

Piracha, Matloob; Tani, Massimiliano; Vadean, Florin

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Immigrant over- and under-education: The role of home country labour market experience

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Matloob Piracha
Massimiliano Tani
Florin Vadean

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Matloob Piracha

*University of Kent
and IZA*

Massimiliano Tani

*Macquarie University
and IZA*

Florin Vadean

*University of Rome Tor Vergata
and University of Kent*

Discussion Paper No. 5302
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IZA

P.O. Box 7240
53072 Bonn
Germany

Phone: +49-228-3894-0
Fax: +49-228-3894-180
E-mail: iza@iza.org

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ABSTRACT

Immigrant Over- and Under-education: The Role of Home Country Labour Market Experience^{*}

The cause of immigrant education mismatch in the host country labour market might not necessarily be discrimination or imperfect transferability of human capital, as argued in previous studies. Immigrants who have gained professional experience in the home country in jobs below their education level might be assessed by host country employers as having lower abilities and skills than those expected from their educational qualifications. Using the Longitudinal Survey of Immigrants to Australia we show that a significant part of the variation in the immigrants' probability to be over-/under-educated in the Australian labour market can be explained by having been over-/under-educated in the last job in the home country.

JEL Classification: C34, J24, J61

Keywords: immigrants, education-occupation mismatch, sample selection

Corresponding author:

Matloob Piracha
School of Economics
Keynes College
University of Kent Canterbury
Kent CT2 7NP
United Kingdom
E-mail: M.E.Piracha@kent.ac.uk

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1. Introduction

Migration is typically viewed as a way to best allocate human capital when labour markets work. Evidence on education mismatch suggests, however, that human resources are not always used efficiently: both natives and immigrants often work below their education level, and studies have repeatedly found that up to a third of a country's employed is over-educated.

The information about formal qualifications is not the only aspect considered by employers to assess the skills and abilities of applicants. The skills used and/or developed in previous jobs are an equally (or sometimes even more) important aspect. Skills gained through professional experience might be from jobs that do not match the individual's education level and, thus, might affect future job prospects in a diverging way. For example, having accumulated experience and skills below the education level may result in a lower probability of getting job offers that match the formal educational qualifications. Conversely, having advanced in a previous job to a position involving more knowledge and skills than the ones matching formal education may result in getting subsequent offers for jobs that require a relatively higher education level as well.

Recent research on immigrants' over/under-education has typically focused only on the post-migration job market experience of migrants and has compared the possible labour market mismatch of immigrants or ethnic minorities (i.e., second/third generation migrants) with natives. There is an almost universal consensus in the literature that immigrants are more often over-educated than their native counterparts and the authors forward different, and very plausible, arguments for this disparity. These range from imperfect international transferability of human capital to discrimination in the labour market to, perhaps, a combination of language and country of origin effect.

However, the extant literature on the education mismatch of immigrants has not explored the possible existence of education-occupation mismatch prior to migration. We attempt to fill this gap by assessing the role of home country over-/under-education in explaining the immigrants' over-/under-education in the host country labour market. This analysis, therefore, will provide some evidence towards the role of the *level* of skills accumulated in previous jobs in the home country (i.e., below, at or above the education level) in explaining the incidence of subsequent mismatch in the host country, instead of, or in addition to those typically inferred to in the existing literature.

In order to conduct the analysis, we exploit the Longitudinal Survey of Immigrants in Australia (LSIA), which contains detailed information about immigrants'

education level, their occupation in Australia since arrival as well as their occupation in the home country in the 12 months prior to migration. Australia has a selective immigration policy favouring immigrants who are young, highly educated and with prior work experience that is likely to be immediately transferable to the Australian labour market. Still, several studies have shown that immigrants are often employed below their education level and argued that immigrants' skills are not fully utilised in the Australian labour market (see for example Green *et al.* 2007).

Our results show that immigrants' education-occupation mismatch in the host country is, to a large extent, explained by their mismatch at home. Between 11 and 16 percent of the variation in the immigrants' probability to be over-educated in the Australian labour market can be explained by having been over-educated in the last job in the home country. Home country mismatch has an even higher impact in the case of under-education – between 42 and 67 percent of the variation in the immigrants' probability to be under-educated can be explained by having been under-educated in the last job in the home country. After spending a few months in Australia the impact of home country labour market outcome diminishes for all migrants. Nevertheless, the home country mismatch effect remains significant.

The rest of the paper is organised as follows. Section 2 discusses previous literature and outlines theoretical motivations while Section 3 presents the data. The empirical model used in the paper is presented in Section 4 and the discussion of results appears in Section 5. Section 6 concludes the paper.

2. Previous Literature and Theoretical Motivations

We carry out our analysis within the perspectives of the existing over- and under-education literature.² This literature typically proposes that there is a reference level of education that is required for a particular job, and when a worker is hired with an education level which diverges from the required level, a mismatch occurs. This could be a level higher than needed for the job, in which case the worker is over-educated, or lower than the required level, in which case the worker is under-educated.³

² See for instance, Chevalier and Lindley (2009), McGuinness (2006), Voon and Miller (2005), Battu and Sloane (2004), Gottschalk and Hansen (2003), Bauer (2002), Dolton and Vignoles (2000), Hartog (2000) and McGoldrick and Robst (1996).

³ It has become a stylised fact now that over-educated employees earn less than those with the required education level. This conclusion of course rests on the assumption that the returns to human capital are mostly affected by formal education rather than training and learning on the job (e.g., Ben-Porah 1967, Heckman 1976, and Mincer 1997) or career interruptions or switches (e.g., Mincer and Ofek 1982).

These models have been extended to consider the mismatch of immigrants compared to those of natives. All studies show that immigrants are much more likely to be mismatched (generally over-educated) than their native counterparts. There are several arguments put forward for that. For instance, Chiswick and Miller (2008, 2009), for analyses of Australia and the US, argue that the main reason for immigrant education mismatch is the less than perfect human capital transferability across borders, especially for those who migrate from less developed countries and/or those who have low host country language skills. Similarly, Green *et al* (2007) use the LSIA to show that immigrants in Australia are much more likely to be over-educated than the natives and the difference is more pronounced for those coming from non-English speaking backgrounds. One other explanation put forward by Battu and Sloane (2004) is the possible discrimination against non-whites in the UK labour market, where they compare mismatch for ethnic minorities with those for white natives.⁴ They argue that ethnic minorities possibly find it difficult to acquire jobs and therefore are likely to work in an occupation that is not fully commensurate with their qualification. Hence, on average more non-whites end up being over-educated. In other words, one can argue that to be able to send a stronger signal of ability, immigrants acquire more education, compared to natives, for the same job. Finally, some unobservable factors like motivation and innate abilities might be the reasons behind the results obtained in all studies analysing the labour market mismatch for immigrants (see Chiswick and Miller 2009).

Education-occupation mismatch is a dynamic process that is theorised to be affected by the individual's experience in the labour market. For example, the search-and-match theory hypothesises that mismatch originates from imperfect information about the labour market. Workers, thus, might take up jobs for which they are over-educated when they enter the labour market. However, they would continue to search for higher job levels and eventually move up the occupational ladder to positions that match or even exceed their formal qualifications (see Groot and Maassen van den Brink 2000; Hartog 2000). As argued by Chiswick and Miller (2009), this search and adjustment process can be particularly relevant for immigrants, especially for those from countries with labour markets that differ appreciably from those of the destination country. With residence length and the accumulation of information about the host

⁴ Possible discrimination against immigrants in the US is also suggested by Chiswick and Miller (2010).

country labour market, the incidence of over-education is expected to fall while the incidence of under-education could rise.

The human capital theory suggests that experience and skills acquired through on-the-job training could be often substitutes to formal schooling (see Sicherman 1991). Therefore, individuals may, at the start of their career, accept jobs below their education level with the intention of accumulating experience and skills for the benefit of an expected upward job mobility. Similar to the search and matching, the human capital theory predicts that with job experience over-education decreases, while under-education increases.

One of the few studies that considered the role of job experience accumulated in the home country in explaining the immigrants' education mismatch in the host country labour market is Chiswick and Miller (2009). They found that a greater amount of home country experience is associated with poorer job matches in the US and argued the imperfect international transferability of human capital is the main driving force for that outcome. The authors, however, implicitly assume no education mismatch in the immigrants' country of origin labour market. In other words, they suppose that the professional experience gained prior to immigration was in jobs requiring exactly the education level obtained from formal schooling.

Our contribution to the literature consists in relaxing this assumption and allowing immigrants to enter the host country labour market with experience gained in the home country at different occupational levels. We expect the *level* of professional experience at origin (i.e., below, at or above the education level) to significantly determine the immigrants' education mismatch incidence in the host country. For example, immigrants who have gained professional experience in the home country in jobs below their education level might be assessed by host country employers as having lower abilities and skills than those expected from their formal education. That might lead to employment below the education level in the host country as well. Therefore, if someone with tertiary education worked in the home country in a job that required only secondary education and is facing the same outcome in the host country, then it is less likely that the mismatch is due to imperfect transferability of skills and more likely due to lower on-the-job skills accumulated and/or some other unobservable factors (e.g., ability, motivation, ambition, and/or energy). If, however, the individual was properly matched in the home labour market but is over-educated in the host country, then

perhaps the existing explanations of imperfect skill transferability and/or discrimination could be put forward for such an outcome.

Three broad approaches have been used in the literature to measure the incidence of under-/over-education. One approach, which is typically based on survey data, uses the workers' self assessment about the minimum education level needed for the job they perform or their understanding of the average education level for a particular job and whether they possess that or not (e.g., see Sicherman 1991; Dolton and Vignoles 2000). A second approach, developed by Verdugo and Verdugo (1989), uses the mean education level required across a range of occupations. Under this approach an individual is considered over- or under-educated if his education level is, respectively, one standard deviation above or below the mean education level required for that particular job. A third way to analyse the level of over-/under-education is the "objective" measure based on methods used by different countries/labour organizations to assess the average required education for a particular job (e.g., Rumberger 1987 and Green *et al.* 2007). We adopt the last approach in this paper.

We use the Australian Standard Classification of Occupation (ASCO) codes to divide the employed immigrants in eight occupational groups: Managers and Administrators; Professionals; Para-Professionals; Tradespersons; Clerks; Salespersons and Personal Service Workers; Plant and Machine Operators and Drivers; and Labourers and Related Workers. For each occupation group Australia's Department of Immigration and Citizenship (DIAC) associates a corresponding required level of education (http://www.immi.gov.au/employers/_pdf/ansco-anzsco-differences.pdf). Those who have surplus education to that required by DIAC are considered over-educated, while those who have less are considered under-educated. The related education levels for each categories and further explanation is provided in section 3 below.

3. Data

The Longitudinal Survey of Immigrants in Australia (LSIA) is a panel survey of three cohorts of immigrants to Australia: LSIA 1 covers migrants who arrived in Australia between September 1993 and August 1995 and contains three waves, with interviews conducted at 5, 17 and 41 months after arrival; LSIA 2 consists of two waves with interviews conducted at 5 and 17 months after arrival of immigrants who arrived between September 1999 and August 2000; while LSIA 3 has only one wave and

samples immigrants who arrived in Australia (or were granted their visa onshore) between December 2004 and March 2005. The substantially smaller number of questions in LSIA 3 relative to LSIA 1 and 2 makes it difficult to carry out the analysis over the three cohorts. Therefore, this paper uses only data from LSIA 1 and LSIA 2.⁵

The LSIA was commissioned in the early 1990s to fulfil the need to have better information on the settlement of new migrants than those available through censuses. It is based on a representative sample of 5 percent of migrants/refugees from successive cohorts of migrants. LSIA 1 and LSIA 2 contain more than 300 questions about the settlement process and conditions experienced pre-emigration in the home country and after relocating to Australia. The LSIA is carried out separately on primary applicants and migrating-unit spouses.⁶ There are 5,192 primary applicants and 1,838 spouses in Cohort 1, while 3,124 primary applicants and 1,094 spouses were interviewed as part of Cohort 2.

Australian immigration policy became more restrictive for all migrants who entered after 1995 (i.e., Cohort 2 in our paper), except for those in the humanitarian stream.⁷ The policy restrictions, intended to favour migrants with skills immediately usable in the labour market, included higher language proficiency requirements as well as higher weight attached to other employability factors namely occupational skills, education and age. As a result, migrants in Cohort 2 have a higher average level of education, higher participation rates (see Cobb-Clark 2003; Chiswick and Miller 2006), and lower durations to access their first job (Thapa and Goergens 2006) than those in Cohort 1, though they appear to have lower quality initial jobs (Junankar and Mahuteau 2005).

Among the several questions asked in both LSIA 1 and LSIA 2, we capture the education-occupation mismatch by comparing the level of education acquired by the migrant with the level of education required to perform the migrant's job as defined by DIAC. This definition assigns the (formal) educational requirement for managers, administrators and professionals – who are classified in the ASCO occupational categories 1-3 as “bachelor or higher”. For associate professionals, tradespersons,

⁵ Migrants interviewed in LSIA 1 will be referred to as Cohort 1 and those in LSIA 2 will be referred to as Cohort 2 in the rest of the paper.

⁶ Migrating unit in this context includes all members of the family migrating to Australia under the same visa application. The term spouses is used for husband/wife, civil partners, fiancé(e)s and de facto partners.

⁷ There are three broad visa categories used to enter Australia: independent skills and employer nomination schemes, family reunification and refugee. See Green et al (2007) for a discussion.

clerks, salespersons and personal service workers, and plant and machine operators and drivers (ASCO 4-7) the educational requirement is a “diploma or vocational degree”. For labourers and related workers (ASCO 8-9) it is “secondary or less” education.

We consider as over-educated all those respondents who have a level of education that is above what is required by DIAC to perform the tasks of the occupation held. This includes individuals who have a tertiary education but have an occupation that requires only secondary or vocational education, and individuals who have vocational education but have an occupation that requires secondary education. Conversely, the under-educated include individuals who have an education level lower than the one required for their job.

Table 1 presents the descriptive statistics. Our focus on males reflects the limited number of female immigrants that appear as participating in the labour market in the LSIA. Male immigrants are typically in their early 30's, have a small family, with one or two dependent children. Immigrants typically carry with them funds equivalent to over one year of Australia's average wage. The majority is highly educated, with approximately two thirds holding a diploma/certificate or higher educational qualification. The main countries where immigrants completed their education are the UK/Ireland (about 25 percent for both cohorts) and East and South East Asia (between 26 and 32 percent), whereas only 5 percent of Cohort 1 and 9 percent of Cohort 2 acquired education in Australia or New Zealand.

Table 2 presents the education mismatch transitions between the occupational status in the job held in the home country during the last 12 months before migration and the occupational status at 5 months after arrival in Australia. Perhaps unsurprisingly, many of those who had a job in the home country prior to migration were unemployed in the first months after migrating to Australia. On average 35 percent of Cohort 1 was unemployed at 5 months after migrating (top section of Table 2), with the highest incidence of unemployment among those who were over-educated at home (about 43 percent). The incidence of unemployment drops in Cohort 2 (bottom part of Table 2) to about 20 percent, and less for those who held a job matched with their formal educational qualifications at home (about 13 percent). There is also substantial persistence in the educational mismatch between home and host countries among those who were employed both prior and after migration: 38 percent of the over-educated at home in Cohort 1 were over-educated in their job in Australia (53 percent for Cohort 2);

53 percent were correctly matched (69 percent in Cohort 2); and 40 percent were under-educated (60 percent in Cohort 2).

Table 3 shows that such educational mismatch persistence remains during the time of residence in Australia. Among Cohort 1 (top section of Table 3), 52 percent of those over-educated in the initial jobs at arrival continued to work in positions that required a lower level of formal education even after 41 months of residence (though 39 percent became correctly matched), and 74 percent of those who were initially under-educated remained in jobs that required a higher level of formal education. The persistence in educational mismatch is stronger in Cohort 2, where 63 percent and 80 percent of the over- and under-educated, respectively, continued to be similarly mismatched at 17 months after arrival.

4. Empirical Methodology

The primary concern of this paper is to model the determinants of matching of educational level to the occupational attainment (i.e., over-education, correct match, and under-education) among immigrants in the Australian labour market. Given the fact that an eventual match or mismatch is observed only for the employed individuals, an exclusive focus on those immigrants who have an occupation may overlook the fact that they might constitute a self-selected sub-sample (see for instance Dolton and Vignoles 2000). Bauer (2002) and Cuttillo and DePietro (2006) argue that the presence of possible heterogeneity of ability in the population could have a significant impact on the labour market outcome and consequently the extent of over- and under-education in the employed subsample. Given Australia's different visa regimes which range from high skilled immigrants to refugees and those who entered on family visa, the immigrant sample is likely to be quite heterogeneous in ability and home country experiences.

For Cohort 1 only about 63.5 percent male immigrants in the potential labour force have employment five months after immigration and 87.7 percent three years later. For Cohort 2, the employment rates are 79.3 percent at five months after immigration and 80 percent one year later. The censored nature of the dependent variables (i.e., over-education, correct match, and under-education) suggests the use of a binomial probit model with sample selection.

The occurrence of one of the three match/mismatch alternatives $j = \{\text{over-education; correct match; under-education}\}$ may be illustrated by the following two linear latent dependent variable equations:

$$y_{1ij}^* = x_i' \beta + u_i \quad (1)$$

where $y_{1ij} = 1$ if the individual has attained the respective match/mismatch ($y_{1ij}^* > 0$) and

$$y_{1ij} = 0 \text{ if not } (y_{1ij}^* \leq 0)$$

$$y_{2i}^* = z_i' \gamma + v_i \quad (2)$$

where $y_{2i} = 1$ if the individual is employed ($y_{2i}^* > 0$) and

$$y_{2i} = 0 \text{ if not } (y_{2i}^* \leq 0)$$

The dichotomous variable y_{1ij} is only observed if $y_{2i} = 1$. The model was first presented by Van De Ven and Van Praag (1981) to examine deductibles in private health insurance in the Netherlands. Variants of the model have then been used, for example, by Boyes *et al.* (1989) for analysing the default on loans while taking into account whether an application for a loan was accepted or not and Lichtfield and Reilly (2009) to investigate whether an individual has attempted to migrate conditional on having considered migrating.

Equation (2) is fully observed and can be estimated separately. However, separate estimation of match/mismatch attainment (Eqn. 1) may be subject to selection bias given the potential for correlation between the two error terms u_i and v_i . The model can be estimated stepwise (i.e., the inverse Mill's ratio of the selection equation is introduced as a covariate in the outcome probit equation) or by maximum likelihood. Relative to the maximum likelihood approach, the two-step method is often perceived to give inconsistent results, in particular in the case when there is strong multicollinearity between covariates in the outcome and the selection equations (e.g., when using a joint set of covariates; see Lahiri and Song 2000).

For each (mis)match alternative, the log-likelihood function to be evaluated is:

$$\begin{aligned} \ln L_j(\beta, \gamma, \rho) = & \sum_i^N \{ y_{1ij} y_{2i} \ln \Phi_2(x_i' \beta, z_i' \gamma; \rho) \\ & + (1 - y_{1ij}) y_{2i} \ln \Phi_2(-x_i' \beta, z_i' \gamma; -\rho) \\ & + (1 - y_{2i}) \ln(1 - \Phi(z_i' \gamma)) \} \end{aligned} \quad (3)$$

where ρ denotes the correlation coefficient between the error terms u_i and v_i ; $\Phi_2(\cdot)$ denotes the bivariate standard normal cumulative distribution function; and $\Phi(\cdot)$ the univariate standard normal cumulative distribution function. The parameters of Eqns. (1) and (2) are estimated jointly by maximizing the log-likelihood function (3) with respect to the coefficient vectors β and γ and the correlation coefficient ρ . The estimate of ρ provides a test for selectivity bias. If ρ is significantly different from zero, the coefficients of Eqn. (1) would have been biased if estimated separately by binomial probit.

The identification of such selectivity models is of crucial importance. Identification is achieved by the inclusion of variables in Eqn. (2) that are excluded from Eqn. (1). Poor identification restrictions can lead to erroneous conclusions regarding the presence of selectivity effects. In the context of our application it would be of some interest to establish if, having controlled for a set of observable characteristics, the employed respondents possessed unobservable characteristics (e.g., motivation, cognitive abilities, etc.) that were in some way different from the whole sample. A statistically significant ρ value may provide an insight into this particular issue. However, confidence in the reliability of such a result depends crucially on appropriate identification. There is a set of variables that appear in x_i' but not z_i' as well as a set that is common to both vectors. In addition, there are variables that appear in z_i' but not in x_i' , though these are not crucial for identification.

Following the empirical study of Green *et al.* (2007) the covariates chosen to identify the model (i.e., variables appear in x_i' but not z_i') are: English proficiency, a control for whether the immigrant visited Australia prior to immigration, the household structure, a variable indicating whether the immigrant had own funds at the time of arrival, and a control for car ownership.

There are both theoretical and empirical reasons for these identifying restrictions. As shown in previous studies, the high proficiency level of the host county language often has a positive effect on the probability of employment (see Greene *et al.* 2007). Similarly, those who have visited Australia prior to immigration are likely to have better knowledge of the Australian labour market or have previous contacts with Australian employers.

The family structure may affect the probability of employment as well. For instance, the presence of other adults in the household might ease the pressure of taking up employment. On the other side, immigrants with dependent children (i.e., at or below school age) present might be under greater pressure of taking up employment. Hence, we control for both the effect of the number of adults and the number dependent children in the household on the probability of being in employment. Immigrants who face liquidity constraints might also be more likely to be under pressure to take up employment. So, variables indicating if the immigrant had funds on arrival and the log of the amount of funds are used for the model identification as well. Finally, owning a motor vehicle might increase the area where the individual can take up a job and, thus, the employment opportunities.⁸

Our primary covariates of interest are a set of dummy variables included only in the outcome equation and control for the type of mismatch between the educational level and the occupational attainment in the last job held in the former home country in the 12 months prior to immigration (i.e., over-educated, correct match, under-educated). Having not worked during the last 12 months prior to immigration is the reference group for the dummy set. Moreover, immigrants enter Australia with qualifications from a large variety of educational systems. In order to capture differences in the quality of education received, we include a control for the country where the highest formal qualification was received as well.

5. Empirical results

The home country experience in education-occupation (mis)match explains a large part of the variation in the immigrants' education (mis)match in Australia (see Figures 1 and 2). Using the education-occupation mismatch of the male immigrant employees in Australia as dependent variable⁹ and the education mismatch dummies relative to the last job held in the home country¹⁰ as explanatory variables, the pseudo R-squared values from the multinomial logit (MNL) estimations at 5 months after arrival is 25 percent for Cohort 1 and 40 percent for Cohort 2. Adding more explanatory

⁸ Employment prospects for ethnic minorities in the UK appear to be closely related to access to transport (Battu and Sloane 2002 and 2004).

⁹ The education (mis)match dependent variable has three categories: over-educated, correctly matched, and under-educated.

¹⁰ There are three dummy variables included as explanatory variables: over-educated in the last job held in the home country, under-educated in the last job held in the home country, and unemployed/not working in the last 12 months spent in the home country. The base category is "correctly matched in the last job held in the home country".

variables (e.g., age, age squared, a dummy for having the qualification assessed in Australia, dummies for the regions of origin where the highest formal qualification was obtained, dummies for the entry visa type, a dummy for school age children present, a dummy for having financial funds at time of entry, and regional dummies) increases the explanatory power of the MNL models by only 8 percentage points. That means that the education mismatch incidence in the last job held in the home country alone explains between 76 and 83 percent of the variation in the education mismatch in Australia covered by all observables. Unsurprisingly, the education mismatch in the home country can explain the variation in the immigrants' education mismatch at 17 months (and 41 months) after arrival relatively less accurately, since more recent professional experience (i.e., after arrival in Australia) is likely to be more important.

When distinguishing between different types of mismatch, we note that under-education at five months after arrival is explained to a larger extent through under-education in the last job held in the home country: 42 percent for Cohort 1 and 67 percent for Cohort 2. With pseudo R-squared values of only about 11 percent for Cohort 1 and 16 percent for Cohort 2, over-education in the home country alone still explains about half of the variation in over-education incidence in Australia captured by the larger model including the controls for socio-economic characteristics listed above (pseudo R-squared values of 23 percent and 29 percent respectively).

The estimation results of the probit models with sample selection are presented in Tables 4 to 6 for Cohort 1 and Tables 7 and 8 for pooled observations of Cohort 1 and 2.¹¹ Both the selection into employment and the education mismatch equations include controls for heterogeneity in the labour market and economic conditions in different Australian states.¹²

Similar to findings in previous studies, the selection into employment is positively related to host country language proficiency, knowledge of the Australian labour market over previous country visits, having obtained the entry visa after

¹¹ Due to the small sample size of Cohort 2, some education mismatch sub-groups are quite small (e.g., 88 over-educated males for Wave 1 and 101 under-educated males for Wave 2). That caused some of the maximum likelihood estimations not to converge, while in the cases a maximum was found the standard errors were high and barely any coefficients were significant. We, therefore, present estimations of Cohort 2 only as pooled with Cohort 1 and with a control for immigrants belonging to it.

¹² Due to the very small sub-samples of immigrants in the Australian Capital Territory (ACT), Tasmania and Northern Australia, we merged these with New South Wales, South Australia and Western Australia respectively. The pairing was made on the basis of geographical proximity as well as labour market similarities in terms of average unemployment rates and average weekly earnings of employees. Hence, our five regional dummies are: 'New South Wales & ACT', 'Victoria', 'Queensland', 'South Australia & Tasmania', and 'Northern & Western Australia'.

screening for labour market and/or business skills, having a car, and having dependent children in the household (see Green *et.al.* 2007). Moreover, the probability of being employed is negatively affected by having entered Australia on a humanitarian visa, which could be evidence of having relatively less skills, and the presence of other adults in the household that might contribute to the household income.

The error term of the selection equation is positively correlated with the error term of the over-education equation, indicating that there are unobservable factors that affect similarly the likelihood of both employment and over-education. One example of this could be innate ability. Following Spence (1973) signalling model, it could be argued that those with higher ability will acquire more education than those with lower ability in order to correctly signal their type. However, this does not necessarily preclude the incidence of over-education in the labour market, at least at the start of one's career. On the other hand, the incidence of a correct match and that of under-education are affected divergently by unobservable, resulting in a negative sign for the correlation coefficients of the respective error terms.¹³

The education (mis)match incidence in the last job in the home country has a strong effect on the education (mis)match in Australia. At 5 months after immigration and conditional on being employed, immigrants in the first cohort who have been over-educated in the job held in the home country previous to immigration have about 44 percent higher likelihood to be over-educated in Australia. The effect decreases with the length of residence, bringing it down to about 34 percent after 17 months of arrival and 30 percent at 41 months after immigration, providing evidence of a gradual integration in the host country labour market. The probability of being correctly matched at 5 months after arrival decreases by about 48 percent if the immigrant has been under-educated, by approximately 44 percent if the immigrant has been over-educated and by 23 percent if the immigrant has not been employed previous to immigration. Similar to the case of over-education, the effect diminishes (i.e., gets closer to zero) with the time spent in the host country. The likelihood of being under-educated is positively affected by having been under-educated in the home country; the coefficients in the estimations for 5 months and 17 months after arrival are not significant. However, at 41 months after immigration the effect becomes significant and stronger – the probability of being

¹³ The correlation coefficient between the error terms of the two equations (ρ) is significantly different from zero only in the over-education estimations at 5 months after arrival and the correctly matched equations at 17 and 41 months after arrival, meaning that sample selection bias is not problem in all situations.

under-educated being increased by 51 percent. This shows that with integration more and more immigrants who worked above their education level before leaving their home country find jobs above their education level in the host country labour market as well. The positive relationship between the over-/under-education at 5 months after arrival and over-/under-education at 17 and 41 months after arrival confirms the state dependency in education mismatch.

From Tables 7 and 8 we note that at 5 months after arrival immigrants from Cohort 2 are about 14 percent more likely to be in employment compared to immigrants in the first cohort – probably due to stricter access to unemployment benefits – but there are no significant differences in education mismatch. At 17 months after arrival, the difference in employment gets close to zero. However, Cohort 2 immigrants become 8 percent more likely to be under-educated and 8 percent less likely to be correctly matched, providing evidence of an eventual better selection with regard to unobservable skills.

Compared to previous studies in which the estimated models included a control for the migrants' region of origin, we use covariates for the geographic region in which the immigrant has obtained his highest formal qualification. This should capture eventual differences in the values assigned by Australian employers to diplomas obtained from different education systems. Compared to having obtained the last degree in Australia or New Zealand, those who gained their qualifications in a country in Asia, Africa, Eastern Europe, Central America or South America, had a lower probability of being correctly matched at 5 months after arrival (i.e., -20 percent for Cohort 1, and -10 to -14 percent for Cohort 1 and 2 combined), whereas having obtained the last degree in an EU/EEA country, Canada or the US has no significant effect on the mismatch incidence. This shows that degrees from (mainly) OECD countries are assigned a higher value than those from less developed countries.

After a longer period of residence (17 to 41 months) all immigrants with degrees from outside Australia and New Zealand seem to accede to jobs in which they are relatively less over-educated and more under-educated. We have to note that the result might be driven by immigrants who have obtained a higher degree after arrival in Australia, but who had not sufficient time to find a job that matches their newly acquired qualification. Nonetheless, degrees obtained in a EU/EEA country (excluding UK and Ireland) seem to be valued most in the Australian labour market, decreasing over-education by about 8 percent and increasing under-education by 16 to 22 percent.

As found also by Green *et al.* (2007), having entered Australia with a visa that required the proof of business or professional skills significantly decreases the likelihood of over-education and increases that of being correctly matched. Surprisingly possessing Australian citizenship is positively correlated with being over-educated.¹⁴ This could be evidence that working below the education level motivates immigrants to increase efforts to take up Australian citizenship, in the hope that that would improve their job market situation. Similarly, having an overseas qualification assessed in Australia seems to be more common among those immigrants that fail to find a job in which they can fully use their qualifications: at 41 months after arrival having the qualification assessed is positively related to working below the education level and negatively related to working above it.

6. Conclusions

Our results suggest that the under-utilisation of the immigrant human capital pool due to imperfect transferability of human capital and discrimination is less severe than implied by previous studies. Many immigrants have already before migration work experience in jobs below (or above) their education level, with a negative (or positive) effect on their average skill level. Therefore, taking into account the level of professional experience achieved before migration along with the formal education qualifications provides a more accurate estimate of the immigrants' human capital.

We used the Longitudinal Survey of Immigrants in Australia for two cohorts of immigrants who entered the country in 1993-1995 and 1999/2000 respectively and showed that the (mis)match already experienced in the home country has an important explanatory power, as it can explain between 25 to 40 percent of the total variation in the education-occupation mismatch incidence in Australia (depending on the migrant cohort) and between 76 and 83 percent of the variation explained by all observables.

After controlling for selection into employment and the effect of various socio-economic characteristics, over- and under-education in the home country continue to have the strongest effect among all covariates: having been over-educated in the last job held in the home country increases the likelihood of over-education after arrival in Australia by about 45 percent, while having been over-educated at home increases the probability of over-education in Australia by more than 60 percent. The importance of

¹⁴ This is at 41 months since immigrating, which means the minimum residence requirement to qualify for naturalisation had been met.

state dependency in over-/under-education is also confirmed by the fact that the education-occupation mismatch after 17 and 41 months of residence is significantly dependent on the education-occupation mismatch immediately after arrival in Australia.

The more stringent rules on access to social security payments faced by the second immigrant cohort increased their employment probability relative to the first cohort. However in contradiction to Green *et al.* (2007), we found that the poorer matching incidence for the second cohort eventually resulted in a better utilisation of skills, in jobs above the education level; this being probably the effect of the tighter selection criteria under the points-based system.

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Table 1: Descriptive Statistics – male immigrants aged 25 to 64

	Cohort 1			Cohort 2	
	Wave 1	Wave 2	Wave 3	Wave 1	Wave 2
Age	34.982	35.686	37.211	35.932	36.812
No. of adults in household	2.753	2.404	2.331	2.564	2.366
No. of children in household	1.527	1.470	1.397	1.537	1.466
Education: Postgraduate	0.229	0.235	0.224	0.285	0.226
Education: Bachelor	0.235	0.226	0.225	0.247	0.205
Education: Diploma/Certificate	0.205	0.216	0.228	0.204	0.217
Education: Completed secondary or trade	0.220	0.217	0.228	0.206	0.257
Education: Some secondary or less	0.110	0.106	0.096	0.057	0.095
Country HFQU: Australia & New Zealand	0.042	0.187	0.314	0.084	0.133
Country HFQU: Canada, Ireland, UK and USA	0.251	0.194	0.151	0.246	0.190
Country HFQU: EU/EEA	0.097	0.086	0.071	0.084	0.052
Country HFQU: South, East, South East Asia & Oceania	0.319	0.251	0.216	0.262	0.308
Country HFQU: other	0.291	0.282	0.249	0.325	0.317
Qualification assessed	0.344	0.403	0.444	0.305	0.280
Interview in English	0.751	0.797	0.838	0.839	0.814
Visited Australia before immigration	0.484	0.463	0.448	0.652	0.541
Visa type: Preferential Family/Family Stream	0.236	0.233	0.238	0.310	0.371
Visa type: Concessional Family/Skilled-Austr. Link	0.216	0.221	0.230	0.150	0.178
Visa type: Business Skills & Empl. Nomination Scheme	0.174	0.176	0.167	0.218	0.133
Visa type: Independent	0.247	0.241	0.224	0.240	0.161
Visa type: Humanitarian	0.127	0.129	0.141	0.082	0.157
Australian citizenship	0.000	0.004	0.625	0.000	0.006
HH owns car	0.710	0.849	0.939	0.673	0.797
Funds at time of immigration	0.737	0.726	0.718	0.792	0.729
Value of funds at immigration (thousands AU\$)	40.362	43.322	45.754	61.199	69.489
Occup in AU: Managers & Administrators	0.137	0.128	0.144	0.151	0.144
Occup in AU: Professionals	0.329	0.286	0.256	0.364	0.239
Occup in AU: Para-Professionals	0.030	0.041	0.045	0.097	0.162
Occup in AU: Tradespersons	0.194	0.211	0.218	0.172	0.154
Occup in AU: Clerks	0.022	0.018	0.031	0.015	0.015
Occup in AU: Salespersons & Personal Service Workers	0.068	0.069	0.048	0.097	0.121
Occup in AU: Plant & Machine Operators & Drivers	0.062	0.084	0.107	0.063	0.103
Occup in AU: Labourers & Related Workers	0.157	0.162	0.151	0.043	0.062
Educ. mismatch AU: Unemployed	0.360	0.195	0.121	0.209	0.195
Educ. mismatch AU: Over-educated	0.121	0.165	0.176	0.136	0.182
Educ. mismatch AU: Correctly matched	0.397	0.501	0.538	0.505	0.414
Educ. mismatch AU: Under-educated	0.123	0.139	0.165	0.151	0.209
Educ. mismatch FHC: Not working	0.104	0.099	0.108	0.092	0.130
Educ. mismatch FHC: Over-educated	0.083	0.079	0.082	0.100	0.091
Educ. mismatch FHC: Correctly matched	0.577	0.582	0.568	0.599	0.518
Educ. mismatch FHC: Under-educated	0.236	0.241	0.242	0.210	0.261
Region of residence: New South Wales	0.414	0.430	0.428	0.396	0.402
Region of residence: Victoria	0.256	0.246	0.241	0.234	0.224
Region of residence: Queensland	0.111	0.113	0.113	0.094	0.099
Region of residence: South Australia	0.048	0.049	0.047	0.049	0.052
Region of residence: Western Australia	0.123	0.120	0.129	0.142	0.139
Region of residence: Tasmania	0.012	0.010	0.013	0.024	0.021
Region of residence: Northern Territory	0.009	0.007	0.009	0.013	0.010
Region of residence: A.C.T.	0.027	0.024	0.021	0.049	0.054
No. of observations	1955	1900	1740	860	482

Table 2: Transition matrix of education mismatch between home country and 5 months after arrival in Australia

Education mismatch in home country	Education mismatch in Australia – 5 months after arrival				
	Cohort 1				
	Unemployed	Over-educated	Correctly matched	Under-educated	Total
Not working	37.33	13.34	34.63	14.69	100
Over-educated	42.69	38.01	19.30	0.00	100
Correctly matched	32.28	12.18	52.79	2.75	100
Under-educated	37.52	3.24	19.43	39.81	100
Total	35.36	12.37	38.99	13.27	100

	Cohort 2				
	Unemployed	Over-educated	Correctly matched	Under-educated	Total
Not working	42.22	12.22	26.11	19.44	100
Over-educated	24.26	52.94	21.32	1.47	100
Correctly matched	13.18	14.70	68.82	3.30	100
Under-educated	24.39	1.22	14.63	59.76	100
Total	20.45	14.93	46.55	18.07	100

Table 3: Transition matrix of education mismatch between 5 and 41 months after arrival in Australia (Cohort 1) and between 5 and 17 months after arrival (Cohort 2)

Education mismatch in Australia – 5 months after arrival	Education mismatch in Australia – 41 months after arrival (Cohort 1); 17 months after arrival (Cohort 2)				
	Cohort 1				
	Unemployed	Over-educated	Correctly matched	Under-educated	Total
Unemployed	21.13	23.81	39.88	15.18	100
Over-educated	6.21	52.41	38.62	2.76	100
Correctly matched	2.65	6.31	85.95	5.09	100
Under-educated	2.60	1.30	22.08	74.03	100
Total	8.61	16.79	57.37	17.23	100

	Cohort 2				
	Unemployed	Over-educated	Correctly matched	Under-educated	Total
Unemployed	35.00	13.33	37.50	14.17	100
Over-educated	7.69	63.46	21.15	7.69	100
Correctly matched	3.94	13.39	74.02	8.66	100
Under-educated	4.88	2.44	12.20	80.49	100
Total	15.59	19.71	45.59	19.12	100

Table 4: Probit with sample selection for education mismatch in Australia (marginal effects) – Cohort 1, Wave 1 (5 months after arrival)

	(1)	(2)	(3)	(4)	(5)	(6)
	Over-education	Correctly matched	Under-education	Over-education	Correctly matched	Under-education
Age	-0.00013 [0.01133]	0.00892 [0.01740]	-0.00164 [3.12464]	-0.00175 [0.01141]	0.0091 [0.01763]	-0.00106 [0.26950]
Age squared	-0.00003 [0.00015]	-0.00013 [0.00023]	0.00003 [0.06289]	-0.00001 [0.00015]	-0.00013 [0.00023]	0.00003 [0.00682]
Qualification assessed	0.05824 [0.02623]**	0.03185 [0.03748]	-0.05639 [109.45042]	0.0487 [0.02707]*	0.05644 [0.03888]	-0.06246 [16.11062]
Country of HFQU: Canada, Ireland, UK and USA				-0.01976 [0.04960]	-0.04191 [0.08134]	0.02282 [5.56421]
Country of HFQU: EU/EEA				0.00778 [0.06061]	-0.10581 [0.09157]	0.03206 [7.51869]
Country of HFQU: South, East, South East Asia and Oceania				0.07668 [0.06080]	-0.20269 [0.08196]**	0.01854 [4.58524]
Country of HFQU: other				0.04742 [0.05938]	-0.19921 [0.08410]**	0.03547 [8.52498]
Visa type: Concessional Family/Skilled-Austr. Link	-0.00787 [0.02721]	-0.02287 [0.04829]	0.00178 [3.36760]	-0.01464 [0.02759]	-0.02909 [0.04989]	0.00518 [1.29299]
Visa type: Business Skills & Empl. Nomination Scheme	-0.17885 [0.02074]***	0.16018 [0.04072]***	0.01104 [20.39591]	-0.17591 [0.02226]***	0.15014 [0.04220]***	0.01262 [3.07304]
Visa type: Independent	-0.07273 [0.02387]***	0.09252 [0.04570]**	-0.01389 [27.08600]	-0.07268 [0.02468]***	0.07714 [0.04801]	-0.01174 [3.03091]
Visa type: Humanitarian	-0.07153 [0.03257]**	0.1444 [0.07508]*	-0.0313 [64.66900]	-0.08005 [0.03170]**	0.16736 [0.07404]**	-0.03475 [9.57398]
Funds at time of immigration	-0.04714 [0.03096]	0.09554 [0.04801]**	0.01194 [23.22132]	-0.02702 [0.03062]	0.07499 [0.04857]	0.01284 [3.32120]
Educ. mismatch FHC: not working	0.00554 [0.03359]	-0.23322 [0.05520]***	0.15842 [217.55596]	0.00405 [0.03443]	-0.23565 [0.05561]***	0.17063 [30.70202]
Educ. mismatch FHC: over-educated	0.43415 [0.06815]***	-0.44137 [0.04440]***	-0.09357 [0.01265]***	0.4457 [0.07441]***	-0.44561 [0.04385]***	-0.09464 [0.01289]***
Educ. mismatch FHC: under-educated	-0.12185 [0.01998]***	-0.48392 [0.03135]***	0.40505 [388.33058]	-0.12811 [0.02084]***	-0.46457 [0.03240]***	0.4199 [52.82487]
Regional fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Selection equation (Probability of being employed)						
Age	0.0063 [0.01312]	0.00962 [0.01316]	0.00919 [0.01317]	0.00577 [0.01315]	0.00953 [0.01316]	0.00912 [0.01317]
Age squared	-0.00024 [0.00017]	-0.00028 [0.00017]*	-0.00027 [0.00017]	-0.00023 [0.00017]	-0.00028 [0.00017]*	-0.00027 [0.00017]

Interview in English	0.08289	0.09452	0.09544	0.07935	0.09447	0.09576
	[0.03124]***	[0.03227]***	[0.03227]***	[0.03194]**	[0.03232]***	[0.03228]***
Visited Australia before immigration	0.07899	0.07312	0.07085	0.0727	0.0712	0.0709
	[0.02711]***	[0.02836]***	[0.02853]**	[0.02722]***	[0.02848]**	[0.02853]**
Visa type: Concessional Family/Skilled-Austr. Link	0.06115	0.0609	0.06162	0.06162	0.0614	0.06162
	[0.03204]*	[0.03226]*	[0.03224]*	[0.03202]*	[0.03224]*	[0.03224]*
Visa type: Business Skills & Empl. Nomination Scheme	0.38436	0.38461	0.38461	0.38474	0.38499	0.38451
	[0.01957]***	[0.01958]***	[0.01964]***	[0.01949]***	[0.01956]***	[0.01966]***
Visa type: Independent	0.04932	0.0479	0.04751	0.05126	0.04781	0.04745
	[0.03271]	[0.03295]	[0.03295]	[0.03271]	[0.03295]	[0.03296]
Visa type: Humanitarian	-0.25724	-0.25913	-0.26142	-0.26114	-0.26142	-0.26122
	[0.05272]***	[0.05302]***	[0.05300]***	[0.05271]***	[0.05300]***	[0.05301]***
Number of adults in household	-0.01925	-0.01922	-0.01935	-0.01887	-0.01919	-0.01937
	[0.00799]**	[0.00847]**	[0.00851]**	[0.00799]**	[0.00850]**	[0.00851]**
Children present	0.04294	0.05677	0.05859	0.04126	0.05819	0.05853
	[0.02572]*	[0.02665]**	[0.02663]**	[0.02600]	[0.02675]**	[0.02662]**
HH owns car	0.15327	0.14543	0.13996	0.15188	0.14114	0.14005
	[0.02991]***	[0.03179]***	[0.03164]***	[0.02995]***	[0.03196]***	[0.03164]***
Funds at time of immigration	-0.11707	-0.11556	-0.12136	-0.10845	-0.11765	-0.12186
	[0.07739]	[0.07992]	[0.07953]	[0.07817]	[0.07991]	[0.07948]
Log of value of funds at immigration	0.01926	0.01888	0.01975	0.0184	0.01922	0.01982
	[0.00969]**	[0.01006]*	[0.01009]*	[0.00972]*	[0.01009]*	[0.01008]**
Regional fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1955	1955	1955	1955	1955	1955
Censored obs	703	703	703	703	703	703
Wald chi2	166.02	244.84	345.41	161.71	269.89	345.6
Log likelihood	-1418.44	-1635.2	-1301.51	-1412.17	-1624.58	-1300.53
ρ	1.2679	-0.20096	-0.09684	1.23052	-0.05467	-0.1218
	[0.53817]**	[0.16199]	[0.20258]	[0.63612]*	[0.17222]	[0.20547]
Standard errors in brackets						
* significant at 10%; ** significant at 5%; *** significant at 1%						

Table 5: Probit with sample selection for education mismatch in Australia (marginal effects) – Cohort 1, Wave 2 (17 months after arrival)

	(1)	(2)	(3)	(4)	(5)	(6)
	Over-education	Correctly matched	Under-education	Over-education	Correctly matched	Under-education
Age	-0.007 [0.00926]	-0.00215 [0.01457]	0.00333 [22.18280]	-0.00267 [0.00881]	-0.00722 [0.01530]	0.00911 [0.00772]
Age squared	0.00009 [0.00012]	-0.00003 [0.00018]	-0.00003 [0.23153]	0.00004 [0.00011]	0.00006 [0.00019]	-0.00011 [0.00010]
Qualification assessed	0.02575 [0.02099]	0.05805 [0.03228]*	-0.04322 [285.45625]	0.01943 [0.01974]	0.09128 [0.03406]***	-0.11075 [0.01881]***
Country of HFQU: Canada, Ireland, UK and USA	-0.07827 [0.02249]***	0.06188 [0.04284]	0.05395 [315.38512]	-0.02901 [0.02623]	-0.0004 [0.04882]	0.09686 [0.04708]**
Country of HFQU: EU/EEA	-0.07982 [0.02482]***	0.00917 [0.05453]	0.08618 [456.42398]	-0.05492 [0.02708]**	-0.04862 [0.06060]	0.21182 [0.07146]***
Country of HFQU: South, East, South East Asia and Oceania	-0.03469 [0.02310]	-0.02417 [0.04218]	0.04018 [245.39812]	-0.05616 [0.02135]***	-0.01263 [0.04503]	0.12653 [0.04559]***
Country of HFQU: other	-0.03795 [0.02286]*	-0.07538 [0.04369]*	0.06504 [378.79407]	-0.05553 [0.02170]**	-0.05379 [0.04642]	0.16949 [0.04808]***
Visa type: Concessional Family/Skilled-Austr. Link	-0.02652 [0.02476]	-0.0238 [0.04313]	0.01181 [76.45990]	0.00527 [0.02586]	-0.00844 [0.04497]	-0.00004 [0.02371]
Visa type: Business Skills & Empl. Nomination Scheme	-0.18454 [0.01598]***	0.16372 [0.03884]***	0.01232 [77.77524]	-0.12251 [0.02178]***	0.09728 [0.04610]**	0.01943 [0.02609]
Visa type: Independent	-0.11293 [0.02004]***	0.15385 [0.03932]***	-0.00894 [61.77273]	-0.06627 [0.02206]***	0.1453 [0.04098]***	-0.04997 [0.02102]**
Visa type: Humanitarian	-0.03292 [0.03094]	0.03026 [0.06023]	-0.01389 [97.12104]	-0.0285 [0.02787]	0.00352 [0.06385]	-0.01141 [0.02656]
Funds at time of immigration	-0.03239 [0.02483]	0.04425 [0.03866]	0.00592 [40.41913]	0.0112 [0.02145]	-0.00234 [0.04209]	0.00724 [0.02167]
Educ. mismatch FHC: not working	-0.05051 [0.02523]**	-0.15629 [0.05260]***	0.1675 [756.35181]			
Educ. mismatch FHC: over-educated	0.34451 [0.04841]***	-0.39255 [0.04335]***	-0.07335 [0.01031]***			
Educ. mismatch FHC: under-educated	-0.16761 [0.01615]***	-0.34796 [0.03243]***	0.30969 [1,140.78196]			
Educ. mismatch Wave 1: not working				0.21381 [0.02837]***	-0.43348 [0.03349]***	0.15875 [0.02776]***
Educ. mismatch Wave 1: over-educated				0.60871 [0.04495]***	-0.6021 [0.02921]***	-0.04435 [0.02731]
Educ. mismatch Wave 1: under-educated				-0.10429 [0.02719]***	-0.67406 [0.02241]***	0.77696 [0.03544]***
Regional fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Selection equation (Probability of being employed)						
Age	0.01326	0.01518	0.0153	0.01274	0.01367	0.01456
	[0.00852]	[0.00865]*	[0.00867]*	[0.00832]	[0.00861]	[0.00865]*
Age squared	-0.00024	-0.00026	-0.00026	-0.00024	-0.00024	-0.00025
	[0.00010]**	[0.00011]**	[0.00011]**	[0.00010]**	[0.00011]**	[0.00011]**
Interview in English	0.06032	0.07684	0.07576	0.05342	0.06984	0.06853
	[0.02228]***	[0.02552]***	[0.02550]***	[0.02240]**	[0.02477]***	[0.02541]***
Visited Australia before immigration	0.0841	0.07698	0.07669	0.0807	0.0846	0.08094
	[0.02074]***	[0.02111]***	[0.02122]***	[0.02060]***	[0.02079]***	[0.02093]***
Visa type: Concessional Family/Skilled-Austr. Link	0.0446	0.03699	0.03623	0.02384	0.0206	0.01801
	[0.02365]*	[0.02431]	[0.02434]	[0.02341]	[0.02394]	[0.02412]
Visa type: Business Skills & Empl. Nomination Scheme	0.15722	0.15399	0.15383	0.15878	0.15428	0.15505
	[0.01707]**	[0.01737]**	[0.01746]**	[0.01689]**	[0.01744]**	[0.01738]**
Visa type: Independent	0.08341	0.08176	0.08188	0.06506	0.06342	0.06239
	[0.02286]***	[0.02302]***	[0.02306]***	[0.02218]***	[0.02240]***	[0.02251]***
Visa type: Humanitarian	-0.1571	-0.15878	-0.15843	-0.16293	-0.15328	-0.15601
	[0.04188]***	[0.04187]***	[0.04185]***	[0.04135]***	[0.04148]***	[0.04172]***
Number of adults in household	-0.00935	-0.0091	-0.00884	-0.0058	-0.00911	-0.00847
	[0.00664]	[0.00690]	[0.00691]	[0.00613]	[0.00684]	[0.00696]
Children present	0.04956	0.06098	0.06315	0.0502	0.05925	0.06293
	[0.01876]***	[0.01933]***	[0.01918]***	[0.01821]***	[0.01920]***	[0.01920]***
HH owns car	0.13244	0.13503	0.13515	0.12982	0.13465	0.13624
	[0.02775]***	[0.03046]***	[0.03049]***	[0.02658]***	[0.03009]***	[0.03057]***
Funds at time of immigration	-0.04675	-0.04221	-0.03643	-0.05738	-0.04883	-0.04284
	[0.05626]	[0.05782]	[0.05832]	[0.05326]	[0.05649]	[0.05773]
Log of value of funds at immigration	0.00945	0.00848	0.00794	0.01057	0.00935	0.00882
	[0.00727]	[0.00741]	[0.00738]	[0.00713]	[0.00735]	[0.00743]
Regional fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1900	1900	1900	1900	1900	1900
Censored obs	371	371	371	371	371	371
Wald chi2	239.9	212.89	350.12	350.17	376.89	399.59
Log likelihood	-1325.11	-1595.07	-1125.1	-1265.53	-1437.75	-1088.9
ρ	6.02643	-0.21142	-0.25251	5.78974	-0.45254	-0.13906
	[96.73327]	[0.18294]	[0.23427]	[110.22743]	[0.25660]*	[0.34273]
Standard errors in brackets						
* significant at 10%; ** significant at 5%; *** significant at 1%						

Table 6: Probit with sample selection for education mismatch in Australia (marginal effects) – Cohort 1, Wave 3 (41 months after arrival)

	(1)	(2)	(3)	(4)	(5)	(6)
	Over-education	Correctly matched	Under-education	Over-education	Correctly matched	Under-education
Age	0.01268 [0.01093]	0.01056 [0.01616]	-0.01615 [0.00846]*	0.01963 [0.01110]*	-0.00495 [0.01724]	-0.00921 [0.01012]
Age squared	-0.00016 [0.00014]	-0.00016 [0.00020]	0.0002 [0.00010]*	-0.00025 [0.00014]*	0.00005 [0.00022]	0.00011 [0.00013]
Qualification assessed	0.07536 [0.02046]***	-0.01106 [0.03189]	-0.07545 [0.01887]***	0.07301 [0.02116]***	0.03642 [0.03202]	-0.12896 [0.02089]***
Country of HFQU: Canada, Ireland, UK and USA	-0.11006 [0.01765]***	0.09602 [0.04084]**	0.14119 [0.04432]***	-0.06877 [0.02307]***	0.05832 [0.04562]	0.06957 [0.04102]*
Country of HFQU: EU/EEA	-0.08777 [0.02213]***	-0.01066 [0.05562]	0.2174 [0.06242]***	-0.0611 [0.02780]**	-0.03888 [0.05910]	0.15517 [0.05736]***
Country of HFQU: South, East, South East Asia and Oceania	-0.02421 [0.02107]	-0.08521 [0.03832]**	0.15583 [0.03927]***	-0.04516 [0.01966]**	-0.07967 [0.03923]**	0.16943 [0.03991]***
Country of HFQU: other	-0.04966 [0.01942]**	-0.05092 [0.03793]	0.13663 [0.03700]***	-0.05495 [0.01947]***	-0.03134 [0.03828]	0.13916 [0.03699]***
Visa type: Concessional Family/Skilled-Austr. Link	-0.04546 [0.02238]**	0.0519 [0.04074]	0.00864 [0.02502]	-0.02057 [0.02682]	0.0718 [0.04067]*	-0.02823 [0.02479]
Visa type: Business Skills & Empl. Nomination Scheme	-0.16093 [0.01607]***	0.14898 [0.04175]***	0.02824 [0.02754]	-0.11293 [0.02332]***	0.11357 [0.04714]**	-0.01339 [0.02815]
Visa type: Independent	-0.09745 [0.01903]***	0.17303 [0.03792]***	-0.04204 [0.02204]*	-0.06144 [0.02284]***	0.18107 [0.03756]***	-0.09102 [0.02104]***
Visa type: Humanitarian	-0.02581 [0.02753]	0.05411 [0.05152]	-0.02456 [0.02348]	-0.02481 [0.03027]	0.06648 [0.05027]	-0.0382 [0.02539]
Australian citizenship				0.03452 [0.01828]*	-0.01401 [0.02981]	-0.03085 [0.01978]
Funds at time of immigration	-0.04425 [0.02329]*	0.02649 [0.03611]	0.03674 [0.01790]**	-0.01258 [0.02280]	0.011 [0.03774]	0.02288 [0.02128]
Educ. mismatch FHC: not working	-0.04701 [0.02335]**	-0.15949 [0.05044]***	0.29576 [0.05498]***			
Educ. mismatch FHC: over-educated	0.29587 [0.04632]***	-0.36109 [0.04383]***	-0.04966 [0.03073]			
Educ. mismatch FHC: under-educated	-0.15452 [0.01584]***	-0.3674 [0.03208]***	0.51289 [0.03535]***			
Educ. mismatch Wave 1: not working				0.16011 [0.02602]***	-0.34586 [0.03322]***	0.13765 [0.02601]***
Educ. mismatch Wave 1: over-educated				0.50057 [0.04945]***	-0.50602 [0.03647]***	-0.04127 [0.03156]
Educ. mismatch Wave 1: under-educated				-0.09893 [0.03005]***	-0.61953 [0.02672]***	0.67265 [0.04286]***
Regional fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Selection equation (Probability of being employed)						
Age	0.01385	0.01572	0.01616	0.01392	0.01469	0.01622
	[0.00683]**	[0.00682]**	[0.00684]**	[0.00680]**	[0.00685]**	[0.00683]**
Age squared	-0.00023	-0.00025	-0.00026	-0.00023	-0.00024	-0.00026
	[0.00008]***	[0.00008]***	[0.00008]***	[0.00008]***	[0.00008]***	[0.00008]***
Interview in English	0.04059	0.05093	0.05446	0.03792	0.04908	0.05578
	[0.01929]**	[0.02116]**	[0.02129]**	[0.01880]**	[0.02090]**	[0.02146]**
Visited Australia before immigration	0.07258	0.06541	0.06057	0.06456	0.06914	0.06161
	[0.01636]***	[0.01659]***	[0.01655]***	[0.01659]***	[0.01661]***	[0.01657]***
Visa type: Concessional Family/Skilled-Austr. Link	0.05261	0.04734	0.04683	0.04924	0.04823	0.04693
	[0.01459]***	[0.01498]***	[0.01502]***	[0.01488]***	[0.01491]***	[0.01501]***
Visa type: Business Skills & Empl. Nomination Scheme	0.09317	0.09145	0.09115	0.09187	0.09015	0.09161
	[0.01251]***	[0.01255]***	[0.01273]***	[0.01250]***	[0.01274]***	[0.01260]***
Visa type: Independent	0.06303	0.05809	0.05791	0.05953	0.05915	0.05763
	[0.01470]***	[0.01496]***	[0.01497]***	[0.01499]***	[0.01492]***	[0.01500]***
Visa type: Humanitarian	-0.03307	-0.04068	-0.04341	-0.03882	-0.03835	-0.04411
	[0.02481]	[0.02578]	[0.02607]*	[0.02607]	[0.02548]	[0.02623]*
Number of adults in household	-0.01122	-0.00985	-0.00864	-0.01063	-0.01133	-0.00956
	[0.00537]**	[0.00530]*	[0.00535]	[0.00523]**	[0.00528]**	[0.00541]*
Children present	0.0134	0.01303	0.01523	0.01455	0.01315	0.0141
	[0.01415]	[0.01432]	[0.01456]	[0.01417]	[0.01436]	[0.01440]
HH owns car	0.12371	0.12139	0.11432	0.12193	0.12957	0.11571
	[0.03916]***	[0.04104]***	[0.04026]***	[0.03919]***	[0.04145]***	[0.04039]***
Funds at time of immigration	-0.00844	0.0054	0.0005	-0.01122	0.01246	0.01275
	[0.04732]	[0.05054]	[0.05049]	[0.04618]	[0.05191]	[0.05440]
Log of value of funds at immigration	0.00193	0.00041	0.00119	0.00282	-0.00041	-0.00034
	[0.00583]	[0.00589]	[0.00604]	[0.00579]	[0.00589]	[0.00619]
Regional fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1740	1740	1740	1740	1740	1740
Censored obs	211	211	211	211	211	211
Wald chi2	237.17	201.22	418.57	275.15	289.04	359.32
Log likelihood	-1105.84	-1390.8	-924.2	-1089.15	-1315.07	-967.02
ρ	5.15343	-0.33448	-0.10861	7.62264	-0.60061	0.22472
	[77.43148]	[0.23010]	[0.32344]	[216.49887]	[0.29087]**	[0.42676]
Standard errors in brackets						
* significant at 10%; ** significant at 5%; *** significant at 1%						

Table 7: Probit with sample selection for education mismatch in Australia (marginal effects) – Cohort 1&2, Wave 1 (5 months after arrival)

	(1)	(2)	(3)	(4)	(5)	(6)
	Over-education	Correctly matched	Under-education	Over-education	Correctly matched	Under-education
Age	-0.00374 [0.00929]	0.01411 [0.01380]	-0.00209 [0.00737]	-0.00355 [0.00945]	0.01285 [0.01392]	-0.00198 [0.00738]
Age squared	0.00001 [0.00012]	-0.00017 [0.00018]	0.00004 [0.00009]	0 [0.00013]	-0.00015 [0.00018]	0.00004 [0.00009]
Qualification assessed	0.02936 [0.01963]	0.03085 [0.03035]	-0.07942 [0.01591]***	0.02501 [0.02094]	0.05049 [0.03169]	-0.08364 [0.01623]***
Country of HFQU: Canada, Ireland, UK and USA				-0.04264 [0.03052]	-0.00722 [0.05701]	0.04796 [0.04048]
Country of HFQU: EU/EEA				-0.04785 [0.03180]	-0.00425 [0.06583]	0.06015 [0.05154]
Country of HFQU: South, East, South East Asia and Oceania				0.03883 [0.03927]	-0.14123 [0.05843]**	0.03317 [0.03735]
Country of HFQU: other				0.00318 [0.03593]	-0.0978 [0.05909]*	0.04228 [0.03923]
Visa type: Concessional Family/Skilled-Austr. Link	0.01494 [0.02344]	-0.0367 [0.03977]	-0.0069 [0.02167]	0.0045 [0.02413]	-0.03581 [0.04132]	-0.00005 [0.02316]
Visa type: Business Skills & Empl. Nomination Scheme	-0.16613 [0.01747]***	0.15396 [0.03352]***	0.01719 [0.02081]	-0.16679 [0.01924]***	0.1539 [0.03398]***	0.01845 [0.02111]
Visa type: Independent	-0.04883 [0.01953]**	0.07567 [0.03610]**	-0.0343 [0.01936]*	-0.05405 [0.02060]***	0.06837 [0.03794]*	-0.02705 [0.02081]
Visa type: Humanitarian	-0.02595 [0.04312]	0.08599 [0.07018]	-0.05682 [0.02192]***	-0.0304 [0.04780]	0.10495 [0.06946]	-0.05734 [0.02195]***
Funds at time of immigration	-0.02398 [0.02456]	0.07472 [0.03692]**	-0.00101 [0.02086]	-0.00979 [0.02494]	0.05528 [0.03714]	-0.00341 [0.02122]
Educ. mismatch FHC: not working	0.00508 [0.02775]	-0.25927 [0.04548]***	0.29095 [0.04938]***	0.00124 [0.02834]	-0.26108 [0.04598]***	0.3031 [0.05070]***
Educ. mismatch FHC: over-educated	0.44511 [0.05132]***	-0.47104 [0.03348]***	-0.06775 [0.02414]***	0.45223 [0.05270]***	-0.47084 [0.03354]***	-0.06579 [0.02469]***
Educ. mismatch FHC: under-educated	-0.12782 [0.01693]***	-0.54873 [0.02382]***	0.62851 [0.03016]***	-0.13385 [0.01941]***	-0.53507 [0.02450]***	0.63028 [0.03034]***
Cohort 2	-0.02103 [0.01626]	-0.00395 [0.02616]	0.01911 [0.01582]	-0.02443 [0.01730]	-0.00174 [0.02666]	0.02195 [0.01620]
Regional fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Selection equation (Probability of being employed)						
Age	-0.00741 [0.01021]	-0.00516 [0.01025]	-0.00521 [0.01025]	-0.00724 [0.01023]	-0.00503 [0.01025]	-0.00522 [0.01025]
Age squared	-0.00005 [0.00013]	-0.00008 [0.00013]	-0.00008 [0.00013]	-0.00005 [0.00013]	-0.00008 [0.00013]	-0.00008 [0.00013]

Interview in English	0.0543 [0.02575]**	0.06147 [0.02644]**	0.06041 [0.02639]**	0.0528 [0.02627]**	0.06096 [0.02642]**	0.06044 [0.02639]**
Visited Australia before immigration	0.08158 [0.02165]**	0.07524 [0.02227]**	0.07396 [0.02231]**	0.07805 [0.02176]**	0.07399 [0.02229]**	0.07404 [0.02231]**
Visa type: Concessional Family/Skilled-Austr. Link	0.0699 [0.02393]**	0.06947 [0.02403]**	0.07029 [0.02400]**	0.07029 [0.02391]**	0.06975 [0.02401]**	0.07028 [0.02399]**
Visa type: Business Skills & Empl. Nomination Scheme	0.32984 [0.01521]**	0.33004 [0.01524]**	0.33046 [0.01522]**	0.33027 [0.01518]**	0.33046 [0.01521]**	0.33046 [0.01522]**
Visa type: Independent	0.07786 [0.02395]**	0.07642 [0.02409]**	0.07624 [0.02407]**	0.07892 [0.02397]**	0.07639 [0.02408]**	0.07624 [0.02407]**
Visa type: Humanitarian	-0.27358 [0.04548]**	-0.27798 [0.04565]**	-0.27966 [0.04563]**	-0.27608 [0.04549]**	-0.27942 [0.04564]**	-0.27962 [0.04563]**
Number of adults in household	-0.02604 [0.00640]**	-0.02662 [0.00661]**	-0.02713 [0.00661]**	-0.02581 [0.00648]**	-0.02678 [0.00661]**	-0.02712 [0.00661]**
Children present	0.04954 [0.02051]**	0.05841 [0.02098]**	0.06001 [0.02091]**	0.04971 [0.02093]**	0.05945 [0.02102]**	0.05998 [0.02091]**
HH owns car	0.15583 [0.02355]**	0.15138 [0.02444]**	0.14773 [0.02427]**	0.15537 [0.02362]**	0.14919 [0.02450]**	0.14775 [0.02426]**
Funds at time of immigration	-0.05131 [0.06403]	-0.0483 [0.06520]	-0.05172 [0.06489]	-0.04586 [0.06456]	-0.04918 [0.06516]	-0.05168 [0.06489]
Log of value of funds at immigration	0.01023 [0.00753]	0.00969 [0.00766]	0.01022 [0.00766]	0.00967 [0.00754]	0.00984 [0.00766]	0.01022 [0.00766]
Cohort 2	0.13791 [0.01888]**	0.13599 [0.01903]**	0.13599 [0.01901]**	0.13772 [0.01890]**	0.13586 [0.01902]**	0.13597 [0.01901]**
Regional fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2815	2815	2815	2815	2815	2815
Censored obs	883	883	883	883	883	883
Wald chi2	258.27	456.82	615.29	259.03	480.66	614.94
Log likelihood	-1971.7	-2278.33	-1763.4	-1962.82	-2268.13	-1762.21
ρ	0.88331 [0.38106]**	-0.13808 [0.12928]	-0.11394 [0.15443]	0.79624 [0.49224]	-0.05101 [0.13462]	-0.11753 [0.15612]

Standard errors in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 8: Probit with sample selection for education mismatch in Australia (marginal effects) – Cohort 1&2, Wave 2 (17 months after arrival)

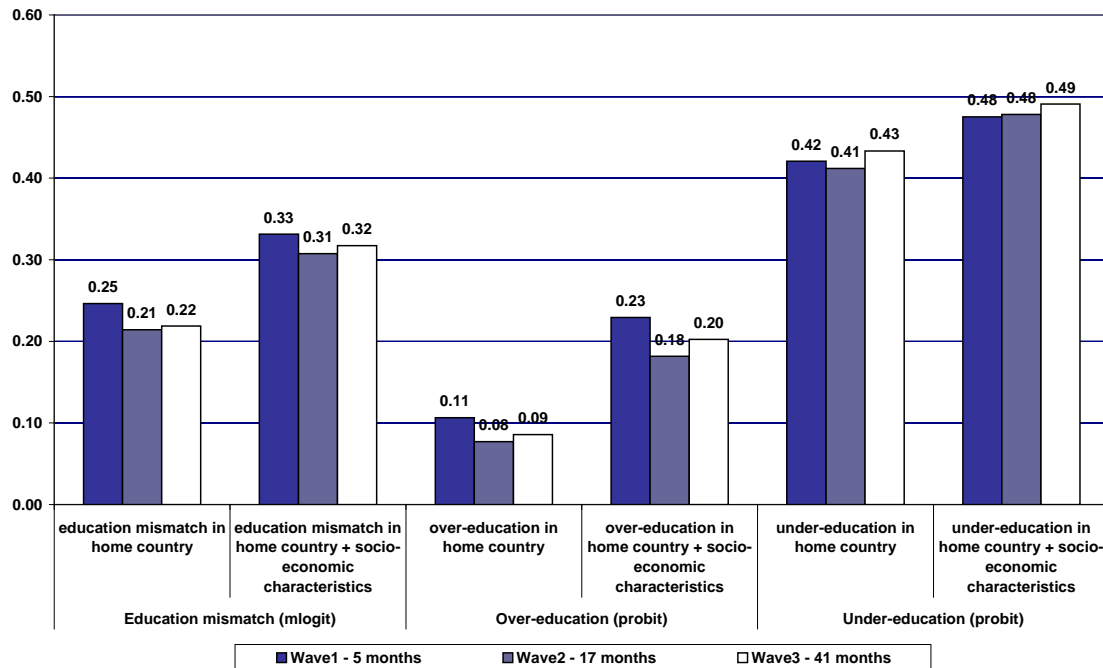
	(1)	(2)	(3)	(4)	(5)	(6)
	Over-education	Correctly matched	Under-education	Over-education	Correctly matched	Under-education
Age	-0.01269 [0.00858]	-0.00184 [0.01334]	0.01097 [0.00752]	-0.00582 [0.00839]	-0.00394 [0.01385]	0.00828 [0.00851]
Age squared	0.00015 [0.00011]	0.00001 [0.00017]	-0.00013 [0.00009]	0.00006 [0.00011]	0.00005 [0.00018]	-0.0001 [0.00011]
Qualification assessed	0.04079 [0.01960]**	0.03958 [0.02922]	-0.09263 [0.01648]***	0.03386 [0.01861]*	0.06959 [0.03038]**	-0.11633 [0.01827]***
Country of HFQU: Canada, Ireland, UK and USA	-0.06248 [0.02147]***	0.03708 [0.03927]	0.0918 [0.03734]**	-0.00598 [0.02540]	0.00086 [0.04321]	0.03876 [0.03575]
Country of HFQU: EU/EEA	-0.08688 [0.02258]***	0.00646 [0.05071]	0.16357 [0.05546]***	-0.05604 [0.02606]**	-0.03157 [0.05468]	0.16102 [0.05733]***
Country of HFQU: South, East, South East Asia and Oceania	-0.02426 [0.02205]	-0.06183 [0.03860]	0.08849 [0.03390]***	-0.03393 [0.02107]	-0.04598 [0.04107]	0.09768 [0.03692]***
Country of HFQU: other	-0.04545 [0.02165]**	-0.05412 [0.03909]	0.10965 [0.03492]***	-0.05122 [0.02092]**	-0.02642 [0.04095]	0.11259 [0.03672]***
Visa type: Concessional Family/Skilled-Austr. Link	-0.00902 [0.02340]	-0.03888 [0.03840]	0.0286 [0.02533]	0.00973 [0.02370]	-0.00813 [0.03964]	-0.00459 [0.02509]
Visa type: Business Skills & Empl. Nomination Scheme	-0.15997 [0.01644]***	0.12423 [0.03662]***	0.03728 [0.02501]	-0.10863 [0.02102]***	0.06142 [0.04165]	0.04272 [0.02930]
Visa type: Independent	-0.09956 [0.01882]***	0.13156 [0.03609]***	-0.01925 [0.02324]	-0.05971 [0.02055]***	0.13018 [0.03721]***	-0.04975 [0.02349]**
Visa type: Humanitarian	-0.02872 [0.02854]	0.0496 [0.05315]	-0.03729 [0.02213]*	-0.04102 [0.02439]*	0.03112 [0.05559]	-0.00993 [0.03063]
Funds at time of immigration	-0.02659 [0.02298]	0.03818 [0.03554]	0.01864 [0.01905]	0.01132 [0.02020]	-0.00129 [0.03934]	0.01408 [0.02216]
Educ. mismatch FHC: not working	-0.03949 [0.02362]*	-0.21145 [0.04567]***	0.30819 [0.05020]***			
Educ. mismatch FHC: over-educated	0.333 [0.04991]***	-0.38347 [0.03705]***	-0.08229 [0.02000]***			
Educ. mismatch FHC: under-educated	-0.17644 [0.01487]***	-0.37018 [0.02793]***	0.51447 [0.03118]***			
Educ. mismatch Wave 1: not working				0.20096 [0.02383]***	-0.40643 [0.02883]***	0.159 [0.02443]***
Educ. mismatch Wave 1: over-educated				0.5799 [0.03964]***	-0.57432 [0.02672]***	-0.02253 [0.03283]
Educ. mismatch Wave 1: under-educated				-0.12059 [0.02340]***	-0.64803 [0.02107]***	0.78611 [0.02848]***
Cohort 2	-0.00375 [0.02006]	-0.08252 [0.03052]***	0.08336 [0.02253]***	-0.00656 [0.01853]	-0.07942 [0.03185]**	0.08547 [0.02368]***
Regional fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Selection equation (Probability of being employed)						
Age	0.01318	0.01534	0.01608	0.01344	0.01455	0.01623
	[0.00760]*	[0.00780]**	[0.00781]**	[0.00746]*	[0.00777]*	[0.00782]**
Age squared	-0.00024	-0.00026	-0.00027	-0.00025	-0.00025	-0.00027
	[0.00009]***	[0.00010]***	[0.00010]***	[0.00009]***	[0.00010]***	[0.00010]***
Interview in English	0.05716	0.07518	0.07474	0.05655	0.07487	0.07853
	[0.02073]***	[0.02252]***	[0.02263]***	[0.02003]***	[0.02226]***	[0.02297]***
Visited Australia before immigration	0.08353	0.08001	0.07963	0.07622	0.07945	0.07925
	[0.01808]***	[0.01854]***	[0.01868]***	[0.01795]***	[0.01839]***	[0.01861]***
Visa type: Concessional Family/Skilled-Austr. Link	0.03272	0.02494	0.02486	0.03213	0.02589	0.02472
	[0.01964]*	[0.02067]	[0.02067]	[0.01957]	[0.02054]	[0.02069]
Visa type: Business Skills & Empl. Nomination Scheme	0.15587	0.1521	0.15296	0.15597	0.15148	0.15225
	[0.01449]***	[0.01503]***	[0.01496]***	[0.01433]***	[0.01507]***	[0.01510]***
Visa type: Independent	0.05346	0.05025	0.05107	0.05331	0.05129	0.05093
	[0.01981]***	[0.02029]**	[0.02023]**	[0.01973]***	[0.02015]**	[0.02025]**
Visa type: Humanitarian	-0.1655	-0.15781	-0.15729	-0.1685	-0.1579	-0.15635
	[0.03643]***	[0.03584]***	[0.03581]***	[0.03561]***	[0.03582]***	[0.03581]***
Number of adults in household	-0.00832	-0.01077	-0.01021	-0.00732	-0.01142	-0.01133
	[0.00602]	[0.00619]*	[0.00624]	[0.00547]	[0.00611]*	[0.00630]*
Children present	0.0534	0.06277	0.06487	0.05242	0.06115	0.0651
	[0.01640]***	[0.01699]***	[0.01697]***	[0.01574]***	[0.01686]***	[0.01695]***
HH owns car	0.13912	0.1487	0.14711	0.13187	0.14601	0.14714
	[0.02378]***	[0.02669]***	[0.02669]***	[0.02274]***	[0.02620]***	[0.02665]***
Funds at time of immigration	-0.03836	-0.04304	-0.03519	-0.04215	-0.04406	-0.03527
	[0.05061]	[0.05169]	[0.05259]	[0.04921]	[0.05088]	[0.05262]
Log of value of funds at immigration	0.00968	0.00993	0.00904	0.01	0.01005	0.00896
	[0.00643]	[0.00662]	[0.00661]	[0.00632]	[0.00654]	[0.00661]
Cohort 2	0.04172	0.02467	0.02299	0.04039	0.02837	0.02223
	[0.01738]**	[0.01815]	[0.01822]	[0.01645]**	[0.01802]	[0.01824]
Regional fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2382	2382	2382	2382	2382	2382
Censored obs	465	465	465	465	465	465
Wald chi2	258.03	279.78	515.72	426.35	457.19	508.69
Log likelihood	-1666.99	-1996.44	-1434.3	-1603.58	-1835.53	-1426.06
ρ	2.09625	-0.23761	-0.03089	6.43259	-0.53465	0.24245
	[1.23269]*	[0.15544]	[0.20656]	[72.86357]	[0.24986]**	[0.29422]

Standard errors in brackets

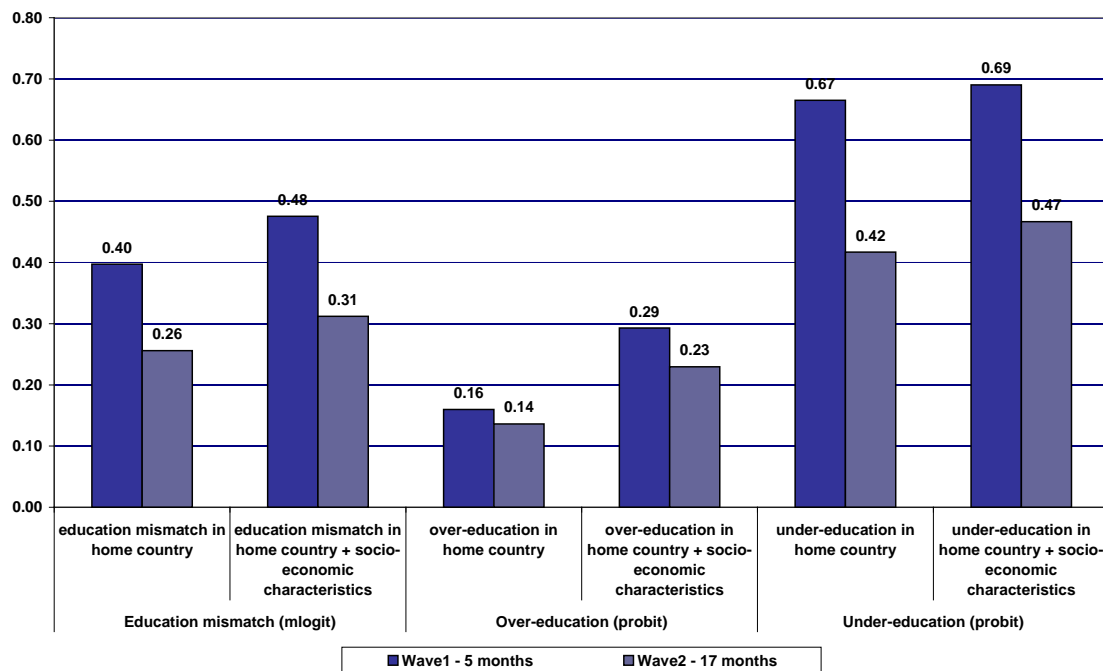
* significant at 10%; ** significant at 5%; *** significant at 1%

Figure 1: Pseudo R-squared values from probit and mlogit estimations of over-/under-education and education mismatch of employed male immigrants in Australia (Cohort 1)



Notes: The education mismatch variables in the mlogit estimations include three categories: over-educated, correctly matched, and under-educated. Socio-economic characteristics include: age, age squared, a dummy for having the qualification assessed in Australia, dummies for the world region where the highest formal qualification was obtained, dummies for the entry visa type, a dummy for school age children present, a dummy for having financial funds at time of entry, and regional dummies.

Figure 2: Pseudo R-squared values from probit and mlogit estimations of over-/under-education and education mismatch of employed male immigrants in Australia (Cohort 2)



Notes: The education mismatch variables in the mlogit estimations include three categories: over-educated, correctly matched, and under-educated. Socio-economic characteristics include: age, age squared, a dummy for having the qualification assessed in Australia, dummies for the world region where the highest formal qualification was obtained, dummies for the entry visa type, a dummy for school age children present, a dummy for having financial funds at time of entry, and regional dummies.