Labour Mobility and Low-paid Workers

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Executive Summary

This Report examines recent patterns of labour mobility in Australia, including the migration and commuting behaviour of Australian workers and exploring whether mobility is beneficial to workers in terms of pay and employment prospects.

The Report sheds light on three broad questions which are under-researched in the Australian context:

- whether internal migration and commuting are operating to drive workers to more favourable labour markets, with lower unemployment rates and better employment opportunities;
- whether these processes are operating for low-skilled workers in particular, and how these flows compare to other workers; and
- whether low-skilled workers are benefiting from mobility in terms of wages and employment.

Over the study period (2001-2006), despite continuous economic growth, labour demand continued to be rationed at the national level and total labour underutilisation (underemployment and unemployment) persisted at just under 10 per cent of the available labour supply. From a spatial and demographic perspective, mobility takes on a different role within this context.

Local labour market performance

Australia has a mobile population. According to the 2006 Census of Population and Housing, 16.8 per cent of Australians changed address in the year prior to the Census and of those 9.6 per cent changed Statistical Local Area (SLA). Australian mobility rates in general exceed the UK figure of 10 per cent for the working age population but are probably below the mobility rates found in the US which have been estimated to be 2-3 times higher those of the UK.

Mobility is of interest to economists because orthodox economic theory predicts that labour supply adjustments should reduce disparities by encouraging workers to move to areas of strong labour demand. However, we find that labour force flows in Australia do not act in this way and instead perpetuate the persistence of regional unemployment rate differentials.

Significantly, employment opportunities in Australia have not only been rationed over the study period but have also been spatially concentrated. Regions exhibiting strong employment growth have also experienced strong labour force growth. The resulting mobility patterns have placed low-skilled workers at a disadvantage from the influx of more skilled workers (via migration or changing commuting patterns). The latter have demonstrated a willingness to take jobs that would typically be taken by low-skilled workers.

Similarly, out-migration has occurred in low employment growth regions, with low unemployment rates (due to sluggish labour force growth). Such flows give rise to adverse competition effects, because of strong supply effects from in-commuters and migrants most of whom are skilled. As a consequence, high growth regions may not enjoy lower unemployment because of these supply shifts.

Exacerbating these regional disparities is the strong finding that less educated and lower skilled workers are less likely to move than higher skilled migrants. Less mobile workers not only face competition from higher skilled workers in areas where low-skilled work is growing, but also are “left behind” in regions that are suffering

stagnant labour demand. This means that weaker labour market participants are more dependent on local employment opportunities.

The characteristics of mobile labour

The research used the unconfidentialised version of the Household, Income and Labour Dynamics in Australia (HILDA) Survey, combined with custom tables from the Census at the SLA level, to conduct a detailed analysis of the characteristics of where people live; where they move and commute to; the labour market and housing characteristics of these regions; in conjunction with individual and family characteristics.

The propensity to move by skill is however dependent on how we define low-skill. If low-skill means less than Year 12 education, then skilled workers are more mobile (average 16.8 per cent) than low-skilled workers (average 14.3 per cent). However, the high-skilled occupations are less mobile (average 15.7 per cent) than the low-skilled occupations (18.5 per cent). Examining the low-skilled occupations, we find that 19.1 per cent of labourers in the sample moved between any wave and 17.4 per cent of elementary clerical workers. This finding is likely to relate to the sharply lower home ownership rates and corresponding high rental occupancy experienced by workers in low-skilled occupations.

As the labour market tightened since 2001, the percentage moving declined for each skill group. Mobility is average for employed and unemployed workers in low-skilled occupations and well above average for those not in the labour force and in part-time jobs. While poorly educated male and female workers are less likely to move, males and females in low-skilled occupations have above average migration rates.

Married persons, those with employed spouses, and those with dependents have below average moves while sole parents have significantly higher rates of mobility, especially for the poorly educated workers.

Younger and older workers, who are poorly educated, are more mobile than their skilled counterparts. However, younger workers in low-skilled occupations, while still exhibiting above-average mobility, are less likely to move than their skilled counterparts.

Overall, those below 30 years of age are much more likely to move than older workers. Moving may be considered an investment whose returns accrue in the following years. The young therefore have many more years to reap the benefits of the decision to move, and smaller family and psychic costs to bear in the short-term.

Home owners and those in state housing have below average rates of mobility whereas renters have more than twice the average overall mobility rate, which reflects larger transactions costs for home-owners contemplating moving relative to renters.

Those with difficulties in English have significantly lower rates of mobility while indigenous Australians have above-average rates of mobility.

Factors influencing migration and commuting behaviour

Migration is less likely to result in a worker materially altering their labour market opportunities. More than 50 per cent of moves are motivated by housing-related reasons. The other dominant motivations were work-related (17 per cent of those who moved) and personal (26 per cent of those who moved). The latter include moving to be closer to place of study, health reasons, to join partner or because of a relationship breakdown. Low-skilled persons appear to be less likely to move for work-related reasons than other migrants.

The majority of moves are small distance. With over half of movers only shifting 9 kilometres or less it is unlikely that migration resulted in a material change in local labour market conditions faced by the person. Very few workers moved over 50 kilometres.

Housing-related migration is significantly shorter (around 34 kilometres on average) than migration motivated by work-related (456 kilometres on average), personal (218 kilometres) or neighbourhood (235 kilometres) reasons. Work-related moves most likely involve a shift to new local labour markets with differing economic characteristics.

International evidence suggests that wage differentials do not drive decisions to migrate. Instead, other factors such as housing and the availability of employment opportunities are considered to be dominating influences. The findings in this Report are consistent with that evidence.

The distribution of macroeconomic conditions across regional space is also important. Destination regions for both low-skilled and other migrants have substantially higher employment growth and slightly lower unemployment rates, compared to conditions that exist in the migrant's origin SLA. For low-skilled persons, higher rates of labour force growth offset the higher rates of employment growth, to deliver only fractionally lower unemployment rates in the destination region.

Net out-migration regions have significantly lower employment growth than net in-migration regions, so workers appear to be correctly responding to labour market signals in moving from low employment growth to high employment growth regions. Similarly net in-migration regions have lower unemployment rates than out-migration regions, but only marginally. A possible explanation for this is that labour force growth has been strong for net in-migration regions compared to out-migration regions.

Net in-migration and net in-commuting regions tend to be concentrated in densely populated SLAs along the eastern-seaboard and in capital cities. However, more net in-commuting regions emerge in regional Australia for low-skilled workers than other workers, suggesting that perhaps regional centres are acting as employment hubs for low-skilled workers in the outlying regions.

These results apart, the socio-economic status of a region does influence the probability of moving. Mobility is generally lower in the most disadvantaged regions and in the top ranking decile. This trend is consistent for low-skilled and other movers. This finding is interesting because housing segregation is often cited as a major impediment to mobility for low-skilled workers. We find that if these constraints exist for low-skilled migrants in the most disadvantaged areas, they do not appear to be binding. Both low-skilled and other workers have the highest rates of mobility within capital cities. Around one-quarter of moves occur between non-capital cities to capital cities. Rates of mobility are higher for low-skilled workers moving between non-capital cities to capital cities and lower for low-skilled workers within a capital city, compared to other migrants. Low-skilled persons tend to move towards cities rather than away from them.

The propensity to commute long distances does not appear to be influenced by age; a worker's family situation (marital status, partner's job status, whether they have children, whether they are a sole parent); and whether a worker has completed university education. However, part-time workers and managers are both less likely to have a long commute. Overall, low-skilled workers are less likely to engage in long commuting behaviour relative to all other workers, other things equal. However, low-skilled labourers are more likely to engage in longer commuting, while part-time low-skilled workers are less likely to travel long distances to work.

Occupational and industry mobility

The study also provides detailed analysis of occupational and industry mobility. In terms of occupations, associate professionals and the lower-skilled occupations have above-average mobility rates. However, this result is driven largely by the movements of workers with more than Year 11 education who are working in these occupations. Industry mobility rates are clustered around the overall average, although workers in the services sector are more mobile than others.

Overall, 31 per cent of persons changed industry between any one wave and the next wave. Intermediate production workers, elementary clerical workers and labourers are more likely to change industry, while managers and professionals are less likely. Industry mobility rates are lower for low-skilled persons, with 27 per cent of low-skilled persons changing industry between one wave and the next, versus 33 per cent of other persons. Persons employed in manufacturing, transport and service industries are more likely to change industry, while those employed in government and education are less likely.

Unemployed persons are more likely to change industry and those who do are more likely to be employed (71 per cent compared to 41 per cent), while employed persons who change industry are more likely to be out of the labour force in the subsequent wave or to be unemployed.

Labour market transitions and pay outomes

Two issues were explored in relation to mobility and labour market outcomes: (a) whether mobility improves the probability of employment in a rationed labour market; and (b) whether mobility improves one's pay outcomes once controlling for other influential factors.

In relation to labour market transitions, the unemployed are significantly more likely to move than the employed or those not in the labour force. Further, unemployed movers are more likely to find employment in the following wave than unemployed persons who do not move, although factors other than migration might be influential. Those not in the labour force who move are also more likely to find employment. Migration may be a significant component of renewed job search for heads of households not in the labour force. Finally, those who were employed and move are less likely to be in employment after the move than those who stay put. This is particularly so for the low-skilled. Some of the "employment leakage" is in a higher propensity for movers who were employed to exit the labour force, perhaps signalling retirement as the motive for migration.

Commuting long distances enhances the probability that a person will be employed in the current wave. This is best interpreted as meaning that the willingness to commute long opens up more employment opportunities for a person.

In relation to pay improvements, around 26.1 per cent of the low-skilled workers enjoyed pay improvements between HILDA waves compared to 37.9 per cent of skilled workers who enjoy improved pay. For the low-skilled workers, moving appears to reduce the chances of pay improvement with 24 per cent enjoying higher pay relative to 26.5 per cent who did not move. Moving appears to have no impact on pay outcomes for skilled workers.

However, the descriptive evidence needs to be considered more closely in this regard. The formal econometric analysis which controls for many influential factors finds that while mobility is generally good for workers in terms of improving pay, the low-skilled suffer a reduced likelihood of gaining a pay rise, other things equal. While movement overall outweighs the disadvantage of low skill, the low-skilled workers have lower mobility rates than other workers.

It remains true, then, that even in a period when the Australian economy was growing relatively strongly, the low-skilled seem to be less able to participate in the growth via pay improvement.

Commuting long distance increases the probability of improving pay, as does changing occupation and changing industry. Other positive influences include being less than 30 years of age, having an employed spouse, have a university degree, living in a metropolitan SLA, being a part-time worker, and working in a trade.

Significant negative influences on the probability of enjoying growth in pay include being over 50 years of age, having a disability and being unemployed. Migration does not overcome the disadvantage of being unemployed in this regard.

1 Introduction

1.1 Background

This Report examines recent patterns of labour mobility in Australia, including the migration and commuting behaviour of Australian workers and exploring whether mobility is beneficial to workers in terms of pay and employment prospects.

Orthodox theory posits that labour mobility is the "fluid" that allows the labour market operate efficientlyI It is claimed that regional employment growth disparities which create pockets of unemployment are resolved by the improved job matching that migration engenders. However, mobility can only play this role if barriers to migration are low and inter-regional migration (and commuting patterns) reflect changing spatial labour market conditions.

Recent research from the UK suggests that, at least within cities, few barriers to labour market adjustment exist at the small area level (Gordon, 2003). Interactions between labour markets are strongest between proximate or neighbouring regions and adjustments to disequilibria travel across sub-markets relatively quickly (see Mitchell and Bill, 2006; Bill, Mitchell and Watts, 2006 for empirical application to Australia). Such adjustments occur through commuting and migration; and the majority of migration is through small moves between neighbouring regions.

Despite these adjustments, the Australian labour market does not appear to operate in the way described by neoclassical theory (see Bill and Mitchell, 2006). While labour supply does respond to market signals it does so in an incomplete and lagged fashion which results in persistent pockets of high unemployment in areas of low demand. Migration is also likely to be more significant when the economy is booming than during times of slack. Neoclassical theory ignores this asymmetry.

Gordon (2003) suggests that it is the unevenness in the distribution of employment opportunities which is likely to be the key motivating factor, rather than differentials in the rewards and risks of the destination region, although this remains contested. Over the last decade, as a result of spatially concentrated employment growth Australian regions exhibiting strong employment growth have also experienced strong labour force growth (Mitchell and Bill, 2006). Low-skilled workers, in particular, do not benefit from this growth. They are disadvantaged by the influx of more skilled workers (via migration and/or changing commuting patterns) who are prepared to take low-skill jobs – the so-called "bumping effect". The overall problem is a lack of overall jobs.

This result is confirmed in recent analysis of the Greater Sydney Metropolitan Region (Mitchell and Watts, 2008; Bill, Mitchell and Watts, 2006) which shows that commuting, followed by migration, were the main labour market adjustment mechanisms for both men and women over the last decade or more. Thus considerable leakages exist in local employment creation which means that unemployment is slow to fall in high growth areas. This mobility is particularly detrimental to low-skilled workers in high growth areas.

The Industry Commission (1993) argued that a large proportion of labour market adjustment to shocks occurred via changing labour force participation rates, with migration playing only a minor role. At the state level, labour mobility has been found to reduce interstate unemployment rate differentials (Borland and Suen, 1990; Debelle and Vickery, 1998). Research at the sub-state level shows in-migration favours regions with high employment growth which also have high unemployment rates, due to rapid labour force growth (see Lawson and Dwyer, 2002; McGuire,

2001 and Trendle, 2004). Conversely, out-migration from low employment growth regions slows labour force growth and keeps unemployment lower than otherwise.

In summary, while workers are mobile in Australia:

- Labour force flows do not provide complete adjustment, as evidenced by the persistence of regional unemployment rate differentials;
- Such flows (in-commuting and in-migration) to high growth areas disadvantage low-skilled workers who cannot compete against higher skill workers coming from less advantaged regions; and
- These results also need to be understood in the context of demand-side developments. It is clear that overall employment growth has not been sufficient to generate enough overall jobs (working hours) to satisfy the desires of all the willing workers and this has resulted in the process of regional arbitrage as more able workers migrate to buoyant labour markets.

1.2 Key research questions

Several pressing research questions arise in examining migration and commuting in the Australian context.

How does labour supply adjustment mediate the relationship between unemployment rates, wages and employment growth?

Employment growth only translates into lower unemployment rates if labour supply and the level of frictional unemployment remain constant. Where significant spatial variations in the rate of labour force growth (or its composition) occur, the relationship between employment growth and unemployment becomes more complicated. In some Australian regions, interregional migration patterns appear to be acting to reinforce unemployment disparities, although empirical work in this area is several years out of date and requires updating, especially given the 2006 Australian Census data is now available and more waves have been added to the Household, Income and Labour Dynamics in Australia (HILDA) Survey data.

What are the characteristics of mobile labour, and are low-skilled workers constrained?

Previous studies indicated that along with such characteristics as youth, being single without children and being a renter, the most highly educated are more likely to move. These findings are supported by Australian empirical research to date (see Bill and Mitchell, 2006). The better educated are better able to meet the costs of moving or the expected returns from migration may be higher.

Less qualified workers are alleged to experience greater barriers to migration than professional and managerial employees, which can be attributed to such factors as: income levels, moving costs and barriers to migration arising from the social housing system. An important implication of the lower levels of mobility associated with lower educational attainment is that weaker labour market participants are more dependent on local employment opportunities leading to unemployment.

Similarly, job search remains localised if low-skilled workers decline to commute long distances because commuting costs (associated with length of commute) are not compensated by wage gains. Flood and Barbato (2005) analyse commuting behaviour in HILDA 2003 (Wave 2) and find that elementary service workers, cleaners and elementary sales workers commute the shortest distances of the occupations analysed. Buck *et al.* (2002: 205) note that workers in higher status, non-routine positions and those with greater learning skills are better able to garner the benefits of job change.

The OECD (1997, 1999) note that while average job tenure has remained stable in recent years, job instability and insecurity are more pronounced among less educated workers than among the highly skilled. The earlier segmented labour market literature clearly noted that unlike the human capital theory vision of job change, workers in low-skilled jobs tended to change jobs regularly and cycle between one low paid position and another with spells of unemployment often interspersed and no definable career progression occurring (Doeringer and Piore, 1971). Mitchell *et al.* (2005) find supporting evidence of this using HILDA data.

In assessing the efficiency of labour market flows, the significant question is where people move/commute to and from?

Kauhanen and Tervo (2002) show that more educated workers are more likely to move to a growing region, where the likelihood of advancing their employment prospects is greater. Additionally much evidence points to the intensification of the spatial polarisation of housing and employment and associated declining housing affordability within Australia's major cities, particularly Sydney, Melbourne and Perth. The claim that low income or moderate income workers have had difficulty accessing employment in the city owing to housing constraints and long commutes, has gained increasing traction. Thus it may be that growing differentials in house prices and incomes within and between regions, have worked to impede the mobility of low-skilled workers, as workers outside of high growth regions simply cannot afford to enter the housing markets of growing regions, particularly in buoyant metropolitan labour markets. Australian research, largely drawing on Census data, has documented substantial movements of low-income families away from Australian capital cities. Housing affordability has been linked to such movements among people moving from Sydney to Adelaide (Marshall *et al.*, 2004). Examining FaCS income support recipients, Bradbury and Chalmers (2003) note that there is a trend of net movement out of higher unemployment regions into lower unemployment regions, and into larger labour markets with higher housing costs. People living in high cost regions are more likely to move than those in low cost regions, and people living in low unemployment regions are more likely to move than those in high unemployment regions (Bradbury and Chalmers, 2003).

Is there evidence of movers being forced to take jobs below their level of skill?

Migrants may experience pecuniary returns below those expected, particularly if rapid labour force growth occurring in the most buoyant labour markets has intensified competition. If job rather than price competition occurs (Thurow,1972) movers may be forced to take jobs below their level of skill and formal qualifications, a process also known as "bumping down" (Gordon, 2003; Buck and Gordon, 2000). Thus inside high growth labour markets, low-skilled workers may face greater competition for employment because of commuting and migration responses of neighbouring workers.

Is mobility beneficial? To whom do the benefits and costs accrue?

In the context of migration, Australian research has indicated that movers incur significant short term costs when changing locations, including non-financial costs, such as the loss of information and support networks. While these costs are hopefully offset by future gains, relatively little Australian research has been undertaken into the extent to which moving benefits labour market participants, particularly low-skilled workers. The answer is likely to depend on where low-skilled workers are moving; that is whether migration and commuting are operating to place workers in more favourable labour markets with lower unemployment rates and lower wages.

Simple descriptive analysis using HILDA of employment transitions following moves indicates that the unemployed are more likely to gain employment, while the

employed are less likely to be employed subsequent to a move, and more likely to be unemployed or not in the labour force (see Bill and Mitchell, 2006). US research by Yankow (2003) examines pecuniary returns from migration measured in terms of changes in wages, comparing outcomes for migrants and those who change jobs but do not move. He finds that workers receive a ‘measurable pecuniary return to geographic mobility’ above the return to job changing generally, but the timing of rewards differ substantially by skill. Lower skilled workers receive immediate benefits while the highly educated wait two years to receive the majority of their benefits.

2 International and Australian evidence

2.1 Equilibrium versus disequilibrium views of the labour market

Neoclassical economic theory suggests that capital gravitates towards the place of highest economic reward. Following this logic, low-wage regions should attract capital owing to their lower production costs, which in turn increases labour demand and decreases regional differences in wages and unemployment. Thus a textbook neoclassical interregional equilibrium is characterised by an absence of regional differentials in wage rates and the incidence of unemployment, because labour movements work quickly to eliminate regional differentials (Partridge and Rickman, 2006).

However more complex neoclassical versions of the theory of regional labour markets allow regional pay and unemployment differentials to exist in equilibrium, by introducing variations in regional productivity and the amenity attractiveness of locality to influence wage determination (Beeson and Eberts, 1989; Roback, 1982). Higher productivity raises nominal wage rates, whereas higher household amenity attractiveness lowers nominal wage rates, and both work to raise land costs (Partridge and Rickman, 2006). Factors such as human and physical capital, location, technology and regional public policy are said to be related to productivity, while household amenity attractiveness can depend on natural features of the region such as climate and topography, and person-made features. Then assuming full employment through price adjustment and perfect labour mobility of productive factors, wage levels should be 'such that no firm or household can relocate and improve its economic condition in equilibrium' (Partridge and Rickman, 2006: 52). Any persistent differences in wages and poverty across regions in equilibrium reflect amenity and productivity differentials (Partridge and Rickman, 2006).

While equilibrium-based neoclassical models deny the incidence of involuntary unemployment, they allow for voluntary unemployment and regional equilibrium differentials in unemployment rates using the concept of compensating wage differentials. Accordingly, workers are deemed to be happy accepting higher unemployment and a lower probability of finding work on the basis that there are compensating wage gains and improvements in household amenity attractiveness.

Migration in such models is frictionless and in equilibrium, the utility derived from each region's bundle of amenity, wage rates and unemployment rates should be equal. Such equilibrium-based models suggest that regional household utility is unaffected by regional shifts in labour demand (Partridge and Rickman, 2006).

It is clear that frictions in migration exist, arising, for example, from a sense of place, psychic well-being and moving costs, and in neoclassical models these create long-run utility differentials. In these situations, differences in unemployment rates will persist in equilibrium according to the logic of the models. Partridge and Rickman (1997) argue that these factors operate to impede households from relocating to areas of higher utility, as amenities and expected labour rewards create regional utility differentials. If adjustment costs were non-existent, regional shifts in labour demand could increase overall household welfare since households would relocate to areas with higher utility (Partridge and Rickman, 2006).

These frictions may be greater amongst those on low-incomes which suggest that workers with lower education and skill levels would have lower migration rates (see

Schwartz, 1976; and Yankow, 2003). This argument follows from human capital theory which posits that persons with higher levels of education and experience are more likely to migrate to take advantage of their increased potential for higher returns. In addition, job leads and networks tend to be more informal for low-skilled workers, whose job information comes from family and friends (Holzer, 1996; Ihlanfeldt, 1997). Partridge and Rickman (2006:53) indicate that further limiting the mobility of low-skilled individuals is their reliance on family and friends for support for transportation and child care among other things, which, when taken together, make it risky for them to move.

The US empirical evidence provides mixed results. Many studies commonly assume that the US economy remains in interregional equilibrium without subjecting this assumption to empirical scrutiny (for example, Beeson and Eberts, 1989; Blomquist, Berger and Hoehn, 1988 among others). Greenwood *et al.*, (1991) questioned the assumption of equilibrium in their study of internal migration but could not reject the presumption of equilibrium for most states.

Conflicting evidence exists in the US literature as to the speed of adjustments to regional shocks. Marston (1985) and Blanchard and Katz (1992) conclude that regional labour markets re-equilibrate quickly as migration flows rapidly dissipate the effects of labour demand shocks. However Partridge and Rickman (2003) and Gallin (2004) have found that regional labour markets take years to adjust following labour demand shocks.

However, there are alternative non-neoclassical explanations for the persistent spatial divergence in incomes and wages which promote widening regional differentials. For example, theories of cumulative causation, growth poles, and agglomeration or localised scale economies provide alternative accounts (for example Glaeser *et al.*, 1992; Kaldor, 1970; Krugman, 1991). These theories propose that the productivity differences between regions might be endogenous, and thus convergence, in productivity and incomes is not to be expected, instead predictions suggest that regional outcomes will diverge. For instance, small regional communities may lose the critical mass necessary to induce further economic activity when the population and business-services fall below a certain threshold, so inducing more out-migration and economic decline. On the other hand, regions whose performance is above this threshold thrive and prosper (Partridge and Rickman, 2006).

Until recently studies linking migration and unemployment have largely been undertaken at a macro-level with migration emerging as a strong adjustment mechanism equalising unemployment rates (see Blanchard and Katz, 1992; Decressin and Fatas, 1995, and in the Australian context Debelle and Vickery, 1998). In Australia, studies undertaken on data below the state level have revealed mixed results (see Lawson and Dwyer, 2002; McGuire, 2001 and Trendle, 2004).

This body of work indicates that in-migration has favoured high growth employment regions, often with high unemployment rates, due to rapid labour force growth. Out-migration on the other hand has occurred in low employment growth regions, with low unemployment rates (due to sluggish labour force growth). Thus in some regions interregional migration patterns would appear to be acting to reinforce unemployment disparities.

International studies employing micro-data to examine whether migration improves prospects of re-employment have also had mixed results, either finding no effect or a negative effect (see Podgursky and Swaim, 1990, Bailey, 1991, Shumway, 1991; Herzog and Schlottmann, 1984; Tervo, 2000), although some US studies have found positive effects (see Goss *et al*., 1994; Boehm *et al.*, 1998).

Introducing controls for self selection casts further doubts on the classical premise that labour market participants benefit uniformly from migration (see Pekkala and Tervo, 2002). This finding is compatible with movers being affected by incomplete information; movers may have difficulty obtaining adequate information pre-move about job opportunities in the destination region. Additionally, newly arrived migrants have limited access to the support and information networks embedded in the local area.

An obvious explanation for the negative impact of migration on re-employment lies in where people are moving. Housing factors perhaps dominate employment factors in the choice of the destination region for the unemployed, leading to re-location in less than buoyant labour markets (Bradbury and Chalmers, 2003). Amenity tradeoffs may see a region's attractive physical and cultural features compensate for reduced job opportunities. A transitory negative effect from migration (Mincer, 1978) perhaps also arises from human capital being regionally specific, more useful in the region where it is acquired than in other regions (Pekkala and Tervo, 2002).

In contrast, Ludholm and Malmberg (2006) argue that movers in five Nordic countries studied were in general very satisfied with the overall outcome of migration, even when controlling for other factors, in terms of living environment, social life and employment. The authors argue this outcome may be partly attributable to two-income households, the Nordic welfare state and the possibilities of extended communities.

While neoclassical theories of migration would suggest that moving has to be beneficial, the empirical research is not supportive. Marshall *et al*. (2004) indicates that moving allows some persons to pursue new possibilities but for others it may be motivated by necessity. Whether a move is voluntary or involuntary may be critical in terms of its long-term success. Bell (1996: 27) argues 'it is those who have the least choice over their movements who suffer the greatest disadvantage.' Migration involves economic and psychological costs which are substantial, such as the fees associated with the sale of a home, and the costs of re-establishment in a new neighbourhood, as well as the loss of friends and family. Frequent moves can undermine the effectiveness of community-based programs and employment training (Marshall *et al*., 2004).

Further, movers on low incomes and welfare payments may face 'the increased probability of falling into a cycle of poverty and increasing homelessness, due to higher living costs, particularly if they have trouble finding work in the first few months' (Marshall *et al*., 2004: 12). Some research links homelessness with frequency of moves. Frequent movers may face challenges accessing information about community services and employment opportunities. As a result of severing local networks youth who move can suffer social isolation and lower self-esteem (Wulff and Bell, 1997; Bell, 1996).

A number of studies have explored the likelihood of re-employment following migration of the unemployed (these are reviewed in Herzog *et al.*, 1993 and Pekkala and Tervo, 2002). In the US context, Herzog and Schlottman (1984), Van Dijk *et al. (*1989) and Podgursky and Swaim (1990) all find that migration has a negligible influence on the probability of re-employment. Boehm *et al*. (1998) examine the impact of migration on transitions out of unemployment and from non-participation to active job search using a multi-state model of the hazard rate. Their results suggest migration is related directly and indirectly to transitions to employment (where the indirect effect arises because migration moves workers to more favourable labour markets).

More recently, Tervo (2000) finds no significant effect of migration on reemployment, although he does show migration plays an indirect role by moving workers to more

favourable labour markets with lower unemployment rates. Using the Finnish Longitudinal Population Census file, Pekkala and Tervo (2002) find that while the propensity to obtain work is slightly higher amongst unemployed migrants, the positive effect of moving diminishes once other personal characteristics are accounted for. Moreover when controls for self-selection are introduced, an insignificant or negative effect on employment status emerges. Pekkala and Tervo (2002: 621) conclude that '…the relative better quality of the migrants rather than the act of moving itself causes an improvement in re-employability. Hence migration alone may not be a very effective mechanism for alleviating individual unemployment.'

Australian studies which have employed longitudinal micro-data, useful in untangling causation, have tended to focus on the question of where the unemployed have moved, rather than whether moving *per se* is beneficial (although the two questions are difficult to separate). Bradbury and Chalmers (2003) use the one per cent Department of Family and Community Services' Longitudinal Data Set (LDS) to estimate a relationship between personal characteristics, regional characteristics and the outcomes of people who have moved while receiving unemployment benefit between January 1996 and June 2000. They find that moving into areas with higher unemployment rates marginally increases overall income support.

Marshall *et al*. (2004) conduct a qualitative postal survey of a sample of movers drawn from the LDS who moved from metropolitan to non-metropolitan Australia. While not controlling for other factors, the authors find that only 20 per cent of the unemployed indicated they were much better off after moving and for many full-time employment did not eventuate. The unemployed were the most likely of all payment recipients to move back to the country, or to be unsure of whether movement would take place in the following 12 months.

Unfortunately the Australian studies to date, with the exception of Bill and Mitchell (2006) have not directly addressed the self-selection problem which relates to the strong correlation between education, non-observable ability, employability and the decision to migrate. Accordingly, migrants become a self-selecting group and advanced econometric methods have to be employed to avoid generating biased estimates of the impact of migration on labour market outcomes.

Bill and Mitchell (2006) examine 4 waves of HILDA data to determine the migration propensity of the unemployed and transition rates to employment (using the instrumental variables, or IV, approach to address issues of self-selection). The results confirm that the unemployed are a highly mobile group (engaging in higher rates of repeat migration). They also show that moving, in itself, is not particularly beneficial for the unemployed after personal characteristics, the socio-economic decile of the origin region and selectivity bias are controlled.

Macroeconomic considerations are rarely considered in this context. As noted in the introduction, over the last decade, employment opportunities in Australia have been rationed due to macroeconomic policy which failed to generate enough jobs for all those seeking them (Mitchell and Muysken, 2008). The job ration was spatially concentrated (Mitchell and Bill, 2006) and regions exhibiting strong employment growth have also experienced strong labour force growth (Mitchell and Bill, 2006). Low-skilled workers, in particular, do not benefit from this growth. They are disadvantaged by the influx of more skilled workers (via migration or changing commuting patterns) who are prepared to take low-skill jobs.

This suggests that the location to which workers move is an additional factor influencing re-employment. Kauhanen and Tervo (2002) indicate that the more educated are more likely to move to a growing region, where the likelihood of advancing their employment prospects is greater. Australian research, largely

drawing on Census data, has documented substantial movements of low-income families away from Australian cities (Bell, 1995, Flood, 1992, Bell and Maher, 1995, Wulff and Bell, 1997). Housing affordability has been linked to such movements among people moving from Sydney to Adelaide (Marshall *et al*., 2004). Bradbury and Chalmers (2003) however caution that interpretation of Census based results is difficult because it is unclear whether the person's period of unemployment may have occurred immediately after or coincided with the decision to move. Using the FaCS LDS which facilitates the tracking of unemployed persons pre- and post-move, Dockery (2000) and Morrow (2000) find significant movement from non-metropolitan regions to metropolitan regions of welfare recipients[1]. Conflict exists as to whether housing or labour market conditions were the chief motivator of these movements.

Dockery (2000: 419) notes 'although the unemployed are generally more mobile than persons on other forms of income support, their locational decisions do not seem responsive to regional employment opportunity.' However his results are only weakly significant and the effect is small relative to overall determinants of a move. Marshall *et al* (2004) find that housing affordability is a key motivator for the out-migration of low-income people from Sydney and Adelaide. In contrast, Bradbury and Chalmers (2003), employing a similar dataset, find labour market conditions are important for the unemployed. There is a trend of net movement out of higher unemployment regions into lower unemployment regions, and into larger labour markets with higher housing costs. The net movement to larger labour markets happens in the first year of payment receipt. People living in high cost regions are more likely to move than those in low cost regions, and people living in low unemployment regions are more likely to move than those in high unemployment regions (Bradbury and Chalmers, 2003). This pattern isn't replicated amongst non-unemployed welfare recipients, where movement appears to be towards high unemployment regions and away from larger labour markets.

2.2 Commuting as mobility

Conventional wisdom in regional science would predict that low-skilled workers have shorter commutes because commuting costs (associate with length of commute) are not compensated by possible wage premiums. Gobillon *et al.* (2003) provides several other reasons why workers may not be able to access employment in distant locations, all of which are likely to be magnified for low-skilled workers. For instance, workers living far away from jobs face reduced access to and quality of job information and employers favour locally-based recruiting methods. Financial incentives are insufficient to motivate distant workers to search, because search costs are not compensated by wages. Also differentials in dwelling rents are too great to encourage relocation.

Furthermore inadequate public transport, which low-income persons are likely to be more reliant on, may exacerbate these issues. While employers may be prepared to employ highly skilled workers living further away whose skills and experience are much sought after, in the case of the low-skilled a worker, employers perhaps do not perceive a worker who lives in a distant location from the workplace as a direct substitute for a worker who lives close to work.

However residential location decisions are complex, even for low-skilled workers who may face income constraints to their capacity to lengthen commutes. When making residential location decisions a number of factors are considered such as: schooling, location of friends and relatives and the amenity of the chosen residential area, all of which may take precedence over a strategic choice of location designed to minimise commutes. Household location decisions are also jointly determined by household members, and in such a case we might expect individual commuters in multiple

person households to face slightly longer commutes as they attempt to minimise the overall household commute.

Additionally, recent debate points to growing issues of housing affordability and the intensification of spatial polarisation on the basis of income within Australia's major cities, particularly Sydney. Changes in the urban form of Australian cities could perhaps be creating new commuting patterns and commuting problems for workers, particularly low-skilled (low-income) workers who may not be able to afford to access inner-city housing markets with optimal access to employment. An associated debate, both here and overseas, is that growing inner-city skill shortages reflect the way housing price hikes have worked to exclude low and moderate income residents from high employment, inner-city regions.

Berry (2006: iii) has undertaken a comprehensive review of the link between housing affordability and the labour market, particularly as the issue relates to the Australian labour market. His central thesis is that:

> *…urban housing and labour markets may be inefficiently articulated over space with consequences of shortages and recruitment difficulties in some lower paid but functionally necessary occupations and/or higher wages to offset high housing costs or more expensive commuting. In the latter context, a series of negative second-order externality effects may arise due to the sharp rise in car dependence commuting.*

The downside of increasing commuting times, are increased cost, social stress**,** traffic congestion and environmental pollution (Yates, 2005).

Flood and Barbato (2005) argue that commuting has three negative impacts on people's lives: impacting on their psychological and emotional well-being; impacting on people's relationships and interaction with their families, neighbourhoods, communities and workplaces; and finally impacting on their physical and social environment. As Pocock and Masterman-Smith (2006: 7) note, 'issues of commuting are very important to household welfare', and a dual earner household in Sydney is losing nine and a half hours to commuting in Sydney in 2002. Recent work by Dodson and Sipe (2006) has indicated that rising petrol prices may be having severe impacts on those with poor employment and service accessibility in the outer suburbs and city fringe. For low income households the increasing cost of longer commutes, associated with higher petrol prices, is likely to impact on an already constrained household budget.

Thus, while conventional theory might argue that low-skilled workers are likely to face shorter commutes, inner-city housing market affordability may be lengthening commutes for some low-income workers in metropolitan Australia. Careful empirical analysis does not seem to support the argument that changes in urban form and housing affordability are lengthening commutes for the low-skilled. Yates (2005) and Yates *et al*. (2006a, b) use custom Census data to examine commuting patterns by occupation and reveal that only some occupations (namely computing professionals) had an increased proportion of workers facing long commutes – because they chose to live further out and their work was more likely to be located in inner city locations. They find that there are high levels of self-containment at a broad regional level within these key metropolitan regions, approximately half of the workforce lives locally. Most workers had reduced (between 1996 and 2001) their incidence of commuting beyond their own statistical subdivision (SSD) (of which there are 14 in the Sydney major statistical region).

Bill, Mitchell and Watts (2006) use aggregate 2001 Census Journey to Work data by Statistical Local Area (SLA), and a spatial aggregation algorithm to develop largely self-contained commuting areas in Sydney, Melbourne and Brisbane. The results reveal some variation in commuting patterns across occupations but little evidence of longer commutes for the low-skilled. Longer commutes were recorded for high skilled

workers and tradespersons. Importantly, high-skilled occupations display higher rates of excess commuting (that is commuting not strictly determined by the spatial distribution of housing and occupational employment), reflecting that factors other than job-proximity may influence their locational decisions. In Chapter 4, we describe how commuting behaviour is being analysed and used to define functional economic regions in Australia (Mitchell, 2008).

3 Data description and sources

3.1 Mobility - migration and commuting

Migration data in custom tables was provided by the Australian Bureau of Statistics (ABS) from the 2006 Census at the Statistical Local Area (SLA) level of geography as defined in 2006. The SLA represented the finest spatial resolution available and the data is available for two periods, usual residence one year ago and five years previously. A custom matrix of migration flows between all Australian SLAs was acquired for all persons and low-skilled persons (defined as persons who did not complete Year 12 and who have no further formal qualification). Origin regions in the migration matrices were then defined for both migrations one year previously and migrations five years previously.

The commuting data was acquired from the ABS in the form of a custom Journey to Work Data Matrix from the 2006 Census. The matrix provides worker flows between origin (SLA of usual residence) and destination regions (SLA of workplace) calculated for all Australians who commuted for work in 2006. It was customised to distinguish between flows by low-skilled persons and all other workers.

3.2 Household, Income and Labour Dynamics in Australia (HILDA) Survey

We use HILDA, now in its sixth wave, to define the sequence of events so that we can more confidently isolate the impact of employment on migration and mobility outcomes. We constructed a cross-sectional pooled dataset of the working age population from the six waves comprising 42,091 observations (or persons who responded to the full survey). Persons under the age of 15 and full-time students have been deleted from the dataset. Persons who did not state their education qualifications have also been excluded. Low-skilled people for the purposes of the analysis are defined as persons whose highest qualification is Year 11 or below (excepting where we compare this cohort with an occupational demarcation of skill).

Data used in the regression models in Chapter 7 and Tables examining transition rates, is based on a restricted dataset in which Wave 1 records have been deleted (records). Regional level data has been merged from the 2006 Census of Population and Housing using SLA level spatial identifiers on the unconfidentialised version of HILDA.

3.3 House price data

House price data, for each state's metropolitan and non-metropolitan region was drawn from Commonwealth Bank and Housing Institute of Australia's (HIAs) Housing Affordability Report, which details median dwelling prices by state broken down into metropolitan and non-metropolitan areas for established and new dwellings.

3.4 Survey of Labour Mobility

The ABS Labour Force Survey (LFS), which is conducted monthly, provides information on the labour market activity of the usual resident civilian population of Australia aged 15 years and over, as well as estimates of the employed and unemployed population, the unemployment rate and the labour force participation rate (ABS, 2007). The Labour Mobility Survey was conducted in February 2006 as a supplement to the LFS. It provided information about people aged 15 years and over who, within the 12 months to February 2006, either changed employer/business in

their main job, or had a change in work with their current employer/business for whom they had worked for one year or more (ABS, 2007). People who had worked with their employer/business at February 2006 for one year or more were asked whether, in the 12 months to February 2006, they had changed the number of usual hours worked. Employees (excluding owner managers of incorporated enterprises) were also asked whether they had been promoted, transferred to a different position, or changed occupation in the 12 months to February 2006 (ABS, 2007). Employees who reported such changes were considered to have had some change in work in the 12 months to February 2006.

Industry and occupation changes are indicated at the 1-digit level (using ANZSIC, 1993 and ASCO, 1997 respectively). The LFS is based on a 'multi-stage area sample' of private dwellings and a 'list sample' of non-private dwellings and covers about 0.5 per cent of the population of Australia. The ABS (2007) describes the survey process, whereby, households are interviewed each month for eight months and one- eighth of the sample is replaced each month. In February 2006, the number of fully responding individuals was 63,831. The scope of the LFS was people aged 15 years and over and excluded the following (ABS, 2007): (a) members of the permanent defence forces; (b) certain diplomatic personnel of overseas governments, customarily excluded from the census and estimated population counts; (c) overseas residents in Australia; and (d) members of non-Australian defence forces (and their dependants).

Additional exclusions for the Labour Mobility Survey were: (a) students at boarding schools; (b) institutionalised persons (e.g. patients in hospitals; residents of homes, such as retirement homes and homes for persons with disabilities; and inmates of prisons); and (c) persons living in very remote parts of Australia who would otherwise have been within scope of the survey.

3.5 Defining low-skill

There is no clear definition of what constitutes a low-skill worker. We could define it in educational terms or in occupational terms. Each has its advantages and disadvantages. The former does not preclude experiential informal skill development.

Overall, the low-skilled would comprise 30 per cent of the sample used if defined in educational terms (workers who did not complete Year 12 and have no further formal qualification) and around 10 per cent if we take the bottom two ASCO categories of elementary clerical workers and labourers. There is around 51 per cent overlap between the two classifications indicating that the workers with low education are dispersed across the occupational structure as shown in Table 6.1.

We compare both definitions throughout the report where appropriate but rely mostly on the educational definition especially in the regression analysis because it allows occupational controls. We also define skilled workers as all other workers (other than the low-skilled) whether on the basis of education or occupation.

4 Functional economic regions

4.1 Overview

The Report also deploys the new socio-economic geography for Australia in the form of the CofFEE Functional Economic Regions (FER)[2] developed by Mitchell (2008). The chosen regionalisation or spatial aggregation of data is based on an analysis of economic behaviour in the form of commuting flows. The underlying hypothesis that motivated the work is that the development of a geographical classification based on underlying economic behaviour provides new insights into critical issues of regional performance, including unemployment differentials, the impact of industry, infrastructure and changes in local public expenditure on local labour markets. The corollary is that the administrative geographical demarcations currently used by the ABS to collect and disseminate their labour force and Census data – the Australian Standard Geographical Classification (ASGC) - is unsuited to the task of providing a systematic understanding of level of economic interaction within and between neighbouring regions.

Recent Australian studies have analysed spatial patterns of unemployment, housing and related socio-economic phenomena using administratively-defined Australian Standard Geographical Classification (ASGC) spatial aggregations typically at the Statistical Local Area (SLA) and/or Statistical Region (SR) level (for example, O'Connor and Healy, 2002; Lawson and Dwyer, 2002; Baum *et al.*, 2005; Mitchell and Carlson, 2005; Yates, 2005; Yates *et al*., 2006a, 2006b; Mitchell and Bill, 2006, Gregory and Hunter, 1995). Most Australian researchers are reluctant to acknowledge that the interpretation of these spatial data can be compromised by the Modifiable Areal Unit Problem (MAUP), although this problem has long been recognised by geographers. Openshaw (1984:3) says that 'the areal units (zonal objects) used in many geographical studies are arbitrary, modifiable, and subject to the whims and fancies of whoever is doing, or did, the aggregating' and resulting analyses are fraught. In short, chosen spatial groupings must be justified and these aggregations are modifiable.

Just as geographical regions may be defined by physical features, Mitchell (2008) hypothesises that a meaningful socio-economic geography should be defined by socio-economic features of space. It is most unlikely that these "regions" will correspond exactly to a demarcation based on administrative/political criteria. Significant issues arise when erroneous geography is used. First, a poorly delineated geography invokes measurement error. Thus, a local measure such as SLA unemployment, may be unrelated to socio-demographic and policy variables at a similar scale, and lead to spurious causality being detected and misguided policy conclusions. Second, analysing erroneously aggregated spatial data with standard statistical tools will yield results that may not only lack economic meaning, but also suffer bias due to spatial correlation.

Unfortunately, only limited attempts have been made in Australia to create such a "space" (see Watts, Baum, Mitchell and Bill, 2006). Journey-to-work (JTW) data provides information about the interaction between a large number of spatial units and is a useful basis for defining a functional regionalisation. The theoretical basis for demarcating regions based on commuting behaviour is outlined in Watts, Baum, Mitchell and Bill, (2006). It is applicable to any of the possible aggregation methodologies that are available. A commuting area is conceived as a geographical area within which there is a high degree of interactivity (commuting by residents) and is thus the appropriate spatial scale to capture the interplay between labour supply and demand in a particular localised setting. These spatial markets result from both costs of mobility between jobs and the limitations of information networks (Hasluck,

1983). Employers and workers that interact within a functional area are assumed to be well informed and able to respond quickly to changes in market conditions relative to those outside any particular area. While Hasluck (1983) is critical of attempts to create such regionalisations; on balance, we support Green (1997) who sees commuting clusters as revealing the boundaries of local labour demand and supply and hence a sound basis for an 'an alternative geography' for labour market analysis.

Different terminology has been employed to identify these areas including: *Commuting Areas*, *Local Labour Market Areas, Functional Labour Market Areas* and *Commuting Zones*. Early on, Berry (1968) referred to these aggregations as functional regions. In this Report and consistent with the *extant* literature (on Intramax techniques) we use functional areas to describe our regional aggregations based on JTW data.

4.2 Functional economic areas in Australia

Mitchell (2008) uses the Intramax technique to generate the spatial disaggregation that defines the FERs. The Intramax method is concerned with how the aggregation impacts on interaction flows (journeys) across the regional boundaries. Barros *et al.* (1971: 140) refers to the 'strength of interaction' as the proportion of total journeys that cross regional boundaries. Clearly, as we aggregate smaller regions into larger functional areas, the proportion of interaction that cross boundaries should decline and a rising proportion of interactions thus would be considered intra-regional. As a way forward, we seek to define our functional economic areas, by aiming to 'maximise the proportion of the total interaction which takes place within the aggregations of basic data units that form the diagonal elements of the matrix, and thereby to minimise the proportion of cross-boundary movements in the system as a whole' (Masser and Brown, 1975: 510).

Table 4.1 provides a comparison between the ASGC regionalisation and the CofFEE FERs. The functional areas generally collapse metropolitan and split non-metropolitan Labour Force regions (with the split often centred on a major regional town). Preliminary analysis of robustness suggests that the functional area geography reduces intra-region dispersion in unemployment rates, which is to say that the geography tends to group regions that are more homogeneous. A simple application using 2001 Census data reveals that on average, the emerging unemployment rates are higher and labour force participation rates are lower than standard LF regions, an indication that the MAUP problem may be resulting in observable differences. Given that ABS regional labour force estimates are widely used by policy makers and practitioners, it is important that these findings are given due consideration.

Table 4.1 Comparison of ABS and FER geographic disaggregation, numbers of Regions

Region	SLA[(a)]	CofFEE FERs	ABS Labour Force Regions
New South Wales	198	22	21
Victoria	207	16	14
Queensland	476	27	13
Australian Capital Territory	109	0	1
Border regions			
Victoria-NSW		3	
NSW-Queensland		3	
ACT-NSW		1	
East Coast	990	72	
South Australia	125	16	6
Western Australia	155	16	7
Tasmania	43	13	4
Northern Territory	92	23	1
Australia	1405	140	67

Note: (a) the SLA distribution is based on the cleaned commuting dataset outlined in Mitchell (2008).

Figure 4.1 is provided to illustrate some of the key differences between the ABS Labour Force Regions geography and the regionalisation underpinning the CofFEE Functional Economic Regions approach. It shows Victoria and parts of Southern New South Wales. The shaded areas depict the ABS Labour Force Regions whereas the line segmented spatial areas delineate the CofFEE FERs.

It is apparent that in the areas along the Murray River, the ABS geography does not account for the cross-border commuting flows into main river towns from NSW and Victoria. The FER approach captures the fact that people either side of the border interact via commuting. The FER approach thus provides a different conception of what constitutes a local labour market (or a FER) because it is based on underlying economic behaviour rather than administrative rules (such as state boundaries).

Figure 4.1 CofFEE Functional Economic Regions and ABS Labour Force Regions, Victoria, 2006

5 Regional mobility patterns by skill

5.1 Overview of regional mobility patterns

According to the 2006 Census of Population and Housing, 16.8 per cent of Australians changed address in the year prior to the Census and of those, 9.6 per cent changed SLA. In 2006, 43 per cent of Australians changed address from that of 5 years ago, and of those 26 per cent changed SLA (rates of mobility differ only fractionally between males and females).

The analysis in this Chapter draws on custom data provided by the ABS, for migrations 1 year and 5 years prior to the Census, detailing population counts for origin and destination SLAs.

Rates of mobility in the custom data are comparable to those recorded in the Census. Twenty seven per cent of people moved in the 5 years prior the Census (where moved is defined as having changed SLA) and 9.7 per cent of people changed SLA in the year prior the 2006 Census.

We seek to analyse mobility by broad skill level. Low skill is defined as persons over the age of 15 whose highest education qualification is Year 11 or below. We identify movers as persons who changed SLA. The analysis of the HILDA dataset suggests that inter-SLA moves may represent only a fraction of overall moves (it appears that, 60 per cent of moves are intra-SLA). We use the change of SLA to designate a significant move because it is unlikely that shorter moves will change the person's labour market environment in any appreciable way. We acknowledge boundary issues mean that changing SLA might also represent a short move.

Table 5.1 confirms the predictions of regional science theory that less educated and lower skilled workers are less likely to move than higher skilled migrants. This holds for migrants 1 year prior to the Census and those 5 years prior to the Census.

The data shows that 7.3 per cent of low-skilled persons moved (defined as having changed SLA) between 2005-06, while 21.6 per cent of low-skilled persons moved (changed SLA) between 2001-06.

This compares to 11.0 per cent of other workers who moved in the 1 year period from 2005-06 and 31.5 per cent of other workers who moved in the 5 year period from 2001-06.

Table 5.1 Mobility of skilled and low-skilled workers (educational-basis), 2005-2006, persons and per cent

Highest educational qualification	Migration 2005-06		
	Did not change SLA	Changed SLA	Total
Year 11 or below	4,729,069	370,413	5,099,482
Percent	92.7	7.3	
Higher than Year 11	8,496,447	1,054,369	9,550,816
Percent	89.0	11.0	
Total	13,230,000	1424782	14,650,000
Percent	90.3	9.7	
	Migration 2001-06		
Year 11 or below	3,882,280	1,066,487	4,948,767
Percent	78.4	21.6	
Higher than Year 11	5,434,509	2,504,794	7,939,303
Percent	68.5	31.5	
Total	10,160,000	3,762,857	13,920,000
Percent	73.0	27.0	

Source: ABS, Custom Data Table, Census of Population and Housing, 2006.

5.2 Mobility by type of move

Tables 5.2 and 5.3 employ a “type of move” typology to examine the mobility of low-skilled and other workers (see Bradbury and Chalmers, 2003) for different time spans (defined on an educational-basis).

Both tables confirm that low-skilled and other workers in each of the migration periods (5 years prior and 1 year prior to the Census) have the highest rates of mobility within capital cities.

Nearly half of all moves fall into this category, perhaps reflecting that most moves are short distance moves related to housing factors (see Chapter 6 for more analysis).

Around one-quarter of moves occur between non-capital cities to capital cities. Rates of mobility are higher for low-skilled workers moving from non-capital cities to capital cities and lower for low-skilled workers within a capital city, compared to other migrants.

Moves from capital to non-capital cities are only marginally higher for low-skilled workers versus other workers, for both migration periods.

This is interesting given that much of the focus in the Australian literature has been in documenting the substantial movement of low-income people out of cities (Bell, 1995, Flood, 1992, Bell and Maher, 1995, Wulff and Bell, 1997).

Our finding supports Morrow (2000) who notes that low income people tend to move towards cities rather than away from them.

Table 5.2 Movers by broad education level and type of move, 2001-2006, per cent

Highest educational qualification	Within capital city same state	Capital to capital between state	Non-capital to non-capital	Within non-capital	Non-capital to capital
Year 11 or below	42.8	3.1	4.0	8.6	27.2
Other	52.0	4.8	2.6	8.0	18.0
Total	49.6	4.4	3.0	8.2	20.4

Highest educational qualification	Capital to non-capital	Tasmania, Northern Territory and ACT	Outside Tasmania, Northern Territory and ACT	Into Tasmania, Northern Territory and ACT	Total
Year 11 or below	9.9	2.1	1.3	1.1	26.0
Other	8.5	2.7	1.7	1.7	74.0
Total	8.8	2.6	1.6	1.6	

Source: ABS Custom Table, Census of Population and Housing, 2006. Rates are calculated for persons who have moved SLAs in the year 5 years prior to the Census night. Note: 'Type of move' typology taken from Bradbury and Chalmers (2003).

Table 5.3 Movers by broad education level and type of move, 2005-2006, per cent

Highest educational qualification	Within capital city same state	Capital to capital between state	Non-capital to non-capital	Within non-capital	Non-capital to capital
Year 11 or below	42.2	3.4	4.1	8.6	25.7
Other	49.6	5.54	2.7	9.0	17.1
Total	47.4	4.9	3.1	8.8	19.8

Highest educational qualification	Capital to non-capital	Tasmania, Northern Territory and ACT	Outside Tasmania, Northern Territory and ACT	Into Tasmania, Northern Territory and ACT	Total
Year 11 or below	12.1	1.7	1.3	0.96	28.3
Other	10.2	2.2	1.9	1.8	66.6
Total	10.8	2.0	1.7	1.5	

Source: ABS Custom Table, Census of Population and Housing, 2006. Rates are calculated for persons who have moved SLAs in the year prior to the Census night.
Note: 'Type of move' typology taken from Bradbury and Chalmers, 2003.

5.3 Mobility by socio-economic advantage

Table 5.4 examines percentage of movers (5 years prior to 2006) by socio-economic decile (measured by the Index of Relative Socio-Economic Disadvantage). The IRSED is a composite index developed from 2006 ABS Census which focuses on economic and other resources available to a community and is published by deciles. A low index value reflects relative disadvantage while a high value reflects lack of disadvantage in an area. Table 5.4 shows that skilled workers are no more likely to move from disadvantaged areas than higher decile SLAs. For the low-skilled workers, there is an inverse relationship between decile rank and percentage of movers, although overall there does not seem to be any clear relationship socio-economic decile of the origin region and probability of moving. Thus constraints on mobility may only have modest impacts on residents in the most disadvantaged areas.

Table 5.4 Percentage movers, socio-economic status of origin SLA by broad skill level (educational_basis), 2006, per cent

Socio-economic status of origin SLA	% Movers	
	Low-skilled	Other
Decile 1 (most disadvantaged)	21	31
Decile 2	21	30
Decile3	19	29
Decile 4	21	30
Decile 5	21	30
Decile 6	22	29
Decile 7	24	32
Decile 8	24	33
Decile 9	23	32
Decile 10 (least disadvantaged)	23	31

Source: ABS Custom Table, Census of Population and Housing, 2006.

Tables 5.5 and 5.6 provide the share of low-skilled and skilled movers, respectively, by IRSED decile of the origin and destination SLAs. Not surprisingly, low-skilled migrants are more likely to originate in low socio-economic status areas and much less likely to live in high SES areas. HILDA data shows that 45.7 per cent of low-skilled persons live in SLAs ranked in the bottom three IRSED deciles, compared to 15 per cent of skilled migrants.

There are some differences in the mobility patterns for skilled and low-skilled workers. All persons at the decile extremities typically move to a similar socio-economic area. There is more variation in the migration patterns of low-skilled workers. Low-skilled migrants originating from the lowest IRSED decile are more likely to move to a higher IRSED decile than skilled workers from the bottom decile. Further, low-skilled migrants in the top decile are more likely to move into lower ranking deciles, with only 10 per cent of those in the top decile staying in the top decile compared to 61 per cent for skilled workers.

We conclude that constraints on mobility, if they exist for low-skilled migrants in the most disadvantaged areas, do not appear to be binding. We qualify this statement by noting that the data describes movers and does not account for the general lower rates of mobility found amongst the low-skilled.

Table 5.5 IRSED decile of origin and destination SLAs, 2006 (moved 1 year ago), low-skilled migrants (educational-basis), percentage share of movers

Origin SLA IRSED	Destination SLA IRSED (least advantaged to most advantaged)										
	1	2	3	4	5	6	7	8	9	10	Total
1 (least advantaged)	48.9	9.6	4.0	5.2	6.7	4.4	8.2	2.2	11.9	0.0	16.4
2	6.8	21.8	9.8	2.3	15.8	11.3	15.0	12.0	0.0	5.3	16.1
3	5.5	8.3	44.0	8.3	11.0	6.4	5.5	5.5	0.0	5.5	13.2
4	0.0	9.8	10.9	35.9	10.9	3.3	9.8	12.0	7.6	0.0	11.2
5	4.8	12.1	13.3	15.7	22.9	10.8	15.7	0.0	4.8	0.0	10.1
6	12.9	8.6	7.1	14.3	20.0	28.6	4.3	0.0	4.3	0.0	8.5
7	10.2	5.1	5.1	5.1	15.3	11.9	27.1	20.3	0.0	0.0	7.2
8	4.1	10.8	5.4	0.0	0.0	18.9	23.0	10.8	9.5	17.6	9.0
9	7.1	0.0	28.6	0.0	7.1	14.3	0.0	21.4	7.1	14.3	5.1
10 (most advantaged)	10.7	0.0	0.0	35.7	0.0	10.7	0.0	10.7	21.4	10.7	3.4

Source: ABS, Census of Population and Housing 2006, Custom Data.

Table 5.6 IRSED decile of origin and destination SLAs, 2006 (moved 1 year ago), other migrants, percentage share of movers

Origin SLA IRSED	Destination SLA IRSED (least advantaged to most advantaged)										
	1	2	3	4	5	6	7	8	9	10	Total
1(least advantaged)	46.5	8.0	7.3	7.3	8.6	6.0	7.0	4.3	3.7	1.3	4.1
2	8.5	56.4	10.6	4.4	3.9	1.4	5.7	1.6	4.6	3.0	5.9
3	5.5	7.7	40.1	12.7	9.1	8.3	4.1	8.0	2.8	1.7	4.9
4	3.7	5.5	11.9	41.3	8.0	5.5	7.1	8.5	5.0	3.7	5.9
5	3.6	5.6	5.1	5.4	52.6	11.0	6.3	5.1	1.6	3.8	7.5
6	3.3	5.0	5.2	5.2	3.2	60.7	5.6	3.9	5.0	2.9	11.1
7	1.2	4.8	4.8	8.9	5.0	12.7	37.1	8.7	9.1	7.7	6.5
8	1.7	0.6	0.9	1.4	1.5	1.9	1.8	82.2	3.6	4.6	29.3
9	1.8	1.1	1.4	1.3	4.8	4.0	5.0	9.7	62.2	8.8	12.5
10 (most advantaged)	4.3	4.1	0.3	3.4	0.8	4.4	6.9	7.3	7.5	61.0	12.3

Source: ABS, Census of Population and Housing 2006, Custom Data.

5.4 Characteristics of in- and out-migration regions

Tables 5.7 and 5.8 show the regional characteristics of in- and out-migration regions for 2005-2006 and 2001-2006, respectively. Importantly, net out-migration regions have significantly lower employment growth than net in-migration regions, so we might argue that workers are correctly responding to labour market signals in moving from low employment growth to high employment growth regions.

Similarly net in-migration regions have lower unemployment rates than out-migration regions, but only marginally so (in the case of the 1 year migration period 2005-06, the unemployment rates are equal and for the 5 year migration period 2001-06 the unemployment rate for out-migrating regions is lower) for low-skilled persons.

A possible explanation for this is that labour force growth has been strong for net in-migration regions compared to out-migration region. Gordon (2003) and Lawson and Dwyer (2002) have indicated labour flows may be absorbing much of the new economic activity, operating to equalise unemployment rates between regions. Industry differences are not substantial between net in-migration and out-migration regions, although for the 5 year migration period, low-skilled migrants do seem to be seeking out regions with higher rates of persons employed in machinery and a lower percentage of persons employed as professionals.

Low-skilled workers appear to be on balance, migrating into regions with slightly lower median incomes and slightly higher median mortgages (perhaps a very general indication that low-skilled workers do not preference housing related factors and this does appear to be at the expense of housing related factors). However for other migrants, net in-migration regions have both higher average median mortgage and higher median household income.

Table 5.7 Average characteristics of in and out migration regions, 2005-2006

Labour Force characteristic	Others		Low-Skilled	
	Net In-Migration	Net Out-Migration	Net In-Migration	Net Out-Migration
Employment growth 2001-06 (%)	28.8	5.6	27.3	5.6
Average median mortgage ($ per month)	1,195.4	1,114.7	1,157.4	1,119.2
Average median household income ($ per month)	1046.0	1008.9	1,007.0	1,033.4
Unemployment rate (%)	5.0	5.1	5.1	5.1
Labour force participation rate (%)	62.9	60.7	61.5	61.5
Percentage renting (%)	36.1	31.6	33.1	33.2
Percentage Machinery (%)	7.0	6.9	6.9	7.1
Percentage Professionals (%)	18.1	17.5	17.4	17.9
Percentage Labourers (%)	13.3	13.6	13.6	13.4

Source: ABS, Custom Data, Census of Population and Housing, 2006. Low-skilled is defined using the educational basis).

Table 5.8 Average characteristics of in and out migration regions, 2001-2006

Labour Force characteristic	Others		Low-Skilled	
	Net In-Migration	Net Out-Migration	Net In-Migration	Net Out-Migration
Employment growth 2001-06 (%)	34.0	2.3	26.4	6.0
Average median mortgage ($ per month)	1,258.5	1,065.8	1,160.70	1,137.50
Average median household income ($ per month)	1,039.5	1,011.0	1,030.10	1,022.20
Unemployment rate (%)	5.0	5.1	5.1	4.9
Labour force participation rate (%)				
Percentage renting (%)	61.8	61.5	61.1	62.2
Percentage Machinery (%)	33.4	33.8	32.3	34.7
Percentage Professionals (%)	6.7	7.1	7.0	6.6
Percentage Labourers (%)	18.7	17.0	17.5	17.9
Employment growth 2001-06 (%)	12.8	14.1	13.1	13.9

Source: ABS, Custom Data, Census of Population and Housing, 2006. Low-skilled is defined using the educational basis).

5.5 Mobility, employment growth and unemployment

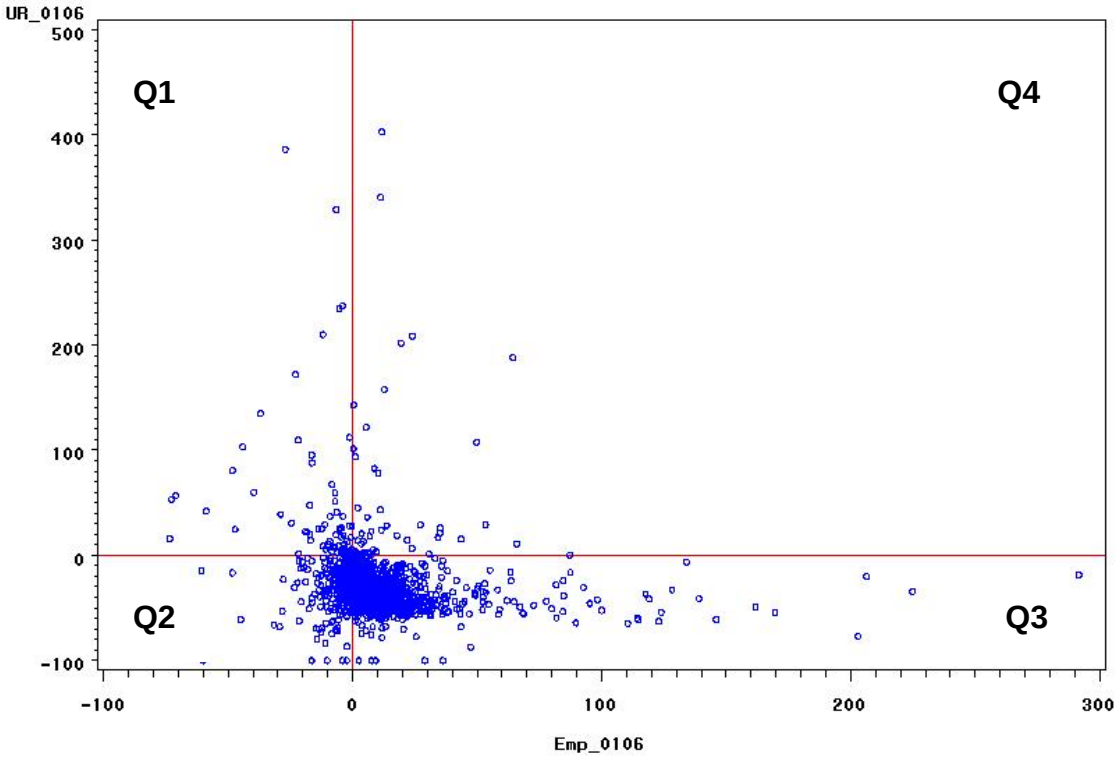
While a negative relationship between employment growth and unemployment growth might be expected, at the SLA level this is not always the case. One influential factor may be mobility flows, where net out-migration occurs in low employment growth regions (driving down the expected growth in unemployment rates) and net in migration results in high employment growth regions (driving up the expected unemployment rate, if all else were constant).

We explore the nature of the employment growth and unemployment growth relationship at the SLA level using the most recent Census data. Following Lawson and Dwyer (2002), we distribute SLAs across four quadrants using the following rules:

- Quadrant 1 - falling employment and rising unemployment (5 per cent of SLAs)
- Quadrant 2 - falling employment and falling unemployment (17 per cent of SLAs)
- Quadrant 3 - rising employment and falling unemployment (74 per cent of SLAs)
- Quadrant 4 - rising employment and rising unemployment (4 per cent of SLAs)

Figure 5.1 depicts the resulting allocation. Given the relatively strong performance of the Australian economy over the last decade, the vast majority of regions have experienced increasing employment and falling unemployment.

Figure 5.1 Change in unemployment rates and employment growth 2001-06, Australian SLAs, 2006, per cent



Source: Australian Bureau of Statistics (ABS), Census of Population and Housing, 2006.
Note: we have deleted SLAs with labour force in 2001 under 100 persons.

In Quadrant 4 we observe a small percentage of regions where unemployment rates rose, even though employment rose over the 5 years from 2001 to 2006. In these areas, the labour market must have adjusted through a combination of increasing participation rates and in-migration (other factors constant). Similarly, 17 per cent of the regions are located in Quadrant 2 where unemployment rates fell even though employment growth fell (in contrast to the national trend). In these regions, outflows of labour and falls in the labour force participation rates have offset the expected increase in unemployment rates, other factors constant.

Figures 5.2 to 5.9 provide a pictorial indication of net in-commuting/migration and net out-commuting/migration regions by SLA across Australia. They highlight the high labour demand and low labour demand regions in terms of labour flows. We might expect the highest labour flows (net in-migration regions) to be found in areas of highest employment growth and lowest unemployment rates. Not surprisingly net in-migration and net in-commuting regions tend to be concentrated in densely populated SLAs along the eastern-seaboard and in capital cities.

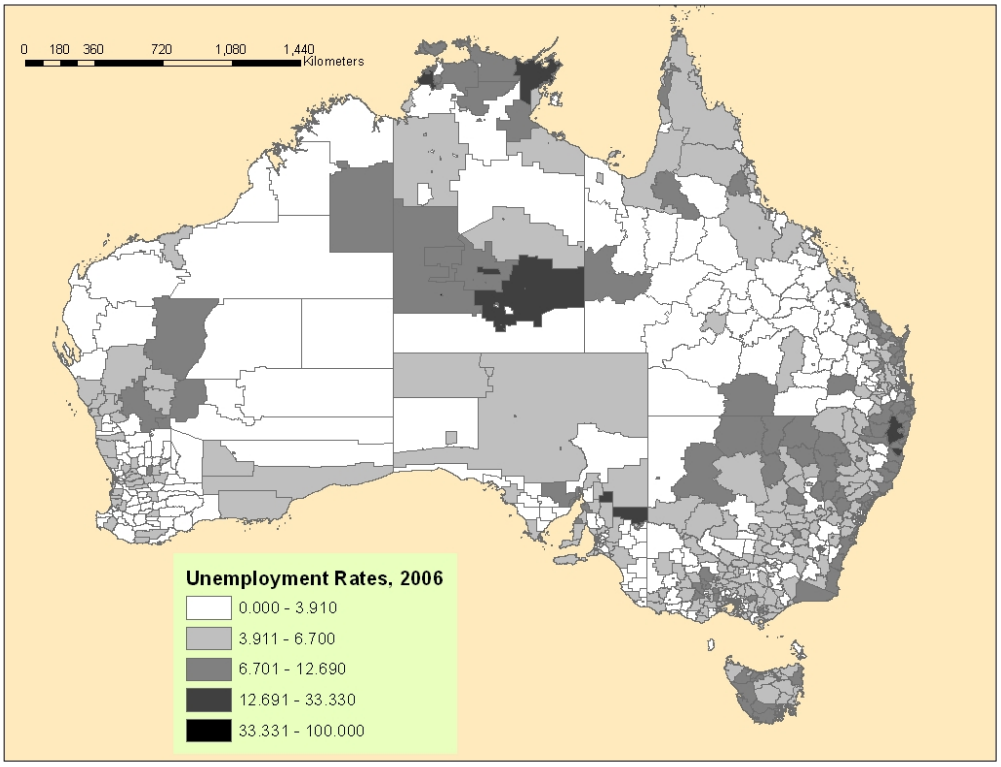
Figures 5.2 and 5.3 map unemployment rates (using quintiles) and employment growth rates (dark coloured regions have had positive employment growth and white regions have had negative employment growth) for Australian SLAs. It is clear that net labour in-flows (both in terms of commuting and migration) tend to be in areas of high employment growth SLAs.

However, high employment growth and low unemployment regions are not necessarily correlated if labour supply growth is strong as a result of a buoyant labour market. Figure A1 in the Appendix shows the regions where this correlation was low in 2006. These include SLAs in the Richmond-Tweed area, Cessnock and Shoalhaven in regional NSW; Liverpool in Sydney; Greater Geelong, Melton,

Wyndham, Yarra Ranges, the Bass Coast and Greater Bendigo in Victoria; and Noosa and Caloundra in Queensland.

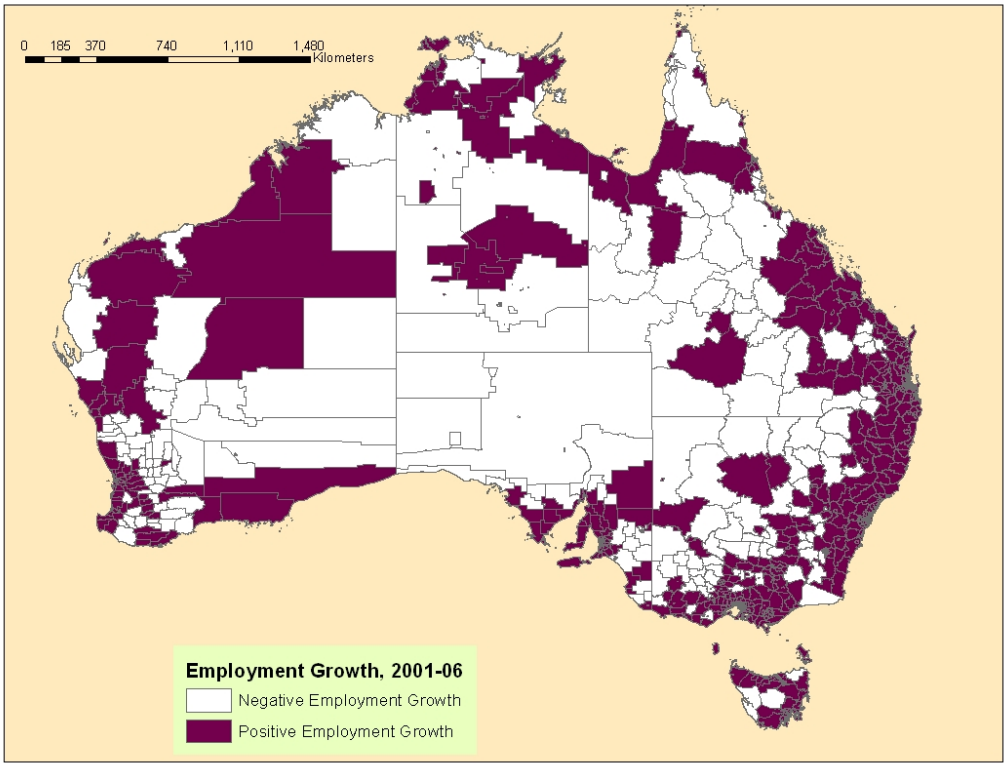
A comparison of migration (1 year migration, 5 year migration) and commuting flows, demonstrates that the trends are similar. Migrants seem to be choosing high employment growth regions, although such regions do not necessarily have lower unemployment rates. For the 1 year and 5 year migration maps (Figures 5.4 to 5.7) few differences exist between rates of migration for low-skilled and other workers. However, this similarity is not maintained when we consider commuting behaviour (Figures 5.8 and 5.9). Some notable differences emerge between low-skilled and other workers in terms of net in-commuting and net out-commuting SLAs. Significantly more net in-commuting regions emerge in regional Australia for low-skilled workers than other workers, suggesting that perhaps regional centres are acting as employment hubs for low-skilled workers in the outlying regions.

Figure 5.2 Unemployment rates 2006, Australia, SLAs, per cent



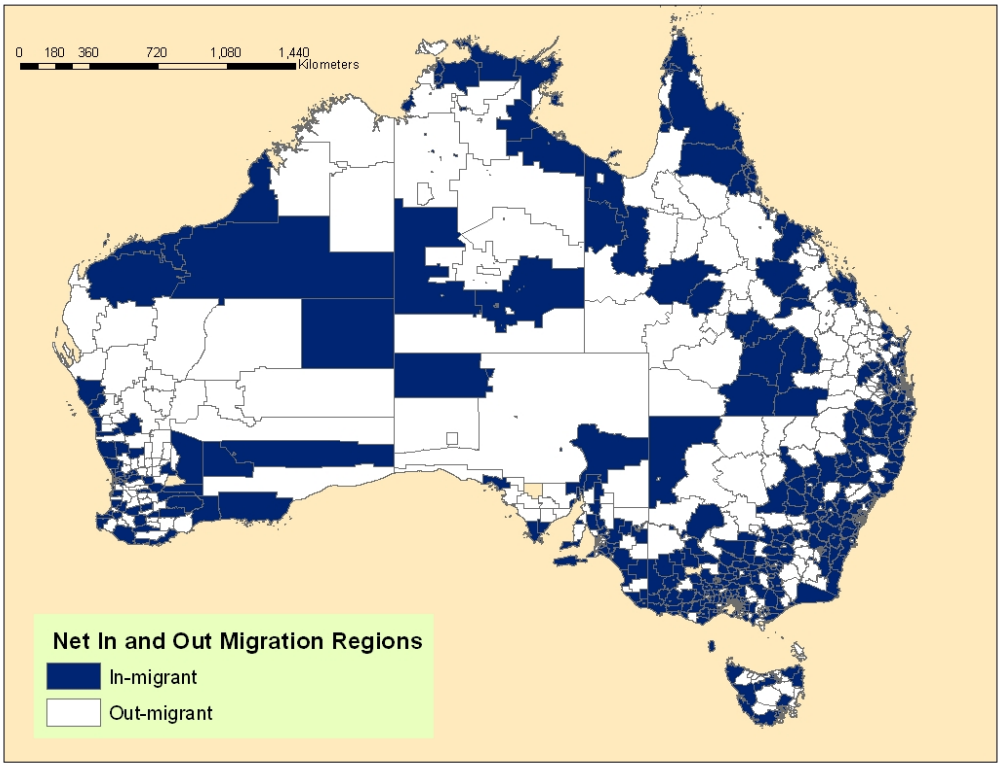
Source: ABS Custom Data, Census of Population and Housing, 2006.

Figure 5.3 Employment growth 2001-2006, Australia, SLAs, per cent



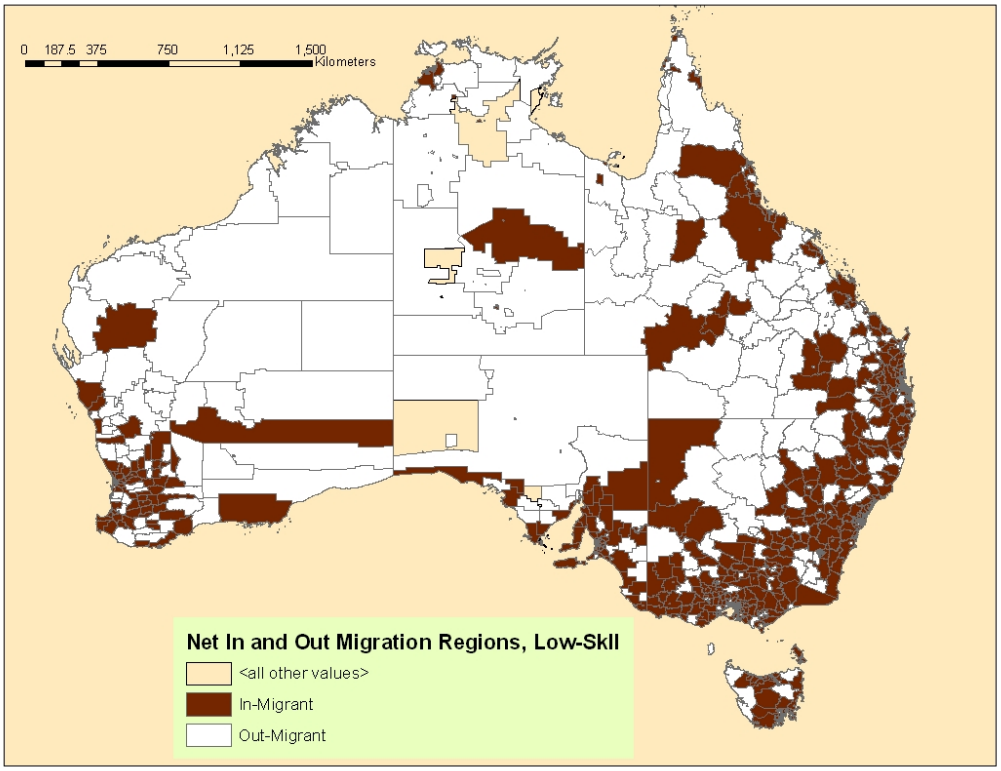
Source: ABS Custom Data, Census of Population and Housing, 2006.

Figure 5.4 Net out and in-migration SLAs, persons moved, 2005-2006, persons



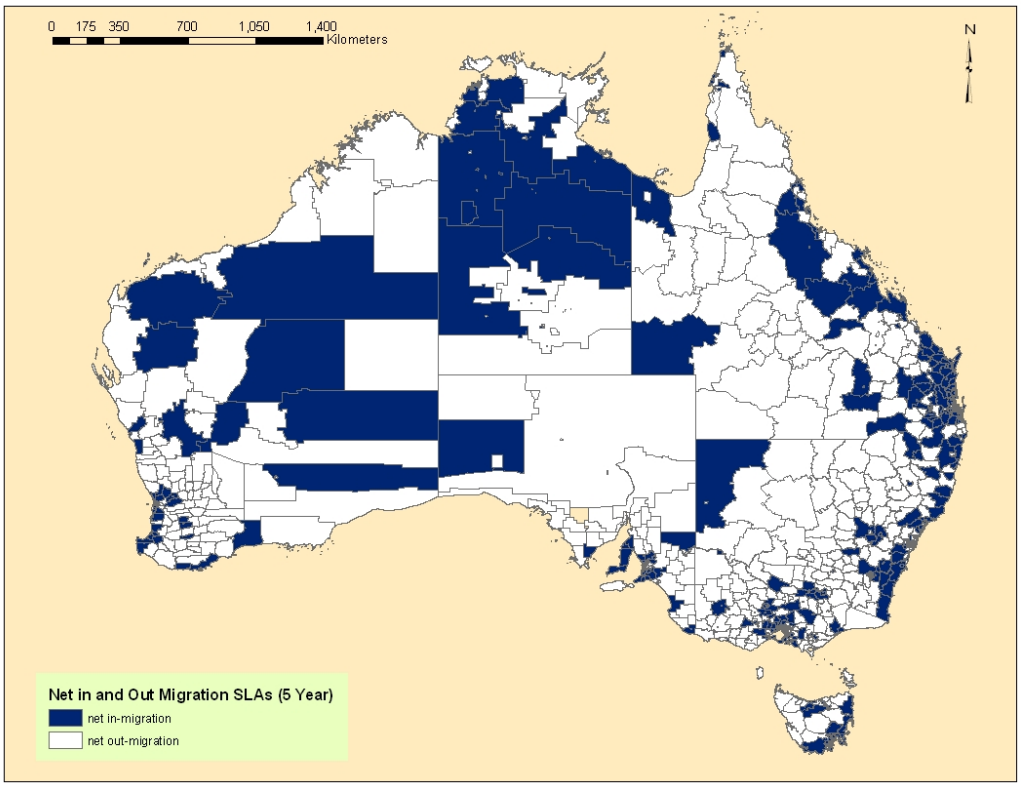
Source: ABS Custom Data, Census of Population and Housing, 2006.

Figure 5.5 Net out- and in-migration SLAs, persons moved, low-skilled workers, 2005-2006, persons



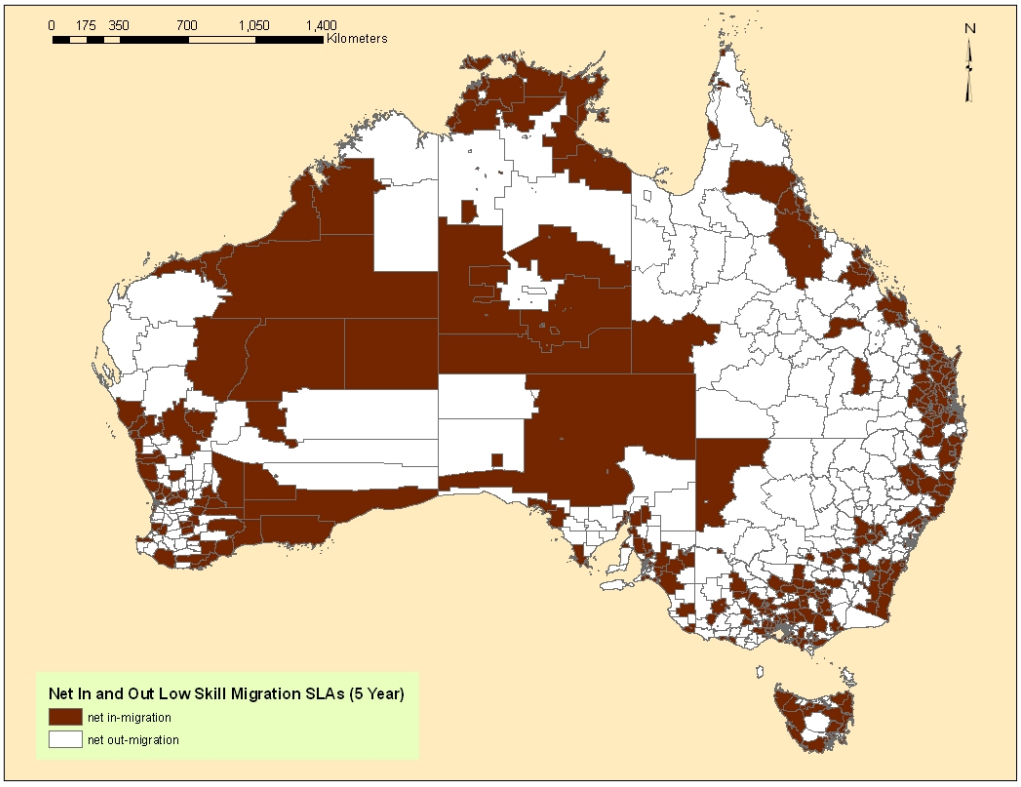
Source: ABS Custom Data, Census of Population and Housing, 2006.

Figure 5.6 Net out- and in-migration SLAs, persons moved 2001-2006, persons



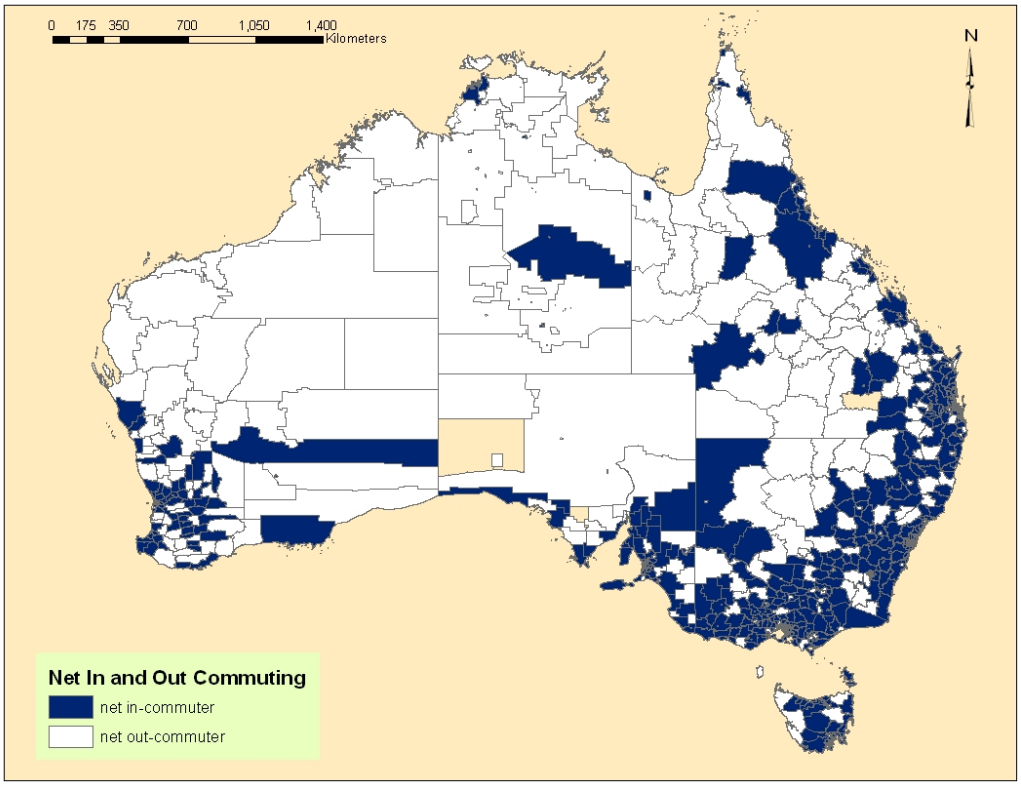
Source: ABS Custom Data, Census of Population and Housing, 2006.

Figure 5.7 Net out- and in-migration SLAs, persons moved, low-skilled workers, 2001-2006, persons



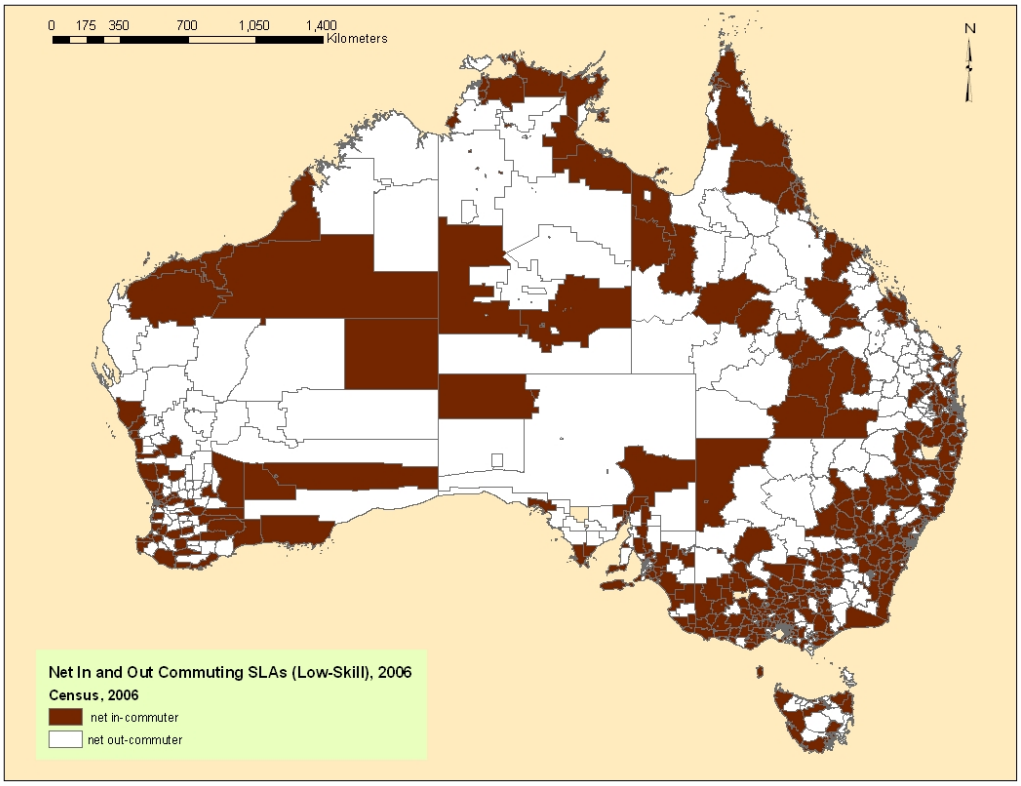
Source: ABS Custom Data, Census of Population and Housing, 2006.

Figure 5.8 Net out- and in-commuting SLAs, 2006, persons



Source: ABS Custom Data, Census of Population and Housing, 2006.

Figure 5.9 Net out- and in-commuting SLAs, low-skilled, 2006, persons



Source: ABS Custom Data, Census of Population and Housing, 2006.

5.6 Migration and functional economic regions

As we have previously noted, the geographic definition of the local labour market is critical in characterising differences between labour market conditions in origin and destination regions and so determining the regional push and pull factors driving mobility. For persons living in densely populated metropolitan SLAs, defining the local labour market as a single SLA is likely to be problematic given the distribution of jobs over the whole metropolitan area and the commuting opportunities presented by a dense road network and accessible public transport. However in very remote Australia, a single SLA may be sufficient to contain all possible job opportunities for a resident.

For this reason we use the functional economic region methodology (see Chapter 4) to define a local labour market. Each of these new geographic units broadly represents the area in which a worker can reasonably be said to be seeking employment without moving. In this context, they constitute the “labour shed” or the geographic area in which employers might realistically hope to target potential employees.

Table 5.9 uses the latest CofFEE Functional Economic Region (FER) geography (Mitchell, 2008) to devise labour market statistics of origin and destination regions for migrants who have moved between 2001 and 2006. The results resonate with those in Table 5.8 although the differentials between origin and destination regions are smaller as labour market indicators are calculated over larger areas (there are 140 FERs compared to over 1,400 SLAs). Migrants still however appear to be choosing more favourable labour markets with higher employment growth (the differential being much smaller) and lower unemployment rates, true of both the low-skilled and other migrants.

Table 5.9 Labour force characteristics of origin and destination Functional Economic Regions for migrants, 5 years prior 2006, per cent

Labour force characteristic	Low-skilled migrants	Other migrants
Unemployment rate, Origin	3.32	3.27
Unemployment rate, Destination	3.25	3.24
Labour force participation rate, Origin	64.92	65.38
Labour force participation rate, Destination	65.54	65.75
Employment to population ratio, Origin	57.5	58.01
Employment to population ratio, Destination	58.18	58.4
Employment growth, Origin	5.77	6.21
Employment growth, Destination	6.25	6.44
Part-time to full-time ratio, Origin	0.46	0.46
Part-time to full-time ratio, Destination	0.46	0.45

Source: ABS, Census of Population and Housing 2006, Custom Data using the CofFEE Functional Economic Regions. Low-skilled is defined on an educational-basis.

5.7 Summary

The key summary points from this Chapter are:

All else being equal, low-skilled and less educated workers are less likely to migrate than other workers.

Migration by both low-skilled workers and those with higher skills is concentrated within the same capital city. This is followed by migration from non-capital cities to a capital city (around 25 per cent of migration). The percentage of low-skilled migrants who move from a non-capital city to a capital city is greater than for higher-skilled migrants. This conflicts with previous research that indicates that people on low incomes tend to move away from capital cities.

In general the highest percentage of movers, both low-skilled and higher-skilled, move to destinations that are in the same IRSED decile as their origin region. The exception is for low-skilled workers who move from areas of low disadvantage, their migration behaviour suggests they move more to areas of higher disadvantage. Further, the greatest percentage of mobile low-skilled workers migrates out of areas in the lowest IRSED decile. This suggests that, while a greater percentage of low-skilled workers live in these areas, perhaps because of spatial housing segregation, their constraints on mobility may not be binding.

Low-skilled and higher skilled workers in general migrate to areas of higher employment growth, responding to labour market signals. However the differences in the unemployment rates between the net out-migration regions and the net in-migration regions are much smaller than what may be expected. The explanation for this could lie in the movement of labour, that is, the labour force growth in net in-migration regions and the corresponding labour force loss in net out-migration regions act to equalise the unemployment rates between regions.

6 The characteristics of mobile labour

6.1 Overview

In Chapter 5 we drew on ABS Census data to provide a regional analysis of mobility in Australia between 2001 and 2006. In this Chapter, we use the HILDA dataset to undertake a detailed descriptive examination of the characteristics of migrants, persons who changed jobs (occupational and industry mobility) and commuters (focusing on long distance commuting).

The unconfidentialised version of HILDA is used, which permits a detailed analysis of the characteristics of where people live, labour market, demographic and housing characteristics drawn from the Census at the SLA level, in conjunction with individual and family characteristics. Labour market indicators are also generated for CofFEE Functional Economic Regions. It remains true, however, that the spatial quality of HILDA is less than is desired for detailed regional analysis.

6.2 Who are the low-skilled in Australia?

Table 6.1 examines the characteristics of low-skilled workers (for both definitions) and compares them to the skilled workers. Some of the points to emerge are that:

Low-skilled (by education) persons are more likely to be unemployed and not in the labour force compared to skilled workers. The low-skilled occupations have higher unemployment likelihoods but have employment rates and participation rates similar to the skilled;

Workers in low-skilled occupations have more than double the chance of being employed part-time compared to those in skilled occupations. Part-time incidence does not appear to be strongly related to educational status;

Low-skilled workers are more likely to be female, sole parents and have a disability, although the gender divide is less pronounced on occupational grounds;

The low-skilled (by education) are more likely to be aged between 50-59 years reflecting the growing emphasis in recent decades on gaining formal credentials. Those aged between 15-29 years are more concentrated in low-skilled occupations;

Low-skilled workers are less likely to be in a family with dependents or to have an employed spouse. The low-skilled occupations had much lower incidence of marriage;

Low-skilled workers are less likely to own their house and this is even more emphatic when using the occupational definition. Rental rates and state housing occupancy are higher for the low-skilled occupations;

Low-skilled persons (by education) are concentrated in the low-skilled occupations.

Table 6.1 Characteristics of low-skilled and other workers, 2001-2005, per cent

Characteristic	Educational-basis		Occupational-basis	
	Skilled	Low-skilled	Skilled	Low-skilled
Employed	81.8	60.6	74.8	80.0
Unemployed	2.4	3.6	2.5	5.6
Not in the Labour Force	15.8	35.8	22.8	14.4
Part-time worker	21.4	23.0	19.8	40.2

Males	50.1	37.8	46.6	43.6
Female	49.9	62.3	53.4	56.4
Married	60.0	61.5	61.9	48.8
Spouse employed	58.8	45.1	55.1	50.2
Have dependent children	50.7	49.0	50.7	45.8
Family with dependents	37.2	30.8	35.8	30.5
Sole parent	4.6	6.5	4.9	7.3
Disability	13.1	22.4	15.8	17.3
Aged 16-19 years	1.2	1.6	1.0	3.8
Aged 20-29 years	15.9	9.2	13.2	19.2
Aged 30-39 years	25.6	20.5	24.2	22.7
Aged 40-49 years	30.4	27.3	29.9	26.4
Aged 50-65 years	26.9	41.3	31.7	27.9
Own house	74.8	71.2	74.7	64.8
Rent	22.9	26.5	23.0	32.8
State housing	2.6	6.4	3.5	6.2
Low English language proficiency	0.6	0.9	0.7	1.0
Indigenous	1.4	2.8	1.7	2.9
Non English speaking background	12.3	8.3	11.0	12.1
Social Interaction	23.0	23.0	23.2	20.6
Manager	7.2	4.2	10.7	-
Professional	23.3	2.9	28.9	-
Associate Professional	10.6	5.9	15.7	-
Tradesperson	8.2	4.5	12.1	-
Advanced and Intermediate Clerical	13.2	15.5	23.7	-
Intermediate Production Workers	3.9	8.4	9.0	
Elementary Clerical	3.8	7.0	-	45.4
Labourer	3.6	10.5	-	54.6
Agriculture and Mining sector	4.5	7.7	5.0	9.9
Manufacturing sector	9.2	8.2	8.6	11.1
Utilities and Construction sector	5.9	4.5	5.5	5.2
Services sector	31.4	28.0	27.7	53.6
Transport sector	3.0	4.2	3.4	2.5
Government and Education sector	11.7	28.5	25.0	9.4

Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006. The educational basis defines low-skill as persons with lower than Year 12 education and no other formal qualifications. The occupational-basis defines low-skill as workers who are Labourers and Elementary Clerical workers.

Table 6.2 shows that low-skilled workers earn considerably less than other workers (calculated on the basis of most recent gross pay, prior to deductions). This conclusion is true of low-skilled persons working full-time and part-time. All workers,

however, enjoy higher wages in metropolitan regions (see Bill, Mitchell and Welters, 2008 for an exploration of this phenomenon).

Table 6.2 Median gross weekly wage by broad skill level (educational basis), employment status and metropolitan indicator

Employment status by broad skill level	Median gross wage ($)
Non-Metropolitan Region	
Full-time, Other	1,500
Full-time, Low-skilled	920
Part-time, Other	795
Part-time, Low-skilled	533
Metropolitan Region	
Full-time, Other	1979
Full-time, Low-skilled	1,100
Part-time, Other	900
Part-time, Low-skilled	579

Source: HILDA, Waves 1-6 unweighted. Number are rounded to 0 decimal places.

6.3 Migration by the low-skilled and other workers

Table 6.3 reports the percentage of respondents (skilled and low-skill) reporting that they had moved between each wave. As the labour market tightened over this period, the percentage moving declined for each skill group. The average percentage of movers for the entire period is 16 per cent for all persons.

The propensity to move by skill is clearly dependent on how we define low-skill. Using the educational demarcation, we conclude that skilled workers are more mobile (average 16.8 per cent) than low-skilled workers (average 14.3 per cent). However, the high-skilled occupations are less mobile (average 15.7 per cent) than the low-skilled occupations (18.5 per cent). Examining the low-skilled occupations, we find that 19.1 per cent of labourers in the sample moved between any wave and 17.4 per cent of elementary clerical workers. This finding is likely to relate to the sharply lower home ownership rates and corresponding high rental occupancy by the low-skilled occupations.

It should be noted that Australian mobility rates in general exceed the UK figure of 10 per cent for the working age population (Böheim and Taylor, 1999). But they are probability significantly below the mobility rates found in the US which have been estimated to be 2-3 times higher those of the UK (Hughes and McCormick, 1985).

Table 6.3 Numbers and proportions of movers by skill level, 2001-2006

Year	Educational-basis		Occupational-basis		All movers
	Skilled	Low-skilled	Skilled	Low-skilled	
	% of cohort	% of cohort	% of cohort	% of cohort	% of cohort
2001	20.2	17.5	18.9	23.3	19.3
2002	15.7	13.3	14.9	15.9	15.0
2003	17.7	15.8	17.0	18.2	17.1
2004	15.5	13.7	14.3	19.5	14.9
2005	16.9	12.4	15.5	16.6	15.6
2006	14.8	12.6	13.8	17.8	14.2
Total	16.8	14.3	15.7	18.5	16.0

Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006.

6.4 Why do people move and how far?

Table 6.4 shows that housing-related moves dominate with over half of respondents who moved, citing this reason (some movers list multiple reasons and therefore appear more than once in the Table). Such reasons included moving to get a smaller or larger place, getting a place of one's own, because the property was no longer available or because of an eviction.

The other dominant motivations were work-related (16 per cent of those who moved) and personal (26 per cent of those who moved). The latter include moving to be closer to place of study, health reasons, to join partner or because of a relationship breakdown. Low-skilled persons (however defined) are less likely to move for work related reasons than other migrants.

Table 6.4 Reason for moving by broad skill level, 2001-2006, per cent

Reason for moving	Educational-basis		Occupational-basis		Total
	Skilled	Low-skilled	Skilled	Low-skilled	
	Per cent	Per cent	Per cent	Per cent	Per cent
Work related	17.0	11.3	16.4	13.9	16.1
Personal	25.8	25.7	25.8	26.0	25.8
Housing related	52.4	54.9	52.8	55.4	53.1
Neighbourhood	18.0	18.5	19.2	19.0	19.2
Spouse moving	3.3	3.6	3.1	4.2	3.2
Other	3.3	1.4	2.7	1.5	2.5

Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006. Note: multiple reasons are listed so percentage shares do not necessarily add to 100 per cent.

We used greater circle distance calculations between postcodes to calculate how far each person moves for HILDA Waves 2-6. Table 6.5 (in which movers are only counted once) confirms that the majority of moves are small distance. Intra-regional moves together dominate inter-regional migration (see Gordon, 2003 for similar UK evidence). With over half of movers only shifting 9 kilometres or less it is unlikely that migration resulted in a material change in local labour market conditions faced by the person. Very few workers moved over 50 kilometres.

Table 6.5 Distance moved by broad skill level, Waves 1-6, per cent

Skill level	Moved within Postcode	Percentage of movers by kilometre bands						
		1-5	5-9	10-19	20-49	50-99	100-499	500+
All workers	9.2	33.1	14.9	12.5	8.3	3.6	7.9	10.5
				Educational-based				
Skilled	8.9	32.5	15.7	12.0	8.0	3.7	7.9	11.1
Low-skilled	10.1	34.7	12.6	13.8	10.1	3.5	7.0	8.3
				Occupational-based				
Skilled	9.1	32.8	14.7	12.8	8.2	3.8	7.8	10.8
Low-skilled	10.4	35.2	16.0	10.0	9.0	2.4	9.2	7.8

Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006.

The moves by workers in the low-skilled occupations were the most locally concentrated and reinforce the finding that the higher rates of mobility are housing related. A higher proportion of this group cite housing-related reasons as their motivation for moving (see Table 6.4).

Table 6.6 shows that only half of the movers change SLA, and of these only a fraction are changing their local labour market conditions as indicated by a change in CofFEE Functional Economic Region.

Table 6.6 Percentage moving by type of migration, Wave 1-5

Move type	All workers	Educational-based		Occupational-based	
		Skilled	Low-skilled	Skilled	Low-skilled
Changed address	16.0	16.8	14.3	15.7	18.5
Changed SLA	8.6	9.4	7.0	8.5	9.8
Changed FER	3.4	3.7	2.8	-	-

Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006. Note: FER is Functional Economic Region. In merging on the Functional Economic Region geography which is constructed on the basis of 2006 SLAs, a number of records are deleted due to a lack of concordance between 2001 and 2006 ABS SLAs.

Table 6.7 shows that housing-related migration is significantly shorter (around 40 kms on average) than migration motivated by work-related (507 kms on average), personal (252 kms), neighbourhood attributes (240 kms) or spouse-moves (166 kms). Work-related moves most likely involve a shift to new local labour markets with differing economic characteristics. The results are consistent with the UK work of which Owen and Green (1992) is representative. They found intra-urban moves reflect housing factors, while interregional moves are typically job-related (see also Bradbury and Chalmers, 2003).

Low-skill (education) migrants tend to move shorter distances although the low-skilled occupations on average move greater distances for housing but significantly lower distances when motivated by work-related reasons and spouse mobility.

Table 6.7 Reason for moving by distance moved and broad skill level, 2001-2006

Reasons for Moving	Average distance moved (kms)				
	All	Educational-based		Occupational-based	
	workers	Skilled	Low-skilled	Skilled	Low-skilled
Work related	507.0	522.5	439.5	542.9	261.0
Personal	252.7	255.6	244.1	263.9	173.8
House related	39.6	43.3	29.9	38.4	47.7
Neighbourhood	240.7	249.2	217.1	239.9	247.0
Spouse moving	166.4	169.9	152.5	180.0	74.1

Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006.

While we might simply conclude that migrants moving for work-related reasons are our target group, the fact is that "the reason for moving" variable provided by HILDA allows for multiple response, and thus excluding housing-related moves will not necessarily provide us with the appropriate dataset.

Further, even if a person moves for personal reasons and changes labour markets incidentally, the respondent will still have undertaken a move which alters their labour market opportunities.

6.5 The characteristics of mobile workers in Australia

Table 6.8 documents the percentage of movers by various characteristics for the six waves by skill level (both definitions). The data should be read with the results of Table 6.3 in mind, where we found that 16 per cent overall moved; 16.7 per cent of skilled workers (educated) moved; 14.3 per cent of low-skilled workers (educated) moved; 15.7 per cent of skilled workers (occupations) moved and 18.5 per cent of low-skilled workers (occupations) moved.

It is clear that the characteristics differ substantially depending on which skill demarcation we employ. Some of the key points to note include:

The poorly educated workers who are in the labour force tend to move less than other workers. Mobility is average for employed and unemployed workers in low-skilled occupations and well above average for those not in the labour force and in part-time jobs;

Poorly educated male and female workers are less likely to move but males and females in low-skilled occupations have above average migration rates;

Family structure is important. Married persons, those with employed spouses, those with dependents have below average moves. The stark exception is sole parents which have significantly higher rates of mobility, especially for the poorly educated workers;

Mobility by age depends on how we define skill. For the poorly educated, younger and older workers are more mobile than their skilled counterparts. However, younger workers in low-skilled occupations, while still exhibiting above-average mobility are less likely to move than their skilled counterparts.

Overall, the young (below 30 years of age) are much more likely to move than older persons. This effect is well documented (OECD, 2005). One explanation is that if mobility is an investment associated with a short-run income loss, then moving is an investment whose returns accrue in the following years (Gardner, Pierre and Oswald,

2001). The young therefore have many more years to reap the benefits of the decision to move, and smaller family and psychic costs to bear in the short-term.

Home owners and those in state housing have below average rates of mobility whereas renters have more than twice the average overall mobility rate, which reflects larger transaction costs for home-owners contemplating moving relative to renters. State housing tenants in general are more likely to be unemployed, and are less likely to move for job reasons. If they move, they move shorter distances (Coleman and Salt, 1992; Gardner, Pierre and Oswald, 2001), which may reflect constraints on the availability of affordable housing;

Those with difficulties in English have significantly lower rates of mobility;

Indigenous Australians have above-average rates of mobility;

From the perspective of the educational qualifications of workers, those who are associate professionals, tradespersons, and clerical workers; and in lower-skilled occupations have above-average mobility rates although the poorly educated workers (other than tradespersons and labourers) have below average mobility rates. The same picture emerges for the occupation-based demarcation although skilled workers (by education) who are working in low-skilled occupations have higher mobility than their counterparts in the same occupations; and

Educated workers in low-skilled occupations are significantly more mobile than their counterparts. The OECD (2005) reports that one implication of the lower levels of mobility associated with lower educational attainment is that weaker labour market participants are more dependent on local employment opportunities.

Table 6.8 Characteristics of movers, 2001-2006, per cent of cohort

Characteristic	Educational-based		Occupational-based		All Movers
	Skilled	Low-skilled	Skilled	Low-skilled	
Employed	16.8	12.8	15.7	17.1	15.8
Unemployed	27.7	22.0	29.9	29.7	29.9
Not in the Labour Force	14.8	15.0	14.5	21.0	14.9
Part-time worker	14.2	11.5	12.8	15.7	13.4
Male	16.5	14.8	15.7	19.6	16.1
Female	17.1	14.0	15.8	17.4	16.0
Married	10.9	9.3	10.3	11.3	10.4
Spouse employed	14.0	10.3	13.0	13.9	13.1
Have dependent children	12.2	13.7	12.4	15.1	12.7
Family with dependents	13.7	13.9	13.5	16.5	13.7
Sole parent	20.6	28.2	23.5	23.5	23.5
Disability	14.7	14.2	13.9	18.7	14.5
Aged 16-19 years	31.3	38.2	35.7	29.8	33.9
Aged 20-29 years	37.2	35.1	37.3	33.7	36.7
Aged 30-39 years	20.1	18.2	19.5	20.2	19.6
Aged 40-49 years	10.7	12.1	10.9	13.2	11.1
Aged 50-65 years	7.8	8.3	7.8	9.6	8.0
Own house	9.7	7.8	9.2	9.0	9.1
Rent	38.2	30.8	35.7	35.5	35.7
State housing	14.6	12.5	13.1	15.4	13.5
Low English proficiency	8.7	7.9	8.7	6.5	8.4
Indigenous	25.1	22.4	23.7	24.5	23.8
NESB	14.3	10.0	13.1	15.2	13.3
Social Interaction	12.7	10.8	11.9	13.9	12.1

Table 6.8 Characteristics of movers, 2001-2006, per cent of cohort (continued)

Characteristic	Educational-basis		Occupational-basis		All Movers
	Skilled	Low-skilled	Skilled	Low-skilled	
Manager	11.5	6.5	10.5	-	10.5
Professional	15.2	12.4	15.1	-	15.1
Associate Professional	18.5	12.2	17.2	-	17.2
Tradesperson	16.2	18.8	16.7	-	16.7
Adv/Intermediate Clerical	17.4	13.5	16.1	-	16.1
Intermediate Production	15.3	13.5	14.4		14.4
Elementary Clerical	20.5	13.7	-	17.4	17.4
Labourer	22.3	16.6	-	19.1	19.1
Agriculture and Mining	14.2	11.3	12.0	17.2	13.0
Manufacturing	17.9	13.1	16.1	18.9	16.5
Utilities and Construction	16.3	16.1	15.8	20.1	16.2
Services	19.0	15.0	17.7	18.7	17.9
Transport	18.6	12.3	15.5	24.4	16.2
Government and Education	14.6	13.2	14.4	13.8	14.4
Graduate	-	-	16.5	17.6	16.6
Diploma	-	-	14.5	17.4	14.6
Certificate	-	-	15.4	20.7	15.9
Year 12	-	-	19.2	25.0	20.0

Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006.

6.6 Labour market transitions and migration

Table 6.9 shows the labour force transitions of movers and non-movers between waves. Consistent with previous analysis (see Bill and Mitchell, 2006) unemployed movers are more likely to find employment in the following wave than unemployed persons who do not move, although factors other than migration might be influential. Those not in the labour force who move are also more likely to find employment. This is consistent with the finding of Boehm *et al.* (1998) that migration is a significant component of renewed job search for heads of household not in the labour force. Finally, those who were employed and move are less likely to be in employment after the move than those who stay put. Some of the "employment leakage" is in a higher propensity for movers who were employed to exit the labour force, perhaps signalling retirement as the motive for migration. These results are not sensitive to the choice of migration measure. Similar results are derived if the change in SLA measure is used.

Table 6.9 Employment transition rates for movers and non-movers, Waves 1-6, per cent

Previous Wave	Current Wave		
	Employed	Unemployed	Not in the Labour Force
Did not move			
Employed	94.3	1.1	4.6
Unemployed	48.7	26.8	24.5
Not in the Labour Force	15.5	3.3	81.1
Moved			
Employed	90.4	2.9	6.7
Unemployed	54.5	23.6	21.8
Not in the Labour Force	22.3	6.6	71.0

Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006.

Table 6.10 breaks the labour force transitions down for movers and non-movers by skill level (for both definitions) to provide a richer view of the mobility dynamics and labour market outcomes. For the lowly educated workers, a higher proportion of low-skilled workers remain unemployed across the waves and a lower proportion that were unemployed in the previous wave become employed. A much higher percentage of this cohort remains not in the labour force compared to the same state inertia for skilled workers. Moving does not reduce the likelihood of the unemployed remaining so next period but overall movers exhibit higher labour force participation rates. The employed movers are more likely to be unemployed next period, particularly the low-skilled. The skilled workers who were not in the labour force are more likely to be employed next period if they had moved. For the low-skilled occupations, the patterns are similar. Moving does not help an employed person keep their job and the situation is much worse for low-skilled workers.

Using the educational-basis for demarcation, Table 6.11 shows that only 26.1 per cent of the low-skilled workers enjoyed pay improvements between HILDA waves compared to 37.9 per cent of skilled workers who enjoy improved pay. Low-skilled workers who move have a lower chance of realising pay improvement (24 per cent) than those who did not move (26.4 per cent). Moving has no pay impact for skilled workers. For the occupational demarcation, the figures are similar. Moving doesn't provide many bonuses by way of pay improvement for either skill group. Thus even in a period when the Australian economy was growing relatively strongly, the low-skilled seem to be less able to participate in the growth via pay improvement.

Table 6.12 provides a breakdown of the wage outcomes following a change in SLA by broad skill level (educational-basis). Movers have lower initial gross median wages (measured as the total gross amount of most recent pay before deductions) than non-movers. While other workers do not appear to benefit in terms of pay from moving the situation is different for the low-skilled. Moving for them appears to provide greater pecuniary returns in the form of higher wage growth (12.5 per cent compared to 8.7 per cent).

Table 6.10 Labour force transitions for low-skill and skilled movers and non-movers, 2001-2005, per cent

Educational-basis				Educational-basis			
Previous LF status	Labour Force status in current wave (%)			Previous LF status	Labour Force status in current wave (%)		
Non-movers, skilled	Employed	Unemployed	Not in LF	Non-movers, Low-skilled	Employed	Unemployed	Not in LF
Employed	94.5	1.17	4.32	Employed	91.6	1.4	6.9
Unemployed	49.21	25.24	25.55	Unemployed	40.9	31.5	27.6
Not in Labour Force	17.9	3.38	78.73	Not in Labour Force	10.3	2.8	86.9
Movers, skilled				Movers, Low-skilled			
Employed	94.46	1.68	3.85	Employed	88.6	2.8	8.4
Unemployed	61.3	16.8	21.9	Unemployed	47.6	30.1	22.3
Not in Labour Force	24	5.5	70.4	Not in Labour Force	13.3	5.1	81.6
Occupational-basis				Occupational-basis			
Previous LF status	Labour Force status in current wave (%)			Previous LF status	Labour Force status in current wave (%)		
Non-movers, skilled	Employed	Unemployed	Not in LF	Non-movers, Low-skilled	Employed	Unemployed	Not in LF
Employed	94.4	1.0	4.6	Employed	88.6	3.0	8.4
Unemployed	45.6	25.4	29.1	Unemployed	47.4	36	16.7
Not in Labour Force	13.9	2.9	83.2	Not in Labour Force	16.1	5.1	78.8
Movers, skilled				Movers, Low-skilled			
Employed	94.4	1.7	3.9	Employed	85.2	3.4	11.4
Unemployed	54.9	22.5	22.5	Unemployed	55.1	24.5	20.4
Not in Labour Force	18.3	4.2	77.6	Not in Labour Force	20.2	14.9	64.9

Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006.

Table 6.11 Pay outcomes by skill classification, 2001-2006, per cent

Cohort and pay outcome	Educational-based		Occupational-based	
	Skilled	Low-skilled	Skilled	Low-skilled
	%	%	%	%
Total				
No improvement in pay	62.1	73.9	66.9	55.5
Pay improvement	37.9	26.1	33.1	44.5
Moved				
No improvement in pay	62.1	76.0	67.3	55.7
Pay improvement	37.9	24.0	32.7	44.3
Did not move				
No improvement in pay	62.1	73.5	66.8	55.5
Pay improvement	37.9	26.5	33.2	44.5

Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006.

Table 6.12 Wage outcomes following a change in SLA by broad skill level (educational-based)

	Median gross wage ($) Previous wave	Median gross wage ($) Current wave	Percentage Change
Did Not Move			
Other	1,502	1,649	9.8
Low-skilled	850	924	8.7
Moved			
Other	1,462	1,600	9.4
Low-skilled	800	900	12.5

Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006.

6.7 Commuting behaviour of the low-skilled and other workers

The HILDA data indicates that the average Australian commuter travels approximately 252 minutes a week. We are unable to break this down into minutes per day because we have no reliable information about the days worked by each person per week.

Regional science theory would predict that low-skilled workers have shorter commuting times because commuting costs of longer journeys to work are not offset by higher wages. In addition, a number of other factors (job search costs and search skills, availability of job information, word-of-mouth job referrals in local area, employer preferences and reliance on public transport) suggest that the low-skilled will seek employment closer to their place of residence. However, some argue

(especially the so-called “Key Worker” debate) that the increasing house prices in the inner city areas over the last decade (particularly in Sydney) has intensified the spatial sorting of residents by income. As a consequence, many low-skilled workers are now forced to live on the suburban fringe and consequently face longer commutes (empirical evidence for this argument is however less conclusive) (see Berry, 2006).

Figures 6.1 and 6.2 provide histograms of the weekly time spent commuting for other workers and the low-skilled, respectively. An analysis of the commuting patterns for each group reveals that:

A much higher proportion of low-skilled workers commute shorter distances than other workers;

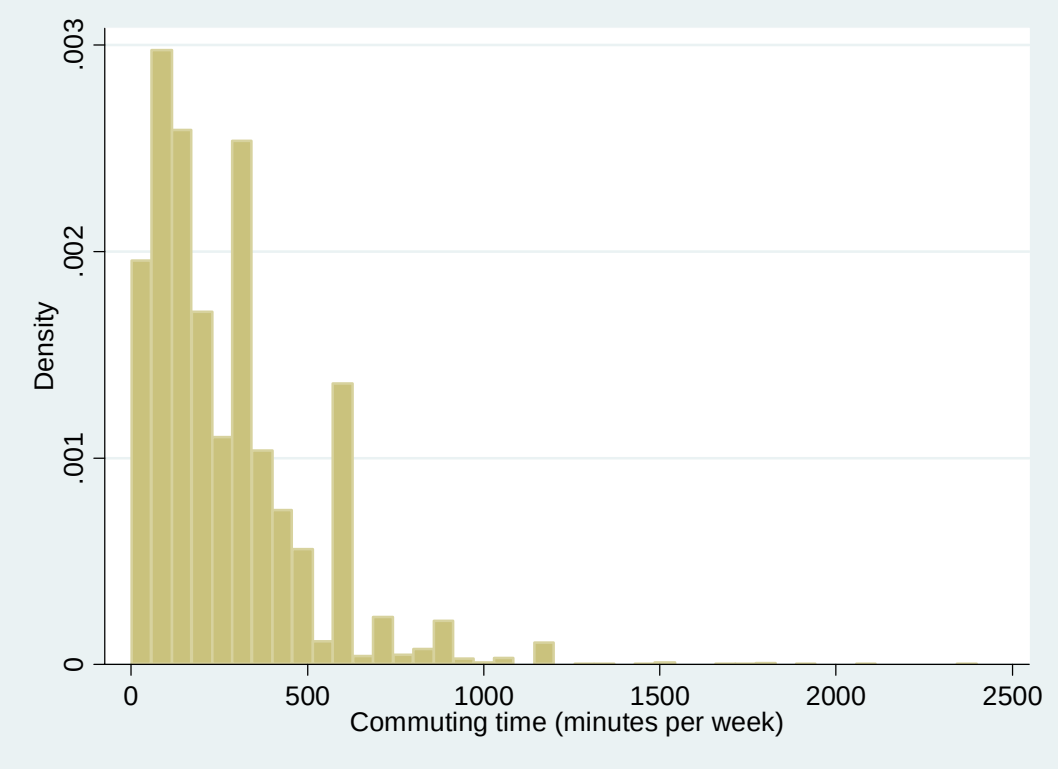
Both distributions are left skewed with the low-skilled histogram being more so;

On average, low-skilled workers commute 228 minutes per week whereas all other workers commute on average 259 minutes per week.

30.5 per cent of low-skilled workers commute an hour or less per week, compared to 22.5 per cent of other workers.

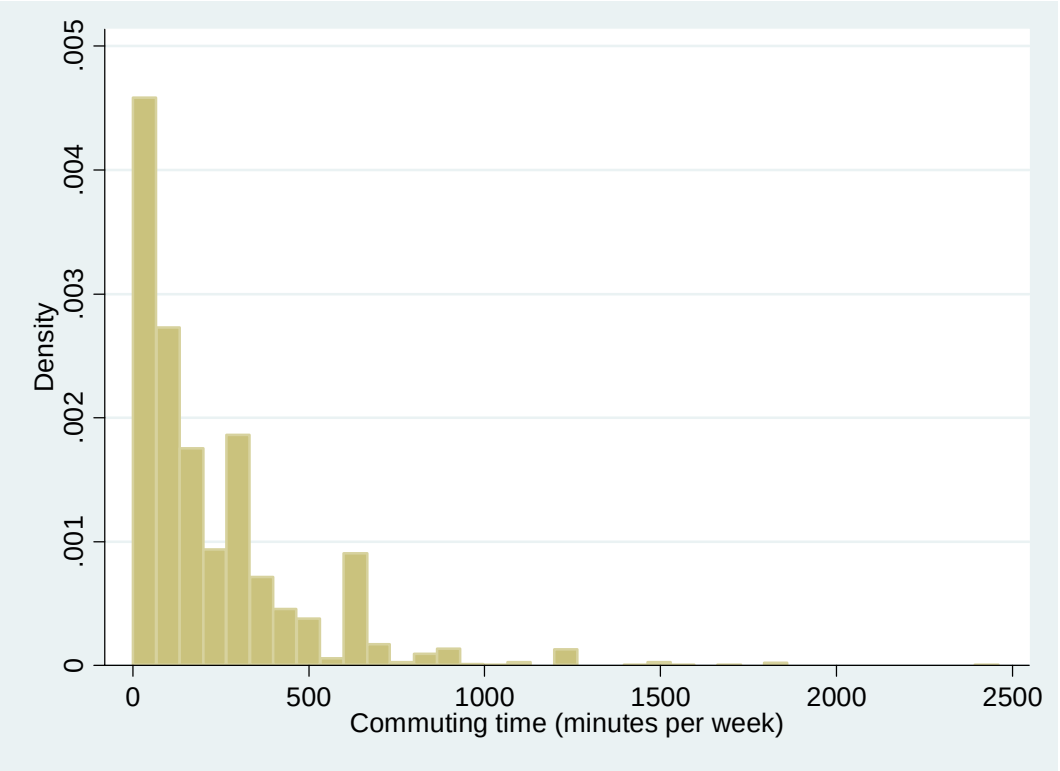
Thus we would confirm the standard conjecture that low-skilled workers have shorter commuting times, likely to be driven by household budget constraints, lack of transport options and the rising cost of petrol.

Figure 6.1 Histogram of weekly commuting time for work, other workers



Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006.

Figure 6.2 Histogram of weekly commuting time for work, low-skilled workers



Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006.

While we might define a long-commute as an above average commute, it is clear that urban form is likely to vary considerably by state and whether the commuting area is within a metropolitan or non-metropolitan region. Table 6.13 shows average commutes for low-skilled and other workers separately for each Major Statistical Region (MSR). The results reveal that:

Metropolitan areas have substantially higher average commutes than the rest of the state. Commuting times are greatest in Sydney (averaging approximately 5 hours per week), followed by Melbourne (4 hours and 25 minutes) and Brisbane (4 hours and 10 minutes).

Average weekly commuting time to work is 50 to 70 per cent higher in cities compared to non-metropolitan regions. This is likely to reflect factors such as greater population density and congestion in cities, as well as greater diversity in the labour and housing markets. It may also be consistent with the “Key Worker” debate contentions noted earlier.

Table 6.13 Average weekly commuting time, by Major Statistical Region, 2001-2006, minutes

Major Statistical Region (MSR)	Average weekly commuting time (minutes)
Sydney	301.99
Rest of NSW	179.62
Melbourne	265.3
Rest of Victoria	174.46
Brisbane	251.46
Rest of Queensland	174.68
Adelaide	230.94
Rest of South Australia	130.75
Perth	227.48
Rest of Western Australia	157.65
Tasmania	174.58
Northern Territory	168.96
Australian Capital Territory	177.28

Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006.

Around 38.8 per cent of commuters (persons who were employed at the time of the survey and provided a commuting time), spend an above average time commuting to work per week (relative to their respective MSR average). Table 6.14 summarises the characteristics of these “long distance” commuters. The main summary points are:

Females are less likely to have an above average time spent commuting, as are employed teenagers (aged 16 to 19 years).

Commuters employed in highly skilled occupations, professionals and associate professionals, are more likely to have above average commuting times, while clerical and service and elementary clerical and service workers experience much shorter commuting times. Notably labourers and tradespersons have a higher proportion of persons with above average commuting times.

Commuting time appears to be proportional to educational qualification, although persons with a Trade Certificate have longer commuting times, reflecting the longer commuting times of Tradespersons.

Persons with low English language proficiency and persons living in metropolitan areas are more likely to be amongst long distance commuters.

Indigenous people are less likely to be amongst long-distance commuters, as are people in state housing.

Table 6.14 Percentage long distance commuters by socio-demographic and employment characteristics, various units

Characteristic	Percentage	Time per week (Minutes)
Aged 16-19 years	30.9	202.50
Aged 20-29 years	40.7	243.56
Aged 30-39 years	38.8	226.63
Aged 40-49 years	40.0	226.05
Aged 50-59 years	36.5	209.95
Female	31.0	193.17
Have dependent children	38.7	239.84
Family with dependents	39.5	221.07
Spouse employed	38.5	221.41
Sole Parent	35.1	189.66
Disabled	36.0	214.49
Indigenous	33.1	283.80
Low English language proficiency	42.3	287.41
Non English speaking background	44.5	164.69
Social Interaction	38.0	219.20
Degree or Higher	41.7	244.85
Diploma	36.2	211.77
Trade Certificate	43.4	242.52
Year 12 completed	37.7	222.61
Low-skilled	32.0	219.90
Own house	39.4	224.36
Rent	37.5	231.12
State housing	34.0	140.71
Metropolitan	42.8	221.01
Manager	35.9	210.04
Professional	40.7	240.98
Associate Professional	41.1	235.59
Tradesperson	47.2	253.49
Clerical	33.7	204.53
Intermediate Production	43.1	232.00
Elementary Clerical	27.2	180.84
Labourer	37.4	208.42
Agriculture and Mining	29.5	155.41

Manufacturing	43.0	226.94
Elementary Construction	55.8	309.04
Services	37.7	227.61
Transport	37.9	217.05
Government/Education	36.7	211.95
Other industries	39.8	217.83

Source: HILDA, Waves 1-6, weighted.

6.8 Industry and occupational mobility

6.8.1 Industry mobility

Table 6.15 shows the extent of industry mobility as defined using HILDA as being a shift between industry classifications (at the ISIC 3.1 2-digit level). Overall 31 per cent of persons changed industry between any one wave and the next wave. Once again, rates of mobility are lower for low-skilled persons with 27 per cent of low-skilled persons changing industry between one wave and the next, versus 33 per cent of other persons.

Table 6.15 Industry mobility by broad skill-level (educational-basis), Waves 1-6, various units

	2002	2003	2004	2005	2006	Total
Others						
Did not change industry	3,072	3,269	3,295	3,366	3,503	
Per cent	64.9	67.3	66.7	67.1	69.3	67.1
Changed industry	1,661	1,590	1,649	1,649	1,549	
Per cent	35.1	32.7	33.4	32.9	30.7	32.9
Low-skilled						
Did not change industry	1,606	1,599	1,553	1,470	1,428	
Per cent	71.2	73.5	73.6	73.2	74.7	73.2
Changed industry	651	578	558	537	485	
Per cent	28.8	26.6	26.4	26.8	25.4	26.8

Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006.

Table 6.16 shows the personal and family characteristics of persons who changed industries between Waves (for Waves 1 to 6). Given that on average 31 per cent of all workers change industry in any given wave (defined at the 2 digit level), the results can be summarised as follows:

Unemployed persons are more likely to change industry, while those not in the labour force are much less likely.

Intermediate production workers, elementary clerical workers and labourers are more likely to change industry, while managers and professionals are less likely.

Persons employed in manufacturing, transport and service industries are more likely to change industry, while those employed in government and education are less likely.

Younger people are more likely to change industry and older persons are less likely.

Persons with low English speaking proficiency and of a non-English speaking background are less likely to change industry.

Persons who are married or have dependent children are less likely to change industry.

Table 6.16 Industry mobility by personal and family characteristics, Waves 1-6, per cent

Characteristic	Percentage changing industry	Characteristic	Percentage changing industry
Aged 16-19 years	25.9	Low English proficiency	12.9
Aged 20-29 years	22.5	NESB	5.9
Aged 30-39 years	11.9	Social interaction	28.3
Aged 40-49 years	6.7		
Aged 50-59 years	5.3	Employed	34.3
Female	28.1	Unemployed	49.5
Married	28.2	Not in the Labour Force	14.5
Sole parent	29.4		
Disability	23.6	Manager	29.6
Indigenous	30.6	Professional	28.3
		Associate Professional	31.6
Degree or higher	31.2	Tradesperson	33.2
Diploma	30.1	Clerical	33.8
Trade certificate	31.9	Intermediate Production	36.3
Year 12	34.5	Elementary Clerical	38.3
Low-skilled	26.9	Labourer	39.4
Own House	29.0	Agriculture and Mining	29.7
Rent	34.7	Manufacturing	44.2
Reside in Metropolitan SLA	31.6	Elementary Construction	32.9
		Services	39.0
Have dependent children	29.2	Transport	40.9
Family with dependents	30.9	Government/Education	23.0
Spouse employed	32.8	Other Industries	40.4

Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006. Low-skilled is defined using the educational definition.

Tables 6.17 and 6.18 provide preliminary examination of the employment transitions and wage changes following a change of industry. The results can be summarised as:

Unemployed persons who change industry are more likely to be employed (71 per cent compared to 41 per cent), while employed persons who change industry are more likely to be out of the labour force in the subsequent wave or to be unemployed.

Those outside the labour force who change industry are substantially more likely to be employed in the subsequent wave.

Low-skilled workers wages are considerably lower than those of other workers.

Median gross wages (measured as the total gross amount of most recent pay before deductions) for those who do not change industry, are initially higher for both low-skilled and other workers.

However both low-skilled and other workers who change industry experienced a greater percentage growth in median gross wages, approximately 11 percent, compared to 7 per cent growth of those who do not change industry.

Table 6.17 Employment outcomes following industry change, Waves 1-6, per cent

Previous Wave	Current Wave		
	Employed	Unemployed	Not in the Labour Force
Did not change industry			
Employed	94.8	1	4.3
Unemployed	40.9	31.8	27.4
Not in the Labour Force	10.3	3.4	86.4
Changed industry			
Employed	90.8	2.2	7.0
Unemployed	71	12.8	16.2
Not in the Labour Force	42	5.0	53

Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006.

Table 6.18 Wage outcomes following industry change, Waves 1-6, various units

	Median gross wage ($) Previous wave	Median gross wage ($) Current wave	Percentage Change
Did not change industry			
Other	1,600	1,700	6.3
Low-skilled	884	950	7.5
Changed industry			
Other	1,319	1,459	10.6
Low-skilled	769	850	10.5

Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006. Note: if gross wages are not recorded for the current or previous wave these observations are deleted for this analysis. Low-skilled is defined using the educational definition.

6.8.2 Occupational mobility

Occupational mobility involves shifting between occupational classifications (defined in HILDA at the ISCO-88 2-digit level). Table 6.19 reports the extent of occupational mobility by broad skill level (educational-basis). The main findings are:

Overall an average of 36.4 per cent of persons changed occupation between any one wave and the next wave at the 2-digit level.

Rates of mobility are lower for low-skilled persons, 31.4 per cent of low-skilled persons changed industry between one wave and the next versus 38.6 per cent of other persons.

Table 6.19 Occupational mobility by broad skill-level, various units

	2002	2003	2004	2005	2006	Total
Low-skilled workers						
Did not change occupation	1543	1495	1442	1390	1313	
Per cent	68.4	68.7	68.3	69.3	68.6	68.6
Changed occupation	714	682	669	617	600	
Per cent	31.6	31.3	31.7	30.7	31.4	31.4
All other workers						
Did not change occupation	2835	2940	3008	3114	3209	
Per cent	59.9	60.5	60.8	62.1	63.5	61.4
Changed occupation	1898	1919	1936	1901	1843	
Per cent	40.1	39.5	39.2	37.9	36.5	38.6

Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006. Low-skilled is defined using the educational definition.

Table 6.20 summarises the personal and family characteristics of persons who change occupations between HILDA waves. The results are summarised as:

As observed in the case of industry mobility, unemployed persons are more likely to change occupation, while those not in the labour force are much less likely.

Managers and Associate Professionals are more likely to be amongst those who changed occupation across the 6 waves of HILDA, as are clerical, sales and service workers and elementary clerical sales and service workers.

Persons employed in manufacturing, transport and service industries are much more likely to change occupation, while those employed in government and education are slightly less likely.

Older workers are less likely to change occupation, as are persons with low English speaking proficiency.

Those who are married or have dependent children are less likely to change occupation.

Table 6.20 Occupational mobility by personal and family characteristics, Waves1-6, per cent

Characteristic	Percentage changing industry	Characteristic	Percentage changing industry
Aged 16-19 years	56.5	Low English proficiency	17.6
Aged 20-29 years	46.2	NESB	32.7
Aged 30-39 years	40.2	Social interaction	33.8
Aged 40-49 years	35.2		
Aged 50-59 years	27.1	Employed	41.6
Female	34.7	Unemployed	49.5
Married	33.9	Not in the Labour Force	14.5
Sole parent	32.6		
Disability	25.8	Manager	40.3
Indigenous	34.4	Professional	31.7
		Associate Professional	45.7
Degree or higher	37.2	Tradesperson	30.5
Diploma	35.9	Clerical	44.4
Trade certificate	36.4	Intermediate Production	39.7
Year 12	42.4	Elementary Clerical	44.5
Low-skilled	31.4	Labourer	47.1
Own House	34.7	Agriculture and Mining	40.9
Rent	39.2	Manufacturing	45.8
Reside in Metropolitan SLA	37.2	Elementary Construction	38.0
		Services	44.9
Have dependent children	35.4	Transport	40.7
Family with dependents	37.2	Government/Education	34.1
Spouse employed	40.3	Other Industries	46.1

Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006. Low-skilled is defined using the educational definition.

Tables 6.21 and 6.22 below provide preliminary examination of the employment transitions and wage changes following a change of occupation with the results being similar to those that were found for industry mobility. The main points are:

Unemployed who change occupation are more likely to be employed (71 per cent compared to 41 per cent), while employed persons who change occupation are more likely to be out of the labour force or to be unemployed.

Those outside the labour force who change occupation are substantially more likely to be employed in the subsequent wave.

Median gross wages (measured as the total gross amount of most recent pay before deductions) for those who do not change occupation, are initially higher for both low-skilled and other workers.

Low-skilled workers who changed occupation experienced a much greater percentage growth in median gross wages than low-skilled who did not change occupations, approximately double.

Table 6.21 Employment outcomes following occupational change, Waves 1-6, per cent

Previous Wave	Current Wave		
	Employed	Unemployed	Not in the Labour Force
Did not change occupation			
Employed	95	1.1	4.3
Unemployed	41	31.7	27.3
Not in the Labour Force	10.3	3.4	86.1
Changed occupation			
Employed	91.6	2.9	6.5
Unemployed	71	12.7	16.2
Not in the Labour Force	42	5	53

Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006.

Table 6.22 Wage outcomes following occupational change by broad skill level, 2001-2006, various units

	Median gross wage previous wave ($)	Median gross wage current wave ($)	Percentage change
Did not change occupation			
Other	1,600	1,710	6.9
Low-skilled	850	900	5.9
Changed occupation			
Other	1,400	1,500	7.1
Low-skilled	850	950	11.8

Source: HILDA, Unconfidentialised, Waves 1-6, 2001-2006. Low-skilled is defined using the educational definition.

6.8.3 Survey of ABS Labour Mobility CURF

Table 6.23 reports on the analysis of the ABS Labour Mobility Survey. Low-skilled workers (defined as persons whose highest qualification is Year 11) were less likely to change jobs (in terms of occupation and industry) or to change hours, in the period 2005 to 2006. Occupational and industry mobility are recorded in this survey as a change in major classification at the 1-digit level. The finding of lower mobility rates amongst the low-skilled is consistent with our previous analysis of industry and occupational mobility using HILDA (however industry and occupational mobility rates

are measured as a change in classification the 2-digit level, and so are higher). For the Labour Mobility survey, occupational changes (1-digit level, that is between major divisions) in the last year are slightly more common than changes in industry (also at the 1-digit level).

Table 6.23 Skill level by whether changed occupation, industry, hours or job, 2005-2006, per cent

Type of change	Other workers	Low-skilled	Total
Industry change (2005-06)	6.5	5.0	6.1
Occupational change (2005-06)	7.2	6.1	7.0
Hours changed (2005-06)	19.1	16.0	18.3
Changed employment type (2005-06)	6.9	6.8	6.9

Source: Confidentialised Unit Record File (CURF) Data Survey of Labour Mobility, 2006. Note: Population is confined to those who are currently (2006) in employment. Weighted.

Table 6.24 reports the personal and family characteristics of persons who changed industry between 2005 and 2006. The major summary results are as follows:

Females and persons aged 20-24 are more likely to change industry than males and older workers;

The low-skilled have a lower propensity to change industry;

Those with a Degree or Higher Qualification are slightly less likely to change industry, as are those with a Trade Certificate;

Persons with paid leave entitlements are less likely to change industry, as are married persons, part-time workers, employers, those from a non-English speaking country, Managers of Unincorporated enterprises and Contributing Family workers;

Over half of those who changed occupation from 2005 to 2006 also changed industry;

A quarter of those who changed hours also changed industry;

Persons employed in Western Australia (WA) and Persons who are New Arrivals in Australia (having arrived after 1996) are more likely to have changed industry (perhaps due to the relative predominance of the Mining industry in this state);

Almost 50 per cent of retrenched workers changed industry.

Table 6.24 Personal and family characteristics by whether changed major industry division, 2005-06, per cent

Characteristic	Per cent Changed Industry 2005-06	Characteristic	Per cent Changed Industry 2005-06
Overall	6.1	Agriculture	3.8
Female	6.2	Mining	11.8
Aged 15-19 years	2.8	Manufacturing	4.3
Aged 20-24 years	11.3	Electricity, Gas and Water Supply	7.0
Aged 25-29 years	9.7	Construction	4.9
Aged 30-34 years	6.9	Wholesale Trade	7.8
Aged 35-39 years	6.0	Retail Trade	5.2
Aged 40-44 years	4.9	Accommodation, Cafes and Restaurants	7.3
Aged 45-49 years	4.2	Transport and Storage	6.8
Aged 50-54 years	6.0	Communication Services	8.1
Aged 55-59 years	3.1	Finance and Insurance	5.6
Aged 60-64 years	1.6	Property and Business Services	8.2
Aged 64 plus	1.0	Government, Administration and Defence	6.1
Married	5.0	Education	3.0
		Health and Community Services	4.9
Low-skilled	5.0	Cultural and Recreation Services	6.9
Degree or higher qualification	5.9	Personal and Other Services	7.8
Trade certificate	5.9		

Table 6.24 (continued) Personal and family characteristics by whether changed major industry division, 2005-06, per cent

Characteristic	Per cent Changed Industry 2005-06	Characteristic	Per cent Changed Industry 2005-06
New arrival after 1996	8.0	Living in a metropolitan region	5.7
Born Non-English speaking country	4.7	NSW	5.2
		VIC	5.3
Part-Time	5.0	QLD	7.1
Retrenched from last Job	47.5	SA	5.0
		WA	7.5
Transferred	0	TAS	5.1
Promoted	0	Rest of Australia	7.9
Sick Leave	5.9		
		Employees with paid leave entitlements	5.9
Employee	6.5	Employees without paid leave entitlements	9.9
Employer	1.4	Paid Leave Entitlements, 2006	5.9
Own account worker	3.6	Paid Leave Entitlements, 2005	6.0
Owner, managers of unincorporated enterprises	1.8		
Contributing family worker	3.1	Changed Occupation in the last year	52.0
		Changed Hours	26.5

Source: Confidentialised Unit Record File (CURF) Data Survey of Labour Mobility, 2006. Note: Population is confined to those who are currently (2006) in employment. Weighted.

Table 6.25 reports the personal and family characteristics of persons who changed occupation between 2005 and 2006. The major summary results are as follows:

Persons who changed occupation between 2005-5006 are more likely to be aged 20-24 years and 25-29 years and are less likely to be older workers;

Very young workers are however less likely to change occupation (those aged 15 to 19 years);

The low-skilled have a lower propensity to change occupation;

Those with a degree or higher qualification are slightly less likely to change occupation;

Married persons are less likely to change occupation and almost 60 per cent of people who change occupation also change industry;

Persons who are employed in 2006 as Associate Professionals and Intermediate Clerical workers are most likely to have changed occupation;

Persons employed in Western Australia (WA), Queensland (QLD) and Rest of Australia (ACT and NT) were more likely to have changed occupation;

Part-time workers are slightly less likely to change occupation and employers are substantially less likely than employees;

Over a third of retrenched workers change occupation;

New arrivals in Australia (persons who arrived after 1996), are more likely to have changed occupation in the previous year;

Those who were born in a non-English speaking country, Owners, Managers of Unincorporated enterprises and Contributing Family workers are much less likely to have changed occupation;

Nearly a quarter (23 per cent) of persons who were transferred between jobs, have also changed occupation, and 17 per cent of those who were promoted in their job changed occupation.

Table 6.25 Personal and family characteristics by whether changed major occupation division, 2005-06, per cent

Characteristic	Per cent Changed Occupation 2005-06	Characteristic	Per cent Changed Occupation 2005-06
Overall	7.0	Manager	7.2
Female	7.3	Professional	5.0
Aged 15-19 years	1.7	Associate Professional	9.7
Aged 20-24 years	14.0	Tradesperson and Related Worker	4.5
Aged 25-29 years	10.9	Advanced Clerical, Sales and Service Worker	7.4
Aged 30-34 years	7.7	Intermediate, Clerical, Sales and Service Worker	8.6
Aged 35-39 years	7.7	Intermediate Production Worker	7.5
Aged 40-44 years	5.8	Elementary Clerical, Sales and Service Worker	6.5
Aged 45-49 years	5.0	Labourer	7.0
Aged 50-54 years	7.7		
Aged 55-59 years	3.5	New arrival after 1996	7.5
Aged 60-64 years	2.2	Born Non-English speaking country	4.8
Aged 64 plus	0.6		
Married	5.9	Part-Time	5.2
		Retrenched from last Job	34.1
Low-skilled	6.1		
Degree or higher qualification	6.4	Sick Leave	7.7
Trade Certificate	6.4	Holiday leave (current job)	7.8

Table 6.25 (continued) Personal and family characteristics by whether changed major occupation division, 2005-06, per cent

Characteristic	Per cent Changed Industry 2005-06	Characteristic	Per cent Changed Industry 2005-06
Transferred	22.8	Living in a metropolitan region	6.6
Promoted	17.4	NSW	5.7
		VIC	5.8
Employee	7.5	QLD	8.5
Employer	1.7	SA	6.2
Own account worker	3.3	WA	8.1
Owner, managers of unincorporated enterprises	1.5	TAS	6.2
Contributing family worker	2.9	Rest of Australia	9.5
Changed industry in the last year	59.5	Employees with paid leave entitlements	7.7
Changed working hours	26.3	Employees without paid leave entitlements	9.0
Worked previously	7.7		

Source: Confidentialised Unit Record File (CURF) Data Survey of Labour Mobility, 2006. Note: Population is confined to those who are currently (2006) in employment. Weighted.

Table 6.26 indicates that low-skilled workers are substantially less likely than other workers to have holiday leave, sick leave and paid leave entitlements.

Table 6.26 Entitlements, workers by broad skill-level, 2005-06, per cent

	Other workers	Low-skilled
Holiday Leave, 2006	58.0	46.2
Sick Leave, 2006	63.1	50.4
Paid Leave Entitlements, 2006	63.7	51.2

Source: Confidentialised Unit Record File (CURF) Data Survey of Labour Mobility, 2006.
Note: Population is confined to those who are currently (2006) in employment. Weighted.

Table 6.27 illustrates the transition from occupation to occupation for those who changed occupation between 2005 and 2006. The main results are:

Associate Professionals, Labourers, Intermediate Clerical Sales and Service workers, and Elementary Clerical, Sales and Service workers are more likely to change occupation;

Tradespersons are most likely to become Labourers or Intermediate Production and Transport workers;

Intermediate Clerical Sales and Service workers are most likely to become Associate Professionals, Professionals or Elementary Clerical, Sales and Service workers;

Intermediate Production workers are more likely to become Intermediate Clerical, Sales and Service workers, Tradespersons or Labourers;

Elementary Clerical workers are most likely to become Intermediate Clerical, Sales and Service workers;

Labourers are most likely to become Intermediate Production workers or Tradespersons and Related workers, or Intermediate Clerical, Sales and Service workers.

The data also shows that for inter-industry transitions in 2005 and 2006:

Workers in Manufacturing (10.4 per cent), Retail trade (19.5 per cent) and Property and business services (13.9 per cent) are most likely to change industry;

Manufacturing workers who change industry shift into Retail trade, Construction and Wholesale trade;

Retail workers who change industry tend to go into Manufacturing, Wholesale trade, Accommodation, cafes and restaurants and Property and business services;

Property and business service workers who change industry mostly go into Manufacturing, Retail trade and Health and community services.

Table 6.27 Occupation in 2005 and 2006 for persons who changed jobs, 2005-06, per cent

2005 \ 2006	Managers and Admin	Professionals	Associate Professionals	Trades and Related Workers	Advanced Clerical and Service Workers	Intermediate Clerical, Sales and Service Workers	Intermediate Production and Transport Workers	Elementary Clerical, Sales and Service Workers	Labourers and Related Workers	Total
Managers and Administrators	0.0	30.1	34.8	6.2	2.9	16.3	4.2	2.2	3.3	6.5
Professionals	32.4	0.0	24.5	3.4	5.9	18.0	4.4	8.6	2.9	9.5
Associate Professionals	16.7	23.1	0.0	5.2	5.0	29.3	7.1	8.7	4.9	13.5
Tradespersons and Related Workers	6.0	8.0	13.6	0.0	1.1	9.3	22.7	10.8	28.7	8.6
Advanced Clerical and Service Workers	3.8	27.7	22.1	0.7	0.0	32.7	0.0	12.2	0.8	4.2
Intermediate Clerical, Sales and Service Workers	5.8	19.3	28.6	6.2	10.3	0.0	5.0	16.7	8.3	19.0
Intermediate Production and Transport Workers	7.7	7.8	10.7	20.7	2.8	21.4	0.0	9.3	19.5	8.8
Elementary Clerical, Sales and Service Workers	4.1	13.7	15.3	8.8	3.8	39.2	5.0	0.0	10.2	17.9
Labourers and Related Workers	4.4	7.3	9.4	20.8	0.3	19.0	28.1	10.9	0.0	12.0
Total	9.0	14.6	16.9	8.5	4.4	20.1	8.8	8.9	8.7	100.0

Source: Confidentialised Unit Record File (CURF) Data Survey of Labour Mobility, 2006. Note: Population is confined to those who are currently (2006) in employment. Weighted.

6.9 Minimum Wage Workers

Those workers who are reliant on minimum wages cannot be identified precisely in the HILDA data. However, we can examine the experience of those people who are earning up to or around the level of the standard Federal minimum wage[3] (where the hourly wage rate is determined by total gross weekly wages and salary from all jobs, divided by total hours worked in all jobs per week) as an approximation. We examine personal characteristics and mobility rates, for geographic, occupational and industrial, for these minimum wage workers. The data is subset to those who are employed and have recorded a valid value for gross weekly earnings. Approximately 11.6 per cent of workers in this dataset are classified as minimum wage workers. Table 6.28 provides a snapshot of the characteristics of workers earning the minimum wage.

Table 6.28 Characteristics of minimum wage and other workers, per cent

	Other	Min Wage Worker		Other	Min Wage Worker
Female	48.7	51.8	Agriculture/Mining	3.5	8.7
Sole parent	3.9	5.0	Manufacturing	11.7	10.1
Disability	7.8	12.8	Electrical/Construction	6.1	5.6
English proficiency	0.2	0.6	Services	37.3	48.7
Indigenous	1.2	1.6	Transport	4.1	5.2
NESB	9.9	8.9	Government/Educ[n]	34.7	18.8
Age 16-19 years	0.7	9.0	Other industries	2.6	2.9
Age 20-29 years	14.9	19.7	Manager	7.7	8.0
Age 30-39 years	27.0	21.3	Professional	28.4	9.5
Age 40-49 years	33.5	25.2	Associate Professional	14.1	13.3
Age 50-65 years	24.0	24.8	Tradesperson	9.1	13.7
Social networks	13.0	15.8	Clerical, Sales and Service Worker	21.0	22.7
Dependents	52.0	44.1	Intermediate Production Worker	7.8	8.2
Family dependents	37.6	32.7	Elementary Clerical, Sales and Service Worker	6.2	11.8
Spouse employed	72.6	62.3	Labourer	5.9	12.9
Degree or higher qualification	31.5	11.4	Home owner	77.2	67.9
Diploma	10.1	8.9	Renter	21.2	27.6
Graduate Certificate	22.9	25.1	Low-skilled	23.1	32.9
Year 12	13.3	20.5			

Source: HILDA, Unconfidentialised, Waves 2-6, 2002-2006. , Weighted. Note: Data is subset to include only employed persons with a valid value recorded for their gross weekly wage.

The main results from Table 6.28 are summarised as follows:

These workers are substantially more likely to be very young (aged 16-19 years), low-skilled and employed as Clerical, Sales and Service Workers and Elementary Clerical, Sales and Service workers, Labourers or Tradespersons;

They are marginally more likely to be female and are more likely to have a disability or to be renting.

They are more likely to be low-skilled (defined throughout this Report as not having gone past Year 11).

However, a substantial proportion are not classified as low-skilled, no doubt because (given the age breakdown of this group) a larger proportion of minimum wage workers are still studying.

Table 6.29 provides mobility rates for workers earning the minimum wage (overall mobility rates differ from the previous analysis because the data has been subset to employed workers with a valid value recorded for gross weekly earnings). Minimum wage workers are less likely to move, change occupations and change industry, however they are more likely to be long distance commuters (that is, undertake an above average commute for their Major Statistical Region (MSR)).

Table 6.29 Mobility rates, minimum wage workers, 2002-2006, per cent

Type of mobility	Minimum Wage Worker	Non-Minimum Wage Worker
Moved	16.3	19.3
Changed SLA	11.2	11.9
Changed Occupation	41.3	45.8
Change Industry	33.2	39.0
Long Commute (above average for MSR)	41.1	31.7

Source: HILDA, Unconfidentialised, Waves 2-6, 2002-2006. Note: Data is subset to include only employed persons with a valid value recorded for their gross weekly wage.

Table 6.30 reveals that minimum wage workers are more likely to reside in a low socio-economic status SLAs than other workers, and are less likely to reside in higher socio-economic status areas.

Table 6.30 Mobility rates, minimum wage workers, 2002-2006 by IRSED decile, per cent

Decile	Other Workers	Minimum Wage
Decile 1 (least advantaged)	6.8	7.6
Decile 2	8.6	12.2
Decile 3	10.0	11.0
Decile 4	7.1	8.5
Decile 5	8.8	12.3
Decile 6	10.4	11.1
Decile 7	12.2	12.2
Decile 8	10.7	8.8
Decile 9	13.1	9.4
Decile 10 (most advantaged)	12.2	6.8
Total	88.6	11.4

Source: HILDA, Unconfidentialised, Waves 2-6, 2002-2006. Note: Data is subset to include only employed persons with a valid value recorded for their gross weekly wage.

6.10 Summary

The key summary points from this Chapter are:

The lower levels of mobility associated with lower educational attainment mean that weaker labour market participants are more dependent on local employment opportunities (this is reflected also in the lower commuting distances of low-skilled persons).

Low-skilled workers are seen to display lower levels of mobility when low-skilled is defined in terms of educational attainment. However, when it is defined in terms of occupation, low-skilled workers actually display greater mobility than skilled workers. This could possibly be explained through the greater rental occupancy rates among low-skilled workers (by occupation), which, other things equal, is seen to support a greater propensity to move. Furthermore, two other factors may further explain this result. The first is that moves by low-skilled workers (by occupation) tend to be the most locally concentrated of the groups, while the second is that the highest proportion of low-skilled workers' reasons for moving is housing-related, both of which are factors which display a relatively higher propensity to move (across all groups).

Overall, unemployed persons who display greater mobility, either in the sense of migration or in industry and occupational mobility, have a greater chance of gaining employment than unemployed persons who are less mobile. This is also true for persons who are not in the labour force.

Low-skilled workers spend less time commuting in a week than skilled workers. In fact, some of the highest skilled occupations have some of the longest average commuting times. These results conflict the “Key Worker” argument that low-skilled workers are being forced out of areas that have high housing and living costs (inner city areas) and consequently are being forced to undertake longer commutes. However, longer commuting times overall for the capital cities may support the “Key Worker” argument.

Low-skilled workers are less likely to change industry or occupation than other workers. However, both low-skilled workers and other workers who do change industry or occupation are more likely to enjoy a greater percentage increase in their wage, than if they had remained in their previous employment situation.

7 Econometric analysis of mobility, skill and labour market outcomes

7.1 Introduction

The analysis in this section draws on the pooled cross-sectional dataset, described in Chapters 3 to 6. We examine mobility within the last year as a function of the previous year's characteristics. Twenty six per cent of unemployed who move in our dataset moved within their own postcode and thus cannot be said to be altering their labour market by design or accident and are excluded from the analysis. We cannot be sure though that the change in labour market outcome preceded or followed the move.

Given the taxonomy presented in Chapter 3 to 6, we seek to use formal econometric modelling to explore the characteristics of mobile labour defined in terms of long distance commuting and consider whether low-skilled workers are constrained in this regard. We also explore the employment and pay outcomes that arise from mobility. We use the educational-basis for demarcating low-skill throughout this section.

The variables chosen in the respective models are conditioned by the analyses in Chapters 4 and 5. The range of structural or region specific variables are commonly included in models of migration and commuting. These include differential employment growth, unemployment rates and amenity adjusted earnings, housing price differentials all of which are deemed relevant in generating disincentives/incentives to move (OECD, 2005: 96). At this stage we do not have data with sufficiently detailed spatial identifiers to undertake this kind of analysis, although the socio-economic decile of the origin and destination region is used as a proxy for the region's local labour market and general economic climate.

7.2 Migration responses for the whole population

In this section, we consider long-distance moves to focus on mobility that is likely to generate significant changes in the labour market conditions encountered by the individual. There are many ways in which we might define a long-distance move. Given data limitations and the inherent arbitrariness of any definition, we chose two possible representations of long migration:

Change_SLA which takes the value of 1 if the person moves to a different SLA and 0 otherwise; and

Long_move which takes the value of 1 if a person moved more than 30 kilometres between waves and 0 otherwise.

The use of an SLA change to define long distance mobility is based on the desire to relate the migration to changing labour market conditions. A move in excess of 30 kms will also possibly produce the same result. Neither measures of mobility guarantee that a person crosses a CofFEE Functional Economic Region boundary given that the latter are aggregates of individual SLAs. We also recognise boundary phenomena where a short move might take a person clustered on the border of one local labour market into another. With no clear guidance available as to which measure of mobility is superior for the regression modelling, we chose in the outcome models to experiment with both. The major conclusions hold irrespective of the mobility measure used despite some apparent differences.

The dataset contains 25643 observations for 5802 individuals spread over five HILDA waves (2001 to 2005). The explanatory variables are defined one wave prior to the migration (hence we are predicting one period ahead). Further, the importance of this data structure for the modelling is that we have to recognise intra-group correlation among observations on the same person. Thus the assumed

independence of each data observation that is assumed by standard regression estimators is violated. Given that the 5802 individuals are observed repeatedly in the sample, we account for this intra-group correlation by using a clustering correction to the standard errors to ensure they are robust.

We estimated a probit of the probability of migration (for both measures) for the entire working age population. We specifically included a variable to capture low-skilled worker impacts on the probability of migration. As controls we also included a range of socio-demographic variables recorded for the wave prior to the move.

The resulting probit estimates of the final model selected are reported in Table 7.1. We report the estimated coefficients and their statistical significance. We summarise the results as follows:

Low-skilled workers are significantly less likely to migrate relative to all other workers, other things equal.

Relative to prime age workers (aged 40-49), the younger aged workers are more likely to migrate whereas older workers (aged 50-65) are significantly, less likely to move. These results are consistent with established life-cycle effects identified in the extant literature.

While marital status and gender do not appear to be drivers of migration (at 5 per cent or below significance), the employment status of the spouse and the number of children are both negative influences.

The depth of one's immediate neighbourhood social network is a negative influence on the likelihood of migration.

A university graduate is more likely to migrate, other things equal. Other levels of tertiary education are not significant factors. So the extremes of the education levels work in opposite directions (low-skill are less likely, graduates, more likely).

Tradespersons are less likely to migrate. There was no other statistically significant impact across the occupational spectrum.

Being unemployed while only marginally significant exerts a positive influence on the likelihood of migration.

Housing status is important. Owner-occupiers have a lower probability of migration, as do state housing tenants. Higher median housing prices in the MSR where one lives also reduce the likelihood of migration.

There is a higher probability of migration among residents of metropolitan areas.

The significant state effects indicate that relative to Australian Capital Territory, residents in NSW, Victoria, Western Australia and Tasmania a less likely to migrate, while Northern Territorians are more likely to move.

Relatively advantaged regions (regions with low levels of disadvantage) discourage out-migration (IRSED origin region) but at the same time encourage in-migration (IRESD destination region). So regions with strong employment growth, other things equal, will be considered advantaged. This variable is the only feasible way we can model demand-side influences. These variables are not significant when the Long_Move proxy is employed.

Table 7.1 Probability of migration, probit estimates, 2001-2005

Explanatory variable	Change_SLA	Long_move
	Coefficient	Coefficient
Low-skilled worker	-0.079**	-0.111**
Age 16-19	0.417*	0.443*
Age 20-29	0.424*	0.284*
Age 30-39	0.185*	0.196*
Age 40-49	base	base
Age 50-65	-0.146*	-0.015
Married	-0.066***	-0.017
Spouse employed	-0.080**	-0.086**
Sole parent	-0.059	-0.022
Female	-0.020	0.001
Children (number)	-0.086*	-0.070*
Social networks	-0.219*	-0.111**
Non-English speaking background	-0.054	-0.180*
University graduate	0.069**	0.081***
Median house price of MSR	-0.000*	-0.000**
Owner-occupier	-0.681*	-0.515*
State housing	-0.557*	-0.404*
Tradesperson	-0.139**	-0.026
Unemployed	0.108***	0.141***
Metropolitan location	0.178*	-0.228*
NSW	-0.446*	-0.230*
Victoria	-0.293*	-0.213*
Western Australia	-0.258*	-0.152
Tasmania	-0.417*	-0.433*
Northern Territory	0.321*	0.231***
Australian Capital Territory	base	base
IRSED origin region	-0.031*	-0.020
IRSED destination region	0.039*	0.014
Constant	-0.048	-0.691*
No. of observations	25,643	25,643
Prob > Chi^2	0.000	0.000
Correctly classified	91.4 per cent	96.6 per cent

Notes: IRSED is the Index of Relative Socio-Economic Disadvantage. Note: * denotes 1 per cent significance, ** denotes 5 per cent significance, *** denotes 10 per cent significance.

7.3 The determinants of long distance commuting

7.3.1 Overview

In later sections, we seek to determine whether changing commuting behaviour provides opportunities for workers to enjoy more favourable labour market conditions manifested in better employment opportunities and better pay. In this Section, we deal with the first task which is to model the factors that determine long distance commuting.

Using only the employed population in our dataset, we seek to determine the characteristics of commuters who have lengthened their commuting patterns between HILDA waves. The decision to lengthen commuting patterns is clearly a mix of labour market and personal influences.

However, we need to focus on significant commuting changes rather than every increase in commuting. In this context we need to define what constitutes a significant change – that is, a long-distance commute. As explained earlier in the Report, the dataset available, doesn't provide us with a basis for unambiguously resolving this issue.

To make the analysis operational we constructed a spatially explicit variable capturing above average commuting for the Main Statistical Region (MSR) that the person resides within. This variable reflects what might reasonably be considered to be unusual commuting behaviour (in terms of length in time and/or distance) relative to the region in which the person resides.

The dependent variable, Long_Commute thus takes the value of 1 if the person is an above average commuter for the MSR they live in and 0 is the person exhibits average or below average commuting for the MSR in which they live. We estimate two separate probit models:

- a model for all employed workers;
- a model for those employed who are classified as low-skilled (defined using the educational basis).

Table 7.2 shows that 32 per cent of low-skilled workers in the sample engage in above-average commuting behaviour relative to the location they reside in. This is compared to 41 per cent of the other workers who have education levels beyond Year 11. We expect that once we control for other socio-economic influences, low-skilled workers will have a lower probability of exhibiting above-average commuting behaviour relative to the other employed workers. Overall, 39 per cent of all workers in the sample engaged in above average commuting relative to the MSR in which they reside.

Table 7.2 Summary long commuting behaviour, 2002-2006, persons

	Other workers	Low-skilled Workers	Total
Average/below average commuting	7,189	2,506	9,695
Above-average commuting	5,958	1,179	6,137
Total	12,254	3,685	15,832

Source: HILDA Waves 1-6.

7.3.2 Commuting model for all workers

We seek to explore the factors which impact on the probability that a worker will engage in long commuting behaviour relative to the MSR in which they reside. We

explicitly test whether low-skilled workers exhibit statistically different commuting behaviour once other influential factors are controlled for.

The final probit estimates are reported in Table 7.3 (column 2). The major results are summarised as follows:

As expected, the results show that low-skilled workers are less likely to engage in long commuting behaviour relative to all other workers, other things equal.

Age of workers relative to prime age workers (aged 40-49) appears to not be a significant driver of whether a person is likely to engage in long commuting behaviour. Similarly, a worker's family situation (marital status, partner's job status, whether they have children, whether they are a sole parent) does not have a statistically significant impact on commuting behaviour.

Other things equal, females are less likely to have a long commute than males.

There is a higher degree of commuting for workers from a Non-English speaking backgrounds, while there appears to be no impact generated by whether a worker has completed university education.

While state housing tenancy does not significantly influence commuting behaviour, workers who live in the house they own are more likely to travel further to work.

Part-time workers and Managers are both less likely to have a long commute, while Tradespersons do not impact commuting behaviour.

Workers living in metropolitan areas are more likely to engage in long commuting behaviour than those in non-metropolitan areas. Workers from regions that have experienced employment growth are also more likely to have a longer than average commute.

There was no impact arising from the state variables, indicating that the differences manifest across metropolitan and non-metropolitan space rather than between states.

There were no significant industry effects detected in either of the models estimated.

7.3.3 Commuting model for low-skilled workers

In this model, we focus on factors which impact on the probability that a low-skilled worker will engage in long commuting behaviour relative to the MSR in which they reside.

Table 7.3 Long commuting behaviour in Australia, 2001 – 2005, all employed persons and low-skilled workers, dependent variable = above averagecommute for MSR

Explanatory variables	All employed persons Coefficient	Low-skilled workers Coefficient
Low-skilled worker	-0.103*	-
Age 16-19	-0.182	-0.351
Age 20-29	-0.013	-0.048
Age 30-39	-0.056	0.028
Age 40-49	base	base
Age 50-65	-0.046	0.010
Married	-0.070	-0.042
Spouse employed	0.032	-0.129
Sole parent	0.117	-0.041
Female	-0.237*	-0.155**
Children (number)	0.007	-0.036
Non-English speaking background	0.127*	0.088
University graduate	0.065	-
Owner-occupier	0.140*	0.224*
State housing	0.055	-0.159
Part-time worker	-0.505*	-0.483*
Manager	-0.212*	
Tradesperson	0.060	
Labourer		0.282*
Metropolitan location	0.154*	0.293*
Moved before	0.097*	0.149**
Employment growth in FER	0.024*	0.014
Constant	-0.391*	-0.585*
No. of observations	15,832	3,685
Prob > Chi^2	0.000	0.000
Correctly classified	63.8%	69.7%

Notes * denotes 1 per cent significance, ** denotes 5 per cent significance.

The final probit estimates are reported in Table 7.3 (column 3). The major results are summarised as follows:

As for the overall working sample, a low-skilled worker's age relative to workers of prime age (aged 40-49) is not a significant driver of commuting behaviour.

Once again a low-skilled worker's family situation (marital status, partner's job status, whether they have children, whether they are a sole parent) has no significant bearing on their commuting behaviour.

Females who are low-skilled workers are less likely to travel long distances to work, than male low-skilled workers.

A low-skilled worker's native language generates no impact on the distance they travel to work.

A low-skilled worker who owns the house they live in are more likely to have a longer commute, while low-skilled workers who are state housing tenants have no significant influence on commuting behaviour.

Low-skilled labourers are more likely to have a longer commute, while part-time low-skilled workers are less likely to travel long distances to work.

Metropolitan workers in the low-skilled class showed a higher tendency to engage in long commuting than did low-skilled workers in non-metropolitan areas.

If a low-skilled worker had moved previously, it was more likely that they would have a longer than average commute to work, while low-skilled workers whose region of origin had experienced employment growth did not appear to be a significant driver of their commuting behaviour.

There was no impact arising from the state variables, indicating that the differences manifest across metropolitan and non-metropolitan space rather than between states.

There were no significant industry effects detected in either of the models estimated.

7.4 Migration and labour market outcomes – the problem of selectivity bias

In the following Sections, we aim to estimate the impact of migration on employment outcomes (pay and labour force status) after controlling for various demographic, occupational and regional factors. This impact involves two separate relationships. First, the decision to migrate ($m_i = 1$) is a function of a range of demographic, economic and regional factors, such that

(7.1) $$m_i = \gamma' \mathbf{z}_i + v_i$$

where **z** is a vector of the factors which motivate the migration decision.

Second, once the person has migrated, the resulting labour market outcome is determined by

(7.2) $$y_i = \beta' \mathbf{x}_i + \delta' m_i + \varepsilon_i$$

where y_i is the labour market outcome (for example, 1 indicating improvement; 0 otherwise) for the i^{th} person in the sample; **x** is a vector of the factors which influence this outcome independent of the migration impact; and m =1 if the person has migrated and m = 0 if they have not. In both equations, v_i and ε_i are normally distributed random error components.

Estimating Equation (7.2) directly without considering Equation (7.1) is unlikely to be a valid modelling strategy. There is every reason to suspect that the motivations

(characteristics) that have driven the migration decision are also likely to be correlated with those observed and unobserved attributes that predispose a person to successfully gain employment or improve their labour market outcomes (especially in a rationed labour market). This is the so-called selection bias problem which in the context of Equations (7.1) and (7.2) means that *m* is an endogenous regressor and likely to be correlated with ε_i. The standard assumptions of regression analysis are thus violated and standard probit estimation would likely generate biased and inconsistent estimates of the migration coefficient in Equation (7.2).

Selection bias occurs when individuals are not randomly selected into groups, and unobservable characteristics determine the selection. It is argued migrants are likely to be a selective group with inherently more favourable characteristics, such as motivation (Nakosteen and Zimmer, 1980; Herzog *et al.,* 1993). Individuals with higher skills and motivation will be more likely to move and more likely to subsequently find employment (Bradbury and Chalmers, 2003). If the factors which cause persons to move are unobservable, and cannot be controlled for, then the impact of changing location on employment outcomes will be affected. To control for this we need to control for the tendency of better educated, skilled or motivated residents to move and move into better areas.

In dealing with a labour market application where a selection issue arises, we are presupposing that we have a rationed labour market, that is, that there are not enough jobs to meet the desires of the current labour force. This is definitely the case for Australia in the period covered by the data (2001-2006).

There are several ways in which we can generate unbiased and consistent estimates of the system of Equations (7.1) and (7.2) (see Greene, 2003; Pekkala and Tervo, 2002). The selection bias can be corrected using:

- Instrumental variables (IV) to instrument the endogenous migration dummy (see Angrist, 2001; Bill and Mitchell, 2006);
- A “treatment-effects” maximum likelihood model (see Maddala, 1983); or
- A bivariate probit approach (see Burnett, 1997; and Greene, 2003, 710-714).

Preliminary work (not reported) and previous work (Bill and Mitchell, 2006) shows that there are no significant quantitative or qualitative differences in the outcomes from either the IV or bivariate approaches. We prefer to use the bivariate method in this report, given the ambiguity in deriving valid instruments. Bill and Mitchell (2006) use the IV approach and find similar results to those reported here (for fewer waves of HILDA).

For the bivariate probit approach, Equations (1) and (2) are simultaneously estimated using maximum likelihood estimation (see Hardin, 1996 for explicit details). We are interested in two issues: (a) whether migration improves one’s labour market outcomes in a rationed labour market; and (b) whether the low-skilled enjoy improved labour market outcomes once other influential factors are controlled for.

7.5 Migration and change in labour force status

In this Section we report on models of employment outcomes following migration. We define the labour force status variable LFS to take the value of: (a) 1 if the person is employed in the current wave; and (b) 0 if the person is unemployed in the current wave.

The dataset thus includes those who have already made the decision to participate in the labour force. A related variable *employed last period* is the LFS variable lagged one wave. We use this lagged variable to capture the advantage of being employed last wave in determining the likelihood of being employed in the current wave.

We continue to employ two representations of long migration: (a) Change_SLA; and (b) Long_Move. We also define an interactive variable (one for each migration proxy), which is the product of the low-skill variable and the migration proxy, to capture the interaction between low-skill and mobility as an influence on labour force status over and above low-skill and migration. We can thus explore whether migration impacts differentially on skill groups, once a person has moved.

Table 7.4 reports the bivariate regression results for each of the migration proxies. An (unreported) comparison between the simple probit results and the bivariate probit estimates demonstrates that selection bias is present and the systems estimator is warranted. The results are fairly consistent across the two mobility measures. The main results common to both mobility measures are:

The exogeneity test statistic (not published) is significant supporting our use of the bivariate probit approach. Once corrected we find both mobility measures to be statistically significant and indicating that workers who move other things equal decrease their likelihood of being employed in the current wave;

For the Change_SLA migration measure, the results suggest that a low-skill worker *per se* is not statistically significant. However, low-skilled workers who move compound the disadvantages of migration. For the Long_Move migration measure, there are no statistically significant interactive effects but a low-skill worker *per se* will have a lower probability of being employed in the current wave than other workers;

Commuting long distance enhances the probability that a person will be employed in the current wave. This is best interpreted as meaning that the willingness to commute long opens up more employment opportunities for a person.

A person who was employed in the last wave has a much higher likelihood of remaining so in the next wave, while a person who is unemployed is much less likely to exit that state.

The young (under 29 years of age) are at a disadvantage in the labour market, other things equal. They have lower probabilities (against the base case) of being employed in the current wave;

Persons from NESB, those who are not proficient in English and those with disabilities are less likely to be employed in the current wave.

Females are more likely to be employed than men.

Graduates and tradespersons are more likely to be employed in the current wave relative to other educational levels and occupations.

Significantly, the higher the socio-economic status of the region where the person moves the more likely the person will be employed (although this is offset by the overall disadvantages of migration).

The factors determining the decision to move are all consistent with the literature.

Table 7.4 Bivariate probit estimates for labour force outcomes and mobility, 2001-2005, dependent variable: LFS (employed = 1)

Regressor	LFS equation	Change SLA	LFS equation	Long Move
	Coefficient	Coefficient	Coefficient	Coefficient
Mobility measure	-0.649*		-0.656*	
Low-skilled worker	-0.059		-0.162*	
Low-skill/Mobility interaction	-0.216*		-0.263	
Long commuter	0.774*		0.907*	
Employed last period	0.968*		0.851*	
Age 16-19	-0.635*		-0.762*	
Age 20-29	-0.237*		-0.279*	
Age 30-39	-0.019		-0.024	
Age 50-65	-0.003		-0.015	
Female	0.089**		0.092*	
NESB	-0.300*		-0.349*	
English proficiency	-0.419**		-0.428**	
Disability	-0.398*		-0.495*	
University graduate	0.136**		0.161**	
Tradesperson	0.250*		0.251**	
IRSED destination region	0.055*		0.063*	
Metropolitan resident	-0.069	0.051*	-0.125*	-0.422*
Sole parent		-0.147*		-0.178
Married		-0.014		-0.216*
Home owner		-0.395*		-0.604*
Employed spouse		-0.175*		-0.104
State housing		-0.336*		-0.559*
Contracted move		1.687*		1.899*
Constant	0.949*	-0.202*	1.062*	-1.201*
Number of observations	19975		19975	
Number of clusters	4980		4980	

Note: LFS refers to employment status is current wave (1 = employed; 0 = unemployed. * denotes 1 per cent significance, ** denotes 5 per cent significance.

7.6 Migration and pay improvement

In this Section, we seek to determine whether migration brings pay improvements. The dependent variable in the regressions, *pay*, takes the value of: (a) 1 if the respondent reported an increase in pay in the current HILDA wave; and (b) 0 if there was no pay improvement (or deterioration) reported in the current wave. We continue

to use the two long migration proxies and the interactive variable defined in Section 7.3.

Table 7.5 presents the bivariate probit regression results for each of the migration measures. Once again, the (unreported) comparison between the simple probit results and the bivariate probit estimates supports the use of a systems estimator. The main results common to both mobility measures are:

The exogeneity test statistic (not published) is significant and thus supports our use of the bivariate probit approach. Once corrected the results suggest that mobility increases the likelihood of higher pay, other things equal;

Significantly, while mobility is generally good for workers, the low-skilled suffer a reduced likelihood of gaining a pay rise, other things equal. However, movement overall outweighs the disadvantage of skill;

Labour force status across waves is significant and a person who was employed in the last wave has a much higher likelihood of enjoying higher pay in the next wave, while a person who remains unemployed across waves clearly has a lower probability of gaining increases in pay;

Commuting long distance increases the probability of improving pay, as does changing occupation and changing industry;

Other positive influences include being under 30 years of age, having an employed spouse, having a university degree, living in a metropolitan SLA, being a part-time worker, and working in a trade (for the Long_Move proxy only). Some of these results deserve further scrutiny (for example, part-time status) but such an enquiry is outside the scope of this research;

Significant negative influences on the probability of enjoying growth in pay include being over 50 years of age, having a disability and being unemployed. Migration does not overcome the disadvantage of being unemployed;

State dummies were included but were not significant. There were also no significant panel effects across the years (2001, 2002 and 2003);

The factors determining the decision to move are all consistent with the literature.

Table 7.5 Bivariate probit estimates for pay improvement and mobility, 2001 2005, dependent variable: Pay = 1

Regressor	Pay Equation Coefficient	Change SLA Coefficient	Pay Equation Coefficient	Long Move Coefficient
Mobility measure	0.991**		0.423*	
Employed last period	0.757*		1.133*	
Low-skilled worker	-0.066*		-0.064*	
Low-skill/Mobility interaction	0.028		-0.016	
Long commuter	0.160*		0.167*	
Employed spouse	0.274*		0.249*	
Changed job	-0.055		-0.067**	
Changed occupation	0.181*		0.249*	
Changed industry	0.172*		0.240*	
Part-time worker	0.177*		0.223*	
Age 16-19	0.449*		0.575*	
Age 20-29	0.149**		0.199*	
Age 30-39	0.002		0.003	
Age 50-65	-0.135*		-0.153*	
Female	-0.005		0.004	
NESB	-0.044		-0.046	
English proficiency	-0.126		-0.131	
Disability	-0.186*		-0.181*	
University graduate	0.062*		0.070*	
Tradesperson	0.049		0.084**	
Unemployed	-1.346*		-1.588*	
Metropolitan resident	0.075*	0.045*	0.108*	-0.389*
Sole parent		-0.050*		-0.098
Married		-0.160*		-0.214*
Home owner		-0.339*		-0.561**
State housing		-0.306*		-0.526*
Contracted move		1.536*		1.936*
Constant	-1.457*	-0.378*	-1.656*	-1.234*
Number of observations	30979		30979	
Number of clusters	5925		5925	

Note: * denotes 1 per cent significance, ** denotes 5 per cent significance.

7.7 Migration and occupational mobility

In this Section we report on the impact of migration on the likelihood of changing occupation between waves. The dependent variable, CHANGE_OCCUPATION takes the value of:

- 1 if the person changed occupation in the current wave; and
- 0 if the person did not change occupation in the current wave.

We continue to use the two long migration proxies and the interactive variable.

Table 7.6 reports the bivariate regression results for each of the migration proxies. The results are fairly consistent across the two mobility measures and are summarised as:

- Using the Change_SLA migration measure, the estimates reveal that mobility increases the likelihood of an occupational change occurring, other things equal. The mobility measure was only significantly positive at the 10 per cent level for the Long_move proxy;
- Low-skilled workers have a lower probability of changing occupation. Using the Change_SLA measure, the low-skilled workers that move reduce (but do not negate) the advantages of mobility with respect to occupational change;
- All workers up to 40 years of age enjoy a higher probability of changing occupation relative to the base (40-49 years of age) whereas older workers (aged 50-65 years) have a lower likelihood;
- English proficiency and disability significantly reduces one's chances of changing occupation;
- Part-time workers have a higher likelihood of changing occupation;
- The positive impact on the probability of changing occupation for University graduates is only statistically significant in the Long_move case;
- Managers, Associate Professionals, and Clerical workers are more likely to change occupation, whereas Professionals and Tradespersons are less likely.
- Of the significant industry dummies workers in Manufacturing are more likely to change occupation, whereas workers in the Government administration and Defence and Education sectors are less likely.
- The higher the socio-economic status of the region where the person moves the more likely the person will change occupation which reinforces the overall advantages of migration.
- The factors determining the decision to move are all consistent with the literature.

Table 7.6 Bivariate probit estimates for occupational change and mobility, 2001-2005, dependent variable: occupational_change = 1

Regressor	OCC CHG Equation Coefficient	Change SLA Coefficient	OCC CHG Equation Coefficient	Long Move Coefficient
Mobility measure	0.467*		0.277	
Low-skilled worker	-0.069**		-0.091*	
Low-skill /Mobility interaction	-0.077**		-0.108	
Age 16-19	0.551*		0.572*	
Age 20-29	0.256*		0.287*	
Age 30-39	0.100*		0.111*	
Age 50-65	-0.199*		-0.207*	
Female	-0.138*		-0.145*	
NESB	-0.008		-0.006	
English proficiency	-0.326**		-0.333**	
Disability	-0.192*		-0.197*	
Graduate	0.044		0.053*	
Part-time	0.386*		0.387*	
Manager	0.162*		0.123*	
Professional	-0.080**		-0.123*	
Associate professional	0.305*		0.277*	
Tradesperson	-0.203*		-0.237*	
Clerical	0.261*		0.239*	
Manufacturing	0.256*		0.265*	
Government/Education	-0.125*		-0.115*	
IRSED destination region	0.009**		0.010**	
Sole parent		-0.087**		-0.128
Married		-0.086*		-0.114**
Home ownership		-0.368*		-0.570*
Spouse employed		0.015		-0.198*
State housing occupant		-0.349*		-0.614*
Contracted move		1.851*		1.884*
Metropolitan SLA		0.057*		-0.418*
Constant	-0.576*	-0.311*	-0.456*	-1.196*
Number of observations	25644		25644	
Number of clusters	5802		5802	

Note: * denotes 1 per cent significance, ** denotes 5 per cent significance.

7.8 Summary

The key summary points from this Chapter are:

Low-skilled workers (defined on the educational basis) are less likely to migrate, both to another SLA and to an area more than 30 km away, than other workers. Similarly, low-skilled workers are less likely to engage in a longer than average commute (relative to commuters in their MSR) than other workers.

The study employed a technique that removed selection bias when looking at labour market outcomes together with migrating, which then allowed an examination of labour market outcomes, particularly of low-skilled workers, controlling for other influential factors. The results found that persons who move decrease their likelihood of being employed. This extends to low-skilled workers, however if a person was employed previously, then there is a greater likelihood that they would be employed after a move.

Mobility increases the likelihood of receiving higher pay. However, low-skilled workers who move reduce their probability of gaining a pay rise. The result of movement for all workers does outweigh the result for low-skilled workers. Workers who commute long distances have a much higher likelihood of receiving a pay rise.

Low-skilled workers who move experience a lower probability of changing occupations, despite mobility as a whole increasing the likelihood of occupational change occurring.

8 A Labour Market Accounts analysis of mobility

8.1 Introduction

The analysis of regional labour markets in Australia reveals persistent disparities in rates of labour utilisation (Mitchell and Carlson, 2005). In particular, unemployment dispersion has not fallen despite the decline in the national unemployment rate since 1993. There is increasing evidence that regional labour market outcomes are not determined exclusively by the national business cycle, even if account is taken of industrial structure, so that reliance on indiscriminate Keynesian macroeconomic policy will not redress persistent inequality in labour utilisation rates (Mitchell and Muysken, 2008). In addition, regions differ in their composition of unemployment between short and long term, but notwithstanding the spatial persistence of unemployment, the evidence does not support the commonly held view that long term unemployment is irreversible. This dispersion of labour market outcomes persists even within urban areas in Australia (Bill, Mitchell and Watts, 2006).

Individual and family poverty is directly related to unemployment. Also, since spatial population and employment increases tend to be uneven between the urban and regional areas, there tends to be congestion and infrastructure duplication in some areas, but under-utilised infrastructure in others (see Bill, Mitchell and Watts, 2005).

Moreover, when employment growth is spatially uneven as it has been over the 1990s and into the current decade, regionally localised growth (and stagnation) may promote strong migratory and commuting responses, as relatively advantaged workers seek out employment opportunities. Thus commuting and migration are liable to directly impact on the effectiveness of local employment growth in reducing local unemployment (Renkow, 2003). In-commuting may frustrate the attempts of local policymakers to deliver opportunities to resident unemployed or to stimulate local business via increased resident purchasing power. On the other hand, local job creation strategies may not be strictly necessary to revitalise flagging local economies, if resident workers are able to secure employment in neighbouring regions.

Of importance to the focus of this overall Report, this reliance on residential mobility to remedy regional downturns may heavily disadvantage low-skilled and low-paid workers who are less likely to commute or migrate.

In this Chapter, we employ the labour market accounts (LMA) framework for the period 2001-2006 to decompose these labour market responses in the Sydney MSR and compare it to earlier analysis for the 1996-2001 period. Bill, Mitchell and Watts (2006) were the first to apply this technique to Australian data and their 1996-2001 analysis provides a basis for comparing the changing patterns of mobility over the decade. This is an interesting comparison because in the earlier period, the Sydney MSR was one of the most buoyant economic regions in Australia, whereas over the period 2001 to 2006, the major focus of economic activity in Australia has been in the mining sector and the Sydney MSR has trailed behind other regions more favourably disposed to the mining industry. Data limitations prevent us at this stage from conducting an Australia-wide study although we anticipate resolving these in the near future. We were also not able to decompose the analysis at this stage into skill groupings.

The LMA framework decomposes the movements in working age population (*WAP*) and labour force (*LF*) for a particular area to determine who fills the jobs arising from changing employment levels. We provide estimates for the following components:

- labour force changes due to demographic processes, which are broken down into natural increase and net in-migration;

- labour force changes due to changes in the labour force participation rate;
- changes in unemployment, which are broken down into changes arising from demographic processes and changes arising from changes in the percentage of the labour force that are unemployed; and
- changes in net in-commuting.

Regression models are estimated to assess the relative strength of the relationships between these adjustment responses and percentage employment change. Separate models are estimated for men and women to test whether their respective adjustment processes are different. We also augment the regressions to determine whether the initial occupational structure of each area impacts on the adjustment process.

The results show that migration and commuting responses are dominant with employment growth between 1996 and 2001 eliciting substantial changes in commuting behaviour. There are clear differences between men and women with men showing relatively greater in-commuting responsiveness to employment growth. Unemployment changes in local areas are muted.

The Chapter is structured as follows: In Section 8.2, recent studies that have employed the LMA framework are reviewed followed in Section 8.3 by a presentation of the LMA framework. Section 8.4 provides a detailed description of the data. Section 8.5 then utilises the decomposed labour market responses in regression models to estimate the relation between employment change and the components of labour market adjustment. Concluding comments are presented in the final section.

8.2 The labour markets accounts literature

A number of UK studies of cities have analysed the 'sectoral and spatial shifts for different sections of the labour force' (Bailey and Turok, 2000: 631) arising from the processes of de-industrialisation and de-urbanisation within the LMA framework. An equivalent approach to regional labour market analysis which has been extended to analyse localised fiscal impacts of growth was developed separately in the US by researchers within the Community Policy Analysis Network (CPAN) (see Scott and Johnson, 2000; Renkow, 2003). The major differences between the two approaches relate to the analytical methods used and applications by the two groups (compare Bailey and Turok, 2000 and Renkow, 2003).

Owen *et al*. (1984) used the LMA framework to explore British local labour market areas for the periods, 1971-81, 1981-84 and 1984-87 respectively. Each study used clustering analysis to identify similarities and differences between local labour market areas. Owen *et al*. (1984) highlight the influence of a range of spatial processes, both between broad labour market regions as well as along the urban-rural continuum, with non-spatial factors such as the industrial composition of employment also influencing labour market processes. There was evidence of a north-south dichotomy in the estimated labour market responses. This spatial distinction is least apparent for unemployment, due to the offsetting impact of regionally differentiated patterns of migration. Green and Owen's study spanned periods of depression and improved economic performance. They also found evidence of the north-south divide, but a closer comparison of the two studies is not possible because they are based on different local labour market areas.

Bailey and Turok (2000) examined the impact of job loss on the labour market adjustment process across major cities in Britain from 1981 to 1991. They found high rates of adjustment occurred through migration and changes in commuting patterns, but some of these changes arose from workers relocating out of the cities, but continuing to work in them. For some of the resident workforce, however, the adjustment took the form of higher levels of economic inactivity, which combined with

out-migration, led to unemployment falling despite lower employment. The authors identified major gender and occupational differences in responses to employment changes. Women were more likely to drop out of the labour force in response to employment loss, and women in less skilled occupations had a much higher rate of inactivity than their more skilled counterparts.

In addition, cities with high shares of manual workers experienced less out-migration and greater increases of inactivity when employment fell. A number of factors explain these findings. First, more qualified individuals have higher incomes and are able to commute greater distances. Women also tend to be more constrained than men due to their higher level of domestic responsibilities, and greater incidence of part-time work. Second, less qualified workers are alleged to experience greater barriers to migration than professional and managerial employees, which can be attributed to income levels, moving costs and barriers to migration arising from the social housing system. Bailey and Turok (2000: 648) suggest that there are likely to be few direct benefits for residents from creating professional and managerial employment because: (a) there are few unemployed residents in these occupations; and (b) the potential applicants for these jobs have wide commuting fields and hence significant choice about housing location. Conversely, job creation for less qualified workers brings direct local benefits. Over half of the jobs are obtained by residents who were previously unemployed or inactive; while more than a quarter go to in-migrants or those who would have out-migrated. Few jobs are lost to commuters.

Renkow (2003) employs the LMA framework to explore the labour market adjustment process across both urban and rural counties in the USA over the period 1980-90. The motivation for his study is both who secures new jobs created in a particular county, but also the public finance implications, since 44 per cent of local public expenditures in rural North Carolina are funded by residential property taxes. Changes in commuting patterns and the size of the labour force account for most of the labour market adjustment associated with employment change, rather than the unemployment rate, which is consistent with Owen *et al.* (1984). Significant differences in the pattern of labour market adjustment are found between rural and metropolitan counties. The significant take up of new jobs via in-commuting suggests that leakages associated with employment shocks may be substantial (Renkow, 2003: 510). The author concedes that the geographical unit chosen, namely counties, may influence the results with a larger unit leading to a smaller leakage.

Gordon (2003: 56) argues that few barriers to labour market adjustment exist at the small area level. While interactions between labour markets are strongest between proximate or neighbouring regions (Mitchell and Bill, 2004 for empirical application to Australia), adjustments to disequilibria travel across sub-markets relatively quickly. Such adjustments occur through commuting and migration; and the majority of migration is through small moves between neighbouring regions (Gordon, 2003: 59). Migration is likely to play a greater role in times of buoyant economic activity than recession (Gordon, 2003). Further, unevenness in the distribution of employment opportunities is likely to be the key motivating factor, rather than differentials in the rewards and risks of the destination region (Gordon, 2003).

As noted above, Bill, Mitchell and Watts (2005) used the LMA framework to investigate the relationship between commuting patterns, employment growth and unemployment in the Sydney Major Statistical Region between 1996 and 2001. The study region was a dominant source of employment growth in Australia over the period examined. Their study was the first to apply the LMA framework to Australian data and yielded two notable results. First, commuting, followed by migration, was the main labour market adjustment mechanism for both men and women in the late 1990s. Thus considerable leakages exist in local employment creation, with the effects of local employment shocks rippling out across the Greater Sydney Metropolitan region. Such leakages, in upturns and downturns, need to be

considered by policy-makers when estimating the returns to local residents of local employment generation. Men rely more heavily on commuting across local areas than women to gain income-earning opportunities in response to employment growth. Second, employment growth had only a small impact on the change in unemployment for both males and females. While this may partly be due to increased job competition from in-migrants and in-commuters, it remains that the overall employment growth has not been sufficient to generate enough jobs to satisfy the desires of the workers.

The results examined in this Chapter for the inter-censual period spanning 2001 to 2006 are directly comparable to those in Bill, Mitchell and Watts (2006). Where appropriate we have included the 1996-2001 results to highlight the differences that have occurred as the level of economic activity and employment growth has slowed in the Sydney MSR.

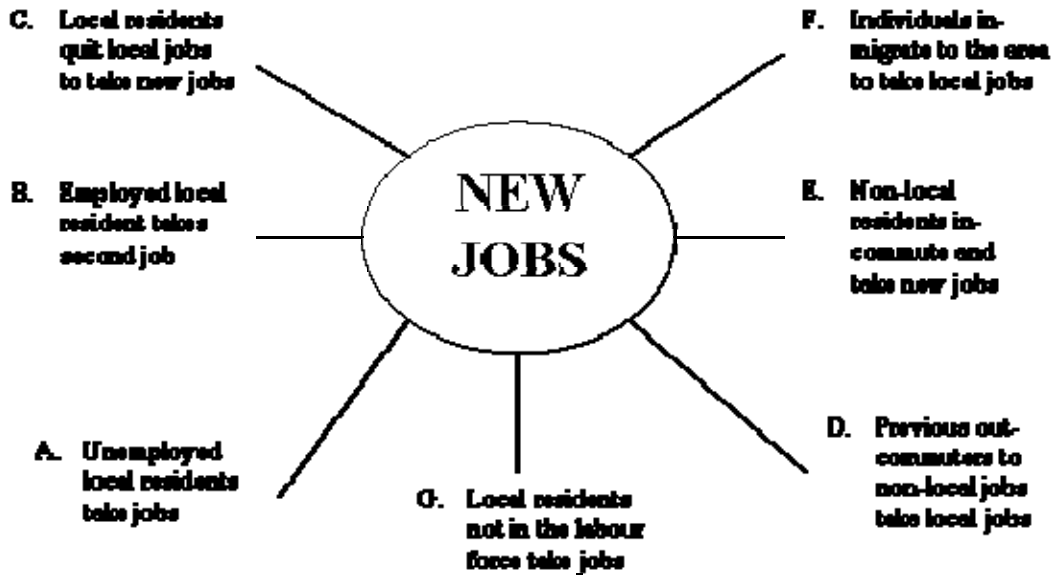
8.3 The labour market accounts (LMA) model

The LMA framework decomposes movements in working age population (*WAP*) and labour force (*LF*) for a particular area to determine who fills the jobs arising from employment growth. The approach is also useful for analysing the extent to which a community enjoys higher incomes as a result of employment growth (Barkley *et al*., 2002) as well as providing the basis for measuring the shortfall of jobs in a local area (Bailey and Turok, 2000).

Figure 8.1 presents a stylised version of the LMA framework to show the seven sources of take-up of new local jobs. Following Barkley *et al*. (2002):

- Local unemployed residents may gain local employment (A);
- Local residents who are in employment (locally or not) may take additional jobs (B);
- Local residents quit and take new local jobs (C);
- Local residents who were previously commuting out of the area may now take local jobs (D);
- Residents from outside the local area may in-commute and take new local jobs (E);
- Residents from outside the local area may migrate to the area and take local jobs (F); and
- Local residents who are currently not in the labour force, may choose to become economically active (G).

Figure 8.1 Allocation of new jobs among components of the labour force



Source: Barkley *et al*, 2002.

The system of labour market accounts used in this Chapter draws on the contemporary approach of Bailey and Turok (2000), which is consistent with the stylisation presented in Figure 8.1. Bailey and Turok (2000) note that employment change over time in an area gives rise to three interrelated changes, namely labour force variations, which incorporates the level of net in-migration, changes in the number of these residents who are unemployed and changes in net commuting flows.

Then:

(8.1) $\Delta E \equiv \Delta LF - \Delta U - \Delta C$

where *E* denotes local area employment, *LF* is the local resident labour force, *C* is the level of net out-commuting, *U* denotes the local resident unemployment and the symbol Δ denotes the change in levels.

In turn, the change in the *LF* can be separated into the component arising from the change in the working age population (*WAP*) arising from demographic processes (ΔLF_d) and the change associated with the change in the labour force participation rate ($\Delta LFPR$):

(8.2) $\Delta LF \equiv \Delta LF_d + \Delta LFPR$

The first term can be decomposed into a natural increase component (ΔNI) and a net out-migration component (ΔNM):

(8.3) $\Delta LF_d \equiv \Delta NI - \Delta NM$

Similarly Bailey and Turok (2000) note that changes in unemployment can also be broken down into the component associated with the change in the labour force and that arising from the change in the unemployment rate, so that:

(8.4) $\Delta U \equiv \Delta U_d + \Delta U_r$

The final component of the accounts arises from the change in the net in-commuting associated with the local area (ΔC). It can be written as:

(8.5) $\Delta C \equiv \Delta E_r - \Delta E_l$

where ΔE_l denotes the change in local employment and ΔE_r denotes the change in the level of employment of residents, some of which is local.

Then successive substitution of (8.2), (8.3) and (8.4) into (8.1) yields the following identity:

(8.6) $\Delta E \equiv \Delta NI - \Delta NM + \Delta LF_r - \Delta C - \Delta U_d - \Delta UR$

8.4 Data sources and description

Statistical Local Area (SLA) data are drawn principally from ABS Census data taken from the Basic Community Profile (BCP) and the Working Population Profile (WPP).

Two important data issues had to be addressed. First, while the Sydney MSR study area is administratively defined, there could be significant commuting leakages from the associated SLAs, arising from both commuting out of the study area as well as commuting into the area from outside. Consequently modelling changes in commuting behaviour solely in terms of flows within the study area would misrepresent the overall pattern of flows. A spatial algorithm devised by Coombes *et al* (1986) was adopted to identify groupings of SLAs within the Sydney MSR that collectively exhibited rates of closure in excess of 90 per cent. Two groupings were identified for 2001 and 2006 which were both centred on Sydney and Newcastle. In 2001 these consolidated groupings covered 61 SLAs and in 2006 80 SLAs (see below). The rural SLAs Muswellbrook, Singleton and Scone appear in the Newcastle grouping in both years, but in 2006 Scone is combined with Merriwa and Murrurundi which makes up the Upper Hunter Shire SLA. Inclusion of Merriwa and Murrurundi in 2001 means that additional rural SLAs must be included from the associated SLA groupings which lie outside the Greater Metropolitan Sydney study area. The chosen solution was to delete Muswellbrook, Singleton and Scone (Upper Hunter Shire) from the selected SLAs in 2001 and 2006. Due to the choice of Coombes' algorithm parameters, the rates of closure for the consolidated commuting area in 2001 (Newcastle and Sydney groupings excluding Muswellbrook, Scone and Singleton) are 0.993 (employment) and 0.992 (residents) respectively so leakage is minimal. The corresponding rates of closure for the 2006 grouping are 0.995 (employment) and 0.997 (residents). Thus, in summary, these groupings of SLAs are associated with a leakage of less than 1 per cent either through commuting out of the area, or workers commuting in.

Second, a related issue which is revealed by the different numbers of SLAs in the groupings for 2001 and 2006 is concordance between the SLAs over the 5 year period. A number of 2001 SLAs were simply split up (for example, Campbelltown, Fairfield, Gosford, Hornsby, Lake Macquarie and Liverpool) in 2006, whereas others, such as Sydney Inner and Remainder, were split up in 2006 and allocated across two SLAs, which also included other areas. Rather than arbitrarily allocating population, employment and deaths etc... in 2001 to separate areas within SLAs which had been split up in 2006, the newly formed smaller 2006 SLAs were consolidated. The complications created by the second form of SLA necessitated consolidation of 2001 SLAs, namely Sydney Inner and Remainder, Leichardt and South Sydney, and Newcastle Inner and Remainder. In 2006, 1.2 per cent of the area of Woollahra was assigned to Waverley, but this was ignored. The final configuration consisted of 54 (consolidated) SLAs. The groupings for the two Census years and the associated concordance are described in Mitchell and Watts (2008).

Basic Community Profile (BCP) data were the source of population data by age group and sex for each of the SLAs. Likewise data representing labour force status

(employed, unemployed, not in the labour force and not-stated) by age group, sex and SLA were also extracted.

A simple comparison of the *WAP*s over the 5 years yields the natural increase in the *WAP* from individuals getting older minus any deaths in each age group plus the level of net in-migration. Annual data of deaths by SLA are available for the period 2001-2006 (ABS 3302.0 Deaths, Australia, 2006). Also death rates by age and sex for NSW are available, but not for the individual SLAs (same ABS publication). The death rates for age 0 and 1-4 are quoted, but population data by SLA are available for ages 0-4, so a composite (NSW) death rate for age 0-4 was computed for each year. The task was to assign the annual deaths by SLA and gender across the corresponding age groups, specifically between working age and non-working age groups, so that the Working Age Population (WAP) by age group and sex could be calculated for 2006, based on the resident population in 2001, taking account of ageing and net of any deaths over the ensuing 5 years.

The difference between these population figures and the corresponding ones from the 2006 Census would reveal the amount of net in- or out-migration by age group, sex and SLA. Assuming a constant rate of change of population over the 5 years (2001-2006), levels of population by SLA, age group and sex were calculated for June of the intervening years. The NSW death rates by age and sex were applied to these calculated populations by age and sex for each SLA. The estimated deaths by age group, sex and SLA were then uniformly adjusted to bring estimated total deaths by SLA within each year into line with the official SLA figures. Then total deaths in each age group and SLA were estimated for the 5 years.

Total employment across the 54 SLAs based on the row sums based on BCP resident employment data by sex exceeds the corresponding (local employment) figure based on WPP data (column sums). Consequently the local employment figures by SLA and sex (column sums) were uniformly adjusted to bring the total employment figures by sex into line, based on the row sums. (Since individual elements of the Journey to Work (JTW) are not used in the econometric work, elaborate adjustments are not required). The Working Population Profile (WPP) for each census year, yield the local (SLA) levels of employment by sex, which contribute to the computation of the change in net in-commuting over the 5 year period. Data availability does not permit complete disaggregation of labour market accounts by occupation. A complete analysis would require unemployment by occupation and gender for each spatial area.

8.5 Summary of labour market responses

Table 8.1 presents the summary statistics of the labour market responses to employment change between 1996 and 2001 for men and women (see Bill, Mitchell and Watts, 2006).

Table 8.1 Summary of labour market responses to employment change, 1996-2001

	Mean	Std. Dev.	Maximum	Minimum
Males				
LF changes due to demography	8.6	14.8	105.0	-3.6
Natural increase in LF	4.0	2.9	11.8	-1.6
Net in-migration to LF	4.6	15.1	105.2	-6.1
LF changes due to ΔLFPR	-2.1	4.0	4.6	-24.9
Change in UN due to demography	0.5	1.0	6.0	-0.6

Change in UN due to ΔUR	-1.6	1.1	0.4	-4.4
Change in net in-commuting	5.6	44.0	319.2	-30.1
Females				
LF changes due to demography	8.8	16.5	118.8	-3.4
Natural increase in LF	3.4	3.0	10.5	-3.1
Net in-migration to LF	5.3	16.6	117.9	-5.4
LF changes due to ΔLFPR	1.6	3.6	8.3	-17.3
Change in UN due to demography	0.8	1.2	8.0	-0.4
Change in UN due to ΔUR	-1.4	1.2	0.2	-4.6
Change in net in-commuting	4.5	38.8	283.1	-19.6

Note: components are expressed as a percentage of 1996 labour force, for males and females, respectively. LF refers to the Labour Force, LFPR is the change in the labour force participation rate, UN is unemployment and UR is the change in the unemployment rate.

The study region gained on average 8.6 per cent of their male labour force and 8.8 of their female labour forces over this period via demographic changes with net in-migration dominating (4.6 per cent for males and 5.3 per cent for females).

In this growth period, changes in male labour force participation reduced the available labour force on average across the areas whereas female labour force participation increased. On average, employment growth only had a muted impact on the unemployment of residents. Changes in net in-commuting represented the dominant labour market response to the extra employment for both males (5.6 per cent on average) and females (4.5 per cent on average) for the study areas shown.

Table 8.2 presents the same statistics for the period spanning 2001 and 2006. In contrast to the buoyant period between 1996 and 2001, labour force growth was significantly lower over the latter period and net in-migration was no longer dominant. The areas gained on average 4.4 per cent of their male labour force and 4.8 of their female labour forces over this period via demographic changes.

Significantly, for males there was a 4.6 per cent natural increase in the labour force, but a small net out-migration (0.2 per cent), whereas for females the increase in the labour force was somewhat more even spread between natural increase (2.7 per cent) and net in-migration (2.1 per cent).

Table 8.2 Summary of labour market responses to employment change, 2001-2006

	Mean	Std. Dev.	Maximum	Minimum
Males				
LF changes due to demography	4.4	5.8	20.2	-3.2
Natural increase in LF	4.6	2.8	17.9	0.3
Net in-migration to LF	-0.2	6.2	17.4	-12.5
LF changes due to ΔLFPR	-1.5	2.6	4.0	-10.7
Change in UN due to demography	0.1	0.5	1.9	-0.4
Change in UN due to ΔUR	-1.6	1.2	0.0	-4.9
Change in net in-commuting	-1.2	8.7	18.7	-31.4
Females				
LF changes due to demography	4.8	5.8	19.9	-2.9
Natural increase in LF	2.7	2.4	6.9	-2.7
Net in-migration to LF	2.1	6.0	19.3	-8.2
LF changes due to ΔLFPR	2.8	4.0	11.7	-6.6
Change in UN due to demography	0.4	0.5	2.0	-0.3
Change in UN due to ΔUR	-0.4	0.8	0.8	-2.6
Change in net in-commuting	-0.8	7.6	21.6	-26.1

Note: components are expressed as a percentage of 2001 labour force, for males and females, respectively. LF refers to the Labour Force, LFPR is the change in the labour force participation rate, UN is unemployment and UR is the change in the unemployment rate.

Another major difference between the two periods, is that in contrast to the 1996-2001 period, the areas studied experienced small levels of net out-commuting for both males (1.2 per cent on average) and females (0.8 per cent on average) between 2001 and 2006.

Labour participation responses and unemployment impacts were similar across both periods. As with the period 1996-2001, on average across the areas studied, the period from 2001-2006 saw changes in the male participation rate reduce the available labour force, while female labour force participation increased. Employment growth also had only a small effect on the unemployment of residents in both periods.

Figures 8.2 and 8.3 show the individual LMA components of the employment change between 1996 and 2001 for men and women, respectively. Clearly, Sydney dominates the other SLAs for both men and women. The muted response of unemployment revealed in Table 8.1 also translates into a lack of variation in the unemployment responses across the SLAs. Employment growth between 1996 and 2001 did not significantly reduce residents' unemployment, partly because it was not of a sufficient strength, but also due to movements in workers (migratory or commuting).

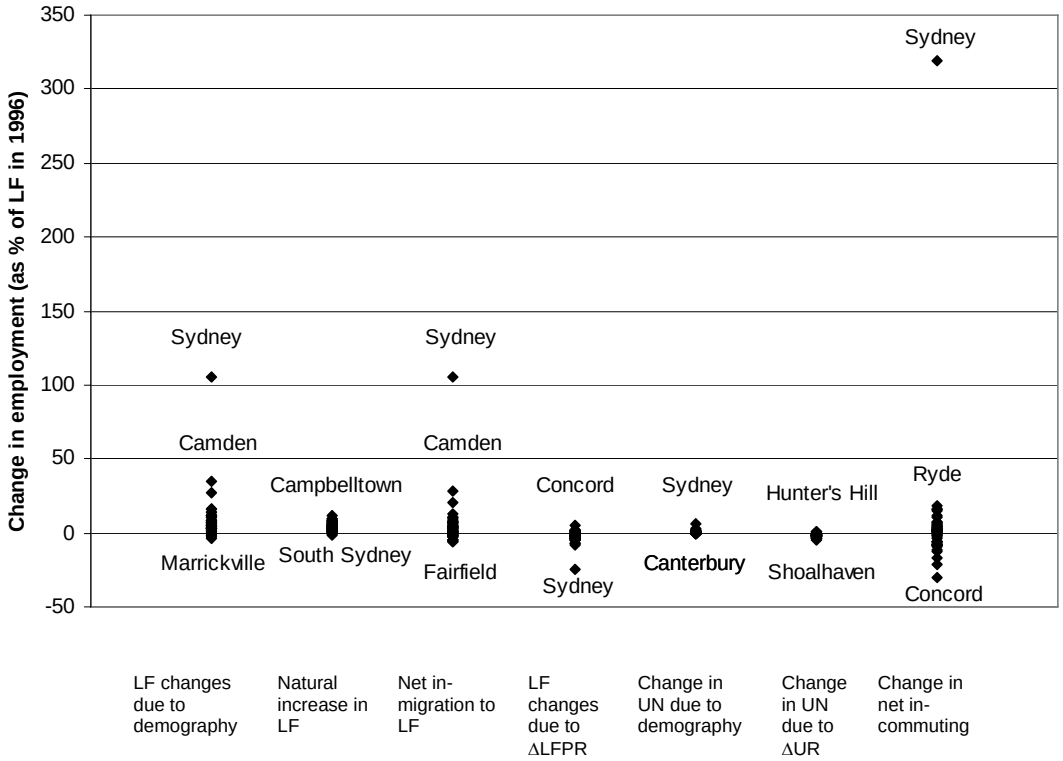
That the Sydney SLA emerges as an outlier in terms of demographic changes, in-migration and commuting in both figures is hardly surprising. As a result of a considerable inner-city economic revival, the workforce of Sydney expanded by 16 per cent over the 5 years. Most of this growth was in high-skill managerial and

professional occupations in line with industrial shifts favouring the ‘new economy’ (Raskall, 2002: 284). Sydney’s residential population almost doubled from 1991 to 1996 and again from 1996 to 2001. In August 2001 a well-educated workforce more than 16 times larger than the residential population of the city commuted there, and worked mainly in high-skilled occupations (Raskall, 2002: 285).

Figures 8.4 and 8.5 (with a different vertical scale than Figures 8.2 and 8.3 owing to the reduced impact of the Sydney SLA components in the latter period) show the individual LMA components of the employment change between 2001 and 2006 for men and women, respectively. Interestingly, the Sydney SLA components no longer dominate in relation to demographic changes, in-migration and in-commuting for either males nor/or females. Of further note is the fact that the Sydney SLA occupies the lowest position for both the percentage change in the male natural increase in the labour force and the percentage change in the female labour force change due to the change in the labour force participation rate.

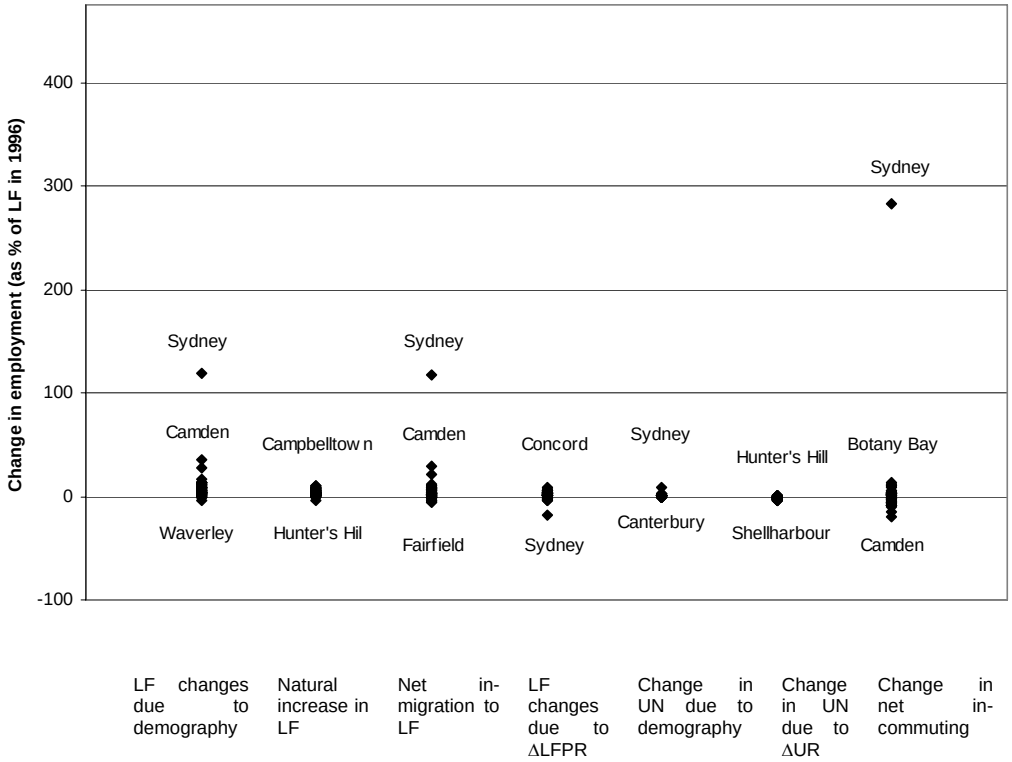
The period from 2001-2006 showed that employment growth had very little impact on unemployment, as was seen in Table 8.2. This is consistent with the results for the period from 1996-2001. Therefore, unlike the period from 1996-2001, the jobs created from weaker employment growth in 2001-2006, aside from the natural increase in workers, has primarily been taken by the increase in the female participation rate and female net in-migration.

Figure 8.2 Change in employment by SLA, 1996-2001, Male residents, per cent



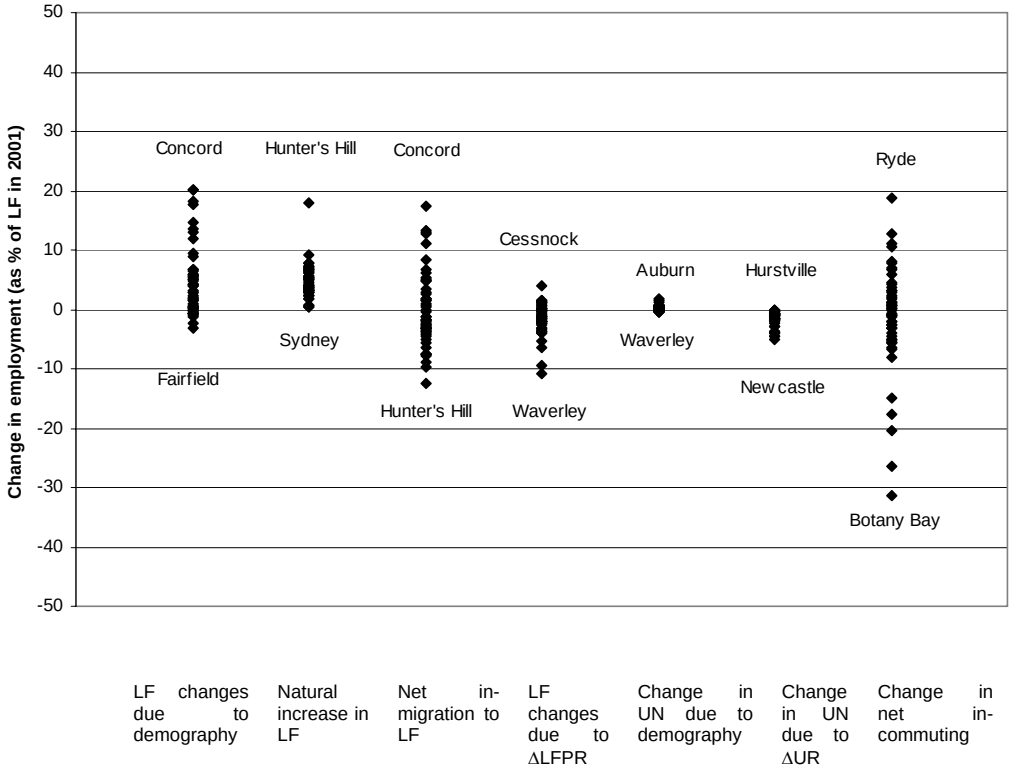
Source: Authors' own calculations from Equation (8.6).

Figure 8.3 Change in employment by SLA, 1996-2001, Female residents, per cent



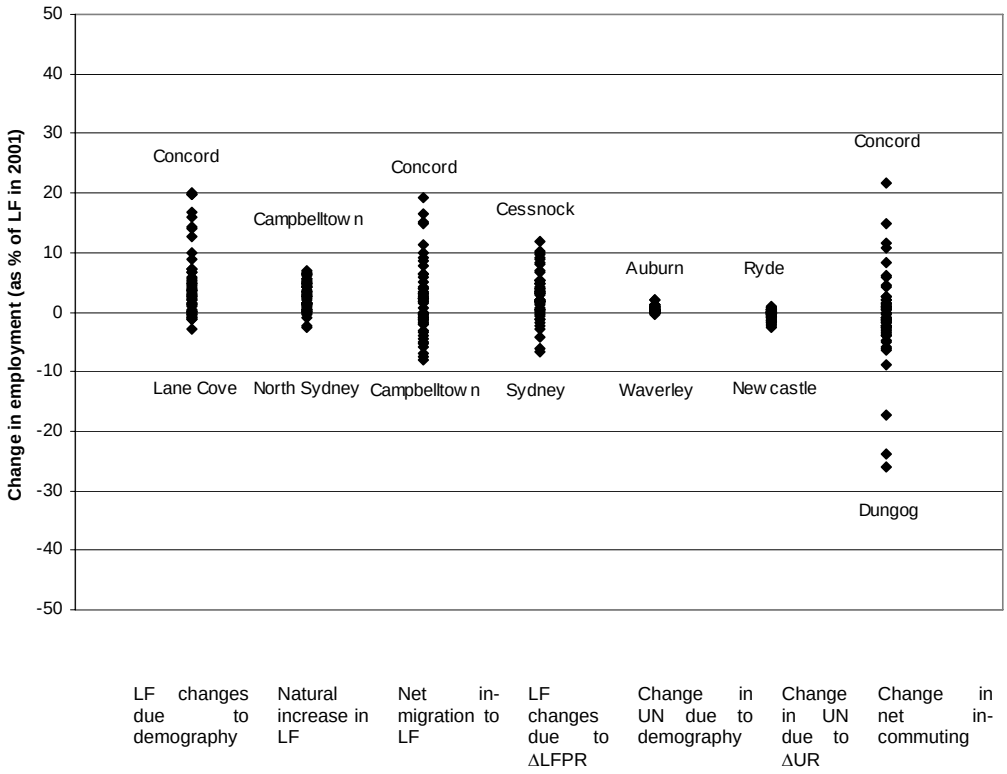
Source: Authors' own calculations from Equation (8.6).

Figure 8.4 Change in employment by SLA, 2001-2006, Male residents, per cent



Source: Authors' own calculations from Equation (8.6).

Figure 8.5 Change in employment by SLA, 2001-2006, Female residents, per cent



Source: Authors' own calculations from Equation (8.6).

8.6 Regression analysis of labour market responses

8.6.1 Regression technique employed

Bailey and Turok (2000: 639) use regression models 'to examine the relative strength of the relationships between employment change and each of the labour market adjustment variables.' The first male and female equations involved regressing each of the labour market components outlined in Section 8.3 expressed as a percentage of the 2001 labour force on total local employment change between 2001 and 2006 similarly expressed as a percentage of the 2001 labour force. We also report the results from Bill, Mitchell and Watts (2006) who conducted the same analysis for the 1996-2001 period. This allows a comparison between the two quite different periods in terms of employment growth as noted earlier.

The constant term measures the labour market adjustments that are not attributable to employment change. We check the robustness of these results with a systems estimator. Specifically, we employed Seemingly Unrelated Regression estimation imposing the cross-equation restriction that the sum of the slope coefficients for the % change in employment should sum to one. The restricted results (not reported) generally accord with the unrestricted results.

We also seek to determine whether the initial occupational structure of an area impacts on adjustment. It is expected that areas with higher proportions of manual workers (labourers) would experience lower rates of adjustment, so that the adjustment processes of men and women would be different. While this arises partly due to occupational differences, women are also more likely to be instrumentally attached to the labour force.

We first report the results from Bill, Mitchell and Watts (2006) who analysed the 1996-2001 inter-censual period.

8.6.2 Male results - 1996-2001

The male labour market adjustment responses to employment change are shown in Table 8.3. As noted above, the sample period was one of consolidated growth, following the 1991 recession. There was considerable adjustment to employment change in the form of net in-migration and net in-commuting with the latter dominating. Similar results were obtained by Bailey and Turok (2000). For every 1000 male jobs created in an area, net in-commuting by men rose by 846 and 274 economically active men migrated into the same area. The goodness of fit measures (adjusted R^2) indicate that the relationships are strong (0.97 and 0.86, respectively for in-commuting and in-migration). So both out-migration and out-commuting occur in areas where employment losses arise.

Employment growth only had a small impact on unemployment however (1000 extra jobs reducing unemployment by 4 via reductions in the unemployment rate (although statistically this result is barely significant) but increasing it by 15 as a result of demographic processes (including the hidden unemployed). For every 1000 jobs created, 61 workers dropped out of the labour force via participation rate changes.

The constant terms in each equation indicate that the labour force grew by an average of 4.1 per cent as a result of natural increase; by 1.1 per cent as a result of net in-migration; and shrunk by 1.3 per cent due to declining labour force participation rates.

Bailey and Turok (2000: 642) suggest that 'part of the explanation for these changes must lie in the changes for different occupational groups.' With a rising proportion of jobs in the professional and other skilled occupations, it would be expected that a larger proportion of the employment opportunities would be taken by in-commuters. This reflects the fact that the more advantaged population cohorts have greater

choice of housing and transport, and as a result tend to commute longer distances than the more disadvantaged segments of the population. Equally, the declining participation rate for the resident populations is consistent with a smaller proportion of lower skilled job opportunities.

The regression models were extended by adding more control variables to the right hand side to capture the impact of occupational structure and metropolitan/non-metropolitan. A metropolitan dummy which took the value of 1 for the metro region and 0 otherwise (based on the Sydney MSR geography) was added. Following Bailey and Turok (2000: 642), we also controlled for occupational structure as a 'means for assessing the extent to which different occupational groups were able to adjust to employment change.' We consider two occupational groups at opposite ends of the wage distribution – manual workers and professionals. The percentage of manual male workers in total male employment and the percentage of professional male workers in total male employment for each area were added to the basic regressions. The occupational analysis allows us to examine different patterns and intensities of responses between areas with high manual employment shares and areas with high shares of professional employment. If significant differences were found, the results would contribute to an explanation of persistent regional unemployment differentials based on the regional occupational structure.

Table 8.3 Labour market adjustment responses to employment change for males, 1996-2001

Labour market adjustment component	Constant (%)	Coefficient for % change employment	*t*-statistic for % change employment	Adjusted R^2
Change in residents Labour Force				
Due to demographic processes	5.208	0.265	16.29	0.83
natural increase	4.067	-0.009	-1.18	0.01
net in-migration	1.141	0.274	18.05	0.86
Due to change in LFPR rate	-1.343	-0.061	-9.17	0.61
Increase in net in-commuting	-5.174	0.846	41.26	0.97
Change in unemployment				
Due to demographic processes	0.294	0.015	10.07	0.65
Due to change in unemployment rate	-1.536	-0.004	-1.41	0.02

Table 8.4 Male labour market adjustment responses to employment change with occupational structure and metro dummy, 1996-2001

Labour market adjustment component	Constant (%)	Coeff % change emp	*t*-stat % change emp	Coeff manual % total emp	*t*-stat manual % total emp	Coeff profs % total emp	*t*-stat profs % total emp	Coeff on metro dummy	*t*-stat metro dummy	Adj R^2
Change in residents Labour Force										
Due to demographic processes	3.97	0.173	6.90	-0.039	-0.14	0.362	4.59	-3.570	-1.74	0.88
natural increase	1.51	0.023	1.78	0.388	2.73	-0.111	-2.76	1.057	1.01	0.16
net in-migration	2.45	0.150	8.08	-0.427	-2.06	0.473	8.07	-4.627	-3.03	0.93
Due to change in LFPR rate	0.31	-0.085	-9.15	-0.443	-4.27	0.076	2.58	1.150	1.50	0.77
Increase in net in-commuting	-0.21	0.966	32.06	-0.167	-0.50	-0.480	-5.05	2.719	1.10	0.98
Change in unemployment										
Due to demographic processes	0.27	0.005	2.18	-0.021	-0.90	0.041	6.30	-0.388	-2.28	0.80
Due to change in unemployment rate	-0.20	0.002	0.61	-0.179	-4.00	-0.033	-2.60	0.589	1.79	0.42

Note: Adj R^2 is the adjusted R^2. Coeff refers to the estimated coefficient; emp is employment, profs is professionals.

The results of the regressions augmented with the occupational structure information are shown in Table 8.4. In all cases the fit of the regressions is improved, in some cases, substantially. The labour market responses to employment growth are similar to those in Table 8.3. For every 1000 jobs created, net in-migration rises by 150 and net in-commuting rises by 966, other things equal.

The results also suggest that metropolitan regions have lower net in-migration and lower unemployment due to demographic processes, other things equal than non-metropolitan areas. All other labour market responses are insensitive to this geographic distinction. We also tested the ABS Socio-Economic Index for Areas (SEIFA) value and found no significant relation.

In SLAs where the manual employment share is higher, the role of natural increase is higher, but, other things equal, the responses of net in-migration, labour force participation and unemployment are all lower.

Bailey and Turok (2000: 642) also note a similar result for natural increase in the UK and drawing on the work of Armitage (1997) suggests that 'this is likely to reflect the higher fertility rates which occur in areas with higher concentrations of manufacturing industry.'

Areas with higher concentrations of professional employment exhibit significantly different responses to higher employment growth. In these regions natural increase plays a smaller role; but labour force participation and net in-migration responses are stronger, so that professional workers are more likely to relocate in search of employment opportunities than manual workers. These areas exhibit lower in-commuting responses but higher unemployment responses compared to those with high percentages of manual employment, probably due to supply side factors.

8.6.3 Male results - 2001-2006

The male labour market adjustment responses to employment change for the period 2001-2006 are shown in Table 8.5. The relative dominance of net in-migration and net in-commuting in response to employment growth remains. Net in-commuting dominated with 685 men in-commuting for every 1000 net jobs created and 326 men migrating into the area for every 1000 net jobs created.

The change in unemployment due to a change in unemployment is again only small (32 for every 1000 extra jobs) although the coefficient estimate is only of marginal significance. Unemployment rises however by the change in demographic processes by 28 for every 1000 net jobs created.

The change in the male labour force participation rate was not statistically significant, nor was the change due to the natural increase. None of the other responses were statistically significant.

As with the previous period, the regression models were then extended to measure the effect of occupational structure and of metropolitan-non-metropolitan. Again, in regards to occupational structure, two occupational groups at opposite ends of the wage distribution were considered – manual workers and professionals. The percentages of manual male workers and of professional male workers in total male employment were added to the basic regressions for this period.

The results of the new regressions, with occupational structure and metropolitan-non-metropolitan variables added, are shown in Table 8.6. The adjusted R^2 shows that again the addition of these variables to the regressions improves their fit. The increase in net in-migration is 372 for every 1000 new jobs, while net in-commuting rises by 724 for every 1000 jobs, similar results to Table 8.5 and similar increases to the 1996-2001 regressions.

Table 8.5 Labour market adjustment responses to employment change for males, 2001-2006

Labour market adjustment component	Constant (%)	Coefficient for % change employment	*t*-statistic for % change employment	Adjusted R^2
Change in residents Labour Force				
Due to demographic processes	2.720	0.362	5.372	0.345
natural increase	4.452	0.036	0.917	-0.003
net in-migration	-1.731	0.326	4.175	0.237
Due to change in LFPR rate	-1.401	-0.021	-0.573	-0.013
Increase in net in-commuting	-4.468	0.685	8.214	0.556
Change in unemployment				
Due to demographic processes	0.017	0.028	5.081	0.319
Due to change in unemployment rate	-1.399	-0.032	-1.869	0.045

The results for the period 2001-2006 show different labour market responses being sensitive to the effect of whether jobs are created in metropolitan or non-metropolitan areas. Other things equal, the results for this period suggest that metropolitan areas have a lower change in the labour force due to the change in labour force participation, but higher unemployment due to the change in the unemployment rate. In less statistically significant results, the labour force increased as a result of both in-migration and in-commuting.

In areas dominated by professional employment, labour force participation is lower, as is the change in unemployment due to the change in the unemployment rate. The results for the other components in areas dominated by either professional or manual employment are not statistically significant.

8.6.4 Female results – 1996-2001

The female results are shown in Table 8.7 and are in contrast to those for males (Table 8.3). Overall, the labour force responses due to demographic processes are smaller for women. Further, the prior expectation was that women would have a lower response to employment change through migration or commuting than men. However, while the net in-commuting response is lower for females (745 jobs per 1,000 extra jobs compared to 846 for males), the net in-migration coefficient (highly statistically significant) indicates that for every 1,000 jobs generated net female in-migration (on average) is 306 (compared to 274 for males).

Table 8.6 Male labour market adjustment responses to employment change with occupational structure and metro dummy, 2001-2006

Labour market adjustment component	Constant (%)	Coeff % change emp	*t*-stat % change emp	Coeff manual % total emp	*t*-stat manual % total emp	Coeff profs % total emp	*t*-stat profs % total emp	Coeff metro dummy	*t*-stat metro dummy	Adj R^2
Change in residents Labour Force										
Due to demographic processes	-3.684	0.397	5.774	0.191	0.442	0.186	1.142	1.274	0.702	0.360
natural increase	8.938	0.025	0.611	-0.237	-0.932	-0.158	-1.648	0.749	0.701	0.016
net in-migration	-12.622	0.372	4.792	0.428	0.877	0.344	1.870	0.524	0.256	0.290
Due to change in LFPR rate	5.240	-0.073	-2.921	-0.087	-0.558	-0.210	-3.553	-1.920	-2.912	0.563
Increase in net in-commuting	1.142	0.724	8.681	-0.656	-1.254	-0.131	-0.662	2.653	1.206	0.584
Change in unemployment										
Due to demographic processes	-0.479	0.026	4.715	0.050	1.469	0.014	1.056	-0.209	-1.457	0.369
Due to change in unemployment rate	1.029	-0.014	-1.595	-0.301	-5.455	-0.080	-3.834	1.870	8.065	0.758

Note: Adj R^2 is the adjusted R^2. Coeff refers to the estimated coefficient; emp is employment, profs is professionals.

As in the male case, in-commuting is the main female response to employment change. Bailey and Turok (2000) found the main response for women was through changing participation rates. Given that our data is for a period of consolidated employment growth (in contrast to Bailey and Turok, who studied a period of employment loss) we would expect the cyclical labour force responses to be muted. The results confirm this expectation. For every 1000 jobs created 50 women leave the labour force.

The main picture to emerge from the results is that both men and women rely heavily on commuting across regions to gain income-earning opportunities in response to employment growth with migration being the second most significant response.

Similar to the male results, employment growth had only a small impact on the change in female unemployment however (1000 extra jobs reducing unemployment by 3 via reductions in the unemployment rate but increasing it by 20 as a result of demographic processes). Given the adjustments are over a 5 year period, the response of unemployed females (in 1996) to employment growth has been extremely muted.

The notable difference in the constant terms for women is in the participation rate response with a 2.3 per cent (on average) labour force increase as compared to a decline in the male labour force.

Again, the fit of the regressions is improved with the addition of control variables (Table 8.8). Compared to the results in Table 8.7, the labour market responses to employment growth are similar. The impact of adding occupational controls is similar for females – reducing the net in-migration response and increasing the net in-commuting response. For every 1000 jobs created, net in-migration rises by 119 and net in-commuting rises by 909, other things equal. The adjusted results suggest that males have larger net in-migration and net in-commuting responses compared to females after controlling for occupational structure.

The results also suggest that, other things equal, females in metropolitan regions have lower net in-migration (similar to males), lower labour force participation rates (in stark contrast to males), higher net in-commuting (in accord with males but with a stronger relative impact), and overall lower unemployment, than in non-metropolitan areas.

Females in areas where the manual female employment share is higher have significantly higher natural increase responses, substantial reductions in net in-migration and moderate reductions in labour force participation responses, and lower unemployment responses due to changes in the unemployment rate, other things equal. The net in-commuting response is slightly lower.

Table 8.7 Labour market adjustment responses to employment change for females, 1996-2001

Labour market adjustment component	Constant (%)	Coefficient for % change employment	*t*-statistic for % change employment	Adjusted R^2
Change in residents Labour Force				
Due to demographic processes	4.915	0.301	18.65	0.87
natural increase	3.488	-0.005	-0.61	-0.01
net in-migration	1.427	0.306	20.90	0.89
Due to change in LFPR rate	2.286	-0.050	-7.52	0.51
Increase in net in-commuting	-5.066	0.745	39.13	0.97
Change in unemployment				
Due to demographic processes	0.510	0.020	11.92	0.72
Due to change in unemployment rate	-1.397	-0.003	-0.96	0.00

Note: LFPR is labour force participation rate.

Females in areas with higher concentrations of professional female employment exhibit significantly different responses to higher employment growth with substantial increases in net in-migration. Again, relocation appears to be in preference to in-commuting, as was the case for males. Regions with high percentages of female professional employment have reduced in-commuting responses compared to those with high percentages of manual employment. Further, regions with higher percentages of professional female employment experience rising unemployment compared to high manual employment proportions, again, as in the case of males, probably due to supply side factors.

The regressions also suggest that metropolitan areas experience less female in-migration; have lower participation responses and substantially higher female in-commuting. They also experience slightly lower female unemployment in response to employment growth than non metropolitan areas.

Table 8.8 Female labour market adjustment responses to employment change with manual occupational structure and metro dummy, 1996-2001

Labour market adjustment component	Constant (%)	Coeff % change emp	*t*-stat % change emp	Coeff manual % total emp	*t*-stat manual % total emp	Coeff profs % total emp	*t*-stat profs % total emp	Coeff on metro dummy	*t*-stat metro dummy	Adj R^2
Change in residents Labour Force										
Due to demographic processes	0.53	0.119	5.42	-0.413	-2.25	0.580	9.45	-3.764	-2.82	0.95
natural increase	0.68	0.000	0.01	0.472	3.54	-0.003	-0.07	-0.210	-0.22	0.21
net in-migration	-0.14	0.119	7.03	-0.885	-6.27	0.583	12.33	-3.554	-3.45	0.97
Due to change in LFPR rate	2.70	-0.109	-9.05	-0.304	-3.02	0.184	5.46	-2.061	-2.81	0.68
Increase in net in-commuting	-6.20	0.909	25.54	0.972	3.27	-0.506	-5.08	4.579	2.11	0.98
Change in unemployment										
Due to demographic processes	0.36	0.004	1.84	-0.019	-1.08	0.052	8.65	-0.775	-5.97	0.91
Due to change in unemployment rate	-0.28	0.000	0.07	-0.205	-4.90	-0.017	-1.22	0.620	2.03	0.49

Notes: see Table 8.6.

8.6.5 Female results – 2001-2006

The results for labour market adjustment responses to employment change for females are shown in Table 8.9. The prior expectation, that women would have a lower response to employment change through migration or commuting than men, is reflected in these results, though the difference is not large. The net in-migration response for females (319 jobs per 1000 extra jobs) and their net in-commuting response (567 per 1000) are both lower than the male responses (362 and 685 jobs per 1000 extra jobs respectively).

As was the case in the period 1996-2001, in-commuting is the main response to employment change for both men and women in the 2001-2006 period followed by in-migration.

Further, in contrast to Bailey and Turok (2000) and the results for the 1996-2001 period, females did not change their labour force participation in response to employment change significantly in the 2001 to 2006 period.

Employment growth only had a small impact on the change in female unemployment due to the unemployment rate (a reduction of unemployment by 7 for every 1000 jobs created), but this result is not statistically significant. In contrast unemployment rises by 27 for every 100 new jobs as a result of demographic changes. This result is consistent with the male result for the same period and the result for both males and females in the 1996-2001 period.

Table 8.9 Labour market adjustment responses to employment change for females, 2001-2006

Labour market adjustment component	Constant (%)	Coefficient for % change employment	*t*-statistic for % change employment	Adjusted R^2
Change in residents Labour Force				
Due to demographic processes	2.995	0.371	5.603	0.364
natural increase	2.427	0.053	1.563	0.026
net in-migration	0.569	0.319	4.252	0.244
Due to change in LFPR rate	2.637	0.037	0.645	-0.011
Increase in net in-commuting	-3.534	0.567	7.429	0.506
Change in unemployment				
Due to demographic processes	0.230	0.027	4.455	0.262
Due to change in unemployment rate	-0.342	-0.007	-0.634	-0.011

Note: LFPR is labour force participation rate.

As was the case for males, improved fits are achieved by adding extra control variables – specifically occupational and regional influences. The only exception is the regression modelling the responsiveness of change in labour force due to demographic changes.

Table 8.10 shows that when we add the occupational controls both the net in-migration (369 for every 1000 extra jobs) and net in-commuting (613 for every 1000 extra jobs) responses increase. These results are consistent with the results for the

1996-2001 period, that men have larger net in-migration and net in-commuting responses compared to women after controlling for occupational structure.

The significant coefficients on the Metro dummy relate to labour force participation changes (lower for females in metropolitan areas); net in-commuting (higher for females in metropolitan areas); and changes in the unemployment rate due to demographic processes (lower for females in metropolitan areas).

In areas where the female manual employment share dominates, the statistically significant results are that females in these areas had lower unemployment responses due to the change in unemployment rate, but a (relatively smaller) increase due to demographic processes.

In areas where the professional female employment share is higher, females have higher in-migration responses to employment growth, lower birth rate responses; lower labour force participation rate responses and lower changes in the unemployment rate due to demographic processes.

The impact of the occupational variables is similar for both males and females.

Table 8.10 Female labour market adjustment responses to employment change with manual occupational structure and metro dummy, 2001-2006

Labour market adjustment component	Constant (%)	Coeff % change emp	*t*-stat % change emp	Coeff manual % total emp	*t*-stat manual % total emp	Coeff profs % total emp	*t*-stat profs % total emp	Coeff on metro dummy	*t*-stat metro dummy	Adj R^2
Change in residents Labour Force										
Due to demographic processes	-3.598	0.393	5.711	0.238	0.577	0.167	0.921	1.379	0.786	0.353
natural increase	7.849	0.024	0.829	-0.064	-0.366	-0.219	-2.842	0.418	0.561	0.312
net in-migration	-11.446	0.369	5.087	0.303	0.695	0.386	2.020	0.961	0.520	0.331
Due to change in LFPR rate	11.835	-0.040	-1.123	0.110	0.512	-0.199	-2.119	-5.726	-6.302	0.633
Increase in net in-commuting	-4.966	0.613	8.308	-0.327	-0.739	-0.019	-0.098	4.329	2.302	0.563
Change in unemployment										
Due to demographic processes	-0.374	0.022	4.629	0.092	3.265	0.021	1.692	-0.487	-4.058	0.590
Due to change in unemployment rate	1.849	-0.001	-0.116	-0.198	-4.120	-0.090	-4.251	1.301	6.370	0.542

Notes: see Table 3.

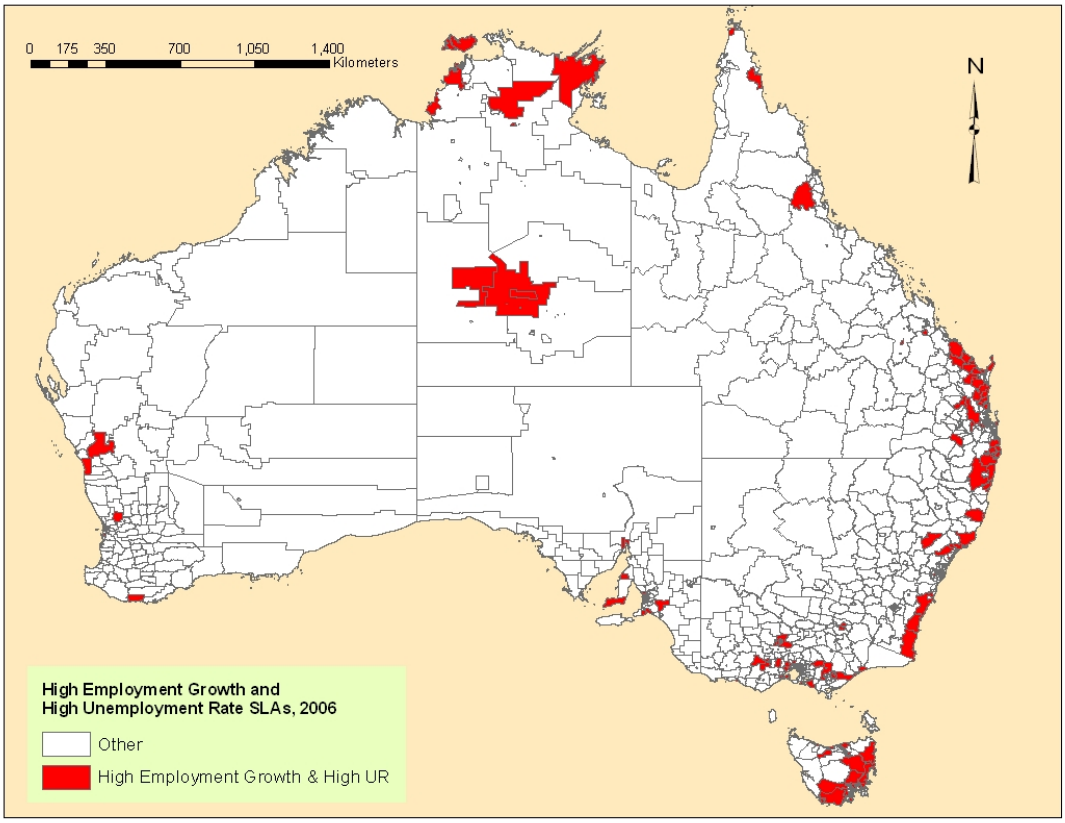
8.7 Summary

The notable results are:

- Commuting, followed by migration, was the main labour market adjustment mechanism for both men and women in the late 1990s and this persisted into the period between 2001 and 2006.
- Thus considerable leakages exist in local employment creation, with the effects of local employment shocks rippling out across the Greater Sydney Metropolitan region.
- Such leakages, in upturns and downturns, need to be considered by policy-makers when estimating the returns to local residents of local employment generation. Men rely more heavily on commuting across local areas than women to gain income earning opportunities in response to employment growth.
- Employment growth had only a small impact on the change in unemployment for both males and females. While this may partly be due to increased job competition from in-migrants and in-commuters, it remains that the overall employment growth has not been sufficient to generate enough jobs to satisfy the desires of the workers.

Appendix A

Figure A1 High employment growth and high unemployment rate, SLAs, 2006



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[1] Morrow (2000) uses the Department of Family and Community Services (FaCS) Longitudinal Data Set (LDS) and examines the impact of housing costs and labour market factors on the mobility of income support clients. In contrast to earlier Census-based studies he finds strong net movement into cities, away from the industrial towns and coastal regions of northern New South Wales and south-east Queensland. Focusing on the unemployed, he also finds that the unemployed migrate from regions with high unemployment rates (defined on an SD basis) into regions with low unemployment rates, even though housing rents may increase. Morrow (2000: 27) concludes "this pattern suggests that jobseekers are willing to incur the extra costs of housing in capital cities in exchange for greater access to employment opportunities and important services available in capital city regions". Dockery (2000) finds that locational decisions do not seem to stem from labour market opportunities. He finds instead that the unemployed are

less likely to move out of areas with higher unemployment rates, but more likely to move out of regions with high rents. This finding is criticized by Bradbury and Chalmers (2003) on the basis that it arises from a too narrow definition of labour market regions not accounting for the strong spatial labour market integration of sub-markets within cities.

[2] Refers to the Functional Economic Area geography developed at the Centre of Full Employment and Equity by William Mitchell.

[3] The Federal Minimum Wage as determined by the Australian Fair Pay Commission's Minimum Wage Review, 2006 is $13.47 per hour. In previous years, minimum wages are given by the Australian Industrial Relations Commission's Safety Net Review of Wages.