DISCUSSION PAPER SERIES

IZA DP No. 6937

Does Immigration Policy Affect the Education-Occupation Mismatch? Evidence from Australia

Massimiliano Tani

October 2012

Forschungsinstitut
zur Zukunft der Arbeit
Institute for the Study
of Labor

Does Immigration Policy Affect the Education-Occupation Mismatch? Evidence from Australia

Massimiliano Tani
Macquarie University
and IZA

Discussion Paper No. 6937
October 2012

IZA

P.O. Box 7240
53072 Bonn
Germany

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

IZA Discussion Paper No. 6937
October 2012

ABSTRACT

Does Immigration Policy Affect the Education-Occupation Mismatch? Evidence from Australia*

This paper analyses the impact of a change in Australia's immigration policy, introduced on 1st July 1999, on migrants' probability of being over-/under-educated or correctly matched. The policy change consists of stricter entry requirements about age, language ability, education, and work experience. The results indicate that those who entered under more stringent conditions – the second cohort – have a lower probability to be overeducated and a correspondingly higher probability of being better matched than those in the first cohort. The policy change appears to have reduced the incidence of over-education among women, enhanced the relevance of being educated in Australia to be correctly matched, and attracted a higher proportion of immigrants that were already under-utilised (or over-achieving) in their home countries. Overall, the policy appears to have brought immigrants that reduced the over-under-education of Australia's labour market.

JEL Classification: C34, J24, J61

Keywords: immigration policy, over- and under-education, migration

Corresponding author:

Massimiliano Tani
Department of Economics
Macquarie University
NSW 2109
Australia
E-mail: max.tani@mq.edu.au

* I thank participants to the AM² (2012), and seminars at NILS (Flinders University) and University of South Australia for valuable comments. A particular thanks to Keith Hancock for his feedback on a previous version of this article, which appeared as an invited contribution in the Australian Bulletin of Labour, 38(2), 111-141. All errors are mine.

1. Introduction

There is growing empirical evidence that the mismatch between a person's formal education and the job held is a common feature of the labour market. This mismatch is typically referred to as 'over-education' when the person has a formal level of education above the one required[1] for his/her job, and as 'under-education' in the opposite case. Over- and under-education exist in both developing and developed economies, and can affect as much as 50% of the workforce (e.g. Metha et al, 2011; Hartog, 2000; Groot and Maassen van der Brink, 2000; McGuinness, 2006). Of the two types of mismatch, over-education emerges as the most common and problematic, since the affected individuals (predominantly young workers) suffer from substantial wage penalties and have lower job satisfaction and higher turnover than equivalent workers who are correctly matched (e.g. Fleming and Kler, 2008). Under-education is less studied, mainly because it is associated with unobservable individual qualities like motivation and ability that positively affect productivity. However, it can still be viewed as the 'opportunity gap' of what an affected individual could have generated if s/he acquired more formal education.

The costs of the education-occupation mismatch are not only private. Society also suffers from it. For once, the mismatch signals an inefficient use of the stock of human capital available to a country. Since this is finite, any wastage of this resource imposes a net cost to society. In the case of over-education the cost is compounded by the fact that education is publicly subsidized, hence there is also wastage of public resources that could have been used otherwise. In the case of under-education, the cost is the lost opportunity, in terms of future potential output, of not giving enough formal education (or setting adequate incentives for doing so) to otherwise capable individuals.

[1] The required level of education is in turn established using workers' self-assessment (e.g. Sicherman 1991; Dolton and Vignoles 2000), an occupation's average education level (e.g. Verdugo and Verdugo, 1989), or an institutionally-set measure of the average education required for a job (e.g., Rumberger 1987).

Within the over-/under-education literature, a line of research has investigated the incidence of this mismatch amongst immigrants. Under the limiting assumption that the metric defining over-/under-education in the host country equally applies to the home country, existing work consistently finds that immigrants are significantly more over-/under-educated than comparable natives. This phenomenon tends to be more pronounced for those completing their education in the country of origin (e.g. Chiswick and Miller, 2009; Nielsen, 2011), though this conclusion varies according to differences in the level of economic development between host and home country (e.g. Chan, 2011).

In the case of Australia, it is estimated that about one in three workers is mismatched, similarly split between over- and under-educated, while about 40% of foreign-born workers have an educational level that does not conform to what required by their jobs (e.g. Linsley, 2005; Milller, 2007; Green et al, 2007). Recent work has shown that about half of the immigrants' mismatch can be attributed to being already mismatched in the country of origin, prior to migrating, and that the mismatch is path-dependent, continuing in Australia well after resettlement (e.g. Piracha, Tani, Vadean, 2012). The higher and persistent incidence of mismatch amongst immigrants is a potential problem for countries where foreigners form a substantial part of the labour force and where employment growth is mainly driven by immigration, as is the case in Australia. If over- and under-education signal an inefficient use of human resources in the labour market, then migrants seem to make matters worse. In such circumstances, migration policy appears to destabilize, and not only expand, the supply of skills in the host country by way of selecting people with a higher 'propensity' to become mismatched in its labour market: is it the case? Does migration policy worsen the education-occupation mismatch of the host country?

This paper addresses this question for Australia by studying the effect of a shift towards skill-biased immigration on the incidence of over-/under-education amongst immigrants. On 1st

July 1999 Australia adopted stricter admission criteria for immigration applicants in some of its visa categories (Independent and Concessional Family/Skilled-Australian Linked). Since that date a revised point system set higher requirements for skill, age, English ability, and gave additional points to those with an occupation in short supply (as per an occupation on demand list compiled by employers) and with qualifications obtained in Australia (Richardson et al, 2001). No other visa category was affected by this change (Preferential Family, Business and Employer Nomination schemes, and Humanitarian). This policy shift can be viewed as a 'quasi-natural' experiment on the population of potential applicants, and its effect can be measured through the average differences in over-/under-education between the 'treatment group' (Independent and Concessional Family/Skilled-Australian Linked visa holders who were targeted by the policy change) and the 'control group' (Preferential Family, Business/Employer Nomination, and Humanitarian visa holders, to whom the policy changes did not apply).

The use of an education-occupation matrix to identify possible mismatches in the labour market deserves more justification, as the literature has pointed out that education is too generic a variable to identify 'involuntary' mismatches that truly represent a labour market under-utilisation. Some workers may actually choose less demanding jobs to better suit their desired leisure-work balance or may possess lower abilities than what signalled by their educational qualifications. Unfortunately cross-sectional analyses do not control for individuals' unobserved heterogeneity (e.g. Chevalier, 2003). Involuntary matches are better detected by the joint combination of the educational variable with self-reported measures of job satisfaction or skill usage that are often collected by survey, as well as the use of econometric techniques that control for unobservables (e.g. Mavromaras et al, 2010; Green and Zhu, 2010; Pecoraro, 2011). Notwithstanding the rapid development of a literature focusing on skills mismatches, the use of education as the variable against which to measure

what required on the job is justified in analyses of policies where education determines whether or not an individual is selected, as is the case for immigration policies, which is the focus of this paper. The selection criteria applied to prospective immigrants include only the level of formal education completed but not the usage of skills at work or the job satisfaction.

The empirical analysis is carried out using the Longitudinal Survey of Immigrants to Australia (LSIA), and complements the literature on the labour market effects of this policy change for Australia. Throughout the paper the identification of over- and under-education is based on the 'job analysis' (JA) method (Rumberger, 1987) whereby the average required education for a particular job, as assessed by the Australian New Zealand Standard Classification of Occupations (ANZSCO), is compared with the actual educational level of the individual performing it[2]. In the context of ANZSCO a 'skill level' is a function of both the range and complexity of tasks performed in a particular occupation, with a greater range and complexity of tasks according with a higher occupational skill level (Australian Bureau of Statistics, 2006). As a result, using the ANZSCO's classification mitigates the main criticism about the JA method, which is the assumption that workers with the same occupation title do jobs with the same difficulty (e.g. Dolton and Vignoles, 2000). However, the lack of data of ANZSCO equivalent measures for each country of origin constrains the empirical analysis in applying the host country's metric to identify over-/under-educated immigrants regardless of where they were educated.

The results suggest that the shift towards skill-based immigration reduced the gender bias affecting women among over-educated workers and increased their probability of being correctly matched. The policy change also raised the probability of attracting applicants with educational qualifications obtained and assessed in Australia, and attracted more immigrants who were already under-educated in their country of origin. As under-education is generally

[2] No differences arise if the realised matches method (RM) is applied, using 2-digit occupational codes. In the RM, a worker is considered to be over-educated if his or her actual education level is more than one standard deviation above the average education level in his or her occupation.

associated with desirable unobserved attributes, like motivation and ability, the change in migration policy appears to have resulted in the relocation of better quality workers. Overall, the results suggest that the policy change contributed to a better education-occupation match in Australia.

The rest of the paper is organised as follows. Section 2 briefly presents the literature on over-education and provides some context to the policy change. Section 3 presents the methodology. Section 4 summarises the data and Section 5 presents the results. Concluding remarks and discussion on the implications of the policy change for Australia and the source countries are presented in Section 6.

2. Theoretical Context and Immigration Policy Background

It is generally believed that the education-occupation mismatch is affected by the individual's experience in the labour market. The theoretical perspectives differ in the emphasis attributed to supply and demand as driving factors of the labour market (e.g. for a brief summary see Linsley, 2005). On the supply-side, the human capital theory (HCT) suggests that experience and skills acquired through on-the-job training complement formal schooling (e.g. Sicherman, 1991). If the labour supply of people with high levels of formal education increases relative to demand (which the HCT posits to move only through exogenous shocks) then employers will replace low-skill jobs with high-skill workers, and raise over-education (e.g. Freeman, 1976). A variation of this approach supports that at the start of their career individuals may voluntarily accept jobs below their education level in order to accumulate valuable experience and skills usable to move later to better jobs. Within this literature over-education emerges as a natural feature of the labour market rather than a sign of inefficiency, and it decreases with job experience. As a result, individuals experience an education-occupation mismatch during their working lives, with higher incidences of over-education in their early career and a rising probability of under-education as job experience increases.

Search-and-match theory suggests that workers might take up jobs for which they are over-educated when they enter the labour market because they have imperfect information about it. 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 (e.g. Groot and Maassen van den Brink 2000; Hartog 2000; Chiswick and Miller, 2009).

On the labour demand-side, it is suggested that employers prefer to hire workers with high levels of education as this substitutes for expensive training costs. Workers are ranked according to their potential training costs for employers, which are inversely related to the education level. Over-education arises when there is an exogenous increase in the supply of more educated workers. Since jobs determine productivity and pay, over-education generates a shift in the distribution of workers along the 'job queue', leading employers to hire them in place of workers that are less educated but more costly to train.

Research on immigrants' over/under-education has posited additional reasons explaining their higher incidence of mismatch. These include, among others, an imperfect international transferability of human capital, a combination of language and country of origin effect (Chiswick and Miller 2009, 2010 and 2011; Green et al. 2007), and outright discrimination against immigrants in the labour market (e.g. Battu and Sloane, 2004). Unobservable factors like motivation and innate abilities are also ascribed as likely reasons behind the results obtained in all studies analysing the labour market mismatch for immigrants (for a review see Chiswick and Miller 2009). It is likely that a combination of both demand and supply factors are at work in causing over-/under-education, but as their identification is not the main focus of this paper, the literature in this area not reviewed in more detail.

The labour market effects that followed Australia's immigration policy changes throughout the 1990s are studied by a relatively large literature due the availability of the LSIA, which contains very detailed information collected from a representative sample of the immigrant

population entering the country before and after the policy change. The literature commonly finds that post-change immigrants have a higher average level of formal education, higher participation rates in Australia's labour market (e.g. Cobb-Clark 2003; Chiswick and Miller 2006), and lower duration to access the first job upon resettlement (Thapa and Goergens 2006), albeit this is of lower quality (Junankar and Mahuteau 2005), than immigrants arrived pre-policy change.

No analysis appears to have investigated the role of immigration policy on the incidence of over-/under-education in the host country's labour market, which is the subject of this paper. Instead, existing work has focused on measuring the mismatch among immigrants (see Miller, 2007 for a recent survey). This literature focuses predominantly on over-education[3], consistently reporting that Australian employers do not appear to fully recognise educational qualifications obtained abroad. Immigrants' visa class (Kler, 2007; Green et al, 2007), the type of employer prior to migration (Kler, 2007), and the country of origin (Green et al, 2007) emerge as the main determinants of over-education.

To contextualize the development of immigration policies leading to the changes in the mid-1990s, and more precisely the one implemented on 1st July 1999, some historical background is necessary. Australia formally ended a migration policy based on ethnicity ('white Australia policy') in 1972, replacing it with a focus on internal economic conditions. Eliminating racial discrimination from immigration selection resulted in higher volumes of applicants and refugees from non-European countries and consequently higher stocks of immigrants with non-English speaking background (NESB). Two major trends have characterised Australia's immigration policy between 1972 and the early 1990s. The first is the development of

[3] Voon and Miller (2005) and Linsley (2005) are notable exceptions as their concern includes under-educated. The former study provides a measure of the incidence of over- and under-education in Australia using the 1996 Census of Population and Housing. The latter also quantifies the incidence of over-/under-education using the 1997 wave of the Negotiating in Life Course Survey but tests the theoretical approach that best explains the phenomenon (job competition – demand-side) and examines whether over-education is associated with career mobility.

systematically selective immigration policies based on the needs of domestic employers. It started with the introduction of the Numerical Multifactor Assessment System (NUMAS) (1979-1982), which selected immigrants on the basis of family ties, occupational and language skills, and continued with the introduction of a points test system in 1988, which was set annually. The minimum pass mark to be eligible for migration reflected the educational qualifications, work experience, age and English language proficiency of the potential immigrant. Extra points could be gained if the applicant was qualified to work in one of the occupations listed in a Priority Occupation List, which summarized employers' views and recent recruitment difficulties.

The second trend in Australia's immigration policy is the development of publicly-funded activities aimed at facilitating the active participation of immigrants, especially if NESB, to Australia's economic life. These were accompanied by instruments and targeted data collections to study migrants' economic performance (e.g. the LSIA). As an example, NESB immigrants were provided with financial incentives to attend English language courses to make them more employable in Australia (Adult Migrant English Program - AMEP), private sector employers were encouraged to adopt Equal Opportunity principles towards NESB, and specialist labour market programs were implemented to prepare NESB professionals for mandatory entry exams in a range of traditionally 'closed' professions like medicine, engineering and nursing (e.g. Hawthorne, 2005). In 1996 a new government began a series of reforms affecting all immigration streams aside from political refugees. The reforms abolished the social security benefit to new immigrants in the first two years after their arrival, passed to immigrants the cost of accessing the Adult Migrant English Program and attending specialist labour market programs (in this case after securing work), allocated the

highest point weighting to 'employability'[4], and outsourced pre-migration qualification screening to professional bodies. Starting on 1st July 1999 the minimum number of points set to sort migrants who had applied through the Concessional Family and Skilled Independent visa streams was substantially raised[5]. The restrictions resulted in tougher conditions to earn points towards the minimum required to be eligible for migration, and intended to favour migrants with skills immediately usable in Australia's labour market. These included higher language proficiency requirements, occupational skills, education and younger age. This policy change did not apply to the Humanitarian, Family Preferential, Business and Employer Nomination streams.

3. Empirical Methodology

To analyse the effectiveness of this policy change, the probability of over-/under-education is analysed as a function of individual and labour markets characteristics for two cohorts of immigrants entering Australia in 1993-95 (cohort 1) and 1999-2000 (cohort 2), surveyed in the LSIA. Cohorts 1 and 2 happen to have migrated to Australia just before and after the policy change, respectively, thus enabling one to test whether the probability of mismatch is higher for the latter cohort after taking into account a number of individual, timing (cohort) and compositional changes among migrants. The migration policy change can be estimated using the following equation:

$$\Pr(E_{ih}) = \beta_0 + \beta_1 X_i + \beta_2 C_i + \beta_3 C_i X_i + \beta_4 R_i + \beta_5 R_i X_i + \beta_6 C_i R_i + \beta_7 C_i X_i R_i + \varepsilon_i \quad (1)$$

[4] Age-related points for applicants over the age of 45 were abolished while bonus points were awarded to those with relevant Australian or international professional work experience, a job offer, a spouse meeting the skill application criteria, an Australian sponsor who had to provide a guarantee, and carrying A$100,000 or more in capital.

[5] There are three broad visa categories used to enter Australia: (1) independent skills, family concessional and employer nomination schemes, (2) family reunification, and (3) refugee/humanitarian. However, only independent skills and family concessional are tested through the point system. See Richardson et al (2001), Green et al (2007), and Chiswick and Miller (2006), for a discussion.

where $Pr(E_{ih})$ is the probability that individual immigrant i is over-/under-educated in Australia after migration; β_0 is a constant term; X_i is a vector of personal and occupational characteristics. These cover individual features like gender, age, country of birth, time since migration, household size, as well as whether the migrant was also over-/under-educated in his/her country of origin in the 12 months prior to migrating, and if education was completed and/or assessed in Australia. C_i is a dummy variable that is equal to one if the migrant belongs to the second cohort, and zero otherwise. R_i is a dummy variable that indicates if the migrant has relocated to Australia with a concessional family reunification or skill independent visa, which were subjected to the policy change analysed in this paper; and ε_i is an idiosyncratic error term.

This methodology is akin to what is termed 'difference in difference-in-differences' estimation ('DDD'), as it measures the effect of a 'quasi natural' experiment (the policy change) on the average difference in the probability of being mismatched in Australia's labour market between the treatment group (immigrants in the family concessional and skilled independent visa categories) and the control group (migrants in the preferential family, and business and employer nomination streams, to whom these policy changes did not apply).

The effect of policy change is detected by the parameter β_7 – the probability of being over-/under-educated after the policy reform – after controlling for a set of personal and occupational characteristics including over-/under-education prior to migration (β_1), changes in the composition of migrants and labour market conditions (β_2), as well as characteristics and over-/under-education among those who entered Australia with a preferential family reunification, and business and employer nomination visa (β_4, β_5, β_6). The parameter β_7 has a casual interpretation if there is no change in both observed and unobserved characteristics of both treated and controls in the first and second cohort. Since this is unlikely, the results are

subject to the possibility of bias due to unobserved individual heterogeneity. This source of bias can be controlled through the use of panel data techniques (e.g. Mavromaras et al, 2010; Pecoraro, 2011). However this is not possible here as the estimators become quickly unstable if too many control variables are used - the number of cells with only a handful of observations rises rapidly when adding controls. As a result, the empirical analysis uses dummy variables to control for the wave of the interviews (migrants are interviewed three times in cohort 1 and twice in the second cohort of the LSIA), and corrects the standard errors of the estimators for individual clustering, enabling one to take into account the correlation between multiple observations for an individual.

Since the education-occupation mismatch is observed only for those who are employed, focusing only on immigrants who have a job may overlook that this is a non-randomly selected sub-sample. Estimates would be therefore biased (e.g. Bauer, 2002). This problem can be avoided by adding a second equation to control for self-selection into labour force participation. Hence, the occurrence of the mismatch *j* for individual *i* is represented by the two linear latent dependent variable equations:

$$y_{1ij}^{*} = x_i^{'}\beta + u_i \qquad (2)$$

where $y_{1ij} = 1$ if the individual has attained the respective mismatch ($y_{1ij}^{*} > 0$) and $y_{1ij} = 0$ if not ($y_{1ij}^{*} \leq 0$). Equation (2) is a short-hand expression for equation (1).

and

$$y_{2i}^{*} = z_i^{'}\gamma + v_i \qquad (3)$$

where $y_{2i} = 1$ if the individual is employed ($y_{2i}^{*} > 0$) and $y_{2i} = 0$ if not ($y_{2i}^{*} \leq 0$).

The variable y_{1ij} is only observed if $y_{2i} = 1$. Equation (3) is fully observed and can be estimated separately, but separate estimation of equation (2) is subject to selection bias if the error terms u_i and v_i are correlated. The model can be estimated stepwise (i.e. introducing

the inverse Mill's ratio from equation (3) as a covariate in equation (2) -'Heckman selection model') or simultaneously by maximum likelihood (binomial probit). The two-step method is perceived to give inconsistent results when there is strong multicollinearity between covariates in equations (2) and (3), as is the case when there is a common set of covariates (e.g. Lahiri and Song 2000). Nevertheless it seems sufficient to ensure that the first step of the estimation is non-linear (e.g. regression by probit) to identify the parameters in both equations even when the two vectors contain the same variables (e.g. Leung and Yu, 2000). In this paper additional exclusion restrictions are imposed in order to reduce the collinearity between the explanatory variables of the outcome and self-selection equations. Following Green *et al.* (2007), who study over-education among migrants using the second cohort of the LSIA, the covariates chosen to identify the model (i.e., variables appear in z_i' but not in x_i') include participation in the labour market prior to migration, whether the immigrant had own funds at the time of arrival and their value, car ownership, and the number of dependent children. Immigrants who face liquidity constraints might be more likely to be under pressure to take up employment, as are those who have young children. Owning a motor vehicle might also increase the area where the individual can take up a job and, thus, widen employment opportunities. Other control variables include age and gender, the proficiency level of English, whether migrants had visited Australia prior to immigration, the number of adults in the household, the time since migration and whether education was completed, and if not if it was assessed, in Australia.

4. Data

The LSIA is based on a representative sample of 5 percent of migrants/refugees from successive cohorts of migrants and was commissioned in the early 1990s to fulfil the need to have better information on settling in Australia than those available through the census. It

contains more than 300 questions about the settlement process and conditions experienced pre-emigration in the home country and after relocating to Australia. The questions were asked separately to primary applicants and their migrating spouses.[6] The first cohort, arrived in 1995-1996, contains 5,192 primary applicants and 1,838 spouses, surveyed 5, 17 and 41 months after arrival. The second cohort, arrived between 2000 and 2001, contains 3,124 primary applicants and 1,094 spouses surveyed after 5 and 17 months after immigration. Since Cohort 2 includes 175 migrants who qualified under the less restrictive migration criteria (i.e. before 1st July 1999), these observations are reallocated to Cohort 1 in the empirical analysis.

Table 1 presents the descriptive statistics. Immigrants are typically in their mid-30's (agemig), have a small family (nbhouse), with one or two dependent children (ch_res). Immigrants typically carry with them funds equivalent to about a year of Australia's average wage (val_funds). The majority is highly educated, with approximately two thirds holding a diploma/certificate or higher educational qualification. They are mostly from Europe (COB2) and East Asia (COB 4). Almost half of respondents have previously visited Australia (previs), and close to 70% were interviewed in English at the time of their first interview (langint). About 28% of those in Cohort 1 settled in Australia with hopes of better economic prospects (hope). This proportion rises to 60% for Cohort 2. Owning a car (car) immediately after arrival appears far more common among immigrants of the first cohort (78.3%) than in the second (58.7%). Immigrants were mostly correctly matched in their home country (prev_ok: about 60% for both cohorts), while about one fourth is under-educated (prev_un). Over-education in the home country (prev_ov) affects about 10% of immigrants in both cohorts. A negligible proportion of immigrants in both cohorts completes education in Australia (hfqu_AUS: 3.8% for cohort 1 and 6.8% for cohort 2), though a far higher

[6] Migrating unit is 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.

proportion has the educational qualification assessed in the country (qual_AUS: cohort 1: 27.5%; cohort 2: 21.5%).

The top part of Table 2 presents the education mismatch transitions between the status in the last 12 months before migration and the status at five months after arrival in Australia for males and females of working age (20-65). The bottom part of the table reports the transition at 17 months after arrival. Table 2 summarises the high persistence in the education-occupation mismatch (and correct matches) of individuals moving from the labour market of their country of origin to that of their country of resettlement. The probabilities of transiting from over-education in the home country to under-education in Australia (or from under- to over-education) are very low, suggesting that the use of Australia's measure of mismatch in the case of the country of origin works reasonably well. For both cohort 1 and 2, about two thirds of the over-educated in the home country remain over-educated in Australia 5 months after arrival. The persistence increases further after 17 months since arrival mainly due to the fact that some of those who are initially unemployed find a job, but this often requires less education than what immigrants have. Such high persistence may also underlie that employers in the labour markets of both countries of origin and destination share a similar view of the immigrants' education when it comes to job assignment. Overall, most immigrants are correctly matched. About half are not, with a slight prevalence of over-educated. The main difference between cohorts is the reduced incidence of correct matches, particularly 17 months after arrival, which is lower for the second cohort. This may reflect the tougher macro-economic conditions facing later immigrants to Australia, as highlighted by Junankar and Mahuteau (2005), following the economic slowdown that accompanied the internet boom in the late 1990s.

5. Results

Equation (1) and the system (2)-(3) are estimated as a series of pooled cross-sections to maintain an adequate number of observations to carry out the analysis, with time dummies controlling for the separate waves. Immigrants resettling under the preferential family reunification and employer nomination scheme are used as a control group ($R_i = 0$), as these settlers were not affected by the policy change considered. Observations representing humanitarian migrants are excluded from the analysis as these mostly reflect non-economic motives and selection criteria, though their inclusion does not modify the results discussed below.

The determinants of over-/under-education in Australia appear confined to a handful of explanatory variables, which include the previous education-occupation mismatch in the country of origin, gender, and previous knowledge of Australia – possibly labour market experience in the country as well. These determinants are briefly reviewed prior to discussing the estimate of the effects of the policy change β_7.

Table 3 presents the marginal effects of the determinants of immigrants' over- and under-education and correct matches in Australia. These represent the change in the probability of the dependent variable when the explanatory variable changes by one unit as measured from the baseline (in the case of dichotomous variables) or the mean (for continuous variables). Three sets of marginal effects are presented, reflecting the three types of possible education-occupation match (over-/correct/under-education). For each type, two marginal effects are displayed depending on whether equation (1) is estimated as a single process (labelled 'probit') or as the system (2)-(3) with a selection equation controlling for migrants' ability to find a job and their choice of labour force participation ('Heckman').

The general regression statistics are reported at the bottom of Table 3. As shown, the regressions explain about 20% of the variance of the dependent variable in the case of over-education and correct matches. The model summarised by (1) fares much better in explaining under-education (pseudo-R^2 is 49.34%), underlying a stronger effect from the explanatory variables. The general regression statistics also reveal that selection into participation does not appear to be a significant problem: the value of ρ (rho) is never statistically significantly different from zero. The positive sign in the case of over-education (+0.602) suggests that labour market participation increases the over-education outcome, as would occur to people ready to supply labour with a high elasticity. The opposite case, though on much smaller estimates, seems to occur in the case of correct matches and under-education.

With reference to the main determinants of the job-education match, the most significant predictor is the home country job-match experience. This confirms the results discussed by Piracha, Tani, and Vadean (2012). Having been over-educated and correctly matched in the home country raises the probability of being over-educated and correctly matched in Australia by about 40%. In the case of under-education, the probability of mismatch in Australia raises by about 30%. The 'home bias' effect is very large in both coefficient and statistical significance and deserves more research, as it supports the idea that employers, even if located in very different labour markets, assign jobs to employees using a similar view of their education. Migrating does not appear to 'solve' being over-educated at home, but, on the contrary, reinforces this mismatch. Of course, this apparent international 'transferability' of an individual's job-education match across labour markets is open to alternative interpretations. For once, it may signal employers' correct valuation of the abilities of their employees: this is low in the case of over-education and high in the case of under-education. Alternatively, it may be the result of the applicant's imperfect knowledge about where to look for a job that suits his/her ability. Research focusing on the possible links

between education-occupation outcomes and job search methods will help to shed light on these, and possibly other, competing explanations.

A second important determinant of education-occupation mismatches is where education is acquired. Completing one's education in Australia raises the probability of over-education by more than 10% and reduces the probability of under-education by about 8%. Similarly signed and sized marginal effects occur if an immigrant decides to have his/her educational qualifications assessed in Australia. No statistically significant effect arises in the case of correct matches. These results *prima facie* reveal a discrepancy between Australian educators and employers about an immigrant's ability when this is measured by schooling or occupation. No detectable effect arises from the use of English (langint – statistically insignificantly different from zero), which, if poor, could explain why immigrants are employed in jobs they over-qualify for, and shy away from jobs beyond their qualifications. However, two other indicators point to a genuine lack of knowledge of Australia's labour market and readiness to accept a job quickly after migration as more likely explanations of the marginal effects of acquiring/assessing education in Australia. The first is the strong negative effect of previous visits to Australia in the case of over-education (previs: -7.5%), and the positive but not statistically significant values of the same variable in the case of correct matches (previs: +4.1%), and under-education (previs: +0.8%), respectively. With more prior knowledge of Australia, education-occupation mismatches are less likely. Acquiring education, or having it assessed, in Australia provides prior knowledge of the country but also expedites an immigrant's access to its labour market, regardless of whether the first job is the most suitable. It will still help to reduce the cost of migration and resettlement, especially if only one partner works and there are dependent children who need access to schooling. The second indicator is that the incidence of over-education declines (t1d: -.0005 and statistically significantly different from zero at the 5% level) at a rising rate

(t1d2: +0.000003 and similarly statistically significant), and correspondingly that of under-education rises (+0.0003 and statistically significantly different from zero at the 5% level) at a declining rate (-.000001 and similarly statistically significant). No statistical effect arises in the case of correct matches. Time helps to improve immigrants' initial labour market choices and, with it, the education-occupation match.

The third significant determinant of immigrants' education-occupation match is gender. Being a woman raises the probability of over-education by about 6% and reduces that of under-education by 2.6% (statistically significant only at the 10% significance level). The presence of gender bias in the labour market is not new, but these marginal effects highlight some systematic under-utilisation of women by Australian employers. This may still reflect lack of information or the availability of appropriate jobs in the locale chosen by the immigrant (e.g. due to affordable housing) rather than outright discrimination, and targeted research in this area can provide an answer.

The probability of mismatch is also affected by the country of birth (discussed later). Being born in Europe, including Eastern Europe and countries in the former Soviet block (vis-à-vis being born in New Zealand and Oceania) and Middle East and Africa raises the probability of both over- and under-education and reduces that of a correct match. These countries of origin appear to 'destabilise' the matching between schooling and jobs' educational requirements in Australia's labour market. This result may reflect the large migration waves of highly educated individuals from countries undergoing significant economic and political transition in Europe (e.g. the end of the Soviet block, war in the Balkans), the Middle East (was in Iraq), and Africa (end of apartheid in South Africa, economic decline in Zimbabwe). Migrants from East Asia appear more likely to take up jobs for which they are over-educated, while those from other part of the world include a heterogenous group of countries that provide both highly trained and untrained immigrants.

The effect of the migration policy change on the probability of education-occupation match is summarised by the estimators reported in Table 4. The top portion of the table reports the cohort effects of the policy change on both treated and non-treated groups with respect to visa group and pre-migration education-occupation mismatch. The bottom part of the table reports the marginal effects of the DDD estimation. The cohort effects suggests that the policy change resulted in higher probabilities of pre-migration workers who were correctly matched (+13%) or under-educated (+8.3%), and did not increase the probability of attracting over-educated workers. These results suggest that the policy did not contribute to higher incidences of over-education in Australia. With respect to the DDD estimates, statistically significant effects arise with regards to where the education was acquired, gender, and, in the case of under-education, prior labour force status as a student.

The more selective policy introduced in 1999 resulted in a lower probability of being over-educated (not statistically significantly different from zero) and a higher probability of being correctly matched when education was acquired in Australia. The latter effect is large and statistically significant, consisting in an increase of about 20% in the probability of being correctly matched. The policy also appears to have raised the probability of under-education for those acquiring their education in Australia (+2.1%, though not statistically significant).. Clearly the policy tightening raised the profile and value of being educated in Australia, and this effect is consistent with the policy giving additional admission points to applicants who completed education in the country. Gaining extra points does not however entirely explain the effect on education, as the policy change seems to have also resulted in the reduction by about 9% of an immigrant's probability of getting a job for which s/he was over-qualified and raised that of becoming under-educated if her/his qualifications were assessed in Australia. The policy seems therefore to have made a difference to the assessment of education, perhaps by way of generating a signal that was recognised by Australian employers.

The policy change also had a positive effect in reducing the gender bias in the labour market: there is a reduction in a probability of over- and under-education for female workers and a corresponding increase in their probability of being correctly matched. All these effects are statistically significantly different from zero. . In particular, the probability of over-educated due to gender fell by about 10.8% as a result of the policy change, while that of under-education dropped by 8.7%. At the same time, the probability of being correctly matched for females increased by about 20%.

Unique to the case of under-education, the policy change resulted in a far higher probability (almost 64%) of attracting those who were studying prior to migrating. This group of migrants contributed to raise the probability of under-education in Australia. Since under-education is generally thought of in terms of labour market over-achievement, as the person affected has a job that requires a level of education above the one obtained, the higher incidence of immigrants with previous under-education in their home country (Table 4: 'cohort effects') and who were studying before migrating suggests that the policy change has resulted in an increase of high-quality immigrants for Australia, and a corresponding net loss of human capital for the countries of origin.

The remaining cohort effects do not indicate other substantial differences between the two cohorts, as the estimators related to the country of birth are not statistically different from zero. From an Australian perspective, the policy change was positive. Overall, the new immigration selection criteria appear to have had a strong effect in reducing the gender bias in the mismatch between education and occupation, to the advantage of being correctly matched. The policy also raised the relevance of educational qualifications and assessment obtained in Australia in reducing the incidence of over-education with corresponding increases in the benefit higher probability of being correctly matched.

6. Conclusion

This paper attempts to explore the determinants of the education-occupation mismatch among immigrants in Australia, with a focus on the consequence of the change in immigration policy that resulted in more selection about age, qualifications, and work experience. With reference to the determinants, the analysis highlights that those affected by an education-occupation mismatch in the home country before migration are more likely to be in the same mismatch type in Australia. The analysis also shows that being mismatched is more likely for immigrants that have a limited knowledge/experience of Australia, females, and if they completed their studies in Australia. More importantly however, the analysis reveals that the policy change resulted in a reduction of the gender bias and in Australian education substantially enhancing the probability of being correctly matched. These results support that Australian immigration policy was successful in terms of attracting immigrants that reduced the domestic education-occupation mismatch.

References

Australian Bureau of Statistics (2006). *Australian and New Zealand Standard Classification of Occupations, First Edition* (No. 1220.0). Canberra: Australian Bureau of Statistics.

Battu, H. and P.J. Sloane (2004). Over-education and Ethnic Minorities in Britain, *The Manchester School,* 72(4), 535–559.

Bauer, T. (2002). Educational Mismatch and Wages: A Panel Analysis, *Economics of Education Review,* 21, 221-229.

Chan, G. (2011). The international transferability of human capital. Unpublished Honours' thesis, Macquarie University, Sydney.

Chevalier A. (2003). Measuring Overeducation, *Economica*, 70, 509-531.

Chiswick, B.R. (1978). The Effect of Americanization on the Earnings of Foreign-born Men, *Journal of Political Economy*, 86(5), 897-921.

Chiswick, B.R. and P.W. Miller (2006). Language Skills and Immigrant Adjustment: What Immigration Policy Can Do! In: Deborah Cobb-Clark and Siew-Ean Khoo (eds.), Public Policy and Immigrant Settlement, Cheltenham: Edward Elgar Publishing, 121-148.

Chiswick, B.R. and P.W. Miller (2008). Why is the Payoff to Schooling Smaller for Immigrants?, *Labour Economics*, 15(6), 1317-1340.

Chiswick, B.R. and P.W. Miller (2009). The International Transferability of Immigrants' Human Capital Skills, *Economics of Education Review*, 28(2), 162-169.

Chiswick, B. R. and P.W. Miller (2010). Education Mismatch: Are High-Skilled Immigrants Really Working at High-Skilled Jobs and the Price They Pay if They Aren't?, in: Barry R. Chiswick (ed.), *High Skilled Immigration in a Global Labor Market*, Washington D.C.: American Enterprise Institute Press, 111-154.

Chiswick, B. R. and P.W. Miller (2011). Negative and positive assimilation, skill transferability and linguistic distance. IZA Discussion Paper 5420.

Cobb-Clark, D. (2003). Public Policy and the Labor Market Adjustment of New Immigrants to Australia, *Journal of Population Economics*, 16(4), 655-681.

Dolton P.J. and A. Vignoles (2000). The Incidence and Effects of Overeducation in the UK Graduate Labour Market, *Economics of Education Review*, 19(2), 179-198.

Fleming, C. and P. Kler (2008). I'm too clever for this job: a bivariate probit analysis on overeducation and job satisfaction in Australia, *Applied Economics*, 40(9), 1123-1138.
Freeman, R.B. (1976). *The Over-educated American*. New York: Academic Press.

Green, F. and Y. Zhu (2010). Overqualification, job dissatisfaction, and increasing dispersion in the returns to graduate education, *Oxford Economic Papers*, 62(4), 740-763.

Green, C., P. Kler, and G. Leeves (2007). Immigrant overeducation: Evidence from recent arrivals to Australia, *Economics of Education Review*, 26(4), 420–432.

Groot, W., and H. Maassen van den Brink (2000). Overeducation in the labor market: A meta-analysis, *Economics of Education Review*, 19(2), 149–158.

Hartog, J. (2000). Over-education and Earnings: Where Are We, Where Should We Go? *Economics of Education Review*, 19(2), 131-147.

Hawthorne. L. (2005). Picking winners: The Recent Transformation of Australia's Skill Migration Policy. *International Migration* 39(3), 663-696.

Kler, P. (2007). A panel data investigation into overeducation among tertiary educated Australian immigrants. *Journal of Economic Studies*, 34(3), 179–193.

Junankar, P. N., and S. Mahuteau (2005). Do Migrants Get Good Jobs? New Migrant Settlement in Australia, *Economic Record*, 81(Supplement 1), S34–S46.

Lahiri, K. and J.G. Song (2000). The Effect of Smoking on Health Using a Sequential Self-Selection Model, *Health Economics*, 9(6), 491-511.

Leung, S.F. and Yu, S. (2000). Collinearity and Two-step Estimation of Sample Selection Models: Problems, Origins and Remedies. *Computational Economics* 15, 173-199.

Linsley, I. (2005). Causes of overeducation in the Australian labour market. *Australian Journal of Labour Economics*, 8(2), 121–143.

Mavromaras, K., McGuinness, S., O'Leary, N., Sloane, P., and Wei, Z. (2010). "Job mismatches and labour market outcomes: Panel evidence on Australian university graduates", National Institute of Labour Studies, Flinders University, Working Paper No. 163.

McGuinness, S. (2006). Overeducation in the Labour Market, *Journal of Economic Surveys*, 20(3), 387–418.

Metha, A., Felipe, J., Quising, P., and S. Camingue (2011). Overeducation in developing economies: How can we test for it, and what does it mean? *Economics of Education Review*, 30, 1334-1347.

Miller, P. (2007). Overeducation and Undereducation in Australia, *Australian Economic Review*, 40(3), 292-299.

Nielsen, C. (2011). Immigrant over-education: evidence from Denmark, *Journal of Population Economics*, 24, 499-520.

Pecoraro, M. (2011). Is there still a wage penalty for being over-educated but well-matched in skills? A panel data analysis of a Swiss graduate cohort. *Discussion Paper 19*, Institut de Recherches Economiques et Sociales, Catholic University of Louvain

Piracha, M., Tani, M., and Vadean, F. (2012). "Immigrant over- and under-education: The role of home country labour market experience", *IZA Journal of Migration*, 1:3.

Richardson, S., Robertson, F. and D. Isley (2001). The Labour Force Experience of New Migrants. Report prepared for the Department of Immigration and Multicultural Affairs. Adelaide: National Institute of Labour Studies, Flinders University.

Rumberger, R.W. (1987). The Impact of Surplus Schooling on Productivity and Earnings, *Journal of Human Resources*, 22(1), 24-50

Sicherman, N. (1991). "Overeducation" in the Labor Market, *Journal of Labour Economics*, 9(2), 101–122.

Thapa, P. J., and T. Gorgens (2006). Finding Employment After Migration: How Long Does It Take? in D. Cobb-Clark and S.-E. Khoo (eds.), *Public Policy and Immigrant Settlement*, UK: Edgar Elgar, 53-86.

Verdugo, R. and N. Verdugo (1989). The Impact of Surplus Schooling on Earnings: Some Additional Findings, *Economics of Education Review*, 22(4), 690–695.

Voon, D. and P.W. Miller (2005). Undereducation and Overeducation in the Australian Labour Market, *Economic Record*, 81(Supplement 1), S22–S33.

LEGEND

Abbreviation	Variable
visafam_pref	Family preferential visa
visafam_conc	Family concessional visa
Visaindp	Skill independent visa
Visabiz	Business visa
Agemig	Age (years) at time of migration
Agemigsq	Squared age (years) at time of migration
Female	Female respondent
Marry	Married
Fmabizm	Entrepreneur in country of origin
COB2	Country of birth: Europe and Russia
COB3	Country of birth: Middle East/Africa
COB4	Country of birth: East Asia
COB5	Country of birth: Rest of the World
nbhouse	Nr people living in household
hope	Migrated hoping to get better employment opportunity
previs	Visited Australia prior to migrating
t1d	Nr days since arrival
t1d2	Squared nr days since arrival
langint	Language of interview is English
hfquAUS	Formal education completed in Australia
qual_AUS	Education assessed in Australia
Oved_cr	Over-educated in Australia
Nomm_cr	Correctly matched in Australia
Unded_cr	Under-educated in Australia
Prev_ov	Over-educated in the home country prior to migration
Prev_ok	Correctly matched in the home country prior to migration
Prev_un	Under-educated in the home country prior to migration
Car	Owns a car
Ch-res	Number of resident dependent children
Val_funds	Value of funds brought to Australia (in thousand A$)

TABLE 1 SUMMARY STATISTICS: LSIA 1 AND 2. MALES AND FEMALES AGED 20-65

	Cohort 1			Cohort 2	
	Wave 1	**Wave 2**	**Wave 3**	**Wave 1**	**Wave 2**
visafam_pref	0.477			0.548	
visafam_conc	0.188			0.128	
visaindp	0.206			0.170	
visabiz	0.129			0.154	
agemig	33.578			34.458	
agemigsq	1,221			1,283	
female	0.426			0.473	
marry	0.738			0.693	
fmabizm	0.132			0.137	
COB2	0.314			0.296	
COB3	0.170			0.113	
COB4	0.310			0.356	
COB5	0.181			0.193	
nbhouse	3.497			3.457	
hope	0.283			0.601	
previs	0.517			0.487	
t1d	138	509	1,258	151	524
t1d2	21,015	261,829	1,586,174	24,179	278,915
langint	0.686	0.692	0.678	0.679	0.656
hfquAUS	0.038	0.193	0.296	0.068	0.141
qual_AUS	0.275			0.215	
Oved_cr	0.211	0.227	0.221	0.210	0.268
Nomm_cr	0.599	0.598	0.603	0.593	0.487
Unded_cr	0.189	0.174	0.175	0.198	0.244
Prev_ov	0.096			0.135	
Prev_ok	0.618			0.599	
Prev_un	0.285			0.266	
Car	0.783	0.861	0.921	0.587	0.679
Ch_res	1.62	1.54	1.43	1.65	1.56
Val_funds	27.4			42.1	

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			
	Over-educated	Correctly matched	Under-educated	Total
Over-educated	69.41%	30.59%	0.00%	100
Correctly matched	20.22%	76.40%	3.37%	100
Under-educated	5.42%	30.15%	64.43%	100
Total	21.09%	60.12%	18.79%	100
	Cohort 2			
	Over-educated	Correctly matched	Under-educated	Total
Over-educated	67.29%	32.24%	0.47%	100
Correctly matched	24.76%	71.83%	3.40%	100
Under-educated	6.14%	37.00%	56.86%	100
Total	24.20%	58.91%	16.89%	100

Education mismatch in home country	Education mismatch in Australia – 17 months after arrival			
	Cohort 1			
	Over-educated	Correctly matched	Under-educated	Total
Over-educated	75.37%	23.88%	0.75%	100
Correctly matched	16.54%	79.88%	3.59%	100
Under-educated	0.45%	18.92%	80.63%	100
Total	20.86%	58.78%	20.36%	100
	Cohort 2			
	Over-educated	Correctly matched	Under-educated	Total
Over-educated	70.93%	27.91%	1.16%	100
Correctly matched	25.64%	67.63%	6.73%	100
Under-educated	3.23%	27.10%	69.68%	100
Total	26.40%	50.09%	23.51%	100

TABLE 3: PROBABILITY OF EDUCATION-OCCUPATION MISMATCH– MARGINAL EFFECTS

	Over-education		Correctly matched		Under-education	
	Probit	Heckman	Probit	Heckman	Probit	Heckman
Cohort	-.544	-.487	-.457	-.214	.285	.246
	(.380)	(.356)	(.417)	(.350)	(.187)	(.206)
Over-educated at home	.387***	.367***				
	(.037)	(.034)				
Correctly matched at home			.417***	.353***		
			(.029)	(.021)		
Under-educated at home					.265***	.280***
					(.019)	(.011)
Visa: conc. family & skill independent	-.135					
	(.312)					
Qualif. from AUS	.105***	.091***	.011	.016	-.079***	-.082***
	(.027)	(.026)	(.036)	(.031)	(.018)	(.020)
Qualif. Assessed AUS	.115***	.093***	-.004	.010	-.069***	-.070***
	(.025)	(.025)	(.039)	(.030)	(.019)	(.020)
Agemig	-.006	-.008	-.0009	.003	.006	.006
	(.009)	(.009)	(.011)	(.010)	(.005)	(.005)
Agemigsq	.00006	.00009	.00007	-.00004	-.00007	-.00007
	(.0001)	(.0001)	(.0001)	(.0001)	(.00006)	(.00007)
Female	.067***	.0549**	-.035	-.016	-.021	-.026*
	(.024)	(.025)	(.030)	(.026)	(.014)	(.015)
Marry	.010	-.010	-.031	-.021	.006	.003
	(.031)	(.030)	(.037)	(.031)	(.017)	(.018)
Nbhouse	-.010	-.011	.007	.005	-.002	-.0009
	(.007)	(.007)	(.008)	(.007)	(.004)	(.004)
Hope	-.057**	-.062**	.101***	.080***	-.016	-.015
	(.025)	(.026)	(.031)	(.026)	(.014)	(.015)
Previs	-.083***	-.075***	.047	.041	.014	.008
	(.025)	(.024)	(.032)	(.027)	(.014)	(.015)
t1d	-.0004*	-.0005**	.0002	.0001	.0003**	.0003**
	(.0002)	(.0002)	(.0002)	(.0002)	(.0001)	(.0001)
t1d2	.00000**	.000003**	-.000002	-.0000002	-.000001	-.0000001
	(.0000)	(.0000)	(.000002)	(.0000002)	(.000001)	(.0000001)
Langint	.010	.010	-.052**	-.043**	.027**	.028**
	(.019)	(.018)	(.023)	(.019)	(.010)	(.011)
LFS at home	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Country of birth	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Interactions (Table 4)	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
PARTICIPATION						
Owns car		-.011		.0008		.001
		(.008)		(.004)		(.003)
Children resident		-.019**		.002		.001
		(.010)		(.007)		(.007)
Value of funds		-.021*		.002		.003
		(.013)		(.007)		(.006)
Observations	6,262	8,525	6,280	8,525	6,280	8,525
Censored obs		2,567		2,567		2,567
Wald chi2	855.3	4,102.7	994.9	1,432.4	1,893.5	2,563.9
Log likelihood	-2,672.2	-6,426.3	-3,489.4	-7,207.3	-1,515.5	-5,354.7
Pseudo-R^2	.2008		.1783		.4934	
ρ		.602		-.035		-.119
		(.380)		(.152)		(.285)
Wald test of indep.: Prob > Chi2		0.1134		.8174		.6771

TABLE 4: DIFFERENCE IN DIFFERENCE-IN-DIFFERENCES MARGINAL EFFECTS

	Over-education		Correctly matched		Under-education	
	Probit	Heckman	Probit	Heckman	Probit	Heckman
Cohort effects						
Visa: conc. family &	.426	.390	.291	.202	-.167	-.156
skill independent	(.631)	(.599)	(.832)	(.694)	(.500)	(.537)
Over-educated at	.089	.048				
home	(.056)	(.053)				
Correctly matched at			.171***	.130***		
home			(.050)	(.042)		
Under-educated at					.068**	.083***
home					(.024)	(.025)
DDD effects						
Average effect on	**-.015**	**.017**	**-.007**	**.007**	**.079**	**.085**
treated (DDD)	**(.084)**	**(.079)**	**(.087)**	**(.073)**	**(.058)**	**(.628)**
Qualif. assessed AUS	-.085	-.091	.115	.112	-.007	-.020
	(.070)	(.065)	(.093)	(.078)	(.050)	(.055)
Qualif. obtained AUS	-.105	-.129	.203*	.204**	.024	.021
	(.092)	(.086)	(.123)	(.104)	(.077)	(.082)
Agemig	-.006	-.003	-.038	-.032	.013	.014
	(.034)	(.032)	(.044)	(.037)	(.026)	(.028)
Agemigsq	.00004	.00002	.0006	.0005	-.0002	-.0003
	(.0005)	(.00004)	(.0006)	(.0005)	(.0003)	(.0004)
Female	-.118**	-.108*	.209***	.168**	-.089**	-.087**
	(.062)	(.059)	(.083)	(.070)	(.045)	(.048)
Marry	-.004	-.003	-.012	-.012	.065	.083
	(.072)	(.069)	(.093)	(.078)	(.051)	(.056)
Nbhouse	-.028	-.030	.046*	.034	-.011	-.002
	(.020)	(.019)	(.026)	(.021)	(.015)	(.156)
Hope	.103	.068	-.058	-.032	-.039	-.055
	(.070)	(.068)	(.092)	(.077)	(.050)	(.054)
Previs	.018	.026	.008	.018	-.079*	-.100*
	(.065)	(.062)	(.087)	(.074)	(.049)	(.054)
t1d	-.0003	-.0003	.0006	.0006	-.0002	-.0002
	(.001)	(.001)	(.001)	(.001)	(.0008)	(.0008)
t1d2	.000001	.000001	-.00001	-.000001	.00003	.00002
	(.0000)	(.000009)	(.00001)	(.000001)	(.00003)	(.00002)
Langint	.010	.010	-.054	-.059	.014	.022
	(.056)	(.053)	(.073)	(.062)	(.042)	(.046)
Student in former	-.051	.019	-.021	-.106	.496***	.639***
COB	(.221)	(.213)	(.299)	(.240)	(.121)	(.119)
COB: Europe, Russia	-.232	-.246	.117	.108	.072	.070
	(.161)	(.157)	(.220)	(.184)	(.131)	(.140)
COB: MEast, Africa	-.114	-.139	-.026	.0006	.099	.076
	(.175)	(.172)	(.237)	(.198)	(.154)	(.164)
COB: East Asia	-.245	-.236	.104	.095	.164	.153
	(.162)	(.156)	(.223)	(.185)	(.131)	(.141)
COB: Rest of world	-.033	-.057	-.043	-.014	.069	.055
	(.163)	(.157)	(.226)	(.189)	(.141)	(.151)