Great Expectations - migration and labour market outcomes in Australia

Anthea Bill and William Mitchell[1]

Abstract: Neo-classical economic theory suggests that households move from regions with low wages and high unemployment, to areas with high wages and low unemployment. The failure of individuals to adjust to differential patterns of regional growth through migration is said to be a source of considerable micro-inefficiency. In light of these findings, at the micro-level the beneficial role of inter-regional migration in improving employment and wage outcomes remains relatively untested, particularly among the unemployed.

Using four waves of data from the Survey of Household, Income and Labour Dynamics in Australia (HILDA), 2001-2004, we examine the 'year on' labour market status of those who were unemployed in a previous wave or employed in a previous wave. While preliminary analysis suggests that unemployed movers have higher rates of transition to employment than non-movers, such analysis does not control for other characteristics and self-selection. We thus use instrumental variables estimation to control for selection bias inherent in the migration decision. For the unemployed, we hypothesise that once such controls are introduced, the greater 'quality' of unemployed migrants is responsible for the higher transition to employment observed amongst movers. Thus migration *per se* may do little to address unemployment through improved job matching, particularly amongst the severely disadvantaged. For the employed, we find that migration is detrimental to those who were previously in employment suggesting some bumping down is occurring in job-rationed labour markets.

1. Introduction

It is commonly argued that higher levels of mobility among job seekers leads to greater labour market efficiency; improving job matching, reducing friction, and resulting in lower overall levels of unemployment. If unemployment gives rise to migration, and migration increases the prospect of employment (Pekkala and Tervo, 2002); labour migration might be regarded as highly micro-efficient process. In the Australian context such an argument is particularly appealing in light of flagging growth in Australia's rural and remote regions (Mitchell and Bill, 2006).

The Australian federal government has recently announced a pilot program to provide additional incentives for the unemployed to move (up to $5,000 for people living in areas with high unemployment) The scheme is reportedly a response to the 'lumpy' concentrations of unemployment across Australia, persistent in the face of emerging skill shortages in booming regions of Western Australia and Queensland, and is explicitly aimed at loosening "the attachment to place if that place doesn't have a job" (Peatling, 2006). Such schemes have received recent support from the OECD (2005: 17) who argue "although promoting geographic mobility is not an end in itself, removing obstacles to internal migration may be an important policy issue especially in countries where regional disparities are pronounced…the difficulty is to strike the right balance between the requirements imposed on unemployed workers to accept a job in another location and measures aimed at making such a move feasible. Financial support to allow the unemployed to find and take up a job in another region exists in a few countries, but could perhaps be used more extensively."

Movers however 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. Until recently studies linking migration and unemployment have largely been undertaken at a macro or state-level with migration emerging as a strong adjustment mechanism equalizing unemployment rates (see Blanchard and Katz, 1992; Decressin and Fatas, 1995, and in the Australian context the state-level analysis of Debelle and Vickery, 1998). International studies employing micro-data to examine whether migration improves prospects of re-employment have 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, Herzog and Schlottmann, 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 Lundholm 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. Australian studies have also had mixed results (see Bill and Mitchell, 2006 for a full discussion). Bradbury and Chalmers (2003) find that moving to an area with a lower unemployment rate reduces time spent on benefits and the effect is significant, while Marshall *et al*., (2004) interview a sample of approximately 220 unemployed and find many are disappointed in their post-migration outcomes, particularly in relation to employment.

In the case of the employed, 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, although 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. Over the last decade, employment opportunities in Australia have been spatially concentrated, with the result that those regions exhibiting strong employment growth have also experienced strong labour force growth (Mitchell and Bill, 2006). In this context migrants may experience pecuniary returns below those expected, particularly if rapid labour force growth occurring in the most buoyant labour markets has intensified competition.[2] If job rather than price competition results (Thurow,1972) movers may be forced to take jobs below their level of skill and formal qualification, a process also known as 'bumping down' (Gordon, 2003; Buck and Gordon, 2000).

Such findings are likely to be worthy of serious consideration if policy makers are seeking to induce migratory behaviour amongst the welfare dependent. This paper explores post-move outcomes for the employed and the unemployed. Echoing Pekkala and Tervo (2002) we ask are movers more likely to escape unemployment than residents who stay? That is, is there some causal relationship between migration and re-employment that means that migration can be regarded as a micro-efficient. Similarly do employed movers maintain their employment status in the destination region? The Survey of Household Income and Labour Dynamics in Australia (HILDA), now in its fourth wave, facilitates exploration of migration and employment dynamics at the micro-level, holding other factors constant. Section 2 describes the data and Section 3 provides preliminary analysis of the characteristics of movers, reasons for moving and rates of transition to employment for unemployed movers and non-movers. In Section 4 we estimate separate migration equations by employment status. We also estimate an employment equation for the unemployed population, controlling for self-selection via instrumental variables, and a similar model is estimated for the employed. Section 5 concludes.

2. Data

The Household Income and Labour Dynamics Australia (HILDA) study now in its fourth wave is well-suited to detailed analysis of employment outcomes, and the examination of the impact of behavioural changes, such as migration, on individual outcomes. In longitudinal data such as the Household Income and Labour Dynamics of Australia (HILDA) the sequence of events can be clearly determined allowing researchers to more confidently isolate the impact of migration on employment outcomes. For the purposes of this study we construct a cross-sectional pooled dataset of the working age population from the four waves comprising 30,761 observations (or persons who responded to the full survey). Full-time students, persons aged under the age of 15 years and persons aged over 65 years are excluded. Of these observations 5407 moves occurred. For the estimation undertaken in Section 3 we exclude observations in Wave 4 as the subsequent wave of data is not yet available.

House price data, for each state's metropolitan and non-metropolitan region, is drawn from Commonwealth Bank and Housing Institute of Australia's (HIAs) Housing Report, which provides a quarterly review of housing affordability. This report details median dwelling prices for state and other capital cities computed as an average of those houses financed by the Commonwealth bank.

3. Descriptive Analysis

3.1 General Characteristics of Movers

In HILDA 20 per cent of respondents reported that they moved in the year prior to 2001, while 16 per cent moved between 2001 and 2002 (rates in subsequent waves becoming progressively lower). The average for the entire period is 17 per cent. This is above the UK figure of 10 per cent for the working age population, reported by Böheim and Taylor (1999). Australian rates are however likely to be below the US, whose mobility rates have been estimated to be 2-3 times higher those of the UK (Hughes and McCormick, 1985).

Table 1 Numbers and proportions of movers, 2001-2004.

	Mover	Non-Mover
2001	1569 (20.0 per cent)	6275 (80.0 per cent)
2002	1264 (16.2 per cent)	6522 (83.8 per cent)
2003	1385 (17.7 per cent)	6435 (82.3 per cent)
2004	1198 (15.3 per cent)	6619 (84.7 per cent)
Total	5416 (17.3 per cent)	25851 (82.7 per cent)

Source: HILDA, 2001-2004 (unweighted).

Table 2 provides the percentage of non-movers and movers by various prior characteristics using data from the pooled waves. Looking at the labour market characteristics of movers and non-movers, Table 2 confirms that the unemployed are significantly more likely to move, as are the most highly educated are most likely to move (Greenwood, 1997),. We see no clear pattern emerges in terms of occupation and mobility, although a clear inverse relationship emerges between age and mobility. Also clear from Table 2 is that moving is strongly related to housing tenure. Those owning their own homes are much less likely to move than those who rent, pay board, those who are purchasing their home or living in their residence rent free. Renters are the most likely of the tenure types below to move, 39.5 per cent having moved in any of the four waves. Looking at other characteristics, Indigenous Australians (25.0) have higher than average rates of mobility, while persons who do not speak English well or at all, have significantly lower rates of mobility (10 per cent). Those who are married and those with children are less likely than average to move, as are those with an employed spouse; sole parents are more likely to move (25.7) than average.

Table 2 Percentage movers by key socio-economic variables, 2001-2004.

Variable	% Moved	Variable	% Moved
Employed	19.9	Manufacturing	18.8
Unemployed	37.3	Electricity and Construction	21.9
Not in the Labour Force	15.6	Services	23.3
Manager	13.7	Transport	18.3
Professional	18.2	Government and Education	16.7
Associate Professional	22.9	Other	31.5
Tradesperson	23.7	Age 16-19 years	53.5
Clerical	19.9	Age 20-29 years	51.1
Production and Intermediate	18.7	Age 30-39 years	24.5
Elementary Clerical	23.5	Age 40-49 years	12.5
Labourer	21.7	Age 50-65 years	8.8
Female	19.3	Own/Currently Paying Off Mortgage	9.7
Sole parent	29.5	Rent (or pay board)	60.1
Disability	17.1	State Housing	15.5
Agriculture and Mining	14.7	English Proficiency	9.7
Postgraduate/Bachelor Degree	19.8	Indigenous	28.5
Diploma	19.0	NESB	15.3
Certificate	19.5	Child	15.0
Year 12	26.4	Family and dependents	16.3
Below Year 11	16.5	Employed Spouse	14.9
		Married	12.3

Source: HILDA, 2001-2003 (unweighted).

3.2 Transitions

Comparing movers and non-movers in Table 3, unemployed movers between Wave 1 and Wave 2 are more likely to have found employment, and less likely to have dropped out of the labour force than non-movers, and the difference is sizeable. For those who are not in the labour force and who moved, more are now in the labour force and more of these people are employed (more than double the percentage of those who did not move). This preliminary result would seem to confirm the finding of Boehm *et al.*, 1998, that migration is a significant factor in encouraging heads of household who are not in the labour force to renew job search. Interestingly employed persons who move are less likely to be employed and more likely to be unemployed after the move, although fewer dropped out of the labour force. Thus the simple descriptive analysis supports the proposition that the unemployed benefit from moving, although the act of moving for an employed person appears to be slightly less beneficial in terms of retaining employment.

Table 3 Transitions in labour force status, movers and non-movers

Destination / Origin	Non-Movers				Movers			
	Employed	Unemployed	Not in the Labour Force	Total	Employed	Unemployed	Not in the Labour Force	Total
Employed	13,236	146	725	14,107	2,526	87	199	2,812
%	*93.8*	*1.0*	*5.1*		*89.8*	*3.1*	*7.1*	*100.0*
Unemployed	239	164	157	560	113	53	43	209
%	*42.7*	*29.3*	*28.0*		*54.1*	*25.4*	*20.6*	*100.0*
Not in the labour force	608	132	3,922	4,662	132	46	549	727
%	*13.0*	*2.8*	*84.1*		*18.2*	*6.3*	*75.5*	*100.0*
Total	14,083	442	4,804	19,329	2,771	186	791	3,748

Source: HILDA, Waves 2001-2003.

4. Results

4.1 Introduction

The analysis in this section draws on the pooled cross-sectional dataset, described in Section 3. We examine mobility within the last year as a function of the previous year's characteristics. 26 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.

Following Pekkala and Tervo (2002) we work on the assumption that an unemployed person is willing to move to another area if his/her perceived chances of finding a job there are higher than at his/her original location. While Böheim and Taylor (1999) estimate using the British Longitudinal Panel Survey (BHPS) that a desire to move motivated by employment reasons has the largest positive impact on the probability of moving between regions - preliminary analysis of the HILDA data reveals that the bulk of Australian moves occur for non-work reasons (see Bill and Mitchell, 2006 for complete discussion). The unemployed are slightly more likely to move for work reasons (13.7 per cent compared to 11.4 percent in the total population). Unfortunately the sample size is not large enough to permit separate estimates of those moving for work and other reasons.

4.2 Migration, employment and selectivity bias

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 (2001-2004).

We aim to estimate the impact of migration on employment status (and hence unemployment risk) controlling for various demographic, occupational and regional factors. The least squares (OLS) regression would estimate the migration impact using:

$$(1) \qquad y_i = \beta' \mathbf{x}_i + \varepsilon_i$$

where i is the i^{th} person in the sample, y_i is a binary variable defining whether employed (=1) or not employed (=0, that is, either unemployed or not in the labour force), one of the columns in $\mathbf{x}_i$ is the migration outcome (either 1 if moved or 0 if not), and ε_i is a normally distributed random error component.

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 (especially in a rationed labour market). According to Greenwood (1997) the choice in such a situation will depend on several personal and family characteristics – older and less educated workers will be more likely to drop out of the labour force; family conditions, such as the presence of children and an employed partner (a move for job reasons only taking place if one partner's net gain is greater than the other partner's net loss (Mincer, 1978)), will also discourage workers from moving. A higher propensity to move might also be expected for renters, those born in an English speaking country, residents of metropolitan areas and those with higher family income to finance a move. Related results confirm the findings of previous studies that the unemployed are a highly mobile group (engaging in higher rates of repeat migration), after controlling for other factors (see Bill and Mitchell, 2006). 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. 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 our analysis this is captured by the destination region's IRSED decile).

The OLS estimates of (1) would yield biased and inconsistent estimates of the coefficient on the migration variable due to the endogenous selectivity. In this case, the error term is correlated with **x** (the migration variable). Equation (1) thus implies the existence of a selection equation:

(2) $u_i = \gamma' \mathbf{z}_i + v_i$

where u_i is the unobserved net benefits to person *i* arising from moving, $\mathbf{z}_i$ is the factors which motivate movement and v is a well-behaved random error component.

There are several ways in which we can generate unbiased and consistent estimates of the system of equations (1) and (2) (see Pekkala and Tervo, 2002: 625). In this paper, we use instrumental variables (IV) estimation to account for the endogeneity of migration in (1). That is, we seek to use instruments for migration in (1) to correct for the selectivity bias. In IV estimation the instruments used must have two properties: (a) they much be correlated with the endogenous variable(s) they replace, which is indicated by the fit of the first stage reduced-form regression(s); and (b) they must be uncorrelated with the error term. Empirical application requires us to verify these properties with formal tests. A useful test where there is one endogenous variable of interest is to check the validity of the instruments with the *F*-test of the joint significance of the instruments in the first-stage regression (see Bound *et al*, 1995). The *F*-statistic on the first-stage regression, which tests the hypothesis that the instruments have no explanatory significance in that regression, was 16.64. Staiger and Stock (1997: 557) argue that the F-test statistic should be above 10 especially given that the size of bias increases within the number of instruments. This is because "standard asymptotic approximations to the distributions of the main instrumental variables statistics break down when the mean of this *F* statistic is small".

In addition to using the *F*-test of the joint significance we need to test for orthogonality between the instruments and the errors in the second-stage regression. In the case where our first-stage regression (Equation 2) is overidentified (more instruments than endogenous variables), the test for orthogonality is relatively straightforward. We calculate the test statistic nR^2 by regressing the second-stage residuals on all the instruments (both the included exogenous variables and those instruments which did not appear in the equation) without a constant. The nR^2 of this auxiliary regression is χ^2 (*L*-*K*) under the null hypothesis that all instruments are orthogonal to the error, where *L* is the number of instruments and *K* is the number of endogenous variables. The null is that the instruments are valid so we reject the null if test statistic is above its critical value (meaning a probability value below 0.05).

Our research design therefore involves two steps conducted for two samples (the first sample covers unemployed in the first or second wave and the second covers those who were employed in the first or second wave). The steps are:

1. Probit estimation to find valid instruments for the decision to migrate (dependent variable is unity if the person has migrated between Waves, and 0 otherwise);
2. Second-stage instrumental variables probit estimation of the subsequent employment status of individuals who were (a) unemployed in either the first or second wave; or (b)

employed in either the first or second wave, with migration as one of the explanatory variables. In this case, we instrument the migration variable.

We seek to test the hypothesis that migration improves one's employment prospects in a rationed labour market. We thus examine this hypothesis from the perspective of those who were unemployed initially and then consider whether migration changes the employment prospects for those who were initially employed.

4.3 Unemployment workers migration and labour market outcomes

Selection model for those unemployed

We initially consider the impact of migration on workers who were unemployed prior to moving house. This sample contained 769 persons in total all who were unemployed in either Wave 1 (2001), Wave 2 (2002) or Wave 3 (2003). Three instruments were chosen and related to housing status and metropolitan locality. The valid instruments were home ownership (with an expected strong negative influence on the decision to migrate); occupant of state housing (also negative and consistent with the findings of Gordon (2003) that housing affordability tends to spatially segregates the unemployed such that a spatial clustering of unemployed individuals reflects the clustering of state housing provision); and metropolitan locality (a positive influence reflecting the fact that the costs of movement are lower within the concentrated metropolitan region). Table 4 reports the final probit results of this exercise.

Table 4 Instrument selection for migration by unemployed persons (probit estimation)

Instrument	Coefficient	Standard Error
Ownership	-0.883	0.114
State housing occupant	-0.811	0.214
Lives in metropolitan area	0.129	0.110
Test for exclusion	$F(3,765) = 29.9$	
Overidentification test	$\chi^2(1) = 2.00$ (p-value = 0.367)	
McFadden R-squared	0.089	

A larger list of instruments for migration by the unemployed were initially chosen on *a priori* grounds – that is, they were likely to be motivators for migration but not directly related to one's prospects of re-employment. It is clearly a difficult task separating these causal chains. The potential instruments were then culled using overidentification tests described above until only valid instruments remained. The high *F*-test result also supports the choice of instruments. Several of the potential instruments tried were unsupported on the basis of overidentification tests and in some cases (such as Residential housing prices; Age variables; Non-English speaking background; Socio-economic status of the destination region) were significant in the second-stage employment status equation.

Employment status model for those initially unemployed

The dependent variable took the value of 1 for those who were unemployed in a one wave (2001 or 2002) and subsequently reported as being employed in the next wave (2002 or 2003), and zero if the person had remained unemployed or exited the labour force in the next period. Table 5 reports the regression results comparing the estimates obtained without

correcting for selection bias to the selection-corrected estimates. The results are controlled for contracted movers (those who moved house because they had already obtained a new job).

The results confirm the indications from our earlier descriptive analysis. Migration does not, in itself, improve the prospects for re-employment of the unemployed, other things equal. Once we control for selection bias, it appears that migration does not significantly alter the employment chances of the unemployed. The selection bias is also evident in the comparison between the non-corrected and corrected (IV) probit models.

Table 5 Employment status for unemployed in previous Wave

	Probit (no selection)	IV Probit (selection)
Constant	-1.041 (0.158)*	-0.963 (0.187)*
Moved to new location	0.091 (0.122)	-0.251 (0.419)
Aged 50-65 years	-0.243 (0124)**	-0.275 (0.126)**
Graduate	0.475 (0.158)*	0.477 (0.158)*
Employed Spouse	0.252 (0.111)**	0.226 (0.115)**
Non-English speaking background	-0.426 (0.135)*	-0.429 (0.135)*
Socio-economic status destination	0.039 (0.017)**	0.040 (0.018)**
Unemployment less than 2 years	0.817 (0.146)*	0.818 (0.146)*
Contracted move	1.597 (0.489)*	1.663 (0.482)*
No of observations	769	769
McFadden R-squared	0.105	0.105
Wald test for exogeneity		p-value = 0.434
Test of overidentifying restrictions		$\chi^2(1) = 2.00$ p-value = 0.367

Notes: estimates are followed by standard errors in parentheses. * indicates 1 per cent statistical significance, ** indicates 5 per cent statistical significance.

We were not able to derive direct employment demand measures from this dataset. We will extend the analysis once a spatially coded dataset is released to us in the near future. To represent the 'well-being' of the location the persons were moving into we used the Socio-Economic Index for Areas (SEIFA) index for the destination region, represented by the variable Socio-economic status destination. The Pearson's correlation coefficient between the unemployment rate and IRSED decile of the origin region of -0.435 indicates moderate correlation. Access to the unconfidentialised version of HILDA would overcome this problem by providing spatial identifiers. The results confirm that strong economic conditions in the destination region increase the chances of an unemployed person gaining subsequent employment, irrespective of whether they move or not.

The results also confirm that the unemployed are more likely to gain employment if they have a university degree and have an employed spouse, other things equal. Older unemployed

workers (aged 50-65) and those from a non-English speaking background are less likely to gain employment.

Duration effects were also pronounced. 83.2 per cent of the sample had been unemployed for less than two years while 10.9 per cent had been unemployed for more than 2 years but less than 5 years and 5.8 per cent had been unemployed for more than 5 years. The duration variable (unemployment less than 2 years) suggests that those who have been unemployed the longest are less likely to gain employment compared to the reference (unemployed) person, other things equal. We should be careful in the way this conclusion is used. Clearly it would have been desirable to have a continuous measure of weeks unemployed. Unfortunately, the duration variable available in HILDA is problematic because of many missing observations (respondents indicating they did not know how long they had been unemployed, some 22 per cent of the sample of 769) and so we were forced to use the blunter, less than 2 years or more than 2 years variable. The broader bands used are likely to be more accurate but at the cost of lower quality informational content.

State (regional) dummies were included but were not significant. In our next study, which will use a newly released dataset, geo-coded at a finer spatial level, we will expect to detect locational impacts. Three were no significant panel effects across the years (2001, 2002 and 2003).

4.4 Employed workers migration and labour market outcomes

Selection model for those already employed

We now consider the impact of migration on workers who were already employed prior to moving house. This sample contained 16919 persons in total all who were employed in either Wave 1 (2001), Wave 2 (2002) and Wave 3 (2003). The instruments chosen were married and owner. As was the case for the previous sample, a larger list of instruments for migration were initially chosen on *a priori* grounds – that is, they were likely to be motivators for migration but not directly related to one's prospects of re-employment. For example, marital status may impact on the decision to participate in the labour force, but our sample of employed persons means that decision has already been made. The potential instruments (including occupation of state housing; pay differentials between previous and current job; regional housing price disparities) were then culled using overidentification tests described above until only valid instruments remained. The high *F*-test result also supports the choice of instruments. Several of the potential instruments tried were unsupported on the basis of overidentification tests and in some cases (such as Age variables; English proficiency; Non-English speaking background; Socio-economic status of destination region compared to origin region) were significant in the second-stage employment status equation.

Table 6 reports the final probit results of this exercise. Accordingly, a person who is married is much less likely to move, other things equal. Home ownership seems to place an even greater constraint on migration than marital status.

Table 6 Instrument selection for migration by employed persons (probit estimation)

Instrument	Coefficient	Standard Error
Married	-0.190	0.030
Ownership	-0.702	0.030
Test for exclusion	F(2,16916) = 705.4	

Overidentification test	$\chi^2(1) = 2.34$ (p-value = 0.12)
McFadden R-squared	0.095

Employment status model for those already employed

The dependent variable took the value of 1 for those who were employed in a one wave (2001 or 2002) and subsequently reported as being employed in the next wave (2002 or 2003), and zero if the person became unemployed or exited the labour force in the next period. Table 7 reports the regression results comparing the estimates obtained without correcting for selection bias to the selection-corrected estimates. The results are controlled for contracted movers (those who moved because they had already obtained a new job).

Unlike the unemployed situation, migration now significantly alters the probability of being employed in the following period for a person who migrates from an employed status. Such a person suffers a lower likelihood of being employed, other things equal. This supports other work that focuses on the bumping down hypothesis whereby employed movers are at a disadvantage in growing labour markets (see Mitchell and Bill, 2006). The selection bias is also evident in the comparison between the non-corrected and corrected (IV) probit models.

Once again, the variable Socio-economic status destination, which is highly correlated with employment growth, is statistically significant. Strong economic conditions in the destination region increase the chances of an employed person gaining subsequent employment, irrespective of whether they move or not.

The extremes of the age profile (youth and senior workers) also impact negatively on employed persons prospects of keeping employment. Both 16-19 year olds and 50-65 years olds are at a disadvantage, other things equal. Other personal characteristics such as poor education (Below Year 11 Education); gender (Females), poor English language skills (Poor English Proficiency) and being disabled (Disabled) reduce the likelihood that an employed person will remain employed in the following year. There is evidence that family history (Father – record of unemployment) impacts negatively on one's chances of retaining employment. Occupational categories were all insignificant apart from labourers. Labourers have diminished chances of retaining employment, other things equal.

Table 7 Employment status probits, with and without selection correction

	Probit (no selection)	IV Probit (selection)
Constant	1.984 (0.045)*	2.014 (0.049)*
Moved to new location	-0.448 (0.044)*	-0.891 (0.196)*
Aged 16-19 years	-0.348 (0.095)*	-0.303 (0.096)*
Aged 50-65 years	-0.261 (0.035)*	-0.284 (0.037)*
Females	-0.197 (0.034)*	-0.195 (0.034)*
Below Year 11 Education	-0.133 (0.035)*	-0.142 (0.035)*
Poor English Proficiency	-0.558 (0.177)*	-0.571 (0.177)*
Labourer	-0.247 (0.061)*	-0.241 (0.061)*
Socio-economic status destination	0.012 (0.006)**	0.014 (0.006)**

Part-time employee	-0.510 (0.034)**	-0.511 (0.034)**
Disability	-0.434 (0.046)*	-0.425 (0.046)*
Father – record of unemployment	-0.107 (0.051)**	-0.101 (0.050)**
Contracted move	0.241 (0.153)	0.591(0.215)*
No of obs	16919	16919
Wald test for exogeneity		p-value = 0.024
Test of overidentifying restrictions		$\chi^2(1) = 2.34$
		p-value = 0.126

Notes: estimates are followed by standard errors in parentheses. * indicates 1 per cent statistical significance, ** indicates 5 per cent statistical significance.

Of interest is the strong negative coefficient on Part-time employee. This reflects the flux and uncertainty in the labour market which is borne by part-time workers who are less likely to remain in employment in the following wave, other things equal.

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

5. Conclusion and future work

Preliminary analysis suggests that unemployed movers are able to escape unemployment more successfully than those who do not move. However after controlling for personal characteristics and the socio-economic decile of the destination region, moving itself is not especially beneficial for the unemployed, this is also true after correcting for selectivity bias. The observable characteristics and inherent but unobservable employability or better 'quality' of the migrant group rather than the act of moving is responsible for the higher rates of transition to employment amongst movers, and migration's impact on unemployment is negligible. This finding casts doubt on the validity of government policies providing incentives to the unemployed to move, if geographic mobility does not improve job matching such policies may in fact, as Pekkala and Tervo (2002) argue, simply shuffle the unemployed from high unemployment to low unemployment regions.

An employed worker suffers a lower likelihood of being employed other things equal following migration, such a result is interesting and perhaps suggests speculative migrants may have trouble entering the labour market of the destination region, perhaps due to 'bumping down' in a job rationed labour market. Certainly as Boehm *et al*., (1998:10) argue "a fundamental issue for all migrants is the extent to which they select destination labour markets with more favourable job opportunities". Although destination characteristics are captured in the socio-economic decile of the destination region, this variable is a crude proxy for local labour market conditions. Access to an unconfidentialised version of HILDA may enable the inclusion of much more detailed information on the origin region and destination region, including commuting area (see Watts, 2004) unemployment rates.

References

Bailey, A., (1991) 'Unemployment Duration, Unemployment Insurance and Migration: A Preliminary Assessment', Working Paper, Department of Geography, Dartmouth College, Hanover, NH.

Bill, A. Mitchell, W.F. and Watts, M. (2006) 'Examining Commuting Patterns, Employment Growth and Unemployment in Sydney', *Australian Journal of Social Issues*, 41 (2), 233-245.

Bill, A. and Mitchell, W.F., (2006) 'Great Expectations: migration and labour market outcomes in Australia', *CofFEE Working Paper 06-08*, University of Newcastle, Newcastle, Callaghan.

Blanchard, O. and Katz, L. (1992) 'Regional Evolutions', *Brookings Papers on Economic Activity 1*, 1-75.

Boehm, T.P, Herzog, H.W. and Schlottmann. A.M. (1998) 'Does Migration Matter? Job Search Outcomes for the Unemployed', *The Review of Regional Studies*, 28 (1), 3-12.

Böheim, R. and Taylor, M. (1999) 'Residential Mobility, Housing Tenure and the Labour Market in Britain', mimeo, *Institute for Social and Economic Research, Institute for Labor Research*, University of Essex.

Bound, J., Jaeger, D.A. and Baker, R. (1995) 'Problems with instrumental variables estimation when the correlation between the instruments and the endogenous explanatory variable is weak', *Journal of the American Statistical Association*, 90, 443-450.

Bradbury, B. and Chalmers, J., (2003) 'Housing, Location and Employment', *Australian Housing and Urban Research Institute*, Melbourne.

Buck, N. and Gordon, I. (2000) 'Turbulence and Sedimentation in the Labor Markets of Late Twentieth-Century, Metropoles', in Bridge, G. and Watson, S (eds.) *A Companion to the City*, Blackwell Companions to Geography, Blackwell, Oxford.

Decressin, J and Fatas, A. (1995) 'Regional Labour Market Dynamics in Europe', *European Economic Review*, 39, 1627-1665.

Debelle, G. and Vickery, J. (1998) 'Labour Market Adjustment: Evidence on Interstate Labour Mobility', *Research Discussion Paper*, Economic Research Department, Reserve Bank of Australia.

Gordon, I. (2003) 'Unemployment and Spatial Labour Markets: strong adjustment and persistent concentration', in Martin, R and Morrison, P.S. (eds.) *Geographies of Labour Market Inequality*, Routledge, London, 56-81.

Goss, E.P., Paul, C. and Wilhite, A., (1994) 'Duration of Unemployment: Geographic Mobility and Selectivity Bias', *Review of Regional Studies*, 24, 127-142.

Greenwood, M. (1997) 'Internal Migration in Developed Countries', in M. Rosenzweig and O. Stark (eds.), *Handbook of Population and Family Economics*, North-Holland, Amsterdam.

Herzog, H.W. and Schlottmann, A.M. (1984) 'Labor Force Mobility in the United States: Migration, Unemployment and Remigration', *International Regional Science Review*, 9, 43-58.

Herzog, H. W., Schlottmann, A., and Boehm, T.P. (1993) 'Migration as Spatial Job-Search: A Survey of Empirical Findings', *Regional Studies*, 27(4), 327-340.

Hughes, G. and McCormick, B., (1985), 'Migration Intentions in the UK: Which Households Want to Migrate and Which Succeed', *Economic Journal*, 95, 113-23.

Lundholm, E. and Malmberg, G., (2006) 'Gains and Losses, Outcomes of Interregional Migration in the Five Nordic Countries', *Swedish Society for Anthropology and Geography*, 88 B (1), 35-48.

Marshall, N., Burnley, I., Murphy, P. and Hugo, G., (2004) 'Migration of Income Support Recipients from Non-Metropolitan NSW and SA into Sydney and Adelaide', *Australian Housing and Urban Research Institute*, Melbourne.

McGuire, P. (2001) 'Regional Unemployment in Queensland: Dimensions and Policy Issues', *Australian Bulletin of Labour*, 27(4), December, 296-313.

Mincer, J. (1978) 'Family Migration Decisions', *The Journal of Political Economy*, 86(5), 749-773.

Mitchell, W.F. and Bill, A., (2006) 'Who Benefits from Growth? Disadvantaged Workers in Growing Regions', *Australian Journal of Labour Economics*, forthcoming.

Nakosteen, R. and Zimmer, M. (1980) Migration and Income: the Question of Self-Selection, *Southern Economic Journal*, 46, 840-851.

OECD (2005) 'How Persistent Are Regional Disparities in Employment? The Role of Geographic Mobility', *OECD Employment Outlook 2005*, OECD.

Peatling, S. (2006) 'Jobless Get $5000 to Move for Work', *Sydney Morning Herald*, August 30.

Pekkala, S. and Tervo, H. (2002) 'Unemployment and Migration: Does Moving Help?', *Scandanavian Journal of Economics*, 104(4), 621-639.

Podgursky, M. and Swaim, P. (1990) 'Job Displacement and Geographic Mobility', *Working Paper, Department of Economics*, University of Massachusetts, Amherst, MA.

Shumway, J.M. (1991) 'Access to Employment: does migrating increase the likelihood of ending an unemployment spell?', *Working Paper, Department of Geography*, Brigham Young University, Provo.

Staiger, D, and Stock, J. (1997) 'Instrumental variables regression with weak instruments', *Econometrica*, 65(3), 557-586.

Tervo, H., (2000), 'Post Migratory Prospects: Empirical Evidence from Finland', *Labour 14*, 331-349.
Thurow, L.C. (1972) 'Education and Economic Equality', *The Public Interest*, 35, 66-81.
Watts, M. (2004) 'Local Labour Markets in New South Wales: Fact or Fiction?', Centre of Full Employment and Equity *Working Paper 04-12*, University of Newcastle, Newcastle.
Yankow, J. (2003) 'Migration, Job Change and Wage Growth: A New Perspective on the Pecuniary Return to Geographic Mobility', *Journal of Regional Science*, 43(3), 483-516.

---

[1] The authors are Research Officer, Centre of Full Employment and Equity (Bill) and Director of Centre of Full Employment and Equity and Professor of Economics (Mitchell) at the University of Newcastle, Australia. They thank the anonymous referees for excellent advice but all errors remain the responsibility of the authors.

[2] Bill *et al.*, (2006) find that in the state of NSW over the late 1990s job competition from commuters and migrants have eroded employment gains from local employment growth for resident unemployed.