12.75	13.47	13.74	14.31
Change in rate ($)		0.47	0.45	0.50	0.45	0.72	0.27	0.57
Change in rate (%)		4.32	3.96	4.24	3.66	5.65	2.00	4.15
% unemploy entering FMW		14	13	12	17	18	26	18
Sensitivity analysis								
% for lower cut-points		12	13	12	17	18	26	18
% for higher cut-points		14	15	13	19	19	27	19
95% confidence intervals								
Lower bound		10.2	9.0	8.2	12.9	12.6	18.9	12.0
Upper bound		17.2	17.7	15.8	22.0	23.9	32.2	23.6

Notes: Note that the FMW increase in 2006 was not an annual increase, but came after an 18 month interval (due to the transition from the AIRC to the Fair Pay Commission.) For sensitivity analysis: lower cut-points: $10.50, $11.00, $11.50, $12.00, $12.50, $13.00, $13.50, $14.00; higher cut-points: $11.00, $11.50, $12.00, $12.50, $13.00, $13.50, $14.00, $14.50.
Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: HILDA Release 8.
Population: For rates: published FMW rates. For unemployed: those unemployed in the previous wave.

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[1] These figures differ from published HILDA data shown in McGuiness and Freebairn (2007, p. 34), for a number of reasons. The definition of low paid used by McGuiness and Freebairn includes persons earning 10 per cent above the FMW; the relevant table in their article (Table 8) shows the population disaggregated by full-time and part-time status; and their outcome categories lump together the unemployed and the NILF category into a single category, which they call: 'Unemployed / inactive'. Taking account of these differences, their overall results appear to be largely in agreement with the results reported here in Table 2.1.

Over the period 2001 to 2008, the FMW rate increased annually, at an overall annual average rate of about 4 per cent. The largest rise was in 2006 (5.7 per cent) and the smallest was in 2007 (2 per cent).[2] At the start of the period, some 14 per cent of the unemployed were entering FMW jobs; by 2007 this had nearly doubled to 26 per cent, before dropping back to 18 per cent. Before looking at a range of other related trends, it is worth examining these figures more closely to assess their robustness.

Hourly earnings based on survey sampling may contain considerable measurement error, but this does not necessarily influence the substantive results. Fortunately, sensitivity analysis can be used to assess the degree of influence. For example, the FMW rates are quite precise ($10.88 in 2001, for example) but the actual hourly earnings reported by respondents may commonly be rounded-off to the nearest notable amount—such as $10.50 or $11.00—since people usually simplify when recollecting. When there is further calculation involved—such as here, where weekly earnings are converted into hourly rates—more measurement error can creep in.

While this does not matter for those well below (or well above) the FMW cut-point, it can influence who gets defined as FMW or non-FMW when they earn close to the cut-point. To assess the extent of this problem on the key outcomes in this section, the analysis is repeated for two different versions of the FMW definition. In the first case, a *lower* dollar amount is used, for example, rounding down $10.88 to $10.50 (and repeating in a similar fashion for each subsequent year). In the second case, a *higher* dollar amount is used, for example, rounding up $10.88 to $11.00. The impact of these changes on the percentage of unemployed persons entering the FMW category are shown in the middle panel of Table 2.2.

The results are reassuring. At most, the percentages of people in this category (that is, unemployed persons entering the FMW category) change by one percentage point in 4 instances, by two percentage points in 3 instances, and not at all in 7 instances. In other words, the results reported in Table 2.2 are quite robust to the choice of cut-point.

The other main source of error is sampling error, the fact that these data are collected from a sample of the population, rather than a full enumeration (like a census). The conventional approach to this kind of error is to calculate confidence intervals which indicate the lower and upper bounds within which the estimate is likely to be found if the sample were repeated numerous times. These upper and lower bounds are shown in the bottom panel of Table 2.2 and confirm the overall trend that the proportion of unemployed persons entering the FMW category has increased between 2002 and 2007. In other words, the differences between 2002 and 2007 are not due to sampling variability, but are likely to actually exist in the population.[3]

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[2] The 0 per cent figure for 2009 is not shown in these data as it comes after the relevant time period. As noted earlier, the FMW increase in 2006 was not an annual increase, but came after an 18 month interval (due to the transition from the AIRC to the Fair Pay Commission).

[3] Tests for the standard error of the difference show that the differences between any of the early years (2002, 2003, 2004) and 2007 are statistically significant at the 0.05 level.

2.3 THE ECONOMIC CONTEXT

The context for these transitions is worth briefly examining. Table 2.3 shows a number of related trends for the period 2001 to 2008. This table contains HILDA data (in the top panel) for annual changes in employment; ABS data (in the middle panel); and changes in earnings (in the bottom panel). It is clear that the HILDA employment data is largely consistent with the ABS figures for this period, and that we are looking at a period of sustained employment growth, particularly in the middle of this period. Over the period as a whole, the unemployment situation improved considerably, whether measured by ABS or HILDA data. Only towards the end of the period, with the global financial crisis beginning to impinge locally, did this impressive improvement in unemployment stall. At the same time, the FMW hourly rate increased steadily, averaging 4 per cent annually over this period. As noted earlier, the lowest increase was in 2007 (2 per cent), with no increase at all in 2009 (not shown).

Table 2.3 shows no clear correlation between employment change within the FMW category and changes in the FMW hourly rate. For example, the FMW rose almost uniformly on average by 4 per cent between 2002 and 2005, yet the employment change for the FMW category in this period varied between a drop of 5.1 per cent and a rise of 8 per cent. Allowing for lags of a year, there is no clear pattern in the relationship.[4]

The highest increase in the FMW rate was in 2006 (at 5.6 per cent) and it is true that the drop in FMW employment in the following year was the highest—at 8.2 per cent—for the period. But this was largely the result of considerably more FMW workers *moving up* into the above-FWW category (as shown by Table B.2 in Appendix B), not because FMW workers lost employment. Indeed the flows from the FMW category into unemployment in the 2006 to 2007 period were among the lowest for the period (at 3 per cent, compared with 4 and 5 per cent figures in earlier years). The same was true for flows out of the labour force into the 'not in the labour force' (NILF) category (at 8 per cent, compared to 9 to 10 per cent in earlier years; Table B.2). Finally, the data for the above-FMW category shown here in Table 2.3 confirm this impression: the increase in employment in 2007 in the above-FMW category (6.4 per cent) was the highest for the period and partly reflected a larger flow of FMW workers into this higher paid category.

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[4] There is some debate about appropriate time lags when looking at wage, hours and employment effects. Neumark and Wascher (2008, ch. 3), for example, argue that lags of at least one year are needed when assessing employment effects of wage increases. Belman and Wolfson (2010, p. 21) suggest that 'adjustments to the average wage and hours are complete within a year and … employment adjustments are complete within 3 years'.

Table 2.3: Key indicators: annual rates of change, HILDA and ABS data, percentages

	Change from previous year						
	2002	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
Persons (HILDA)							
At or below FMW	3.3	1.4	-5.1	8.0	5.9	-8.2	2.4
Above FMW	2.8	3.7	3.4	2.8	2.5	6.4	3.3
Self-emp	-1.2	-4.8	6.3	-0.5	1.8	-4.3	0.7
All employed	2.1	1.9	2.7	2.9	2.8	2.7	2.8
Unemployed	-9.3	-7.7	-5.9	-2.6	-6.8	-2.5	4.1
NILF	1.3	1.7	0.0	-0.2	0.6	0.5	0.6
Total	1.3	1.4	1.5	1.6	1.8	1.8	2.1
Persons (ABS)							
Labour force	1.4	1.6	1.7	3.2	2.4	2.2	1.9
Employed persons	2.2	2.0	2.2	3.6	2.8	2.5	2.0
Unemployed persons	-8.8	-5.1	-6.9	-3.7	-4.4	-4.7	0.2
Prices							
AWE (all persons, total)	3.5	5.6	3.0	5.7	4.4	4.6	3.5
AWE (adults, ord time)	4.7	5.8	3.3	5.7	2.9	5.3	4.7
Labour Price Index	3.3	3.7	3.5	4.2	3.9	4.2	4.2
FMW hourly rate	4.3	4.0	4.2	3.7	5.6	2.0	4.1

Notes: All data items represent changes from previous year. (Except for the FMW increase in 2006, which was not an annual increase, but came after an 18 month interval. This was due to the transition from the AIRC to the Fair Pay Commission.)
For HILDA data the cross-sectional weights are used for each wave (responding person weights) to produce population estimates. Percentages are for annual rates of change based on these estimates. ABS employed and unemployed is from September ABS labour Force data. AWE is annual trend data in August. Note that 'Self-emp' includes all non-employees (that is, employers and employees of own businesses). NILF is 'not in the labour force'.
Source: HILDA Release 8; ABS 6202.0; ABS 6302.0; ABS 6345.0.
Population: For HILDA: All responding persons in all waves (unbalanced panels).

2.4 THE FMW AND THE UNEMPLOYED—A CLOSER LOOK

In this section I look more closely at the mobility patterns of the FMW category and the unemployed. I initially examine the destinations of the unemployed and the extent to which they entered FMW jobs over this period, and then I turn to the destinations of the FMW category, and the extent to which they ended up unemployed.

2.4.1 Destinations of the unemployed: recruitment into FMW jobs

As we saw earlier (Table 2.2) a steadily increasing proportion of the unemployed found work during the period 2001 to 2008. This trend is also shown in the first column of the top panel of Table 2.4, where the proportion rose from 14 per cent in 2001–02 to 26 per cent by 2006–2007, before dropping back to 18 per cent in 2007-08. The second column is also interesting as it shows a largely stable proportion entered the above-FMW category.

The absolute numbers involved are also illuminating and reflect an overall improvement in the employment situation in Australia during this period. The total numbers unemployed dropped from 636 thousand in 2001–02 to 427 thousand by 2007–08. Because the 'pool' of unemployed was shrinking, it is not surprising to see the numbers who entered employment via the

FMW also fell between 2001–02 and 2003–04, from 87 thousand to 58 thousand. However, what is interesting was the increase in the numbers who entered employment via the FMW in the period 2004–05 to 2006–07, with a rise from 80 thousand to 111 thousand. To some extent this reflected a fall in the numbers who entered the above-FMW category—that is compositional change—but it also reflected an overall growth in employment which was being absorbed by the FMW to a large extent.

Table 2.4: Destinations of the unemployed, percentages and counts

	Destinations of previously unemployed						
	At or below FMW	*Above FMW*	*Self-employed*	*Unemp-loyed*	*NILF*	*Total*	*n*
Percentages							
2001-02	14	27	3	30	25	100	483
2002-03	13	32	3	27	25	100	415
2003-04	12	32	2	29	25	100	366
2004-05	17	33	2	22	26	100	351
2005-06	18	31	2	20	28	100	336
2006-07	26	28	2	24	21	100	377
2007-08	18	27	2	21	32	100	347
Counts ('000s)							
2001-02	87	173	21	194	161	636	
2002-03	72	171	18	145	132	537	
2003-04	58	152	12	139	121	481	
2004-05	80	150	8	103	118	459	
2005-06	85	147	10	93	132	467	
2006-07	111	121	9	103	91	434	
2007-08	76	117	9	89	137	427	

Notes: Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: Based on Tables B.1 and B.2 in Appendix B.
Population: All respondents who were unemployed during each wave (unbalanced panels).

Table 2.4 also shows that the numbers of unemployed who were no longer leaving the labour market altogether fell in this last period (from 132 thousand to 91 thousand). The sudden spike in departures from the labour market in 2007–08 may reflect the onset of the global financial crisis (though until the data from HILDA Release 9, covering the period 2008–09, become available in 2011, it is difficult to be sure.)

2.4.2 Destinations of FMW workers: departures into unemployment

When it comes to the destinations of FMW workers, there was very little variation in outcomes. As Table 2.5 shows, the proportion of FMW workers who stayed in that category never varied beyond a small range: 38 per cent to 45 per cent. With the exception of 2006-07, the proportion who moved into the above-FMW also stayed within a narrow range: 39 per to 42 per cent. The anomaly here, 2006–07, saw this proportion increase to 49 per cent (a 10 percentage point increase over the previous year).

In terms of job departures, about twice the proportion left the labour market altogether as became unemployed. This reflects a number of further

destinations: such as retirement, studying or parenting. As for unemployment, the proportion ending up here ranged from 3 per cent to 5 per cent, with the lowest proportion occurring in 2006–07.

Table 2.5: Destinations of FMW workers, percentages and counts

| | *Destinations of previously FMW workers* | | | | | | |
	At or below FMW	*Above FMW*	*Self-employed*	*Unemp-loyed*	*NILF*	*Total*	*n*
Percentages							
2001-02	42	42	3	4	9	100	856
2002-03	43	41	2	5	9	100	840
2003-04	45	39	3	4	9	100	825
2004-05	45	39	4	4	9	100	829
2005-06	44	39	2	4	10	100	914
2006-07	38	49	3	3	8	100	975
2007-08	42	40	2	4	11	100	889
Counts ('000s)							
2001-02	486	492	32	43	110	1,162	
2002-03	484	457	20	56	98	1,114	
2003-04	533	455	32	48	104	1,171	
2004-05	500	435	46	41	97	1,119	
2005-06	531	471	26	49	126	1,203	
2006-07	482	613	32	39	97	1,262	
2007-08	499	478	28	48	127	1,180	

Notes: Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: Based on Tables B.1 and B.2 in Appendix B.
Population: All respondents who were in the FMW category during each wave (unbalanced panels).

Absolute numbers are also informative. As the bottom panel of Table 2.5 shows, the overall numbers who were employed in the FMW category remained quite similar for much of the period—at around 1.1 million workers—but with a notable rise towards the end of the period (when the number peaked at over 1.2 million in 2005–06 and 2006–07). In terms of destinations, there was a similar pattern in upward movement into the above-FMW category—around 450 thousand—and a peak in 2006–07 when the numbers reached 600 thousand. As for departures into unemployment, the figures fluctuate with no clear pattern: the highest number (56 thousand) was in 2002–03 and the lowest number (39 thousand) was in 2006–07. A similar fluctuating pattern was evident with the NILF category.

In general, the conclusion one can draw from these data is that by the end of the period 2001 to 2008 strong employment growth among the FMW workforce was evident, and that most of the movement within this category was upward, into the higher earnings category. By 2007, movement into unemployment, or out of the labour market altogether, was at its lowest for the period. The data for 2008 suggests the beginning of the downturn in the labour market which, as we know from other ABS labour force data, was to culminate in adverse outcomes during 2009.

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Mobility of adult FMW workers

While an analysis of an all-persons population is valuable, it needs to be extended by looking at the situation amongst adults (those aged 21 or over). This takes account of the presence of workers on junior rates[1] and the large numbers of students who are only working in FMW jobs while they study, and whose earnings destinations may be quite different once they graduate.

3.1 OVERVIEW

As with the last chapter, a full set of mobility tables can be found in Appendix B (see Tables B.3 and B.4). The table shown below (Table 3.1) presents the averages for the period 2002 to 2008.

Table 3.1: Mobility tables for FMW workers, averages for 2002–2008, percentages

	At or below FMW	Above FMW	Self-employed	Unemp-loyed	NILF	Total	n
Situation	Destinations in following year						
At or below FMW	32	52	5	3	9	100	440
Above FMW	4	88	3	1	4	100	4,827
Self-emp	2	9	82	1	7	100	1,297
Unemploy	9	35	3	25	28	100	251
NILF	1	6	2	2	89	100	3,487
Total	4	47	12	2	35	100	10,302

Notes: Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: HILDA Release 8.
Population: All responding persons aged 21 or over in all waves (unbalanced panels).

Just over half of adult FMW workers moved up into the above-FMW category in the following year and about one third stayed at or below the FMW. A small percentage—about 3 per cent—moved into unemployment and another 9 per cent left the labour market. Another small group—some 5 per

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[1] The all-persons FMW category—which includes those on *or below* the FMW rate—can be quite disparate. As Healy (2010, p. 1–2) notes, there are a number of reasons for employment below the FMW, such as under-payment, illegal non-compliance, and permissible worker categories. The latter includes juniors, apprentices and trainees, and employees with a disability.

cent—entered self-employment. There was considerable stability in the above-FMW category—some 88 per cent stayed there, with just 4 per cent dropping down into the FMW category.

Among the unemployed, about one quarter remained unemployed the following year and slightly more than one quarter left the labour market. Of the remainder, most entered jobs in the above-FMW category while about 9 per cent of the adult unemployed found work in the FMW category. This contrasts with the all-persons analysis, where 17 per cent of the unemployed found work in the FMW category. This should come as no surprise given that most of the young unemployed who found jobs would have been likely to have entered employment through low paying jobs.

Another key difference between the all-persons analysis and the adult analysis was the greater upward mobility among the adult FMW workforce: some 52 per cent of these workers found themselves in the above-FMW category the following year, compared with 41 per cent of the equivalent all-persons population. There was little difference in the other non-employee destinations, so that the main adjustment lay in the FMW category, which fell from 43 per cent among the equivalent all-persons population to 32 per cent among the adult population under consideration here.

There was no clear trend in the proportion of the adult unemployed who entered FMW jobs over this period (Table 3.2). The lowest proportion was 4 per cent in 2004 and the highest was 12 per cent in 2008. Leaving out this single lowest year, the proportion averages nearly 10 per cent across the period. In terms of simple correlations there is no systematic pattern in these data, as was the case in the last chapter.

Table 3.2: Changes in hourly rates and employment outcomes, adults

	2001	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
FMW rate ($)	10.88	11.35	11.80	12.30	12.75	13.47	13.74	14.31
Change in rate ($)		0.47	0.45	0.50	0.45	0.72	0.27	0.57
Change in rate (%)		4.32	3.96	4.24	3.66	5.65	2.00	4.15
% unemploy entering FMW		8	8	4	9	10	10	12

Notes: For sensitivity analysis: lower cut-points: $10.50, $11.00, $11.50, $12.00, $12.50, $13.00, $13.50; higher cut-points: $11.00, $11.50, $12.00, $12.50, $13.00, $13.50, $14.00.
Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: HILDA Release 8.
Population: For rates: published FMW rates. For unemployed: those unemployed aged 21 or over in the previous wave.

3.2 THE FMW AND THE UNEMPLOYED—THE ADULT POPULATION

As with the last chapter, I now look more closely at the mobility patterns of the adult FMW category and the adult unemployed, looking at the destinations of the adult unemployed and the extent to which they entered FMW jobs over this period. After this I turn to the destinations of the adult FMW category, and the extent to which they ended up unemployed.

3.2.1 Destinations of adult unemployed: recruitment into FMW jobs

As we have just seen there was no clear trend in the proportion of the adult unemployed who found work during the period 2001 to 2008, except for a drop in 2004 (see Table 3.3). The absolute numbers involved are also shown in the bottom panel of Table 3.3 and again reflect an overall improvement in the employment situation in Australia during this period. The total numbers of adult unemployed dropped from 428 thousand in 2001–02 to 264 thousand by 2006–07, before beginning to rise again in 2007–08. The numbers of unemployed who found themselves unemployed the following year also declined considerably: from nearly 130 thousand to around 60 thousand in 2007–08. There was a similar pattern in the NILF category though the final year in this period saw the numbers starting to rise again.

Because the total pool of unemployed shrank considerably over this period, the numbers who entered above-FMW jobs from this source also declined, from about 130 thousand to around 90 thousand by the end of the period. The numbers who entered FMW jobs were relatively stable—at around 20 to 35 thousand—except for the middle years of the period, when they bottomed at 13 thousand in 2003–04.

Table 3.3: Destinations of the adult unemployed, percentages and counts

| | Destinations of previously unemployed | | | | | | |
	At or below FMW	Above FMW	Self-employed	Unemp-loyed	NILF	Total	n
Percentages							
2001-02	8	30	4	31	27	100	340
2002-03	8	36	4	26	26	100	300
2003-04	4	36	3	27	29	100	233
2004-05	9	38	3	26	25	100	212
2005-06	10	39	3	19	29	100	226
2006-07	10	33	3	26	27	100	231
2007-08	12	30	3	22	34	100	213
Counts ('000s)							
2001-02	35	129	19	132	114	428	340
2002-03	29	139	17	100	99	384	300
2003-04	13	116	11	86	93	319	233
2004-05	23	102	8	70	69	272	212
2005-06	32	127	10	63	97	329	226
2006-07	28	87	9	69	72	264	231
2007-08	34	86	8	62	96	286	213

Notes: Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: Based on Tables B.3 and B.4 in Appendix B.
Population: All respondents aged 21 or over who were unemployed during each wave (unbalanced panels).

3.2.2 Destinations of adult FMW workers: into unemployment

As with the all-persons population discussed in the last chapter, the destinations of adult FMW workers showed very little variation in outcomes. As Table 3.4 illustrates, the proportion of adult FMW workers who remained in the FMW category hovered between 27 per cent and 36 per cent, while the

proportion of adults of who moved from the FMW category to the above-FMW category ranged between 46 per cent and 62 per cent. For both groups, there was no clear trend over the period.

In terms of job departures, the situation improved for adult FMW workers over the period. Those entering unemployment varied between 2 and 4 per cent, with better figures towards the end of the period, except for 2007–2008. This year may mark the beginning of a reversal in fortunes, though the differences in all these numbers are very small so caution in required in discerning trends. More pronounced was the improvement in overall participation, with the numbers departing the labour market dropping from 10 per cent to 7 per cent in 2006–07, before rising again to 9 per cent at the end of the period.

Absolute numbers are shown in the bottom panel of Table 3.4. Combining the counts of adult FMW workers who either entered unemployment or left the labour market (ie. columns 4 and 5) we observe a fall in the period from 2001–02 to 2006–07: from 78 thousand to 56 thousand. In 2007–08 they began to rise to about 70 thousand. At the same time, the numbers of FMW workers who moved up into the above-FMW category climbed by about 100 thousand between 2001 and 2007, before dropping back to their lowest levels in 2008.

Table 3.4: Destinations of adult FMW workers, percentages and counts

	Destinations of previously FMW workers						
	At or below FMW	*Above FMW*	*Self-employed*	*Unemp-loyed*	*NILF*	*Total*	*n*
Percentages							
2001-02	30	53	5	2	10	100	475
2002-03	35	50	3	4	9	100	438
2003-04	36	46	4	4	9	100	425
2004-05	34	47	8	3	8	100	409
2005-06	35	50	4	3	8	100	448
2006-07	27	62	3	2	7	100	489
2007-08	30	53	5	4	9	100	396
Counts ('000s)							
2001-02	187	333	29	13	65	627	475
2002-03	209	301	15	26	52	603	438
2003-04	229	291	28	26	56	631	425
2004-05	194	268	45	19	47	573	409
2005-06	220	316	24	19	49	628	448
2006-07	184	419	22	11	45	681	489
2007-08	167	293	27	22	48	556	396

Notes: Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: Based on Tables B.3 and B.4 in Appendix B.
Population: All respondents aged 21 or over who were in the FMW category during each wave (unbalanced panels).

The number of workers who remained in the FMW category hovered around 200 thousand for much of the period, before dropping to below 170 thousand in 2007–2008. A quick comparison with the equivalent table in the last chapter (Table 2.5) reinforces the point that large numbers of ongoing FMW workers were not adults: the absolute numbers who remained in FMW jobs during the period for the all-persons population was around 500 thousand and this showed no dip towards the end of the period.

Mobility of workers: earnings quintiles

4.1 INTRODUCTION

This chapter provides a similar core analysis to that of Chapter 3 but with the categorisation of workers based on quintiles of the earnings distribution. That is, the distribution of employees, based on their hourly rates of pay, is divided into five equal categories, ranging from lowest (bottom quintile) to highest (top quintile). There is less detail presented in this analysis than was the case with the FMW categorisation, and for that reason, both all-person and adult populations are dealt with in this one chapter.

The bottom quintile is a useful measure for this kind of study. Not only does it reflect common cut-points used in overseas studies,[1] but it also captures some of those workers who earned above the FMW by virtue of adjustments to the pay scales which cover their jobs and which take place at the same time as adjustments to the FMW hourly rate.[2] The bottom quintile is thus a useful shorthand for 'low paid workers' and also more fully reflects the impact in annual adjustments to the FMW rate.

4.2 ALL-PERSON ANALYSIS

Before looking at the mobility patterns it's worth examining how the FMW compares with earnings quintiles. Table 4.1 shows the relationship between the FMW cut-points and the quintile boundaries. On average, the upper boundary of the bottom quintile hourly rate was about $1.00 above the FMW rate at the beginning of the period, and this grew to about $1.50 by the end of the period. In other words, over this period the FMW rate slowly fell behind the bottom quintile rate, as the earnings distribution for employees as a whole moved upwards. The average earnings in each group showed a similar diverging pattern. At the beginning of the period the mean rates of pay

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[1] Studies of earnings mobility conventionally use the bottom quintile, or two-thirds of median earnings, as cut-points for defining the low paid. Studies such as Sloane and Theodossiou (1996) have varied this to include the bottom three deciles, arguing that the 'there is evidence that the composition of the low-paid is not particularly sensitive to the definition of low pay adopted' (1996, p. 659).

[2] 'A pay scale sets the minimum rate of pay for employees working in a specific job and classification.' (Fair Work Australia definition). From 2010 onwards 'modern awards' will replace pay scales within the national jurisdiction.

differed by about 70 cents an hour and this grew to about $1.40 an hour by the end of the period.

This trend suggests that, over the period as a whole, adjustments in the FMW rate have not kept pace with the overall growth in earnings.

Table 4.1: Comparison of FMW and bottom quintiles

	2001	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
Upper boundary $								
FMW workers	10.88	11.35	11.80	12.30	12.75	13.47	13.74	14.31
Bottom quintile	11.88	12.22	12.80	13.33	14.00	14.67	15.00	16.00
Low paid defn $								
Two thirds median	11	11.26	11.67	12.22	12.82	13.43	14.07	14.95
Mean rate $								
FMW workers	8.22	8.50	8.95	9.09	9.54	10.06	10.09	10.65
Bottom quintile	8.88	9.16	9.66	10.13	10.50	10.94	11.46	12.11
Counts ('000s)								
FMW	1,184	1,222	1,240	1,176	1,271	1,345	1,235	1,264
Bottom quintile	1,488	1,522	1,573	1,624	1,689	1,719	1,792	1,851

Notes: Weighted means, based on cross-sectional weights.
Source: HILDA Release 8.
Population: All respondents reporting earnings information.

Turning now to another common definition of low pay—namely, two thirds of median earnings—a comparison with the FMW rate shows that FMW workers were low paid for four of these eight years. In those years when they were above the definition (2002 to 2004, 2006) the differences were trivial (ranging from 4 cents to 13 cents an hour). In some of those years when they fell below the definition, they fell a long way behind (as high as 64 cents an hour). In other words, the FMW category was very closely aligned with this conventional definition of the low paid workforce.

Not surprisingly, given the gap between FMW rates and bottom quintile rates, the bottom quintile includes some workers whose earnings were above the low paid definition, and this gap increased towards the end of the period. In 2008, for example, the upper boundary for the bottom quintile was $16.00 while the low paid definition had a boundary of $14.95.

Finally, the bottom quintile was a larger group of workers than the FMW category: between 1.5 million and 1.9 million employees, compared with between 1.1 million and 1.3 million for the latter. Moreover, the bottom quintile category grew steadily (in absolute size) throughout the period—as it must, by definition—whereas the FMW category fluctuated.

4.2.1 Mobility tables

The full set of mobility tables for the earnings quintiles can be found in Tables B.5 and B.6 in Appendix B. The table below (Table 4.2), presents the averages for the period 2002 to 2008.

Nearly half of the bottom quintile remained there the following year, and over one fifth moved up into the next quintile. Movement higher up

the earnings distribution was quite constrained. Departures into unemployment were small—about 4 per cent—and those who left the labour market made up about 8 per cent. If one casts one's eye down the diagonal of this table, a common pattern emerges: for all except the top quintile, about 40 to 50 per cent of persons stayed in their quintile the following year, and about 20 per cent moved up one quintile. On the other hand, dropping down one quintile seemed to happen to between 16 to 19 per cent of persons. Movements further than one quintile in distance were uncommon. In other words, there was not much in the way of dramatic mobility across the earnings distribution, keeping in mind that movements between adjacent quintiles may often be due to small wage increases shifting people across a boundary.

Table 4.2: Mobility tables for earnings quintiles, averages for 2002–2008, percentages

Situation	Bottom quint	Second quint	Middle quint	Fourth quint	Top quint	Self-emp	Unemp	NILF	Total	n
	Destinations in following year									
Bottom	47	22	10	5	2	3	4	8	100	1,146
Second	16	40	22	9	3	2	2	6	100	1,183
Middle	7	19	39	22	5	2	1	4	100	1,163
Fourth	4	7	18	45	19	3	1	4	100	1,199
Top	2	3	4	17	66	3	1	4	100	1,273
Self-emp	2	2	2	2	3	81	1	7	100	1,318
Unemploy	22	12	8	3	3	2	25	24	100	386
NILF	4	2	2	1	1	2	3	85	100	3,857
Total	10	11	10	10	11	11	3	34	100	11,526

Notes: Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: HILDA Release 8.
Population: All responding persons in all waves (unbalanced panels).

About half of the unemployed moved into jobs in the following year and a considerable proportion of these were in the bottom quintile: that is, about 22 per cent of all unemployed persons. Together, the bottom two quintiles provided most of the employment for the unemployed: about two-thirds of those who got jobs ended up there.

4.2.2 Unemployment and bottom quintile jobs

As the earlier chapters showed, a steadily increasing proportion of the unemployed found work during the period 2002 to 2007 and the proportion who found jobs in the FMW category also increased over the period. The same result is evident in this chapter using earnings quintile rather than specific cut-points like the FMW rate. As the bottom panel of Table 4.3 shows, about 16 per cent of the unemployed moved into bottom quintile jobs during 2002 and this grew to a figure of 29 per cent by 2007, before dropping back to 23 per cent in 2008. Over the same period, the proportion of bottom quintile job-holders who found themselves unemployed in the following year hovered between 3 and 5 per cent. The proportion who left the labour market altogether varied between 7 and 10 per cent.

The top panel of Table 4.3 shows the changes in earnings for the bottom quintile over this period. Changes in the mean earnings of this group fluctuated, ranging from about 3.7 per cent to 5.6 per cent. Changes in the maximum rates of pay also fluctuated between 2.9 per cent and 6.7 per cent. As with the earlier analysis, it is evident that there is no clear correlation between employment growth (for the unemployed) and changes in earnings, whether at the mean or at the boundary. Similarly, there is no clear correlation between departures into unemployment and changes in earnings.

Table 4.3: Changes in hourly rates and employment outcomes, bottom quintile workers and unemployed

	2001	2002	2003	2004	2005	2006	2007	2008
Mean rate ($)	8.88	9.16	9.66	10.13	10.50	10.94	11.46	12.11
Change in rate ($)		0.28	0.51	0.46	0.38	0.44	0.53	0.64
Change in rate (%)		3.10	5.53	4.78	3.71	4.16	4.81	5.60
Maximum rate ($)	11.88	12.22	12.80	13.33	14.00	14.67	15.00	16.00
Change in rate ($)		0.34	0.57	0.53	0.67	0.67	0.33	1.00
Change in rate (%)		2.89	4.70	4.16	5.03	4.79	2.25	6.67
% unemp entering bottom		16	17	16	21	25	29	23
% bottom entering unemp		3	5	4	3	4	3	4
% bottom entering NILF		9	7	9	8	9	7	10

Notes: Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: HILDA Release 8.
Population: For rates: All responding persons reporting earnings and published FMW rates. For unemployed: those unemployed in the previous wave.

4.3   ADULT ANALYSIS

Again, we look briefly at how the adult FMW workforce compares to the bottom earnings quintile (Table 4.1). The FMW cut-points remain the same, but the boundary for the bottom quintile obviously moves upward, once the non-adult workers are removed from the earnings distribution.[3] On average, the upper boundary of the bottom quintile hourly rate was about $2.00 above the FMW rate at the beginning of the period, and this grew to about $3.00 by the end of the period. The average earnings in each group also showed a diverging pattern of a similar magnitude. At the beginning of the period the mean rates of pay differed by about $2.00 an hour and this also grew to about $3.00 an hour by the end of the period.

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[3] The quintiles are recalculated for each population, that is, the *adult* employee distribution is divided into quintiles.

Table 4.4: Comparison of FMW and bottom quintiles, adults

	2001	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
Upper boundary $								
FMW workers	10.88	11.35	11.80	12.30	12.75	13.47	13.74	14.31
Bottom quintile	12.92	13.42	13.97	14.71	15.34	16.00	16.67	17.50
Low paid defn $								
Two thirds median	11.52	11.88	12.35	12.79	13.33	14.27	14.97	15.79
Mean rate $								
FMW workers	8.51	8.85	9.37	9.58	10.03	10.49	10.51	11.24
Bottom quintile	10.35	10.77	11.30	11.90	12.37	12.88	13.58	14.20
Counts ('000s)								
FMW	628	640	655	585	646	713	583	663
Bottom quintile	1,306	1,331	1,379	1,409	1,459	1,551	1,579	1,681

Notes: Weighted means, based on cross-sectional weights.
Source: HILDA Release 8.
Population: All respondents reporting earnings information aged 21 or above.

Table 4.4 also shows the conventional definition of low paid workers based on the adult earnings distribution (for employees). On this definition, the FMW were low paid for the whole period, and by a considerable margin: 64 cents an hour at the beginning and reaching $1.48 by the end of the period. As far as adult employees were concerned, the FMW category was well below the cut-point for the conventional definition of the low paid adult workforce.

As far as the bottom quintile goes, this category clearly included some workers whose earnings were above the low paid definition, and this gap also increased towards the end of the period. In 2008, for example, the upper boundary for the adult bottom quintile was $17.50, while the adult low paid definition had a boundary of $15.79.

Finally, restricting the population to adults has a major impact on the size of the FMW workforce. It now consists of between about 580 thousand and 710 thousand workers. By comparison, the restriction has less impact on the bottom quintile, with the numbers here ranging from about 1.3 million to about 1.7 million employees.

4.3.1 Mobility tables

The full set of mobility tables for the adult earnings quintiles can be found in Tables B.7 and B.8 in Appendix B. The table following (Table 4.5) shows the averages for the period 2002 to 2008.

The mobility patterns for the adult earnings quintiles differed very little from those of the all-persons population. For the bottom quintile, the same level of stability (46 per cent compared to 47 per cent) and upward movement (22 per cent) was evident.

Table 4.5: Mobility tables for earnings quintiles, averages for 2002–2008, adults, percentages

	Bottom quint	*Second quint*	*Middle quint*	*Fourth quint*	*Top quint*	*Self-emp*	*Unemp*	*NILF*	*Total*	*n*
Situation				*Destinations in following year*						
Bottom	46	22	11	5	2	4	3	7	100	1,007
Second	21	38	21	9	3	2	1	5	100	1,036
Middle	9	19	38	21	5	2	1	4	100	1,035
Fourth	4	6	18	45	19	2	1	4	100	1,068
Top	2	3	4	17	66	4	1	4	100	1,120
Self-emp	3	2	2	1	3	81	1	7	100	1,305
Unemploy	18	11	7	4	4	3	26	27	100	253
NILF	2	2	1	1	1	2	2	89	100	3,485
Total	10	10	10	10	10	12	2	35	100	10,309

Notes: Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: HILDA Release 8.
Population: All responding persons in all waves (unbalanced panels) aged 21 or above.

4.3.2 Unemployment and bottom quintile jobs

Following on from this last observation, the trend over time reflects this average (Table 4.6), and shows that the large uptake of unemployed persons into the bottom quintile was not mirrored as much in the adult population as it was for the all-persons population.

There was certainly improvement over time, but this tapered off at the end of the period. Table 4.6 shows that in 2002 some 16 per cent of unemployed adults entered the bottom quintile and this rose to 24 per cent by 2006, before dropping back again to 18 per cent and 20 per cent in 2007 and 2008.

Turning to departures from the bottom quintile into unemployment, the figures remained very low for most of the period. The figures for those becoming unemployed never moved above 4 per cent during this period and was mostly in the range of 2 to 3 per cent.

Table 4.6: Changes in hourly rates and employment outcomes, bottom quintile adult workers and adult unemployed

	2001	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
Mean rate ($)	10.35	10.77	11.30	11.90	12.37	12.88	13.58	14.20
Change in rate ($)		0.41	0.53	0.60	0.46	0.51	0.70	0.62
Change in rate (%)		3.99	4.94	5.35	3.87	4.15	5.46	4.57
Maximum rate ($)	12.92	13.42	13.97	14.71	15.34	16.00	16.67	17.50
Change in rate ($)		0.50	0.55	0.74	0.63	0.66	0.67	0.83
Change in rate (%)		3.88	4.07	5.32	4.28	4.31	4.19	4.98
% unemp entering bottom		16	16	14	18	24	18	20
% bottom entering unemp		3	4	3	3	2	2	3
% bottom entering NILF		8	7	8	7	6	7	7

Notes: Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: HILDA Release 8.
Population: For rates: All responding adults reporting earnings and published FMW rates. For unemployed: those adult unemployed in the previous wave.

<p style="text-align:center">— 5 —</p>

Hours worked

As well as measuring employment by a headcount of those in jobs, it has become increasingly common to also measure the volume of employment in hours. The Australian Bureau of Statistics (ABS) now routinely publishes hours data in its monthly labour force survey. In this chapter I look at the employment situation from this perspective, broken down by the FMW categories used in this report. I also look at the distribution of weekly hours and patterns of under-employment.

5.1 VOLUME MEASURES: TOTAL HOURS WORKED

For the period 2001 to 2008, the volume of annual hours worked grew steadily from 16,279 million to 19,509 million (Table 5.1). For most of the period, the relative shares of FMW and above-FMW workers remained mostly stable. The share held by self-employed workers declined, and this contributed to an increase in the share held by the above-FMW category.

In 2007 the number of hours worked by FMW workers fell: dropping from 1,722 million hours (2006) to 1,435 million hours. The following year, 2008, saw a recovery with the numbers of hours rising to 1,646 million hours. These changes reflect the head-count changes discussed in the earlier chapters, where the numbers employed in the FMW category fell towards the end of the period. As we saw, this fall was accompanied by growth in the above-FMW category (rather than departures from employment). Only by 2008 is there some evidence that these declines may represent a fall in the aggregate volume of hours, presumably reflecting the early ripples of the global financial crisis.

These totals can also be expressed as monthly averages (by simply dividing by 12) and this makes them comparable to ABS Labour Force data, which provide trend estimates of aggregate monthly hours worked. This comparison is shown in Table 5.2 and suggests that the HILDA data is reasonably accurate. The average discrepancy between the HILDA totals and the ABS data is a 3.3 per cent difference, with the largest gap in 2008 (5 per cent) and the smallest gap in 2003 (1.8 per cent). The trend pattern in both datasets is unequivocal and shows a steadily growing demand for labour right through this period. For the FMW workers this trend reversed in 2006–2007, before recovering in 2007–08. As noted earlier, this dip was largely the result

<p style="text-align:center">22</p>

of a considerable proportion of FMW workers moving into the higher earning category in that year and consequently being classified as above-FMW workers.

Table 5.1: Annual hours worked, totals and percentages

	At or below FMW	Above FMW	Self-employed	Total
2001 (millions of hrs)	1,477	11,427	3,375	16,279
2001 (percentages)	9	70	21	100
2002 (millions of hrs)	1,553	11,696	3,349	16,598
2002 (percentages)	9	70	20	100
2003 (millions of hrs)	1,542	12,099	3,183	16,824
2003 (percentages)	9	72	19	100
2004 (millions of hrs)	1,444	12,477	3,323	17,244
2004 (percentages)	8	72	19	100
2005 (millions of hrs)	1,580	12,909	3,335	17,824
2005 (percentages)	9	72	19	100
2006 (millions of hrs)	1,722	13,355	3,316	18,393
2006 (percentages)	9	73	18	100
2007 (millions of hrs)	1,435	14,225	3,226	18,885
2007 (percentages)	8	75	17	100
2008 (millions of hrs)	1,646	14,663	3,200	19,509
2008 (percentages)	8	75	16	100

Notes: Annual hours calculated by multiplying usual weekly hours by number of weeks worked during the year and weighted by cross-sectional population weights
Source: HILDA, Release 8.
Population: All employed respondents reporting usual weekly hours and providing calendar data.

Table 5.2: Monthly hours worked, HILDA and ABS, millions of hours

	HILDA data				
	At or below FMW	Above FMW	Self-employed	Total	ABS trend data
2001	123	952	281	1,357	1,316
2002	129	975	279	1,383	1,345
2003	128	1,008	265	1,402	1,375
2004	120	1,040	277	1,437	1,396
2005	132	1,076	278	1,485	1,443
2006	143	1,113	276	1,533	1,481
2007	120	1,185	269	1,574	1,511
2008	137	1,222	267	1,626	1,547

Notes: Monthly hours calculated by multiplying usual weekly hours by number of weeks worked during the year, then dividing by 12, and weighted by cross-sectional population weights
Source: HILDA, Release 8. ABS, Cat. No. 6202.0 (Spreadsheet time series), September data.
Population: All employed respondents reporting usual weekly hours and providing calendar data.

5.2 THE DISTRIBUTION OF HOURS

Before looking at actual hours worked, it is worth examining the profile of the employee workforce (that is, omitting the self-employed). Table 5.3 shows that there is a very sharp divide between the FMW workforce and the above-FMW workforce. The majority of the former are employed on a part-time basis (between 55 and 60 per cent) while about 70 per cent of the latter are full-time workers. When it comes to employment status, about half of the FMW workforce is casualised. The comparable figure for the above-FMW workforce is about 20 per cent.

Table 5.3 suggests that the proportion of part-time casuals working in the FMW category varied during the period from a high of 45 per cent to a low of 41 per cent. The offset to these changes was largely reflected in changes to the part-time permanent category which rose from 10 per cent in 2001 to 15 per cent at various points during this period. It ended the period, in 2008, at 13 per cent.

The profile of the above-FMW category followed similar patterns. The proportion of permanent full-time workers varied between 66 per cent and 69 per cent, while the proportion of part-time casuals varied between 13 per cent and 16 per cent.

With this profile in mind, we can now look more closely at how working hours changed over the period 2001 to 2008. With a strong growth in employment numbers (as shown in earlier chapters), and solid growth in the volume of hours, it comes as no surprise that the overall average weekly hours of work remained stable over this period, hovering around 36 (Table 5.4).

Not surprisingly, the variability in the hours worked by above-FMW workers was minor. With such a large percentage working in full-time jobs, there was little scope for change here. On the other hand, the hours worked by FMW workers showed some variability, particularly for women. Their average hours ranged between a low of 22.2 and a high of 25.9, but with no obvious time trend. The largest drop was in 2007, when the average declined by 3.7 percentage points from the 2006 average. Among men, the variation was less pronounced: between 31.6 and 33.3 hours per week on average.

Table 5.3: Hours profile of employee workforce, percentages

	PT casual	PT perm	FT casual	FT perm	Total	n
2001						
At or below FMW	45	10	7	38	100	1,064
Above FMW	14	13	6	67	100	5,743
Total	19	13	6	62	100	6,807
2002						
At or below FMW	42	11	7	40	100	997
Above FMW	16	13	5	66	100	5,509
Total	20	13	6	62	100	6,506
2003						
At or below FMW	41	15	6	39	100	973
Above FMW	15	14	5	66	100	5,533
Total	19	14	5	62	100	6,506
2004						
At or below FMW	45	12	6	36	100	929
Above FMW	14	15	5	66	100	5,447
Total	19	15	5	62	100	6,376
2005						
At or below FMW	41	13	6	39	100	1,037
Above FMW	13	16	4	67	100	5,710
Total	18	15	5	63	100	6,747
2006						
At or below FMW	41	15	6	38	100	1,100
Above FMW	14	14	5	67	100	5,804
Total	18	14	5	63	100	6,904
2007						
At or below FMW	45	15	5	35	100	1,010
Above FMW	13	15	4	69	100	5,936
Total	17	15	4	64	100	6,946
2008						
At or below FMW	41	13	5	40	100	976
Above FMW	12	15	5	68	100	6,044
Total	16	15	5	65	100	7,020

Notes: Weighted by cross-sectional weights.
Source: HILDA Release 8.
Population: All responding persons working as employees and providing hours and employment status information in all waves (unbalanced panels).

Table 5.4: Average weekly hours worked, by FMW category and sex

	At or below FMW			Above FMW			Total		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
2001	33.3	24.0	28.5	41.2	32.0	36.9	41.1	30.5	36.4
2002	32.8	25.3	28.9	41.2	31.4	36.7	41.2	30.2	36.3
2003	32.5	23.7	28.0	40.9	31.5	36.5	40.8	30.1	36.0
2004	31.9	23.2	27.3	40.9	31.4	36.5	40.7	30.0	35.9
2005	32.4	24.0	28.0	41.0	31.6	36.6	40.8	30.2	36.0
2006	31.6	25.9	28.7	41.3	31.8	36.8	40.6	30.7	36.1
2007	32.1	22.2	26.9	41.0	32.5	36.9	40.5	30.9	36.1
2008	33.3	23.7	28.4	41.3	32.1	36.8	40.8	30.6	36.1

Notes: Mean usual weekly hours, weighted by cross-sectional weights.
Source: HILDA Release 8.
Population: All employed respondents reporting usual weekly hours.

5.3 PROBLEMS OF UNDEREMPLOYMENT

The fullest measure of shortfalls in labour demand is the labour force underutilisation rate. Recognising the limitations in the unemployment rate, taken in isolation, the ABS has promoted the use of the labour force underutilisation rate over the last few years and it now regularly appears in ABS publications.[1] An important component of this measure is the *underemployment* rate, that is, the proportion of workers who are not able to work as many hours as they would prefer. This consists of full-time workers employed on shorter hours, and part-time workers who would like their hours increased.[2]

In the case of the HILDA data, there is no means for deriving an exact equivalent of the ABS underemployment rate (because of differences in questionnaire design), but the HILDA data does contain quite specific information on the preferred number of hours of work sought by respondents.[3] By taking a subset of this data—those who wished to work more hours—we can summarise the underemployment situation of the FMW categories over this period. Table 5.5 shows the proportion of workers in each category who indicated they wished to work more hours than they were currently working. (This includes all jobs, not just the main job.) The bottom panel of this table shows the average number of weekly hours by which their *actual* hours fell short of their *preferred* hours and thus provides an average volume measure of underemployment.

The most striking feature of Table 5.5 is the much higher proportion of FMW workers who were under-employed: nearly 30 per cent. This is double the equivalent figure among the above-FMW workers and reflects the composition of the FMW workforce: large proportions of casual part-time workers. Other research suggests these workers are particularly vulnerable to problems of under-employment (I. Watson 2005; Burgess and Campbell 1998*b*; Burgess and Campbell 1998*a*).

Despite the strong employment growth over much of this period, the proportion of workers under-employed only fell slightly, from about 16 per cent to 13 per cent. Most of this improvement was within the above-FMW category, where the fall was from 16 per cent to 12 per cent. Among the FMW workforce there were fluctuations, but little in the way of any long term trend in improvement.

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[1] For an extended discussion see July 2008 edition of ABS (6105.0). See also the Underutilisation Measures devised by the Centre for Full Employment and Equity at http://e1.newcastle.edu.au/coffee/.

[2] 'Underemployed workers are defined as part-time workers who want, and are available for, more hours of work than they currently have, and full-time workers who worked part-time hours during the reference week for economic reasons.' (ABS 6265.0).

[3] For a comparison of the ABS and equivalent HILDA categories, see Wilkins (2004).

Table 5.5: Underemployment by FMW category, percentages and weekly hours

	At or below FMW	Above FMW	Self-employed	Total
Underemployed (%)				
2001	28	16	10	16
2002	26	16	12	16
2003	29	15	10	16
2004	26	14	9	15
2005	29	13	9	15
2006	29	13	9	14
2007	27	12	10	13
2008	26	12	10	13
Gap in hours				
2001	11.5	11.3	13.3	11.6
2002	11.2	11.7	12.8	11.8
2003	11.2	11.2	14.7	11.6
2004	11.3	11.5	14.9	11.8
2005	10.4	11.4	16.1	11.6
2006	11.6	11.1	14.7	11.6
2007	10.8	10.9	14.7	11.3
2008	9.6	11.1	14.6	11.2

Notes: Percentage underemployed is proportion of all workers in that category who indicate they would prefer to work more hours. 'Gap in hours' is the difference between the number of preferred hours, and the number of hours they actually work (in all jobs, not just the main job).
Source: HILDA Release 8.
Population: All employed respondents reporting hours information.

As for the volume measure of underemployment, this ranged between 11.2 and 11.8 hours per week over the period from 2001 to 2008. There is some evidence that the increased labour demand during the mid-2000s did improve the situation for the FMW workforce. The overall closure in the gap in hours—from 11.6 hours to 11.2 hour—was surpassed by the FMW workforce, where the gap closed from 11.5 hours to 9.6 hours by the end of the period.

— 6 —

Modelling earnings transitions

6.1 Introduction

Many econometric analyses which examine transitions between low paid and higher paid work focus on the distinction between 'state dependence' and 'individual heterogeneity'. These terms are also familiar from studies into the duration of unemployment. The former term refers to that component of the duration which might be due to the intrinsic nature of prolonged unemployment—such as poverty, loss of morale, loss of job contacts—while the latter refers to that component of the duration which might be due to characteristics linked to the unemployed person or other aspects of their situation which are not subsumed within unemployment itself. This can include low levels of skill and poor English fluency, as well structural aspects, such as their geographical location or discrimination on the part of employers.

The same distinction can be mapped across to low paid employment: how much does a lack of mobility out of low paid employment reflect the intrinsic nature of that kind of employment, and how much does it reflect characteristics of the low paid worker. In the same way that state dependence can see unemployment turn into long-term unemployment for some individuals, so too can state dependence for the low paid become an 'earnings trap', a situation where being low paid makes it much more likely that a worker will remain low paid into the future. In the words of Lorenzo Cappellari:

> ... persistent low pay implies that individuals are trapped below
> the low pay threshold from one period to the next and widening
> wage differentials can turn into a deeper economic and social
> stratification (Cappellari 2002, p. 88).

In the case of low paid jobs, state dependence may have a labour demand dimension:

> Employers may view low paid employment with another firm
> as an indicator of an individual's low productivity and be dis-
> couraged from making a job offer. Employers may also treat

> holding a low paid job as a signal of a high turnover propensity (Stewart and Swaffield 1999, p. 30).

And it may have labour supply aspects:

> ... state dependence may result from low paid employment reducing subsequent human capital accumulation (or causing the depreciation of human capital not currently being used), thereby keeping an individual's productivity low and reducing the probability of rising out of low pay in the future. In addition, a spell of low paid employment may influence an individual's perception of his market value and discourage him from applying for better paid jobs (Stewart and Swaffield 1999, p. 30).

In the regression modelling of duration data, a distinction between 'genuine state dependence' and 'spurious state dependence' is sometimes drawn. The latter concept is equivalent to those 'raw' or 'unadjusted' transition percentages which are routinely presented in transition tables. The reason for the genuine / spurious distinction is that researchers need to disentangle the 'real' effects of previous states of low pay (or unemployment) from aspects of the individual and their circumstances. In other words, they need to take account of a number of factors in separating state dependence from individual heterogeneity. If some aspects of the latter are still entwined with the former, then the estimates for state dependence may be spurious.

In practice, this means that researchers must control for observed individual characteristics—as is conventionally done in regression modelling—but they must also take account of unobserved heterogeneity. These are the characteristics of the individuals which are not available in the dataset and thus not available as potential controls in the modelling. Ordinarily, they are absorbed into the model's error term and can be ignored (providing certain regression assumptions are satisfied). However, in the case of the class of models involved in modelling earning transitions, a different approach is needed. This occurs because the use of a 'lagged dependent variable'—that is, being low paid in the previous year—is not an 'exogenous' regressor, or something external to the process being modelled. This variable is correlated with the error term—that is, it is 'endogenous'—and this violates one of the key assumptions in regression modelling. Much of the flurry of activity in this field of research entails finding suitable ways to model lagged dependent variables without problems of endogeneity compromising the estimation results.

Before looking at the approach generally adopted in this area it is worth making an observation about terminology. One should not be mislead by the terminology of 'genuine' and 'spurious'. There is nothing spurious in the transition figures outlined in the earlier chapters of this report. In a modelling sense, they may be 'raw', rather than 'adjusted', figures. However, in terms of descriptive statistics, they are accurate and, being appropriately weighted, it is reasonable to draw inferences about the Australian population from the tables in this report. Indeed, the weights have been devised to

take account of non-random attrition from the sample, that is, the tendency of certain categories of persons to be less well represented in the survey as time goes by. In this respect, the transitions figures discussed throughout this report provide a clear indication of the levels of aggregate earnings mobility in Australia over the period 2001 to 2008.

The discussion about genuine and spurious state dependence is a discussion about causality, and whether the raw transition figures reflect enduring individual characteristics / circumstances or self-perpetuating aspects of the situation of low pay. These terms arise from a methodological exercise in which one attempts to decompose how much of the duration spent in low paid jobs might reflect a state dependence component and how much might reflect an individual / circumstances component. It is argued, for example, that if most of the duration is due to state dependence, then labour market policies should be crafted to address the overall issue of low pay, such as earnings traps. On the other hand, if most of the duration is due to enduring individual characteristics / circumstances, then policy might need to address these elements. This might involve, for example, issues of English language education for migrants, or public sector job creation in depressed or isolated regions, or efforts to counter discrimination against Indigenous workers.

These examples illustrate that the *individual* component need not be seen in the personalised terms favoured by human capital theorists. These economists often invoke 'individual ability and motivation' when discussing unobserved heterogeneity, overlooking the fact that the state dependence / individual heterogeneity distinction extends much further than this. It is important to recognise that 'state dependence' is *not* about the structural features of the labour market, but rather those features of low paid employment which have a tendency to perpetuate themselves. A personal trait, such as low morale, for example, can be a component of state dependence.

Similarly, 'individual heterogeneity' is not about *personal* features of the individual. Rather this concept refers to features unique to individual observations in the dataset which make it likely that any analysis of sample means will not adequately capture the processes at work. Whereas observed heterogeneity can be controlled for in the regression analysis using variables in the dataset, unobserved heterogeneity (by definition) is not able to be assessed in the same way. It is important to keep in mind that unobserved heterogeneity may refer to both personal aspects of a low paid worker—such as their social skills—as well as contextual aspects of their working life—such as the presence of discrimination in the workplace—and also features of the local labour market—such as poor transport options in certain suburbs. While the analysis does not allow us to pinpoint which combination of these kinds of things are at work, it's important to avoid the narrow 'ability and motivation' label which is commonly employed.

6.2 MODELLING APPROACH

6.2.1 Strategy

A common strategy for dealing with modelling transitions between low paid and non-low paid jobs is some form of *discrete dynamic panel data random effects* model. The *discrete* part refers to the outcome of interest: whether an individual is low paid or not in time t; the *dynamic* part refers to their situation the year before, in time $t - 1$, and the extent to which this predicts them being low paid across each of the years. This is the 'lagged dependent variable' mentioned above. The *panel data* refers to the longitudinal dataset which makes this kind of modelling possible. On the one hand, it provides multiple observations on the same individual, which is a real asset. But it also raises important methodological issues, because the observations lack independence (another key regression assumption). The final term, *random effects*, refers to the modelling approach which partitions the error term. This not only deals with the dependency in the data, but it also makes it possible to explicitly account for 'unobserved heterogeneity'.

The equation for the particular model being fitted takes the form:

$$y_{it} = \beta X_{it} + y_{it-1} + \upsilon_i + \epsilon_{it} \tag{6.1}$$

where y_{it} is 1 if the person, i, is a low paid employee in time t, or 0 if not low paid. The X_{it} term captures a range of observable characteristics which are relevant to their low paid status. Some of these are time-invariant, such as sex, while others may vary across the time period, such as occupation, industry, trade union membership. The β term refers to the model coefficients, which indicate the strength of the average association between a particular factor, such as working as a labourer or leaving school early, and the outcome. So far, this part of the model is a familiar limited dependent variable regression model, such as a logistic regression or a binary probit model.

Where the model departs from the familiar form is in the remaining components. The y_{it-1} is the lagged dependent variable, that is, the low paid status of the individual in the previous year. This is what makes the model *dynamic*. The υ_i is the error term associated with the individual—the 'person-level random effects'—and is something which is not captured by the regressors (X_{it}). While it does not vary over time for a particular individual, it does vary between different individuals, and is thus a measure of the *between* variation in the sample. The final term, ϵ_{it}, is the usual idiosyncratic error term which captures measurement error and other kinds of variation in the outcome for each individual at each point in time. It is sometimes referred to as 'noise', and is both individual-varying and time-varying and is thus a measure of the *within* variation for each individual in the sample.

Together the between and within variation make up the random effects in this model, the variation in the average outcomes beyond what can be explained by the regressors. The random effects are basically the total error term in the model, and are the sum of these two error terms:

$$\xi_{ij} \equiv \upsilon_j + \epsilon_{ij} \tag{6.2}$$

These kinds of model are sometimes referred to as error components, or variance components, models. By partitioning the total error into that part which is due to variation between individuals, and that part due to variation within individuals, important insights can be gained. In the case of the low paid transitions problem of genuine state dependence, the random effects help 'net out' the unobserved heterogeneity. In particular, the υ_j term represents this heterogeneity and the modelling strategy takes this into account in producing the final estimates of how much the particular regressors in the model influence being low paid and how much y_{it-1}, the situation the year before, influences this outcome.

By expressing the υ_j term as a percentage of the total error, ξ_{ij}, one can measure the amount of *between* variation in the sample, thereby providing an indication of how much unobserved heterogeneity is present in the transition probabilities. Because the variance of the idiosyncratic error term is normalised to equal 1 in the probit model (which is conventionally used for this type of modelling), the equation for the proportion of the total variance contributed by the person-level variance component (the 'between variation') is:

$$\rho = \frac{\sigma_j^2}{\sigma_j^2 + 1} \tag{6.3}$$

where σ_j^2 is the variance of the person-level random effects. The estimates for both σ (the standard deviation of the person-level random effects, also referred to as the scale) and ρ are shown at the bottom of Table B.9 in Appendix B (as Sigma and Rho).

The main equation shown above (6.1) is where the modelling in the next section begins. It is, however, subject to a particular problem: the *initial conditions problem*. This refers to the fact that the starting point for anyone in a panel data sample is not a *tabula rasa*. Individuals are already shaped by the situation which prevailed before they entered the sample. If the initial conditions are *exogenous*, that is, they are unrelated to the process being studied, then the modelling approach outlined above is not problematic. However, if the initial conditions are *endogenous*, that is, related to the process of being low paid / not low paid, then they must be taken into account in the modelling.[1] The strategy developed by Wooldridge (2005) for dealing with this problem is the basis for the modelling in this chapter and involves including a term for the initial conditions, that is y_{it0}, to extend equation 6.1 as follows:

$$y_{it} = \beta \mathrm{X}_{it} + y_{it-1} + y_{it0} + \upsilon_i + \epsilon_{it} \tag{6.4}$$

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[1] As Cappellari and Jenkins phrase it:."the dynamic nature of the model means that unobserved factors affecting transitions between states may be correlated with those determining the origin state" (Cappellari and Jenkins 2008, p. 61).

6.2.2 Implementation

In the following section several models are fitted.[2] The first is a pooled binary probit regression model which ignores the repeated observations (and the obvious dependency) in the sample. It basically ignores the problem of unobserved heterogeneity and is there simply to provide a benchmark model. The second model is a random effects model which partially takes account of unobserved heterogeneity, but which ignores the initial conditions (equation 6.1). In each case, models are fitted to the HILDA data for the period 2002 to 2008 and include the low paid status of the person from the year before. Their status at the start of the period in 2001 is included only once, as the lagged dependent variable for the 2002 wave. In the third model (equation 6.4), on the other hand, the initial conditions are incorporated by including the low paid status of 2001 in every wave of the data being modelled, that is as y_{it0}.

The definition of low paid used here is two thirds of median adult employee earnings. As noted earlier, this figure is somewhat higher than the FMW, but its use has a number of advantages. It captures those workers who may still be affected by the FMW (via the pay scales adjustments) and it matches international definitions of the low paid workforce, thereby making the results somewhat comparable to overseas research.

The controls used in this study come from a rich array of variables available in HILDA. They encompass demographic background (age, sex, birthplace status, Indigenous status), educational qualifications and marital status. They also include occupational and industry variables as well as firm size. Variables related to employment—such as tenure, union membership and employee status—are also included. A geographical control—metropolitan or non-metropolitan—is also introduced. As well as dummies for each of the years, a variable measuring exposure to unemployment during the year is also included. The hourly earnings for casual employees are discounted by 15 per cent to take account of the 'loading' that most casuals receive. That is, their reported earnings already incorporate compensation for the leave and sickness entitlements which permanent employees are paid, but which casuals are not. (See I. Watson (2005) and Dunlop (2000) for more on the reasoning behind this approach).[3] Finally, the continuous explanatory variables (age, occupational tenure and job tenure) are scaled to two standard deviations, which makes their magnitude comparable to the categorical explanatory variables (see Gelman and Hill (2007, p. 56) for this strategy).

For all of these models the observations are based on adult employees

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[2] These models were fitted using adaptive quadrature, a particularly efficient approach for integrating out the random effects. Other methods, such as Markov chain Monte Carlo (MCMC) estimation, produced similar results. The models were run using the R implementation of `Sabre` (Crouchley 2009), but identical results were obtained using Stata's `xtprobit` command. MCMC comparisons were run using `MCMCglmm` in R (Hadfield 2010).

[3] Some research suggests that a 20 per cent discount is more appropriate and this is the figure used by Healy (2010, p. 4). Thus the figure of 15 per cent used here is quite conservative and, if anything, downplays the extent to which casuals are disadvantaged in the labour market.

(aged between 21 and 65, inclusive) who were not studying and who reported earnings information at each annual interview. This means people who were not employed (or otherwise not part of this in-scope population) were omitted from the sample. The sample was not, however, a balanced panel in that individuals could resurface as part of the in-scope sample at later dates. Moreover, new entrants into the HILDA survey could also be included at later dates.

Before looking at the results, it's worth considering briefly an inherent weakness in micro-data sets based on household surveys of individuals. By their very nature, these kinds of data incline researchers towards an individualistic perspective, since it is overwhelmingly personal characteristics which enter the regression equation. At noted above, HILDA is fortunate in providing some useful employer characteristics, but these fall well short of the kinds of data items which the AWIRS surveys provided (Morehead et al. 1997), and which may become available in the future if the Australian Bureau of Statistics does produce a LEED (Linked Employer-Employee Dataset). In the meantime, Australian researchers struggle to achieve the kinds of insights which some United States research has provided into how employer decisions influence the transitions of the low paid workforce.[4] As the reviewer of *Moving Up or Moving On: Who Advances in the Low-Wage Labor Market?* commented:

> Research frequently considers how the labor market success of the poor is influenced by their human capital characteristics …Whether because of data limitations or lack of interest, however, this research rarely considers more than a few employer characteristics, such as firm size and industry …The innovative part of the analysis is the demonstration that labor market success for initial low earners was linked to characteristics of individuals' subsequent employers …employers matter in the success of low-earnings workers (Bartik 2006, pp. 668–670).

6.3 MODEL RESULTS

6.3.1 Overview

The full set of tables showing coefficients and standard errors for the dynamic random effects models discussed here are found in Appendix B (see Table B.9). In what follows I present a descriptive overview of these results, and I then discuss the probabilities predicted by the model for whether a person is low paid or not.[5]

Restricting the discussion to the final model (equation 6.4) and drawing on the results shown in the third column of Table B.9 (random effects initial

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[4] See also the overview of the role of employers in the US low-wage sector in Appelbaum et al. (2005).

[5] While the transition probabilities in the descriptive chapters make use of percentages, such as 47 per cent, the predicted probabilities in this chapter stay within the range of 0 to 1, in keeping with modelling conventions. Thus, the equivalent figure here would be 0.47.

conditions), I find that the factors most strongly associated with being low paid are very much what one would expect from the existing literature on the FMW (see, for example, Healy (2010); McGuiness and Freebairn (2007); Leigh (2007)). These factors are: being a woman; having lower levels of education; working in lower skilled occupations; working in the service sector and in agriculture; working in casual jobs; and working in small firms. The factors which are associated with *not* being low paid are also fairly predictable: being a union member and having longevity in one's occupation. The incorporation of a measure of unemployment in this model proves useful. The results show that periods of unemployment are strongly associated with being in a low paid job.

The model also included dummies for each of the years 2002 to 2008 and the results showed that none of these were statistically significant. This in itself is an interesting finding, because it suggests that the probability of being low paid neither increased, nor decreased, over this period of time.

As for the dynamic component, the coefficient for the lagged dependent variable is of a substantial magnitude and highly significant, thus confirming that being low paid in the previous year is associated with ongoing low paid status. The coefficient for being low paid in the initial year is also large and statistically significant: its magnitude is larger than that of the lagged dependent variable.

Directly comparing coefficients is, however, of limited value in models such as these. A more useful comparison, and one which directly addresses the issue of state dependence, entails calculating sets of predicted probabilities. These make use of the following equations:

$$p_1 = \frac{1}{N} \sum_{i+1}^{N} \Phi\big[(\bar{x}\beta + \gamma)\sqrt{(1-\lambda)}\big] \tag{6.5}$$

$$p_0 = \frac{1}{N} \sum_{i+1}^{N} \Phi\big[(\bar{x}\beta)\sqrt{(1-\lambda)}\big] \tag{6.6}$$

where p_1 is the probability of being in a low paid job and p_0 is the probability of not being in a low paid job. The $\bar{x}\beta$ term reflects the common strategy of multiplying the mean values of the variables by the coefficients ('plugging in the means' as it is sometimes called). The γ term is the coefficient for the lagged dependent variable and the final term, that is $\sqrt{(1-\lambda)}$, incorporates the person-level random effects into the prediction.[6]

Using these equations we can calculate the predicted probabilities of each outcome, as well as the average partial effect (that is, $p_1 - p_0$) and the predicted probability ratio (that is, p_1/p_0). These are shown for the three models in Table 6.1. The first model ('pooled') ignores issues of unobserved heterogeneity and only controls for observed heterogeneity by means of the controls which are shown in the list of regressors in Table B.9. Being in a low paid job the year before produces a predicted probability of being low paid in

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[6] These equations draw on Sousounis (2008, p. 12) who uses λ for the ρ term used earlier in equation 6.3.

the current year of 0.26 (that is, 26 per cent). By way of contrast, not being in a low paid job the year before produces a predicted probability of 0.06. The average partial effect (APE), which is the difference between these two figures, is 0.21 and the ratio between the two figures (the 'predicted probability ratio') is about 4.5.

The overall transition probability (with this particular population) of being low paid, conditional on being low paid the year before, is 0.44.[7] This is the figure which could be termed the 'spurious' measure of state dependence in the sense that it is a raw or unadjusted transition probability. Thus we can conclude that controlling for a number of observable characteristic sees this figure decline to 0.26, a drop of 0.18.

Table 6.1: Predicted probabilities of being low paid

	Pooled model	*Random effects #1*	*Random effects #2*
Pred. prob. for Group 1	0.26	0.17	0.13
Pred. prob. for Group 2	0.06	0.07	0.07
Average partial effect	0.20	0.11	0.06
Pred probability ratio	4.48	2.69	1.89

Notes: Group 1: In a low paid job the year before; Group 2: not in a low paid job the year before.
Based on models shown in Appendix (see Table B.9). Random effects #1 excludes the initial conditions; random effects #2 includes the initial conditions;
Source: HILDA Release 8.
Population: See Table B.9.

Moving from the pooled model to the next model (Random effects #1), which partially deals with unobserved heterogeneity by means of a random effect, we see that the predicted probability for the individual who was low paid the year before has dropped to 0.17. The predicted probability for the individual who was not low paid stays about the same and the average partial effect falls to just 0.11.

The final model (Random effects #2) not only deals with unobserved heterogeneity by virtue of the random effect, but also incorporates the initial conditions and thus deals with the issue of endogeneity. In this model the predicted probability of being low paid for the individual who was low paid the year before falls to just 0.13 and the average is now just 0.06.

Summing up these figures: 'genuine' state dependence is predicted to be about 0.13 and the average partial effect—that is the impact of having been low paid the year before, net of all other factors—is about 0.06. An individual who was low paid the year before is nearly twice as likely (1.85) to be low paid the next year, as an individual who wasn't low paid. The gap between spurious (0.44) and genuine state dependence (0.13) is considerable: 0.31. In

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[7] This figure is not the same as the 32 per cent shown in Table 3.1 for two reasons. The modelling population excludes full-time students and persons aged over 65. Secondly, the denominator in this chapter is employees whereas the denominator for that table included the unemployed and the NILF category.

other words, state dependence makes up less than one third of the transition probability; individual heterogeneity makes up more than two thirds.

6.3.2 Contrasting sub-groups

This approach of calculating predicted probabilities is also useful for highlighting the differences between various sub-groups in the sample. These are shown in Table 6.2. The strategy here involves setting all individuals at the 'default state' of being low paid in the initial year, and being low paid in the year before, and then varying just one characteristic: being in a particular category or not being in it. In other words, one plugs in particular combinations of values for equations 6.5 and 6.6 and highlights the contrast between being in alternate categories.

Before looking at these figures it's worth noting that being in a low paid job in the initial year considerably increases the probability of being low paid. The figures just discussed in Table 6.1 are predictions for the prior period only (with all other variables set to their mean values). The predicted probability of 0.13 becomes a predicted probability of 0.23 if the prediction also includes being low paid in the initial state. So, for the comparisons which follows, the base-line prediction should be regarded as 0.23, not 0.13.

Table 6.2: Predicted probabilities of being low paid, conditional on various categories

	Unemployed for 6 mths or more	Small firm	PT casual employment	Union member
In category	0.32	0.28	0.40	0.19
Not in category	0.23	0.20	0.20	0.25

Notes: Being low paid job the year before and in a low paid job in the initial year is the underlying condition. Each category reflects changing just that variable: either in that category, or not.
Based on models shown in Appendix (see Table B.9). *Source:* HILDA Release 8.
Population: See Table B.9.

With this in mind, the figures in Table 6.2 should be seen as reflecting how much a worker who is already considerably 'at risk' of being low paid is further disadvantaged (or advantaged) by being in a particular category. Being unemployed for six months or more is a considerable liability, raising the predicted probability of being low paid to 0.32. Working in a small firm sees this figure rise to 0.29, while being a part-time casual employee sees an increase to 0.40. By way of contrast, being a union member sees the predicted probability of being low paid drop to 0.19.[8]

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[8] The 'not in category' group is not equivalent to the base-line prediction, but rather to the 'opposite' category. When this category is a large proportion of the sample—as is the case for the unemployment variable—then the two are figures are quite similar.

6.4 DISCUSSION

How do these findings compare with other countries? In terms of raw transition probabilities, it is very difficult to say. Making direct comparisons is problematic because transition rates measure different things. In this report, for example, the transition rates in the descriptive tables include other labour market destinations, as well as movement within earnings categories. The transition rates in the modelling, on the other hand, are confined to movement within earnings categories. Additional complications include choice of population: all persons or adults; and the choice of earnings benchmarks: FMW rates, quintiles or two-thirds the median. Consequently, when it comes to the relevant overseas literature (Smith and Vavrichek 1992; Sloane and Theodossiou 1996; Cappellari 2002; Sousa-Poza 2004; Gosling et al. 1997; Stewart and Swaffield 1999; Dickens 2000; Uhlendorff 2006), finding a match across these range of data decisions, is rare. There are also differences in time-frame. Several relevant studies from the United States, for example, cover the 1980s and 1990s; British studies cover the period from the 1970s to the 1990s; one Italian study covers the early 1990s. A Swiss study covers a more recent period (1991 to 2001), as does a German study (1998 to 2003). These periods (depending on the particular national economy) usually included periods of economic downturn. The data in this report, on the other hand, is much more recent and covers a period of sustained economic growth. Despite these caveats, two important conclusions can be drawn from this modelling. First, it seems reasonable to compare the extent of genuine state dependence across studies (where this is available)[9] and this provides some important insights. Secondly, some of the factors associated with being in low paid jobs suggest important policy implications.

6.4.1 State dependence

Unlike countries like the United States—which had long periods with no upward movement in the minimum wage—and Britain—where minimum wages were abolished for a period of time—Australia has seen steady increments in the level of the minimum wage for much of the past decade. The notable exceptions were 2009 and 2007, where the increases were 0 and 2 per cent respectively. Moreover, in Australia the minimum wage is not a simple cut-off, but influences wage determination throughout the lower echelons of the wages distribution. This happens because of the pay scales adjustments which are part of the minimum wage decision. There are also, for most State jurisdictions, 'flow-ons' to State awards of the Federal minimum wage increases. In many cases, this is a just an automatic flow on, but in some cases, notably in NSW in 2009, increases can occur at the State level which do not reflect the Federal decision.[10]

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[9] Most of the studies cited here provide only raw transition probabilities, rather than figures for genuine state dependence.

[10] The FMW rates directly apply to Victoria, ACT and Northern Territory, and to workers who come under Federal industrial relations jurisdiction in the States. The 'flow-ons' to workers under State jurisdiction generally take place within a few months of the Federal decisions.

As a result of this quite unique system of wage determination, the low wage sector in Australia does not resemble an earnings 'backwater' in the same way that it has at various times in the United States or Britain. The minimum wage in Australia hovers around 60 per cent of median earnings. In Britain it hovers around 40 per cent and in the United States around 30 per cent. In Australia being in receipt of a low wage does not distance a worker from their higher paid peers in the same way that it does in other countries like these. Not only is there an adequate floor, but the absence of a large informal or unregulated sector has prevented strong downward pressure on wages at the bottom of the distribution.[11]

The modelling results dovetail with this phenomenon. As these results show, the genuine state dependence dimension of low paid durations in Australia is moderate. Evidence from Britain, for example, suggests that genuine state dependence there is of the order of 58 per cent to 79 per cent of the raw transition probabilities (Stewart and Swaffield 1999, p. 38). By way of contrast, the figure for genuine state dependence in Australia (based on the modelling shown earlier) is about 30 per cent. The problem of state dependence is roughly twice as severe in Britain as it is in Australia.

Even if raw transition probabilities between the two countries could be made comparable—the British figures from the Stewart and Swaffield (1999) study ranged between 0.58 and 0.73—the substantive conclusions would still differ. Certainly, being stuck in low paid jobs over extended periods of time is a problem for both countries, whether those figures are as low as 0.32 or as high as 0.73. However, in the case of Australia, the lower level of state dependence means that the problem lies less in the self-perpetuating aspects of low paid work than is the case in Britain.

As is well known, the FMW, by comparison with minimum wages in other countries, is reasonably high. Table 6.3 shows data submitted to the Fair Pay Commission by the Australian Government in 2006 showing that the FMW is about 55 to 59 per cent of full-time median earnings. This compares with figures which range from the low 30 per cent range (Spain and the United States) to the mid-50 per cent range (France and New Zealand). League tables like these are usually drawn up to argue that high minimum wages pose a threat to employment. There is now a vast literature on this topic and the findings are far from conclusive. While a recent overview of the literature largely supported the neo-classical approach (Neumark and Wascher 2008), a more recent dynamic simulation study concluded quite differently:

> Using a time-series model for 23 low-wage industries, we find a positive response of average wages over 54 months following an increase in the minimum wage, but neither employment nor hours can be distinguished from random noise (Belman and Wolfson 2010, p. 1)

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[11] The rapid development in recent years of an international vocational student market in Australia, with its requirements for compulsory hours of work, lead to an upsurge of 'free workers' in certain parts of the service sector. However, this coincided with high levels of economic growth and strong labour demand, thereby curtailing some of the downward pressure on wages which might normally result from this kind of deveopment.

Table 6.3: Adult minimum wages relative to full-time median earnings, mid 2004

Country	Percentage
Australia	
LFS	58.8
ES	55.1
France	56.6
New Zealand	53.6
Ireland	51.7
Belgium	48.5
Greece	47.9
Netherlands	46.4
United Kingdom	43.2
Canada	39.5
Portugal	38.0
Japan	33.7
United States	32.3
Spain	30.0

Notes: Originally from OECD database.
Source: Australian Government Submission to the Fair Pay Commission, 2006.

When it comes to international comparisons, the findings are equally inconclusive, and even less generalisable. As Neumark and Wascher (2008) argue after surveying some of the comparative literature:

> These results indicate that the effects of minimum wages can vary considerably depending on the presence of other labour market institutions, and they suggest—perhaps not surprisingly—that the neo-classical prediction about disemployment effects of minimum wages holds most strongly for the economies in which labor markets are less regulated (2008, p. 91).

In other words, the large number of studies carried out in the United States—which form the mainstay of this literature—are not particularly relevant in countries like Australia where labour market institutions are still robust.[12]

There is another way of looking at these comparative figures for minimum wages which has direct relevance to this discussion of state dependence. Keeping the FMW at a reasonable level, in respect to median earnings, and ensuring that appropriate adjustments flow through the bottom of the earnings distribution, ensures that the state dependence component of low paid employment does not expand. The advantageous position of Australia, relative to Britain for example, need not be eroded if Australian wage setting arrangements retain these principles at their core.

The raw transitions probabilities in the United States appear to be lower than those in Britain. Estimates range from 29 per cent to 37 per cent,[13] (see,

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[12] Recent research in Britain also undermines the notion that the neo-classical predictions has wide applicability. See, for example, the analysis by Metcalf (2004) of the introduction of the National Minimum Wage in Britain.

for example, Even and Macpherson 2003, p. 679 and Smith and Vavrichek 1992, p. 88). For some researchers, these kinds of numbers are regarded as low. For example, in commenting on a figure of 44 per cent for a two year transition—a figure which is even higher than these estimates—Sloane and Theodossiou (1996, p. 665) suggest: "For many workers, therefore, low pay is a temporary phenomenon." Clearly the definition of 'many' is open to interpretation.

These studies do not attempt to derive figures for genuine state dependence, so they cannot be compared directly with either the British results or the results presented in this report. However, the United States research is illuminating for another reason. The mechanisms which partly lie behind these transition rates are worthy of note, in particular, the considerable degree of churning in the US labour market. As Barbara Ehrenreich noted in her qualitative study, low pay workplaces always had 'job vacancy' signs on display, because job turnover was so high (Ehrenreich 2001). Several studies have suggested that switching employers enhances wages growth (Gottschalk 2001; Even and Macpherson 2003). This suggests that in the United States high levels of job turnover may be a solution for individuals negotiating the earnings 'backwaters' of that labour market. This does not, however, provide a solution at a structural level, and a large amount of job turnover can be deleterious for the labour market as a whole. For workers it can mean fewer prospects for training or career progression, while for firms it can undermine long-term investment in new technology or workforce development.

In reviewing the evidence for the links between earnings mobility and labour market institutions, Lucifora (2000, p. 22) observes:

> In terms of labour market institutions, the fact that the USA has a less regulated labour market and a more decentralized system of collective bargaining as compared to European countries does not translate into greater earnings mobility nor into a higher probability of leaving low pay. Likewise the more centralized wage-setting institutions in Germany and the Nordic countries do not imply a significantly lower mobility among the low paid.

6.4.2   Aspects of low paid work

Returning now to the key aspects of low paid work identified by the regression modelling, several important conclusions can be drawn with regards to individual heterogeneity. As noted earlier, individual heterogeneity is not solely about the personal qualities of the worker. It also includes aspects of the workplace and the labour market. As the regression results above showed, when it comes to aspects of observable heterogeneity which the model controlled for, there were two key factors which stood out. Being engaged as a casual employee and working in a small firm were both strongly

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[13] Though the latter figures reflect the proportion of those who continued to work (rather than all 'starters').

associated with being in a low paid job. Other research has shown that part-time casual employment undercuts the possibilities of long-term career development and the earnings progression that usually accompanies that (I. Watson 2005; Burgess and Campbell 1998*b*; Burgess and Campbell 1998*a*). Despite its flexibility for some workers, part-time casual jobs are overwhelmingly associated with a lack of stability in employment, and this has implications for annual earnings (rather than just the hourly earnings examined in this report). Recent research looking at the transitions of casual employees suggests that these kinds of jobs 'lock-in' workers and fail to provide stepping stones to better paying jobs (Welters and Mitchell 2009).

Research has traditionally shown that smaller firms generally pay lower wages than comparable firms which are larger in size. This is partly a sectoral matter: they generally inhabit areas of the economy subject to intense competition and, with limited working capital or access to credit, are forced into strategies of cost minimisation in order to survive. There may also be a distinct size effect, whereby certain efficiencies are denied small firms (such as negotiating with larger firms in their supply chain). Whatever the reason, the emphasis on cost containment among smaller firms makes it difficult for them to provide good long-term earnings advancement to their workforce.

In terms of the labour market, periods of unemployment remain a serious liability when people re-enter the workforce. As a number of studies have shown, there is evidence of a 'low pay – no pay cycle' in Australia, and breaking this cycle involves not just prioritising getting any job, but getting a job that offers long-term stability and a good earnings trajectory over time. As Perkins and Scutella (2008, p. 112) observe with regard to employment assistance policy:

> The weaknesses in the current Australian employment assistance system point to a need to embrace the findings of US and UK ERA policy trials in designing a more effective system that focuses on employment retention and advancement rather than simply job entry.

And, in the same context, I. Watson (2008, p. 85) argues: 'Continuity of employment, coupled with skills development and earnings improvement, need to be the central planks for labour market programs.'

All of these dimensions of individual heterogeneity were controlled for in the regression modelling making use of the rich variety of data items which HILDA provides. Nevertheless, there are always aspects of the individual, the workplace and the labour market which are inadequately captured in the data. In this respect unobserved heterogeneity is unavoidable in any modelling exercise. Fortunately, through the use of the random effects approach this unobserved heterogeneity has been netted out from the results, thereby allowing us to draw conclusions about genuine state dependence. As to what those elements are, we are left to speculate. The usual human capital assumptions are of limited value. Certainly 'ability and motivation' play an important role in earnings outcomes, but they are far from providing an adequate inventory and they offer little by way of policy development.

Areas that are more amenable to a policy approach, and which appear to be pivotal in earnings outcomes, are related to skills development, housing and regional policy. The large immigration flows of the last decade provide strong evidence of the neglect of sound skills policy in this country, with short-term gap filling displacing long-term capacity building. This is an area now coming under scrutiny as researchers and government begin to focus on such long-term goals (Skills Australia 2009; Quirk 2009). Problems of affordable housing, coupled with poor transport infrastructure, have major labour market implications. These limit the mobility of low paid workers, making it more difficult for them to access higher paying jobs outside their area of residence. When they are also living in a rural setting, this problem can be acute. The modelling used in this chapter did incorporate a geographical variable (metropolitan / non-metropolitan) and the results (shown in Table B.9) weakly suggest living in a non-metropolitan area increases the probability of being low paid (though the results are not statistically significant.) However, this is too crude an analysis of geographical variation (since 'non-metropolitan' includes major regional centres) and recent studies into the rural and regional dimensions of employment suggests major issues need to be addressed at that level (Cook et al. 2008).

— 7 —

Conclusion

What is the significance of the findings in the earlier chapters for the level of the FMW? It is sometimes argued, for example, that high transition rates out of low pay indicate that being in a low paid job is only a temporary state, and that such jobs may provide a 'stepping stone' to a higher paying job. An alternative argument suggests that low pay can become an 'earnings trap', particularly for people who churn between low paid jobs and periods of unemployment. Typical of this tension is the summary offered by American researchers writing in the early 1990s:

> proponents [of increases in the minimum wage] argued that such increases were necessary, in part, to keep minimum wage workers from being "stuck" at a wage rate with a declining real value ... Opponents argued that minimum wage jobs were primarily temporary, entry-level jobs in which new workers gained valuable experience in the world of work (Smith and Vavrichek 1992, pp. 82–83).

The policy implications of this tension are also well summarised by British researchers writing in the mid 1990s:

> If low pay were limited to young workers lacking experience or undergoing training the welfare implications may not be of major policy significance, while if prime age workers became trapped in low-paid jobs the implications would be potentially more serious (Sloane and Theodossiou 1996, p. 657).

Where do the findings of this report fit in? In examining the issue of earnings transitions, two numbers are most striking: 43 per cent for all persons and 32 per cent for adults. These are the *average* proportions of FMW workers who are still working in FMW jobs the following year (see Tables 2.1 and 3.1).

What about further down the track? Starting in 2001, one year later 42 per cent of people are still in the FMW category, two years later 33 per cent are still there, and three years later the figure is 25 per cent. In the case of adults, the comparable figures are 30 per cent, 24 per cent and 22 per cent.

What is noteworthy here is the closure of the gap between the all-persons figure and the adult figure after several years. This reflects the considerable presence of students among the low paid workforce, people whose presence in these jobs is mostly transitory and who usually move into higher paying jobs after completing their studies.

Table 7.1: Ongoing transition rates, FMW workers (all persons and adults)

	FMW worker in 2001						
% still FMW in:	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
All persons	42	33	25	19	16	11	9
Adults	30	24	22	20	18	13	9
Counts (thousands)							
All persons	486	374	275	211	179	117	92
Adults	187	147	132	116	102	75	54

Notes: Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: HILDA Release 8.
Population: All responding persons in all waves (unbalanced panels).

From a policy point of view, the figures that matter are the adult ones: 30 per cent, 24 per cent and 22 per cent. What is noteworthy here is the small drop in the transition figures after the initial drop. The proportion still on the FMW after 2 years and after 4 years has changed little (from 24 per cent down to 20 per cent).

One could conclude that for these workers the level of the FMW is a core component of their standard of living for a considerable period of time. The number of workers is not negligible either: nearly 190 thousand adult FMW workers are still in that category one year later; nearly 150 thousand are there two years later; and over 130 thousand are still there three years later.

If we broaden the definition of the low paid to encompass the bottom quintile, and thereby pick up some of the other FMW-affected workers, the numbers are even more substantial. Table 7.2 shows the percentages and counts for adult employees, according to their destinations year by year. Some 51 per cent are still in the bottom quintile the following year, a figure which drops to 42 per cent by the third year and 37 per cent by the fourth year. In absolute terms, some 715 thousand workers are still in the bottom quintile the year following the first year, while 615 thousand are still there two years later. From then onward, the number remain fairly static—and at a high level—for several years.[1]

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[1] It's important to keep in mind that quintile analysis operates differently to fixed cut-points, like the FMW. The latter may, or may not, be updated for inflation and may change at different rates. With quintiles, they are always reflect the bottom 20 per cent of the distribution. If the top or middle of the distribution is growing faster than the bottom, then the quintile cut-point may be moved upward. Because the quintile is recalculated for each wave, this relative aspect is emphasised.

Table 7.2: Ongoing transition rates, bottom quintile workers (adults)

% still bot quint in:	*Bottom quintile worker in 2001*						
	2002	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
Adults	42	35	33	31	31	24	23
Counts (thousands)							
Adults	533	440	393	377	366	278	270

Notes: Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: HILDA Release 8.
Population: All responding persons in all waves (unbalanced panels).

Placing these findings alongside the results from the last chapter is illuminating. One the one hand, there is a positive story: the current wage fixing system in Australia has prevented high levels of state dependence among the low paid workforce. Where workers remain low paid for long periods of time, the factors behind this lie in areas of disadvantage which span the personal, the workplace, the labour market and the region. All are amenable to policy innovation. The wage fixing system itself—provided it regularly maintains the minimum wage at a reasonable level, vis a vis, the wages distribution as a whole, and provided it allows adjustments of minimum wages to percolate upwards through the lower echelons of the earnings distribution—is likely to keep a lid on state dependence.

On the other hand, there is a negative story which also emerges from the data presented in this report. Large numbers of workers remain low paid for considerable periods of time. In this sense the well-documented deleterious effects of low wages—in terms of standards of living, personal well-being and future aspirations—impinge upon large numbers of people over considerable periods of time. Low wages are not simply a transitory stage in the life-cycle whose negative consequences are minimal.

As to the core issue of unemployment, it has always been the case that there is a complex relationship between wage increases and employment outcomes. There is certainly no simplistic trade-off involved in this issue. One of the most encouraging aspects of the findings in this report is that we have witnessed seven of the last eight years (of the period 2001 to 2008) producing strong employment growth. Not only did the unemployed enter FMW jobs in increasing numbers during this period, but departures from the low paid workforce into unemployment declined. All of this took place during a period in which the FMW rate, and the associated pay scales, increased regularly each year.

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— A —

Overview of the HILDA data

The HILDA survey is a household-based longitudinal survey covering a broad range of social and economic questions (for more details see N. Watson (2010)). Respondents are surveyed each year (called a 'wave'), generally in the latter half of the year, and respond to both interviewer-administered questionnaires and a self-completion questionnaire. There are a core of questions which remain the same every year, thereby allowing for a valuable accumulation of consistent data on the same individual over time. New individual are recruited into the survey each wave, allowing the sample size to remain high and compensating for the loss of individuals through attrition.

In the initial wave in 2001 13,969 individuals were interviewed. By 2007 the original core had dropped to 9,628, but recruitment had kept the sample size at 12,789. The use of weights, which reflect both the sample design and the attrition, makes the estimates from the latter years comparable with the earlier years. For a survey of this type, the response rates have been impressive, and comparable with overseas equivalent surveys. Some 86.8 per cent of wave 1 respondents were interviewed in wave 2, and the figures for subsequent years were all above 90 per cent (and closer to 95 per cent).

The HILDA survey does not contain hourly rates of pay. Rather it provides information on weekly (or annual) earnings from wages and salaries. Hourly rates are derived by dividing the current weekly earnings in the main job by usual weekly hours of work in the main job.[1] The latter have been top-coded to 60 hours (see Healy and Richardson (2006); Healy (2010) for a similar approach, but using different cut-offs), and recoding of the hourly rates has been used for extreme outliers.[2] It is important to note that while decisions made about coding outliers may influence some derived figures, such as the mean, they make no difference to categorising broad earnings groups. Someone will be defined as low paid whether they are earning $5 per hour or $6 per hour, while someone will be defined as high paid whether they are on $50 an hour or $300 an hour. Because the number of outliers is very small, derived measures (such as the median) are not influenced by these coding

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[1] For a discussion on the reliability of the HILDA wage and salary data, see Wooden, Wilkins and McGuinness (2007).

[2] Outliers were those individuals earning under $5 per hour or those earning $300 per hour or above.

decisions and so the cut-points for quintiles or the low paid group are also not affected.

The descriptive chapters, and the various categories (like the median or the quintiles) all make use of the sample weights to make the results generalisable to the Australian population. The modelling chapter follows the usual convention of using unweighted data (this includes the derivation of the low paid category).

— B —

Detailed mobility details

The following pages contain detailed mobility tables, referred to in the text by their table number.

The final table (Table B.9) contains the model coefficients for the regression modelling discussed in Chapter 6.

Table B.1: Mobility tables for FMW workers, percentages

	At or below FMW	Above FMW	Self-employed	Unemp-loyed	NILF	Total	n
Situation in 2001			*Destinations in 2002*				
At or below FMW	42	42	3	4	9	100	856
Above FMW	5	85	3	2	5	100	4,976
Self-emp	2	9	79	1	8	100	1,447
Unemploy	14	27	3	30	25	100	483
NILF	3	6	2	4	86	100	4,152
Total	7	43	11	4	35	100	11,914
Situation in 2002			*Destinations in 2003*				
At or below FMW	43	41	2	5	9	100	840
Above FMW	5	86	2	2	5	100	4,874
Self-emp	2	10	81	1	6	100	1,342
Unemploy	13	32	3	27	25	100	415
NILF	3	5	2	3	86	100	3,898
Total	7	44	11	3	35	100	11,369
Situation in 2003			*Destinations in 2004*				
At or below FMW	45	39	3	4	9	100	825
Above FMW	4	86	4	1	5	100	4,916
Self-emp	2	9	81	1	7	100	1,263
Unemploy	12	32	2	29	25	100	366
NILF	3	7	2	3	85	100	3,798
Total	7	45	11	3	34	100	11,168
Situation in 2004			*Destinations in 2005*				
At or below FMW	45	39	4	4	9	100	829
Above FMW	6	86	2	2	5	100	4,956
Self-emp	1	10	82	1	6	100	1,278
Unemploy	17	33	2	22	26	100	351
NILF	4	6	2	3	84	100	3,816
Total	8	45	11	3	34	100	11,230
Situation in 2005			*Destinations in 2006*				
At or below FMW	44	39	2	4	10	100	914
Above FMW	5	87	3	1	4	100	5,260
Self-emp	2	7	84	1	7	100	1,329
Unemploy	18	31	2	20	28	100	336
NILF	4	6	2	4	86	100	3,765
Total	8	45	11	3	34	100	11,604
Situation in 2006			*Destinations in 2007*				
At or below FMW	38	49	3	3	8	100	975
Above FMW	4	87	2	1	4	100	5,278
Self-emp	1	11	80	1	7	100	1,284
Unemploy	26	28	2	24	21	100	377
NILF	3	7	1	3	85	100	3,784
Total	7	47	10	3	33	100	11,698
Situation in 2007			*Destinations in 2008*				
At or below FMW	42	40	2	4	11	100	889
Above FMW	5	87	2	1	4	100	5,425
Self-emp	1	10	81	1	7	100	1,235
Unemploy	18	27	2	21	32	100	347
NILF	3	7	2	4	85	100	3,750
Total	7	48	10	3	33	100	11,646

Notes: Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: HILDA Release 8.
Population: All responding persons in all waves (unbalanced panels).

Table B.2: Mobility tables for FMW workers, thousands

	At or below FMW	Above FMW	Self-employed	Unemp-loyed	NILF	Total	n
Situation in 2001			*Destinations in 2002*				
At or below FMW	486	492	32	43	110	1,162	856
Above FMW	335	5,206	177	120	295	6,133	4,976
Self-emp	36	144	1,277	20	130	1,607	1,447
Unemploy	87	173	21	194	161	636	483
NILF	159	293	95	187	4,430	5,163	4,152
Total	1,102	6,308	1,602	564	5,127	14,702	11,914
Situation in 2002			*Destinations in 2003*				
At or below FMW	484	457	20	56	98	1,114	840
Above FMW	324	5,248	140	93	297	6,102	4,874
Self-emp	31	159	1,287	17	98	1,591	1,342
Unemploy	72	171	18	145	132	537	415
NILF	150	278	93	178	4,423	5,122	3,898
Total	1,061	6,312	1,558	488	5,048	14,467	11,369
Situation in 2003			*Destinations in 2004*				
At or below FMW	533	455	32	48	104	1,171	825
Above FMW	273	5,480	236	75	300	6,364	4,916
Self-emp	31	130	1,201	9	109	1,480	1,263
Unemploy	58	152	12	139	121	481	366
NILF	150	355	96	164	4,417	5,183	3,798
Total	1,045	6,572	1,577	434	5,051	14,679	11,168
Situation in 2004			*Destinations in 2005*				
At or below FMW	500	435	46	41	97	1,119	829
Above FMW	360	5,654	139	100	298	6,551	4,956
Self-emp	22	156	1,288	16	89	1,570	1,278
Unemploy	80	150	8	103	118	459	351
NILF	205	338	127	173	4,418	5,261	3,816
Total	1,167	6,733	1,607	433	5,020	14,959	11,230
Situation in 2005			*Destinations in 2006*				
At or below FMW	531	471	26	49	126	1,203	914
Above FMW	344	5,822	168	79	291	6,703	5,260
Self-emp	32	109	1,349	11	107	1,608	1,329
Unemploy	85	147	10	93	132	467	336
NILF	187	304	80	189	4,491	5,250	3,765
Total	1,180	6,852	1,633	421	5,146	15,232	11,604
Situation in 2006			*Destinations in 2007*				
At or below FMW	482	613	32	39	97	1,262	975
Above FMW	308	6,025	156	98	305	6,892	5,278
Self-emp	24	179	1,303	15	111	1,632	1,284
Unemploy	111	121	9	103	91	434	377
NILF	159	354	73	178	4,497	5,261	3,784
Total	1,083	7,291	1,573	432	5,102	15,482	11,698
Situation in 2007			*Destinations in 2008*				
At or below FMW	499	478	28	48	127	1,180	889
Above FMW	376	6,431	155	97	301	7,359	5,425
Self-emp	22	151	1,277	10	107	1,568	1,235
Unemploy	76	117	9	89	137	427	347
NILF	145	346	89	193	4,529	5,302	3,750
Total	1,118	7,522	1,558	437	5,201	15,836	11,646

Notes: First six columns show thousands. Final column (n) shows actual sample size (ie. individuals, not thousands).
Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: HILDA Release 8.
Population: All responding persons in all waves (unbalanced panels).

Table B.3: Mobility tables for adult FMW workers, percentages

	At or below FMW	Above FMW	Self-employed	Unemp-loyed	NILF	Total	n
Situation in 2001			*Destinations in 2002*				
At or below FMW	30	53	5	2	10	100	475
Above FMW	5	86	3	2	5	100	4,764
Self-emp	2	9	80	1	8	100	1,424
Unemploy	8	30	4	31	27	100	340
NILF	1	5	2	2	90	100	3,777
Total	4	45	12	3	36	100	10,780
Situation in 2002			*Destinations in 2003*				
At or below FMW	35	50	3	4	9	100	438
Above FMW	4	87	2	1	5	100	4,619
Self-emp	2	10	81	1	6	100	1,331
Unemploy	8	36	4	26	26	100	300
NILF	1	5	2	3	89	100	3,566
Total	4	45	12	3	36	100	10,254
Situation in 2003			*Destinations in 2004*				
At or below FMW	36	46	4	4	9	100	425
Above FMW	3	87	4	1	5	100	4,658
Self-emp	2	9	82	1	7	100	1,245
Unemploy	4	36	3	27	29	100	233
NILF	1	6	2	2	89	100	3,461
Total	4	46	12	2	36	100	10,022
Situation in 2004			*Destinations in 2005*				
At or below FMW	34	47	8	3	8	100	409
Above FMW	5	88	2	1	4	100	4,703
Self-emp	1	10	83	1	6	100	1,265
Unemploy	9	38	3	26	25	100	212
NILF	2	6	2	2	87	100	3,454
Total	5	47	12	2	35	100	10,043
Situation in 2005			*Destinations in 2006*				
At or below FMW	35	50	4	3	8	100	448
Above FMW	4	88	3	1	4	100	4,956
Self-emp	2	7	84	1	7	100	1,320
Unemploy	10	39	3	19	29	100	226
NILF	2	5	2	3	89	100	3,385
Total	5	47	12	2	34	100	10,335
Situation in 2006			*Destinations in 2007*				
At or below FMW	27	62	3	2	7	100	489
Above FMW	4	89	2	1	4	100	4,991
Self-emp	1	11	80	1	7	100	1,275
Unemploy	10	33	3	26	27	100	231
NILF	1	6	1	2	90	100	3,377
Total	4	49	11	2	34	100	10,363
Situation in 2007			*Destinations in 2008*				
At or below FMW	30	53	5	4	9	100	396
Above FMW	4	88	2	1	4	100	5,100
Self-emp	1	10	82	1	6	100	1,222
Unemploy	12	30	3	22	34	100	213
NILF	1	6	2	3	89	100	3,388
Total	4	49	11	2	34	100	10,319

Notes: Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: HILDA Release 8.
Population: All responding persons aged 21 or over in all waves (unbalanced panels).

Table B.4: Mobility tables for adult FMW workers, thousands

	At or below FMW	Above FMW	Self-employed	Unemp-loyed	NILF	Total	n
Situation in 2001			*Destinations in 2002*				
At or below FMW	187	333	29	13	65	627	475
Above FMW	265	5,004	176	98	277	5,819	4,764
Self-emp	30	140	1,265	20	120	1,575	1,424
Unemploy	35	129	19	132	114	428	340
NILF	47	231	86	113	4,131	4,607	3,777
Total	564	5,837	1,575	375	4,707	13,058	10,780
Situation in 2002			*Destinations in 2003*				
At or below FMW	209	301	15	26	52	603	438
Above FMW	234	5,004	133	81	280	5,733	4,619
Self-emp	28	157	1,284	14	96	1,578	1,331
Unemploy	29	139	17	100	99	384	300
NILF	52	231	89	127	4,134	4,633	3,566
Total	550	5,831	1,539	349	4,661	12,931	10,254
Situation in 2003			*Destinations in 2004*				
At or below FMW	229	291	28	26	56	631	425
Above FMW	202	5,219	231	60	273	5,985	4,658
Self-emp	24	126	1,196	9	103	1,458	1,245
Unemploy	13	116	11	86	93	319	233
NILF	59	288	90	99	4,163	4,699	3,461
Total	527	6,039	1,556	281	4,689	13,092	10,022
Situation in 2004			*Destinations in 2005*				
At or below FMW	194	268	45	19	47	573	409
Above FMW	282	5,416	138	90	254	6,181	4,703
Self-emp	17	154	1,283	13	86	1,553	1,265
Unemploy	23	102	8	70	69	272	212
NILF	87	293	117	101	4,164	4,762	3,454
Total	603	6,234	1,591	292	4,621	13,341	10,043
Situation in 2005			*Destinations in 2006*				
At or below FMW	220	316	24	19	49	628	448
Above FMW	283	5,561	162	64	263	6,333	4,956
Self-emp	31	107	1,336	11	107	1,592	1,320
Unemploy	32	127	10	63	97	329	226
NILF	82	238	76	130	4,161	4,686	3,385
Total	648	6,349	1,608	287	4,676	13,568	10,335
Situation in 2006			*Destinations in 2007*				
At or below FMW	184	419	22	11	45	681	489
Above FMW	230	5,810	153	87	280	6,560	4,991
Self-emp	21	172	1,300	15	110	1,619	1,275
Unemploy	28	87	9	69	72	264	231
NILF	37	259	68	117	4,198	4,678	3,377
Total	499	6,748	1,552	298	4,705	13,803	10,363
Situation in 2007			*Destinations in 2008*				
At or below FMW	167	293	27	22	48	556	396
Above FMW	306	6,135	152	84	283	6,959	5,100
Self-emp	21	150	1,271	9	101	1,552	1,222
Unemploy	34	86	8	62	96	286	213
NILF	54	281	89	124	4,235	4,783	3,388
Total	582	6,944	1,548	300	4,762	14,136	10,319

Notes: First six columns show thousands. Final column (n) shows actual sample size (ie. individuals, not thousands).
Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: HILDA Release 8.
Population: All responding persons aged 21 or over in all waves (unbalanced panels).

Table B.5: Mobility tables for earnings quintiles, percentages

	Earnings quintiles					Self	Unemp	NILF	Total	n
	Bottom	Second	Middle	Fourth	Top					
Situation '01				Destinations in 2002						
Bottom	44	21	13	5	2	3	3	9	100	1,082
Second	14	40	23	8	2	3	4	7	100	1,227
Middle	6	16	42	22	5	2	1	5	100	1,094
Fourth	5	7	15	45	21	3	1	4	100	1,202
Top	2	4	5	15	66	4	1	4	100	1,227
Self-emp	2	2	2	2	3	79	1	8	100	1,447
Unemploy	16	11	6	4	3	3	30	25	100	483
NILF	4	2	1	1	1	2	4	86	100	4,152
Total	9	10	10	10	10	11	4	35	100	11,914
Situation '02				Destinations in 2003						
Bottom	48	21	9	6	2	2	5	7	100	1,028
Second	16	38	23	10	3	2	2	6	100	1,113
Middle	7	21	38	22	4	2	1	6	100	1,142
Fourth	3	7	19	44	20	2	1	5	100	1,190
Top	2	3	5	18	65	3	1	4	100	1,241
Self-emp	3	2	2	1	4	81	1	6	100	1,342
Unemploy	17	12	9	3	4	3	27	25	100	415
NILF	3	2	1	1	1	2	3	86	100	3,898
Total	9	10	10	10	10	11	3	35	100	11,369
Situation '03				Destinations in 2004						
Bottom	48	20	11	4	2	3	4	9	100	1,079
Second	17	41	21	9	2	3	1	5	100	1,064
Middle	7	17	40	21	5	3	1	4	100	1,181
Fourth	3	8	16	44	20	4	1	4	100	1,165
Top	2	3	4	15	66	5	1	4	100	1,252
Self-emp	2	2	2	1	4	81	1	7	100	1,263
Unemploy	16	12	8	3	3	2	29	25	100	366
NILF	4	2	2	1	1	2	3	85	100	3,798
Total	10	10	10	10	11	11	3	34	100	11,168
Situation '04				Destinations in 2005						
Bottom	48	21	10	4	3	3	3	8	100	1,104
Second	17	40	22	8	3	2	3	7	100	1,148
Middle	8	24	35	21	6	1	1	4	100	1,126
Fourth	3	6	20	45	19	2	1	4	100	1,165
Top	2	2	4	16	67	4	1	3	100	1,242
Self-emp	2	1	2	3	3	82	1	6	100	1,278
Unemploy	21	13	10	3	3	2	22	26	100	351
NILF	4	2	2	1	1	2	3	84	100	3,816
Total	10	11	10	10	11	11	3	34	100	11,230
Situation '05				Destinations in 2006						
Bottom	47	22	9	5	2	3	4	9	100	1,211
Second	16	41	23	9	2	1	2	5	100	1,240
Middle	8	19	38	22	6	3	1	4	100	1,169
Fourth	4	6	19	43	20	2	1	4	100	1,247
Top	2	4	4	18	65	4	0	4	100	1,307
Self-emp	2	1	1	2	2	84	1	7	100	1,329
Unemploy	25	11	7	3	3	2	20	28	100	336
NILF	4	2	1	1	1	2	4	86	100	3,765
Total	10	11	10	11	11	11	3	34	100	11,604

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Table B.5: Mobility tables for earnings quintiles, percentages (continued)

	Earnings quintiles					Self	Unemp	NILF	Total	n
	Bottom	Second	Middle	Fourth	Top					
Situation '06			*Destinations in 2007*							
Bottom	46	23	10	4	3	3	3	7	100	1,258
Second	17	40	21	10	3	2	2	6	100	1,244
Middle	7	19	40	24	3	2	1	4	100	1,216
Fourth	4	6	18	47	18	3	1	4	100	1,213
Top	1	3	4	18	67	2	1	5	100	1,322
Self-emp	2	3	3	2	3	80	1	7	100	1,284
Unemploy	29	12	7	4	1	2	24	21	100	377
NILF	4	2	2	1	1	1	3	85	100	3,784
Total	10	11	11	11	11	10	3	33	100	11,698
Situation '07			*Destinations in 2008*							
Bottom	49	21	9	3	2	2	4	10	100	1,229
Second	19	40	24	7	3	3	1	4	100	1,250
Middle	7	22	39	21	4	1	1	4	100	1,276
Fourth	4	8	18	45	20	1	1	4	100	1,275
Top	3	2	4	17	66	4	1	3	100	1,284
Self-emp	2	2	2	2	3	81	1	7	100	1,235
Unemploy	23	9	6	6	2	2	21	32	100	347
NILF	3	2	2	1	1	2	4	85	100	3,750
Total	11	11	11	11	11	10	3	33	100	11,646

Notes: Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: HILDA Release 8.
Population: All responding persons in all waves (unbalanced panels).

Table B.6: Mobility tables for earnings quintiles, thousands

	Earnings quintiles					Self	Unemp	NILF	Total	n
	Bottom	Second	Middle	Fourth	Top					
Situation '01				Destinations in 2002						
Bottom	646	304	182	74	35	39	49	125	1,454	1,082
Second	214	618	360	132	34	39	56	105	1,559	1,227
Middle	76	217	561	298	66	33	18	69	1,339	1,094
Fourth	79	99	219	678	312	39	20	53	1,499	1,202
Top	33	53	67	212	948	59	19	54	1,444	1,227
Self-emp	37	38	30	32	43	1,277	20	130	1,607	1,447
Unemploy	104	72	40	23	21	21	194	161	636	483
NILF	186	100	60	49	58	95	187	4,430	5,163	4,152
Total	1,376	1,501	1,519	1,497	1,518	1,602	564	5,127	14,702	11,914
Situation '02				Destinations in 2003						
Bottom	663	290	125	76	30	28	63	103	1,378	1,028
Second	226	543	331	141	45	27	33	81	1,428	1,113
Middle	99	302	552	316	61	29	20	86	1,465	1,142
Fourth	40	102	272	639	284	27	15	67	1,445	1,190
Top	31	41	71	263	970	49	18	57	1,501	1,241
Self-emp	40	32	35	21	62	1,287	17	98	1,591	1,342
Unemploy	89	67	50	15	23	18	145	132	537	415
NILF	178	108	62	42	38	93	178	4,423	5,122	3,898
Total	1,366	1,483	1,498	1,513	1,513	1,558	488	5,048	14,467	11,369
Situation '03				Destinations in 2004						
Bottom	711	300	165	57	31	43	53	136	1,496	1,079
Second	244	609	308	139	34	49	14	78	1,475	1,064
Middle	106	262	609	323	75	46	21	62	1,504	1,181
Fourth	49	118	237	665	294	57	21	59	1,501	1,165
Top	35	41	63	238	1,028	74	13	68	1,560	1,252
Self-emp	33	30	23	21	54	1,201	9	109	1,480	1,263
Unemploy	79	60	38	17	17	12	139	121	481	366
NILF	193	99	79	76	57	96	164	4,417	5,183	3,798
Total	1,450	1,518	1,522	1,535	1,591	1,577	434	5,051	14,679	11,168
Situation '04				Destinations in 2005						
Bottom	745	319	152	55	41	50	54	121	1,537	1,104
Second	257	600	328	114	44	25	40	100	1,510	1,148
Middle	118	357	528	309	93	21	20	58	1,503	1,126
Fourth	51	87	313	700	287	28	14	64	1,544	1,165
Top	37	39	68	256	1,051	60	12	53	1,576	1,242
Self-emp	34	23	30	40	51	1,288	16	89	1,570	1,278
Unemploy	97	58	47	15	14	8	103	118	459	351
NILF	227	123	86	63	44	127	173	4,418	5,261	3,816
Total	1,566	1,606	1,552	1,553	1,623	1,607	433	5,020	14,959	11,230
Situation '05				Destinations in 2006						
Bottom	749	351	141	84	28	47	58	151	1,610	1,211
Second	252	648	361	136	38	17	27	83	1,561	1,240
Middle	124	297	583	338	97	39	20	56	1,553	1,169
Fourth	58	101	307	673	322	33	19	64	1,577	1,247
Top	30	60	61	290	1,041	58	4	62	1,606	1,307
Self-emp	34	24	21	26	36	1,349	11	107	1,608	1,329
Unemploy	117	52	34	15	15	10	93	132	467	336
NILF	212	114	70	51	44	80	189	4,491	5,250	3,765
Total	1,575	1,646	1,578	1,612	1,621	1,633	421	5,146	15,232	11,604

Table B.6: Mobility tables for earnings quintiles, thousands (continued)

	Earnings quintiles					Self	Unemp	NILF	Total	n
	Bottom	*Second*	*Middle*	*Fourth*	*Top*					
Situation '06				Destinations in 2007						
Bottom	744	382	168	64	48	51	51	120	1,628	1,258
Second	275	672	347	159	55	30	34	92	1,665	1,244
Middle	105	312	645	386	56	26	21	59	1,610	1,216
Fourth	70	95	290	748	287	41	21	57	1,608	1,213
Top	23	42	63	288	1,101	41	10	75	1,644	1,322
Self-emp	36	41	42	32	52	1,303	15	111	1,632	1,284
Unemploy	127	52	31	16	6	9	103	91	434	377
NILF	217	119	100	40	37	73	178	4,497	5,261	3,784
Total	1,598	1,715	1,686	1,733	1,641	1,573	432	5,102	15,482	11,698
Situation '07				Destinations in 2008						
Bottom	843	365	152	53	33	37	69	172	1,724	1,229
Second	310	666	405	119	44	43	25	62	1,675	1,250
Middle	117	379	672	361	77	17	22	71	1,715	1,276
Fourth	71	134	315	779	343	23	16	69	1,749	1,275
Top	46	34	72	286	1,109	63	13	54	1,677	1,284
Self-emp	31	37	32	28	45	1,277	10	107	1,568	1,235
Unemploy	98	38	25	25	7	9	89	137	427	347
NILF	185	116	85	48	57	89	193	4,529	5,302	3,750
Total	1,700	1,769	1,758	1,700	1,714	1,558	437	5,201	15,836	11,646

Notes: First six columns show thousands. Final column (n) shows actual sample size (ie. individuals, not thousands).
Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: HILDA Release 8.
Population: All responding persons in all waves (unbalanced panels).

Table B.7: Mobility tables for earnings quintiles, adults, percentages

	Earnings quintiles					Self	Unemp	NILF	Total	n
	Bottom	Second	Middle	Fourth	Top					
Situation '01				Destinations in 2002						
Bottom	42	22	13	6	3	4	3	8	100	979
Second	19	39	21	8	2	2	3	7	100	1,052
Middle	10	18	37	20	6	3	1	4	100	1,043
Fourth	6	6	17	43	21	2	1	4	100	1,116
Top	2	3	4	15	65	4	1	4	100	1,049
Self-emp	3	2	2	2	3	80	1	8	100	1,424
Unemploy	16	10	7	3	3	4	31	27	100	340
NILF	2	1	1	1	1	2	2	90	100	3,777
Total	9	10	10	10	10	12	3	36	100	10,780
Situation '02				Destinations in 2003						
Bottom	45	23	10	6	2	3	4	7	100	934
Second	21	39	21	9	2	1	1	6	100	988
Middle	8	18	38	21	5	2	1	6	100	992
Fourth	4	7	19	45	19	2	1	4	100	1,045
Top	2	3	5	17	65	4	1	4	100	1,098
Self-emp	3	2	2	1	4	81	1	6	100	1,331
Unemploy	16	12	8	3	5	4	26	26	100	300
NILF	2	2	1	1	1	2	3	89	100	3,566
Total	9	10	10	10	10	12	3	36	100	10,254
Situation '03				Destinations in 2004						
Bottom	45	22	10	6	1	5	3	8	100	937
Second	21	37	23	7	3	3	1	5	100	966
Middle	8	19	40	19	6	3	1	4	100	1,034
Fourth	4	7	16	46	20	3	1	4	100	1,040
Top	3	2	4	16	65	5	1	4	100	1,106
Self-emp	3	1	2	1	4	82	1	7	100	1,245
Unemploy	14	11	6	5	5	3	27	29	100	233
NILF	2	1	2	1	1	2	2	89	100	3,461
Total	10	10	10	10	11	12	2	36	100	10,022
Situation '04				Destinations in 2005						
Bottom	46	21	12	4	2	5	3	7	100	992
Second	23	39	19	8	3	1	2	5	100	995
Middle	10	23	36	19	6	2	1	3	100	998
Fourth	3	5	21	44	21	1	1	3	100	1,007
Top	2	2	5	18	64	4	1	4	100	1,120
Self-emp	2	1	2	2	3	83	1	6	100	1,265
Unemploy	18	14	5	6	4	3	26	25	100	212
NILF	3	2	1	1	1	2	2	87	100	3,454
Total	10	10	10	10	11	12	2	35	100	10,043
Situation '05				Destinations in 2006						
Bottom	49	23	9	5	2	4	2	6	100	1,044
Second	21	37	21	10	2	1	1	5	100	1,053
Middle	9	17	38	21	7	3	2	4	100	1,059
Fourth	4	7	20	44	20	2	1	4	100	1,114
Top	4	2	5	16	66	4	0	4	100	1,134
Self-emp	3	1	1	2	2	84	1	7	100	1,320
Unemploy	24	10	7	3	4	3	19	29	100	226
NILF	3	1	1	1	1	2	3	89	100	3,385
Total	11	10	10	10	11	12	2	34	100	10,335

Table B.7: Mobility tables for earnings quintiles, adults, percentages (continued)

	Earnings quintiles					Self	Unemp	NILF	Total	n
	Bottom	Second	Middle	Fourth	Top					
Situation '06				Destinations in 2007						
Bottom	47	23	12	4	3	3	2	7	100	1,081
Second	20	39	21	9	3	2	1	4	100	1,098
Middle	8	20	38	23	4	2	1	4	100	1,058
Fourth	5	5	18	48	17	3	1	3	100	1,076
Top	1	3	4	18	67	2	1	5	100	1,167
Self-emp	3	2	2	1	3	80	1	7	100	1,275
Unemploy	18	11	9	3	2	3	26	27	100	231
NILF	2	2	1	1	1	1	2	90	100	3,377
Total	10	10	10	11	10	11	2	34	100	10,363
Situation '07				Destinations in 2008						
Bottom	49	20	11	4	2	4	3	7	100	1,047
Second	21	39	21	9	3	2	1	4	100	1,079
Middle	10	19	39	21	4	1	1	5	100	1,142
Fourth	4	5	19	46	21	2	0	3	100	1,097
Top	3	2	4	16	67	4	1	3	100	1,131
Self-emp	3	2	2	2	3	82	1	6	100	1,222
Unemploy	20	8	7	5	2	3	22	34	100	213
NILF	2	2	2	1	1	2	3	89	100	3,388
Total	11	10	11	11	11	11	2	34	100	10,319

Notes: Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: HILDA Release 8.
Population: All responding adult persons in all waves (unbalanced panels).

Table B.8: Mobility tables for earnings quintiles, adults, thousands

	Earnings quintiles					Self	Unemp	NILF	Total	n
	Bottom	*Second*	*Middle*	*Fourth*	*Top*					
Situation '01				Destinations in 2002						
Bottom	533	275	159	80	33	53	32	102	1,267	979
Second	250	513	281	105	26	25	34	87	1,320	1,052
Middle	129	232	467	260	74	40	17	55	1,275	1,043
Fourth	77	84	226	588	284	34	15	48	1,354	1,116
Top	30	39	54	188	804	54	13	49	1,231	1,049
Self-emp	51	24	25	29	42	1,265	20	120	1,575	1,424
Unemploy	66	44	28	13	13	19	132	114	428	340
NILF	89	59	42	40	48	86	113	4,131	4,607	3,777
Total	1,225	1,268	1,282	1,302	1,323	1,575	375	4,707	13,058	10,780
Situation '02				Destinations in 2003						
Bottom	551	280	127	75	29	34	50	86	1,232	934
Second	264	496	274	114	25	17	18	72	1,280	988
Middle	101	222	475	266	65	27	12	81	1,248	992
Fourth	48	83	245	563	242	24	11	47	1,262	1,045
Top	27	38	61	225	852	47	16	47	1,313	1,098
Self-emp	52	30	27	17	58	1,284	14	96	1,578	1,331
Unemploy	61	45	32	12	17	17	100	99	384	300
NILF	105	75	43	30	29	89	127	4,134	4,633	3,566
Total	1,209	1,270	1,284	1,303	1,317	1,539	349	4,661	12,931	10,254
Situation '03				Destinations in 2004						
Bottom	603	287	138	79	18	68	33	110	1,337	937
Second	266	481	294	84	35	43	13	69	1,284	966
Middle	104	244	521	250	77	35	17	48	1,295	1,034
Fourth	47	90	208	612	263	44	14	50	1,328	1,040
Top	42	31	54	225	888	69	9	53	1,371	1,106
Self-emp	40	16	27	16	51	1,196	9	103	1,458	1,245
Unemploy	45	34	20	15	15	11	86	93	319	233
NILF	106	69	72	56	43	90	99	4,163	4,699	3,461
Total	1,254	1,252	1,333	1,335	1,392	1,556	281	4,689	13,092	10,022
Situation '04				Destinations in 2005						
Bottom	625	282	168	58	31	65	43	97	1,368	992
Second	299	520	256	100	34	16	25	70	1,320	995
Middle	130	305	471	249	77	27	17	45	1,320	998
Fourth	46	71	291	596	284	17	15	40	1,360	1,007
Top	31	30	70	248	889	59	9	49	1,385	1,120
Self-emp	36	21	30	38	47	1,283	13	86	1,553	1,265
Unemploy	48	37	14	16	11	8	70	69	272	212
NILF	133	98	59	51	39	117	101	4,164	4,762	3,454
Total	1,348	1,364	1,357	1,355	1,413	1,591	292	4,621	13,341	10,043
Situation '05				Destinations in 2006						
Bottom	683	328	129	77	25	50	27	88	1,407	1,044
Second	295	518	297	137	33	17	18	68	1,383	1,053
Middle	124	236	521	282	96	43	21	51	1,374	1,059
Fourth	51	93	273	617	275	23	14	55	1,400	1,114
Top	55	26	73	224	916	53	2	49	1,397	1,134
Self-emp	41	22	17	25	32	1,336	11	107	1,592	1,320
Unemploy	79	33	24	9	15	10	63	97	329	226
NILF	136	64	49	29	42	76	130	4,161	4,686	3,385
Total	1,463	1,319	1,382	1,400	1,433	1,608	287	4,676	13,568	10,335

Table B.8: Mobility tables for earnings quintiles, adults, thousands (continued)

	Earnings quintiles					Self	Unemp	NILF	Total	n
	Bottom	Second	Middle	Fourth	Top					
Situation '06				Destinations in 2007						
Bottom	702	338	173	60	42	50	36	98	1,498	1,081
Second	289	569	310	128	36	27	19	63	1,442	1,098
Middle	118	286	533	329	63	22	15	55	1,421	1,058
Fourth	77	70	253	677	247	42	18	42	1,424	1,076
Top	18	41	52	264	969	34	9	68	1,456	1,167
Self-emp	52	31	36	24	50	1,300	15	110	1,619	1,275
Unemploy	48	29	24	9	5	9	69	72	264	231
NILF	95	76	66	28	30	68	117	4,198	4,678	3,377
Total	1,399	1,440	1,446	1,519	1,443	1,552	298	4,705	13,803	10,363
Situation '07				Destinations in 2008						
Bottom	732	300	158	58	33	56	49	110	1,498	1,047
Second	309	588	318	129	44	28	20	53	1,490	1,079
Middle	153	291	592	316	60	14	18	74	1,520	1,142
Fourth	61	77	288	708	324	24	5	43	1,530	1,097
Top	46	25	63	239	986	56	12	51	1,478	1,131
Self-emp	40	38	24	25	43	1,271	9	101	1,552	1,222
Unemploy	58	22	19	15	7	8	62	96	286	213
NILF	99	84	73	33	46	89	124	4,235	4,783	3,388
Total	1,499	1,425	1,535	1,523	1,543	1,548	300	4,762	14,136	10,319

Notes: First six columns show thousands. Final column (n) shows actual sample size (ie. individuals, not thousands).
Weighted by longitudinal responding person weights for each pair of waves (extracted from the HILDA Longitudinal Weight File).
Source: HILDA Release 8.
Population: All responding adult persons in all waves (unbalanced panels).

Table B.9: Coefficients and standard errors for dynamic random effects probit models

	No random effects ('Pooled' model)		Random effects No initial conditions		Random effects Initial conditions	
	Coef	SE	Coef	SE	Coef	SE
Intercept	-2.422	(0.073)	-2.730	(0.095)	-2.828	(0.100)
Low paid initial year					0.732	(0.056)
Low paid lagged	1.064	(0.033)	0.767	(0.046)	0.509	(0.048)
Sex: female	0.111	(0.034)	0.179	(0.043)	0.184	(0.046)
Age	0.175	(0.068)	0.201	(0.087)	0.222	(0.092)
Marital status: single	0.102	(0.029)	0.123	(0.037)	0.104	(0.039)
Born ESB	-0.065	(0.047)	-0.083	(0.061)	-0.064	(0.065)
Born NESB	0.057	(0.043)	0.068	(0.057)	0.048	(0.060)
Indigenous	-0.032	(0.120)	-0.035	(0.157)	-0.051	(0.166)
Education: vocational	0.121	(0.044)	0.170	(0.056)	0.188	(0.059)
Education: year 12	0.199	(0.051)	0.270	(0.066)	0.285	(0.069)
Education: year 11 or below	0.257	(0.048)	0.343	(0.061)	0.363	(0.065)
Occupation: managers	0.045	(0.062)	0.049	(0.074)	0.050	(0.077)
Occupation: tech & trades	0.347	(0.061)	0.393	(0.074)	0.351	(0.078)
Occupation: service workers	0.458	(0.057)	0.531	(0.069)	0.518	(0.072)
Occupation: clerical workers	0.160	(0.054)	0.157	(0.066)	0.156	(0.069)
Occupation: sales workers	0.444	(0.070)	0.512	(0.083)	0.490	(0.086)
Occupation: mach & trans	0.357	(0.071)	0.404	(0.086)	0.349	(0.090)
Occupation: labourers	0.646	(0.061)	0.728	(0.074)	0.655	(0.078)
Industry: primary	0.341	(0.073)	0.388	(0.092)	0.367	(0.097)
Industry: utilities	-0.053	(0.157)	-0.028	(0.186)	0.005	(0.192)
Industry: construction	-0.262	(0.091)	-0.293	(0.109)	-0.290	(0.113)
Industry: wholesale	0.153	(0.079)	0.168	(0.094)	0.139	(0.098)
Industry: retail	0.271	(0.065)	0.290	(0.079)	0.258	(0.082)
Industry: accomm, cafes etc	0.351	(0.069)	0.404	(0.085)	0.355	(0.089)
Industry: transport	0.125	(0.075)	0.163	(0.092)	0.131	(0.097)
Industry: inform services	-0.272	(0.132)	-0.270	(0.151)	-0.282	(0.157)
Industry: fin & insur	0.053	(0.097)	0.052	(0.116)	0.032	(0.121)
Industry: business serv	0.163	(0.062)	0.186	(0.075)	0.195	(0.079)
Industry: government	-0.089	(0.074)	-0.106	(0.089)	-0.106	(0.093)
Industry: education	0.222	(0.067)	0.247	(0.082)	0.223	(0.086)
Industry: health & commun	0.234	(0.060)	0.237	(0.074)	0.208	(0.078)
Industry: other services	0.328	(0.068)	0.356	(0.084)	0.317	(0.088)
Union member	-0.234	(0.034)	-0.261	(0.042)	-0.249	(0.043)
Part-time permanent	-0.011	(0.041)	-0.021	(0.049)	-0.031	(0.051)
Full-time casual	0.536	(0.057)	0.631	(0.066)	0.635	(0.068)
Part-time casual	0.519	(0.040)	0.624	(0.049)	0.625	(0.051)
Job tenure	0.075	(0.039)	0.038	(0.048)	0.042	(0.051)
Occupational tenure	-0.169	(0.038)	-0.195	(0.046)	-0.174	(0.049)
Org size: under 20	0.275	(0.038)	0.327	(0.046)	0.291	(0.049)
Org size: 20 to 99	0.212	(0.040)	0.248	(0.048)	0.239	(0.050)
Org size: 100 to 499	0.065	(0.038)	0.060	(0.044)	0.040	(0.046)
Unemployed: under 6 mths	0.079	(0.071)	0.087	(0.079)	0.091	(0.081)
Unemployed: 6 mths +	0.415	(0.229)	0.418	(0.251)	0.309	(0.261)
Non-metropolitan location	0.053	(0.029)	0.075	(0.037)	0.063	(0.039)
Year: 2003	-0.005	(0.045)	-0.027	(0.048)	-0.019	(0.049)
Year: 2004	-0.076	(0.047)	-0.114	(0.051)	-0.110	(0.053)
Year: 2005	-0.004	(0.048)	-0.032	(0.052)	-0.030	(0.053)
Year: 2006	0.037	(0.047)	0.015	(0.052)	0.018	(0.053)
Year: 2007	-0.052	(0.049)	-0.075	(0.054)	-0.071	(0.055)
Year: 2008	0.057	(0.049)	0.050	(0.053)	0.059	(0.055)
Sigma			0.534	(0.035)	0.603	(0.035)
Rho			0.222		0.267	
Log likelihood	-5351		-5291		-5186	
Degrees of freedom	25000		24999		24998	

Notes: Outcome: being low paid in the current year. Omitted categories: not low paid in initial year; not low paid lagged; female, married or de facto; born in Australia; not Indigenous; university education; professional occupation; manufacturing industry; not a union member; full-time permanent employment status; large organisation (employing 500 or more); not unemployed in last year; metropolitan location; year 2002.
Source: HILDA Release 8.
Population: All adult employees (21 to 65 year olds) who were not studying full-time, n = 25,092 observations, 5,092 persons.