

ISSN 1448-398X

# **CENTRE FOR ECONOMIC POLICY MODELLING**

## **SCHOOL OF ECONOMICS**

**Working Paper No. 4**

**Overeducation and the Assimilation of Recently  
Arrived Immigrants: Evidence from Australia**

by

**Colin Green, Parvinder Kler and Gareth Leeves**

**December 2004**



**THE UNIVERSITY OF QUEENSLAND**

# Overeducation and the Assimilation of Recently Arrived Immigrants: Evidence from Australia

Green, C\*, Kler, P<sup>†</sup>, and Leeves, G<sup>‡</sup>

## Abstract

Australian immigration policy, in common with the US and Canada, has increased the emphasis on skill based selection criteria. We examine immigrant overeducation in the early phases of settlement in Australia. In particular, we assess the role of visa category of entry and region of origin. In contrast to expectations, skill based visa immigrants did not experience markedly lower overeducation rates than those on family based visas. Whereas immigrants from Non-English Speaking Backgrounds, especially Asian, faced higher rates of overeducation. Overeducation translates into a earnings penalties. Based on the results in this study, the aggressive pursuit of skill based immigration policies may not lead to any substantial reduction in immigrant overeducation.

THEME: Immigration

KEYWORDS: Immigrants, Overeducation

JEL CODE: J15, J61

---

\*Corresponding Author Colin Green Centre for Economic Policy Modelling, University of Queensland, c.green@economics.uq.edu.au

<sup>†</sup>Centre for Economic Policy Modelling, University of Queensland.

<sup>‡</sup>School of Economics, University of Queensland

# 1 INTRODUCTION

Recently in Australia, Canada and the US, immigration policy has decidedly shifted towards skill based immigration (Cobb-Clark 2000). This has been considered as a means to reducing assimilation problems. Immigrants with appropriate education and skills should achieve better labour market outcomes in the recipient country. For Australia, skilled immigration increased in the 1990's, whereas family based immigration declined (DIMIA 1999). A major element of skill-based assessment is related to educational qualifications. Therefore a natural policy question to ask is how effectively the qualifications of immigrant groups are utilised in the recipient country.

We examine the extent to which the immigrants' educational qualifications are utilised in their jobs within Australia. In particular, we analyse the incidence and impact of overeducation for recent immigrant arrivals to Australia. Overeducation appears to be a pervasive feature of labour markets <sup>1</sup>, and is generally associated with reduced remuneration (Battu et al. 1999, Battu et al. 2000, Dolton and Vignoles 2000, Chevalier 2003, Rubb 2003, Frenette 2004). Overeducation is an important dimension of assimilation for immigrants, as it signals possible impediments to the transferability of human capital between countries (Friedberg 2000). This study provides the first analysis of overeducation for immigrants, where we are able to distinguish visa-based categories with the presumption that skilled based immigrants will have lower incidences

---

<sup>1</sup>For example, Green *et al.* (2002) find overeducation in the British labour market to be around 30 - 32.9%. Sicherman (1991) find almost 40% of workers in the USA to be overeducated.

of overeducation.

The data set used in this survey, the Longitudinal Survey of Immigrant Australians (LSIA), covers the immediate (3 to 4 year) period following arrival in Australia. It was designed specifically to examine the experiences of immigrants. As a result it contains information not generally available in labour force or census data sources. Of particular interest for our purposes, it provides information such as entry visa category, education qualifications, financial situation on arrival, access to a private motor vehicle and previous visits to Australia.

Immigrants can face labour market conditions that vary markedly from those of their country of origin. This study is also novel insofar as we consider the performance of immigrant groups with varying degrees of assimilation potential. Specifically we compare the relative labour market performance of recently arrived male immigrants in full-time employment from non-English speaking backgrounds (NESB) and those from English speaking backgrounds (ESB)<sup>2</sup>. Due to the close ties to the United Kingdom, English remains the predominant first language in Australia, and is the primary language used within the Australian education and training system.

Thus, ESB immigrants would be expected to face fewer impediments to assimilation when compared to NESB immigrants. The latter group may face difficulty in getting their educational qualifications recognised by employers, suffer from language difficulties and face racial discrimination. Flatau et al (1995) demonstrated that ESB immigrants to Australia have similar labour

---

<sup>2</sup>Namely the United Kingdom, Ireland, USA ,Canada, South Africa and Zimbabwe.

market outcomes to that of Australian born residents (ABRs)<sup>3</sup>. The same is not true for NESB immigrants who face a large earnings gap (relative to the native population) which does not appear to significantly narrow over time (McDonald and Worswick 1999). The degree of assimilation difficulty faced by NESB immigrants in Australia will vary according to their country of origin. Broadly, they can be split into two groups, those from Asia and those from other countries (predominantly continental Europe or from Middle Eastern/North African countries)<sup>4</sup>. Of these two groups, Asian NESB immigrants are likely to face particular transition problems due to the greater potential for racial discrimination and greater dissimilarity in institutional framework (Borooah and Mangan 2002). There is some evidence that minority groups suffer higher incidences of educational mismatch and this translates to reduced returns to education (Battu and Sloane 2004). The data used in this study allows us to examine the incidence and determinants of educational mismatch and the relative wage performance of these three distinct immigrant groups.

To summarise our results; Visa category of entry is an important determinant of overeducation for all immigrants. In general, those immigrants who have to fulfill higher skill requirements for visa eligibility experience lower rates of overeducation. Additionally, we find that Asian NESB immigrants have by far the highest incidence of overeducation, 36 per cent compared to 31 percent for Other NESB and 22 percent for ESB immigrants. For the two NESB immigrant

---

<sup>3</sup>See also Miller and Neo (1997) and McDonald and Worswick (1999).

<sup>4</sup>In the LSIA sample 51% were from continental Europe, 22% were from Middle Eastern/North African countries.

groups this incidence rate does not appear to diminish over our 3 year sample period. Furthermore, this rate is higher than the Australian national average overeducation rate for full-time male employees. Interestingly, Asian immigrants' higher incidence of overeducation appears to be related, in part, to a lack of English language skills and financial constraints.

The remainder of the paper is set out as follows. Section 2 provides background information on immigrants to Australia and outlines the data source. Section 3 outlines the econometric methodology. Section 4 discusses the results, whilst section 5 concludes.

## **2 BACKGROUND AND DATA**

The scale of post-war migration has been large, with nearly 6 million individuals migrating to Australia in the post-war period (Cobb-Clark 2003: 656). Australian migration policy has changed markedly in the post war period, evolving from the White Australia Policy to one based on the separation of migrants into family, skilled and humanitarian groups. The effect this has had on immigrant composition is reflected in the declining proportion of ESB immigrants. For instance in the period 1959 to 1965, 76 per cent of permanent settler arrivals were ESB immigrants; this had declined to 46 per cent in the period covering 1975 to 1980, and decreased further to 28 per cent for the 1990 to 1995 period. (Teicher et al. 2002)

Under the immigration system at the time of the LSIA, immigrants entered

Australia on one of five visa categories; these are Independent Skilled, Business/Employment Nominated Scheme(ENS), Concessional Family, Preferential Family and Humanitarian visas. Those who arrive on the Independent Skilled or Business/ENS visas are fully assessed based on their skill level<sup>5</sup>. Immigrants with Business visas fulfil the requirements that they can be expected to go into business shortly after arrival while those on ENS visas are nominated by Australian employers to fill skilled positions vacant in the domestic labour market. Concessional Family visa holders are skilled assessed but obtain points for having close relatives that are willing to sponsor and provide support during their first two years in Australia. Thus, their skill level need not be on par with those in the Independent Skilled visa category. Those on Humanitarian and Preferential Family visas are not skilled assessed and obtain their visas based on humanitarian reasons and family links, respectively.

The data source used in this paper is drawn from the Longitudinal Survey of Immigrants to Australia (LSIA<sup>6</sup>). The LSIA attempts to "document the settlement, including the labour market experiences, of a cohort of recently arrived, offshore-visaed immigrants to Australia" (Cobb-Clark, 2001: 467). As a result it contains information not generally available in labour force or census data sources. The LSIA looks at a cohort of immigrants to Australia that arrived between September 1993 and August 1995. This group was interviewed approximately five months (wave 1), 17 months (wave 2) and 41 months (wave 3) after

---

<sup>5</sup>For more details see Miller (1999) and Teicher *et al.*( 2002).

<sup>6</sup>For an encompassing review of the dataset, see Cobb-Clark (2001). For a detailed look at the technical aspects of the LSIA see the user documentation by the Department of Immigration and Multicultural and Indegenous Affairs (DIMIA 2002).

arrival (Cobb-Clark 2001). However, some variation in the timing of interviews occurred, and as a result each individuals' period of residence at time of interview differs. Participants are questioned on a wide range of issues including visa type, English language ability and country of origin, financial situation on arrival, access to a car and prior visits to Australia.

This paper investigates primary applicants from the first cohort group numbering 5192 persons aged 15 years and over<sup>7</sup>. Attrition rates decreased the sample to 4469 primary applicants in the second wave and 3752 in the third wave, a rate of 28% (Cobb-Clark 2001, DIMIA 2002). DIMIA (2002) could find no evidence of significant bias in relation to economic activity classification as a result of attrition from the sample. Furthermore, between waves 1 and 3 the average age of ESB and Asian NESB immigrants increased by approximately 3.2 years, and 2.8 years for Other NESB immigrants. Hence, there appears to be little evidence of attrition of specific age groups of immigrants across the three categories. The analysis is restricted to male primary applicants aged 15 to 64 at the time of first interview<sup>8</sup>. We also exclude individuals with multiple jobs, and focus on individuals in full-time employment<sup>9</sup>. This provides an unbalanced panel of 1,604 individuals; of these, 376 are ESB immigrants, 582 are

---

<sup>7</sup>New Zealand citizens, who do not have to apply to migrate to Australia unlike other nationalities, are excluded from this sample.

<sup>8</sup>Most studies of labour market performance exclude females on the grounds of sample selection bias (see Dolton and Makepeace, 1993). Migrant women might also be 'tied-movers' who enter into occupations merely to supplement family income (Frank, 1978; Worswick, 1996).

<sup>9</sup>Male part-time workers constitute approximately 4% (ESB), 9% (Asian NESB) and 10% (Other NESB) of total employment. This compares to an Australian working age population figure for males of 13% in 1996. In all econometric analysis we examine the effects of including part-time workers on our estimates.



NESB Asians, and 666 are Other NESB immigrants.

### **INSERT TABLE 1**

Table 1 presents sample averages for our three immigrant groups for males who held a full-time job at some point during our sample period<sup>10</sup>. Briefly, a greater proportion of ESB immigrants enter as Business/ENS visa holders compared to NESB immigrants, and they have higher average years of education and are on average older. Other NESB immigrants were most likely to enter under non-assessed visas, while Asian NESB immigrants are most likely to enter under either Concessional Family or Independent Skilled visas. ESB immigrants were substantially more likely to have visited Australia before settlement, to have a car and to have funds on arrival. Only a small proportion of NESB immigrants reported speaking English fluently upon arrival.

## **3 METHODOLOGY**

### **3.1 Incidence of Overeducation**

This paper examines mismatch between educational qualifications and occupational requirements using a measure of overeducation. Immigrants enter with qualifications from a large variety of educational systems. Some of these will be of the same standard to the equivalent qualification in Australia. Others may nominally be of the same standard but be of a lower content and/or quality (Friedberg 2000). It is possible for immigrants to Australia to submit their

---

<sup>10</sup>For comparison sample averages for the all males aged 15-64 are included as appendix Table A1.

qualifications for assessment so as to determine comparability. This assessment is conducted by independent professional bodies appointed by the Federal government, and for our sample, it takes nearly 3 months on average to complete the process. In some cases this forms part of the process of substantiating visa eligibility, specifically for skill assessed visas. At the time of our sample, however, not all immigrants who entered under skill assessed visas were required to submit their qualifications for assessment. In other cases, immigrants may choose to have their qualifications assessed at a later stage. As a result, we have individuals with assessed and non-assessed qualifications across all visa categories. In our sample, Asian immigrants (48%) were slightly more likely to have had their qualifications assessed than ESB immigrants (40%) or Other NESB immigrants (37%). The proportions by visa category who have their qualifications assessed are similar across immigrant groups, with those on Independent Skilled visas having the highest proportions (approximately 65%) and those on Preferential Family visas (approximately 7%) and Humanitarian visas (6%) the lowest. In the subsequent empirical work we examine how overeducation is related to the assessment of qualifications.

We use job analysis data to determine the occupational requirements of jobs<sup>11</sup>. For each immigrant the occupation code of their jobs was recorded using the 1996 Australian Standard Classification of Occupation (ASCO) codes (ABS 1997), which is similar to the Directory of Training (DOT) in the United States. ASCO provides a detailed list of minimum required qualifications to undertake a

---

<sup>11</sup> Also known as the objective measure of overeducation. See Hartog (2000) for more details.

particular job. This information can be compared to the education qualifications of the immigrant, and if these qualifications exceed the job requirements as stated this individual is defined as being overeducated ( $O_i = 1$ ), otherwise they are not overeducated ( $O_i = 0$ ).

For any period  $t$  the underlying probability of being overeducated, ( $O_{it}^*$ ) is unobservable, instead we observe a dummy variable ( $O_{it}$ ) defined as:

$$O_{it} = 1 \text{ if } O_{it}^* > 0$$

$$O_{it} = 0 \text{ otherwise}$$

The probability of an immigrant being overeducated can be viewed as a function of personal characteristics ( $X_i$ ), visa category ( $V_i$ ) and time since arrival ( $T_{it}$ ).

$$\Pr(O_{it}^*) = \beta_0 + \beta_1 X_i + \beta_2 V_i + T_{it} + v_{it}, t = 1, 2, 3 \quad (1)$$

Where the error term consists of two components such that:

$$v_{it} = \varepsilon_{it} + \sigma_i$$

$\varepsilon_{it}$  is a standard stochastic error term and  $\sigma_i$  is a random effects variable. Equation (1) is estimated using a random effects probit. An assumption underlying the random effects model is that the individual specific component of the error term is uncorrelated with the independent variables. An alternative which overcomes this assumption is fixed effects estimation whereby a time-invariant control is included for each individual. However, in the case where the number of cross-sectional units is large but there are few time periods this leads

to problems with degrees of freedom and may lead to inconsistent estimates of parameters (Maddala 1987). Additionally, in a fixed effects approach, estimates of all time invariant covariates are subsumed in the individual specific effect. As a result the impact of visa-category on overeducation, our principal interest, would be indeterminate. To examine the sensitivity of our random effects estimates we compare these to those from pooled OLS regression in the results section.

Whilst some of the covariates used are standard (for instance English language skills and marital status), the novel nature of the LSIA allows us to include a number of less typical covariates. These are briefly discussed below, a full list and description of covariates is included as appendix Table A2.

Overeducation may be explicitly linked to visa category under which immigrants enter the country. For instance, immigrants who enter under ENS visas have generated a job match prior to entry into Australia. This should signify that the immigrants educational qualification and human capital in general is recognised or needed by Australian employers. As a result we would expect these individuals to have lower incidences of overeducation. Likewise, those on other skilled assessed visas are entering based on their skills being valued in Australia; hence they should be less susceptible to overeducation. Conversely, those entering on non-assessed visas are presumably making migration decisions and being selected for entry based largely on non-economic factors. As a result, their qualifications may be viewed less favourably by Australian employers. We include controls for whether an immigrant entered under a Humanitarian visa,

Preferential Family visa, Concessional Family visa, Independent Skilled visa, or a Business/ENS visa.

We observe the age of our immigrants, but only observe labour market experience imperfectly. For example, the only information on labour market experience provided is tenure in last job in previous country, if they had a job in the 12 months prior to immigration. We could use a standard potential labour market experience term (i.e. age minus years in schooling). However, given the diversity of schooling/education arrangements across countries this could introduce unknown bias into the estimates of experience effects. Hence, we use age (and age squared) in our empirical specifications.

Immigration is a costly process. As a result of this immigrants may enter the country with limited remaining financial resources. To capture this, we include a variable 'No Funds on Arrival'. The majority of immigrants to Australia (at the time of our sample) were unable to access social security benefits until 6 months after arrival. Hence, liquidity constraints may force immigrants to lower their reservation wage so as to shorten their job search period. Those that can find jobs may be forced to accept job matches that do not fully utilise their education and skills. Likewise, immigrants without access to a privately owned motor vehicle may be forced to accept employment on the basis of geographic proximity. Employment prospects for ethnic minorities in the UK appear to be closely related to access to transport (Battu and Sloane, 2002, 2004). Hence, we include a variable to control for immigrants without access to a privately owned motor vehicle (No Car). A control is also included for whether the individual

had visited Australia prior to immigration (Never Visited Australia), which may provide an indication of knowledge of the Australian labour market or previous contact with Australian employers.

### 3.2 Earnings

Immigrant earnings are estimated using an augmented human capital model, of the following form:

$$\ln Y_{it} = \beta_0 + \beta_1 Sr_{it} + \beta_2 Ss_{it} + \beta_3 X_i + \beta_4 T_{it} + v_{it}, t = 1, 2, 3 \quad (2)$$

Where again the error term consists of two components such that:

$$v_{it} = \varepsilon_{it} + \sigma_i$$

$\ln Y_{it}$  is the natural log of weekly wages from employment for the  $it$ th individual at period  $t$ . In the LSIA wages are reported as a categorical variable<sup>12</sup>. From this data we computed midpoint estimates of weekly wages. In unreported estimations, no significant difference was found between covariate estimates generated by pooled OLS and those generated by grouped data maximum likelihood estimation (Stewart 1983).

$Sr$  measures the return to required education whilst  $Ss$  measures the returns to surplus education. Required education is the level of education of the immigrant that equates to job requirements as indicated by ASCO. Surplus education

---

<sup>12</sup>These wage categories are 1-57, 58-96, 97-154, 155-230, 231-308, 309-385, 386-481, 482-577, 578-673, 674-769, 770-961, 962 and more. Hours worked are only available as a categorical variable. As a result, we cannot accurately compute hourly wages.

is given by the educational qualifications of the immigrant minus the required level of education for the job as defined by ASCO. On the basis of existing research we expect positive returns to both required and surplus schooling, but that  $\beta_2 < \beta_1$  (Hartog 2000). We estimate equation (2) by random effects OLS. Covariate vectors  $X_i$  and  $T_{it}$  are the same as in equation (1).

## 4 Results

### 4.1 Incidence of Overeducation

#### INSERT TABLE 2

Table 2 shows the incidence of overeducation and average weekly wages across each LSIA wave. ESB immigrants are the best matched, whilst Asian NESB immigrants have the highest rate of overeducation. Some variation in the incidence of overeducation is apparent across the waves. ESB immigrants initially experience a rise in the rate of overeducation, but this rise is more than reversed by wave 3. For both NESB groups, the rate of overeducation appears to rise over the sample period.

These overeducation rates appear very high when compared to the evidence for all male full-time workers in Australia using 1996 census data, where the rate was 7.5%. Thus recent immigrants appear to have overeducation rates of between 13% and 25% higher than the national average. However, our immigrants on average have 1.5 to 2.5 years of education more than the Australian average (12 years). If instead, we compare immigrants with graduate qualifi-

cations (degree and higher) with the similar group from the overall Australian population more comparable results are evident. The census figure for male full-time employees with graduate qualifications was 22%, whilst the figures for graduate immigrants ranged from 13% for ESB, to 25% for Other NESB and 28% for Asian NESB immigrants.

Looking at the average weekly wages in Table 2, it is clear that male ESB immigrants in full-time employment earn markedly more than their NESB counterparts. For all immigrants, average weekly wages increase over the sample period, however the increase is greater for ESB immigrants (\$108) than for NESB immigrants (\$83 - \$86). Hence, there is no evidence that NESB immigrants' weekly wages catch up to those of ESB immigrants in the early period following immigration. When compared to 1996 male full-time ordinary earnings for the Australian population (\$720), ESB immigrants in full-time employment appear to earn slightly more than the average, whilst NESB immigrants in full-time employment earn substantially less.

### **INSERT TABLE 3**

Table 3 suggests an important role for visa categories in explaining the incidence of overeducation. For all immigrants, those on Business/ENS visas have the lowest incidence of overeducation. Concessional Family visas are associated with the highest rates of overeducation for all immigrants. The incidence of overeducation for Asian NESB immigrants on Concessional Family visas is particularly large (54%).

*A priori* expectations are that those on visas not assessed for skills would



have higher rates of mismatch than those who had their skills assessed. Given that ENS visa holders are employer nominated and must pass a rigorous screening process, the finding that Business/ENS visa holders attract low rates of overeducation is not surprising. The data does not allow for a separation between Business and ENS categories but it might seem reasonable to suggest, that at least in the early phase of the settlement process, some of the overeducation in this category arises out of Business visa holders opting to take paid employment. Interestingly, Independent Skilled visa holders who have to pass skill requirement standards have substantial rates of overeducation..

## 4.2 Determinants of Overeducation

### INSERT TABLE 4

Table 4 presents the probit estimates of equation (1) for the three immigrant groups respectively. To aid interpretation the covariate estimates are reported as marginal effects. As suggested in Table 3, all of the visa categories (excepting Asians on Humanitarian visas) are associated with a significantly greater incidence of overeducation when compared to the omitted category of Business/ENS visa. However, after introducing controls for immigrant characteristics the relative differences between visa categories change. For instance, the impact on overeducation of being an Asian immigrant on an independent skill visas appears to be far lower than that suggested by the unconditional means This group may be under-represented with respect to the characteristics that increase the risk of overeducation. Conversely, Other NESB immigrants on

Humanitarian visas are at greater risk of overeducation once characteristics are controlled for.

Looking at the other covariates, although a similar proportion of NESB immigrants lack funds on arrival and access to a private car (Table 1), this appears to be a greater source of overeducation for Asian immigrants. The former may reflect the need to obtain employment faster rather than wait for employment that best matches their educational qualifications. For the latter, those without access to a private vehicle have a smaller radius in which to find employment and hence these individuals' employment market may be substantially geographically constrained (Battu and Sloane 2002, 2004).

For Asian immigrants, not being fluent in English substantially increases the likelihood of being overeducated. However, this does appear to influence overeducation for Other NESB immigrants. This language variable is self-reported, as a result relative estimates of language proficiency may vary across immigrant groups. Age effects are weakly significant, older Asian immigrants appear more prone to overeducation, whereas the reverse applies to ESB. Length of time in Australia is inversely related to overeducation for Other NESB immigrants, although this effect is quite small in magnitude (roughly a 1% decrease in overeducation incidence for every 200 days). This is in contrast to the relationship between time in Australia and overeducation suggested by Table 2.

The impact of qualification assessment on overeducation appears perverse. Specifically, NESB immigrants who have had their qualification assessed are substantially more likely to be overeducated; no such effect is observed for ESB

immigrants. To investigate this further we distinguish between those who had their qualification assessment completed before the initial interview and those who completed the their assessment at a later stage. The rationale for this distinction is that immigrants who are experiencing labour market difficulties are more likely to pursue later assessment. For example, two-thirds of NESB immigrants in our sample who did not pursue assessment stated that this was because they did not require assessment for the purposes of employment<sup>13</sup>. Equation (1) was re-estimated with separate covariates for qualification assessment prior to first interview and assessment after first interview. For Other NESB immigrants, there is no statistically significant relationship between assessment prior to the first interview and overeducation, whilst a significant relationship between post immigration assessment and overeducation is indicated. For Asians both forms of assessment have a significant positive effect on overeducation, but the estimated impact of prior qualification assessment (7%) is substantially less than that for subsequent assessment (13%).

Of course, this result may merely reflect endogeneity between overeducation and qualification assessment. In this case, individuals who have a greater incidence of overeducation are more likely to subsequently seek assessment. However, the incidence of qualification assessment does not appear to be particularly correlated with being overeducated in the previous period (correlation coefficient 0.021).

Our grouping of immigrants could be considered somewhat arbitrary. In

---

<sup>13</sup>Specifically, they answered that qualification assessment was not required due "qualification readily accepted by employer" or it was "not necessary to get the job" (DIMIA 2002).

particular, the ESB categories contains immigrants from South Africa and Zimbabwe. We re-estimated our models with South Africans and Zimbabweans omitted from the ESB category and found no material difference in the results.

Focusing solely on full-time employees may introduce bias into our estimates. To investigate this we re-estimated the models with part-time employees included. Covariate estimates were not altered, with the exception of age effects, which in some cases changed significance but not sign. In addition, the covariate 'No Car' became significant for Other NESB immigrants and marginally insignificant for Asian immigrants. Hence, this indicates that access to transport impacts on overeducation for NESB immigrants, but this effect is not highly robust in our sample.

Finally, estimation through pooled OLS produced effectively the same results for visa category effects on overeducation. There was change in significance for some of the other covariates. For instance, 'Speak English Poor' for Asian immigrants became significant at the 10 per cent level, whereas days since arrival for other NESB immigrants was not significant under pooled OLS regression.

### **4.3 Earnings**

#### **INSERT TABLE 5**

Table 5 presents the estimates of the log weekly wage equations. For all immigrants the return to required education is positive. Surplus education earns a premium above the required level but the rate of return is less than that for required education. This is consistent with the stylised facts of overeducation

(Hartog 2000, Rubb 2003, Kler 2005). Thus, an overeducated worker earns less for a given set of qualifications than someone who is appropriately qualified for their position. Returns to both required and surplus education are lower for NESB immigrants compared to ESB immigrants.

Days since arrival in Australia is positively associated with weekly wages for all immigrant groups. Interestingly, this Australian 'experience effect' appears to be larger in magnitude for NESB immigrants than ESB immigrants. Remembering that wage data in Table 3 indicated that ESB wages were growing slightly faster than NESB wages, the effects of other influences more than counter this 'experience effect'.

NESB immigrants suffer a wage penalty for not being fluent in English. This is particularly large for Asian immigrants. Having never visited Australia prior to immigration results in an earnings penalty for all immigrants, but is much stronger for NESB immigrants. Thus, some prior familiarisation with Australia may lead to better employment contacts for immigrants or superior knowledge of the local labour market. Having no funds on arrival appears to lead to lower earnings for ESB and Other NESB immigrants.

Interestingly, the standard age effects on wages are observed for ESB and Other NESB immigrants, but there is no significant relationship for Asian Immigrants. This may be indicative of a lack of recognition for prior labour market experience for this latter group.

As for overeducation results, we examine whether the exclusion of part-time workers has introduced significant bias into our estimates. We re-estimate the

wage equations with part-time workers included. The key features of overeducation effects on wages remain. The penalty for overeducation for other NESB immigrants increased slightly. In addition the level of significance of some of the other covariates changed slightly, but no variable estimate changed between significance and insignificance. Pooled OLS regression estimates for weekly wages produced materially the same results as those presented in Table 5.

## 5 Conclusion

This paper examined overeducation for groups of immigrants entering Australia in relation to the emphasis on skill-based immigration policy. The difference in overeducation rates experienced by immigrants who enter under skill based and those who enter under family based visas was not as marked as might be expected. For instance, roughly 30% of males in full-time employment who entered under Independent Skilled visas were overeducated. In comparison, male Preferential Family visa holders in full-time employment had overeducation rates of approximately 35%. Those who entered under Business/ENS visas, the latter of which are matched to a job prior to arrival had by far the lowest rates of overeducation.

Additionally, the paper examined overeducation by immigrant region of origin. The incidence of overeducation for immigrants from English Speaking Backgrounds is similar to that found in other studies for Australian Born Residents (Flatau et al, 1995). For immigrants from Non-English Speaking Backgrounds

(NESB) the incidence of overeducation is higher, especially for those from Asian countries. NESB immigrants are over represented in the visas categories that associated with higher rates of overeducation.

A stylised fact of the impact of overeducation is a reduction in the returns to education (Groot and Maassen van den Brink 2000, Rubb 2003). For all groups, we find that immigrants who are overeducated receive lower earnings than matched immigrants with the same level of education. The magnitude of the earnings penalty appears to be similar to that found in studies of non-immigrant groups (Rubb 2003). NESB immigrants suffer lower rates of return to the education level required by the job and a similar penalty to education that is surplus to the job requirement. As NESB immigrants suffer overeducation rates that are approximately 50% greater than ESB immigrants they are more likely to incur lower returns to education, this in turn contributes to their lower observed earnings.

Recent changes in immigration policy appears to have been successful in improving employment outcomes (Cobb-Clark 2003). In addition, during the period of these changes the education level of immigrants has increased. However, the relative rates of overeducation identified in this study, and the particular problems of NESB immigrants, suggest that the pursuit of skill based immigration policies may not lead to significant reductions in the incidence of immigrant overeducation.

## REFERENCES

- Australian Bureau of Statistics (1997). *Australian Standard Classification of Occupations*, 2nd Edition, Cat. No. 1220.0. Canberra: AGPS.
- Battu, H., Belfield, C. R. and Sloane, P. J. (1999). Overeducation among graduates: A cohort view. *Education Economics*, **7**, pp. 21-38.
- Battu, H., Belfield, C. R. and Sloane, P. J. (2000). How well can we measure overeducation and its effects? *National Institute Economic Review*, **171**, pp. 82-93.
- Battu, H., and Sloane, P. J. (2002). To what extent Are ethnic minorities in Britain overeducated?. *International Journal of Manpower*, **23**, pp. 192-208.
- Battu, H., and Sloane, P. J. (2004). Overeducation and ethnic minorities in Britain. *Manchester School*, **72**, pp. 535-559
- Borooah, V. and Mangan, J. (2002). An analysis of occupational outcomes for indigenous and Asian employees in Australia. *Economic Record*, **78**, pp. 31-49
- Chevalier, A. (2003). Measuring over-education. *Economica*, **70**, pp. 509-531.
- Cobb-Clark, D. A. (2000). Do Selection Criteria Make a Difference? Visa Category and the Labour Market Status of Immigrants to Australia. *Economic Record*, **76**, pp. 15-31.
- Cobb-Clark, D. A. (2001). The longitudinal survey of immigrants to Australia. *Australian Economic Review*, **34**, pp. 467-77.



- Cobb-Clark, D. A. (2003). Public policy and the labor market adjustment of new immigrants to Australia. *Journal of Population Economics*, **16**, pp. 655-681.
- Department of Immigration and Multicultural and Indigenous Affairs (1999). *Settler Arrivals, 1998-1999*. Canberra: AGPS.
- Department of Immigration and Multicultural and Indigenous Affairs (2002). Longitudinal Survey of Immigrants to Australia (LSIA) User Documentation.
- Dolton, P. J. and Makepeace, G. H. (1993). Female labour force participation and the choice of occupation: the supply of teachers. *European Economic Review*, **37**, pp. 1393-1411.
- Dolton, P. J. and Vignoles, A. (2000). The incidence and effects of overeducation in the UK graduate labour market. *Economics of Education Review*, **19**, pp. 179-98.
- Flatau, P., Petridis, R. and Wood, G. (1995). *Immigrants and Invisible Underemployment*. Canberra: AGPS.
- Frank, R. H. (1978). Why women earn less: The theory and estimation of differential overqualification. *American Economic Review*, **68**, pp. 360-72.
- Frenette, M. (2004). The overqualified Canadian graduate: the role of the academic program in the incidence, persistence, and economic returns to overqualification. *Economics of Education Review*, **23**, pp. 29-45.

- Friedberg, R. M. (2000). You can't take it with you? Immigrant assimilation and the portability of human capital. *Journal of Labour Economics*, **18**, pp. 221-251.
- Green, F., McIntosh, S. and Vignoles, A. (2002). The utilisation of education and skills: Evidence from Britain. *Manchester School*, **70**, pp. 792-811.
- Groot, W. and Maassen van den Brink, H. (2000). Overeducation in the labour market: a meta-analysis. *Economics of Education Review*, **19**, 2, pp. 149-58.
- Hartog, J. (2000). Over-education and earnings: where are we, where should we go? *Economics of Education Review*, **19**, pp. 131-47.
- Kler, P. (2005). Graduate overeducation in Australia: A comparison of the mean and objective methods. *Education Economics* (forthcoming).
- Maddala, G. (1987) Limited Dependent Variable Models Using Panel Data, *Journal of Human Resources*, **22**, pp. 307-338.
- McDonald, J. T. and Worswick, C. (1999). The earnings of immigrant men in Australia: Assimilation, cohort effects, and macroeconomic conditions. *Economic Record*, **75**, pp. 49-62.
- Miller, P. W. (1999). Immigration policy and immigrant quality: The Australian points system. *American Economic Association Papers and Proceedings*, **89**, pp. 192-197.
- Miller, P. W. and Neo, L. (1997). Immigrant unemployment: The Australian experience. *International Migration*, **35**, pp. 155-185.

- Rubb, S. (2003). Overeducation: a short or long run phenomenon for individuals? *Economics of Education Review*, **22**, pp. 389-394.
- Sicherman, N. (1991). Overeducation in the labor market. *Journal of Labor Economics*, **9**, pp. 101-122.
- Stewart, M. (1983). On least squares estimation when the dependent variable is grouped. *Review of Economic Studies*, **50**, pp. 737-53.
- Teicher, J., Shah, C. and Griffin, G. (2002). Australian immigration: the triumph of economics over prejudice?. *International Journal of Manpower*, **23**, pp. 209-236.
- Worswick, C. (1996). Immigrant families in the Canadian labour market. *Canadian Public Policy*, **22**, pp. 378-396.

Table 1: Sample Statistics, Male Full Time Employees Aged 15-64

Variables	ESB	ASIAN	OTHER
Years of Schooling	14.64	13.79	13.48
Age	34.73	32.25	31.28
Not Married	0.28	0.30	0.29
Visa -Humanitarian	.	0.09	0.16
Visa - preferential family	0.15	0.19	0.38
Visa - concessional family	0.22	0.29	0.07
Visa - Independent	0.27	0.32	0.21
Visa - Business/ENS	0.36	0.12	0.08
Never Visited Australia	0.25	0.63	0.64
No Funds on Arrival	0.06	0.29	0.33
No Car	0.09	0.32	0.32
Employed in Former Country	0.81	0.75	0.69
Speak English Fluently		0.20	0.13
Speak English Well		0.52	0.50
Speak English Poorly		0.28	0.37
Individuals	376	582	666

Table 2: Incidence of Overeducation and Weekly Wages, Male Full-Time Employees Aged 15-64

	Overeducation			Weekly Wages (\$AUD)		
	ESB	Asian	Other	ESB	Asian	Other
Wave 1	0.21	0.31	0.28	748.69	550.64	517.00
Wave 2	0.27	0.38	0.31	789.61	543.16	545.65
Wave 3	0.19	0.39	0.34	856.50	633.67	609.25
Average	0.22	0.36	0.31			

Table 3: Incidence of Overeducation by Visa Category and Qualificaton Assessment, Male Full Time Employees Aged 15-64

	ESB	Asian	Other
Humanitarian		0.247	0.346
PreferentialFamily	0.325	0.378	0.349
ConcessionalFamily	0.330	0.536	0.412
IndependantSkilled	0.309	0.327	0.296
Business/ENS	0.068	0.106	0.016

Table 4: Determinants of Overeducation, Male Full-Time Employees<sup>14</sup>

Variables	ESB	ASIAN	OTHER
Unemployment Rate	0.011 (0.095)	-0.021*** (0.012)	0.0002 (0.011)
Days since arrival	0.00005 (0.0002)	0.000002 (0.00002)	-0.00004** (0.00001)
Age	-0.030*** (0.017)	0.035*** (0.019)	0.013 (0.013)
Age <sup>2</sup>	0.0003 (0.0002)	-0.0003 (0.0002)	-0.0001 (0.0001)
Qualification Assessed	-0.006 (0.036)	0.120* (0.045)	0.140* (0.034)
Not Married	0.070 (0.044)	0.081*** (0.043)	0.061** (0.029)
Visa - Humanitarian	.	-0.005 (0.097)	0.521* (0.057)
Visa - Preferential Family	0.25* (0.078)	0.314* (0.068)	0.403* (0.046)
Visa - Concessional Family	0.321* (0.058)	0.311* (0.060)	0.528* (0.060)
Visa - Independent Skilled	0.230* (0.064)	0.123*** (0.068)	0.365* (0.079)
Never Visited Australia	-0.016 (0.040)	0.047 (0.041)	0.012 (0.029)
No Funds on Arrival	0.063 (0.084)	0.139* (0.044)	-0.012 (0.033)
No Car	-0.034 (0.051)	0.062*** (0.035)	0.034 (0.034)
Employed in Former Country	0.02 (0.043)	0.023 (0.043)	0.051*** (0.031)
Speak English Well		0.130* (0.039)	-0.024 (0.029)
Speak English Poor		0.078 (0.058)	-0.054 (0.037)
$\rho$	0.761*(0.062)	0.847*(0.036)	0.937*(0.016)
Obs.	839	1109	1231
Groups	376	582	666
Wald chi <sup>2</sup>	39.58	77.76	57.66
Prob > chi <sup>2</sup>	0.0003	0	0
Prob (chibar)	0	0	0
Log-likelihood	-338.512	-532.923	-539.882

<sup>14</sup>Estimates are marginal effects reported at the sample means.

\* 1% level of significance, \*\* 5% level of significance,\*\*\* 10% level of significance. Standard errors in parentheses..

Omitted categories are Married, Other States, Business/ENS Visa, Visited Australia Before, Have Car, Not Employed in Former Country, Had Funds on Arrival and Speak English Fluently.

Table 5: Log Weekly Wage Earnings, Male Full-Time Employees 15-64<sup>15</sup>

Variables	ESB	ASIAN	OTHER
Unemployment Rate	-0.002 (0.008)	-0.007 (0.010)	-0.003 (0.009)
Days since arrival	0.0001* (0.00001)	0.0002* (0.00002)	0.0002* (0.00001)
Required Schooling	0.114* (0.010)	0.094* (0.010)	0.097* (0.008)
Surplus Schooling	0.069* (0.010)	0.052* (0.011)	0.049* (0.009)
Age	0.063* (0.013)	-0.018 (0.015)	0.029** (0.012)
Age <sup>2</sup>	-0.001* (0.0001)	0.0002 (0.0002)	-0.0003*** (0.0001)
Qualification Assessed	-0.050** (0.025)	0.073** (0.030)	-0.010 (0.026)
Not Married	-0.031 (0.031)	-0.080* (0.035)	0.044 (0.028)
Never Visited Australia	-0.051*** (0.030)	-0.097* (0.034)	-0.110* (0.027)
No Funds on Arrival	-0.136** (0.054)	-0.050 (0.035)	-0.094* (0.029)
No Car	0.018 (0.035)	-0.041 (0.029)	-0.025 (0.027)
Employed in Former Country	-0.025 (0.033)	0.042 (0.035)	0.023 (0.028)
Speak English Well		-0.106* (0.032)	-0.059*** (0.032)
Speak English Poor		-0.168* (0.042)	-0.107* (0.039)
$\rho$	0.662	0.619	0.555
Obs.	839	1016	1231
Groups	376	582	666
Wald chi <sup>2</sup>	367.82	395.95	522.16
Prob > chi <sup>2</sup>	0	0	0
R <sup>2</sup>	0.38	0.33	0.37

<sup>15</sup>\* 1% level of significance, \*\* 5% level of significance, \*\*\* 10% level of significance. Standard errors in parentheses.

Omitted categories are Married, Other States, Visited Australia Before, Have Car, Not Employed in Former Country, Had Funds on Arrival and Speak English Fluently.



## APPENDIX

TABLE A1 - Summary Statistics, Males 15-64.

Variables	ESB	ASIAN	OTHER
Years of Schooling	14.52	13.20	13.39
Age	35.87	34.89	33.04
Not married	0.28	0.29	0.29
Visa -Humanitarian	.	0.15	0.26
Visa - preferential family	0.17	0.19	0.37
Visa - concessional family	0.22	0.26	0.15
Visa - Independent	0.25	0.24	0.16
Visa - Business/ENS	0.35	0.16	0.06
Never visited Australia	0.23	0.59	0.68
No funds on arrival	0.06	0.32	0.40
No car	0.09	0.31	0.40
Employed in former country	0.76	0.63	0.60
Speak English Fluently		0.16	0.10
Speak English Well		0.47	0.44
Speak English Poorly		0.37	0.46
Employed in Wave 1	0.72	0.37	0.30
Individuals	457	978	1253

TABLE A2 - Variable Definitions

Variables	Description
Age	Continuous variable for age of immigrant.
Years of Schooling	Number of years of study undertaken to obtain qualifications
Required Education	Level of education required to do a job as indicated by ASCO codes
Surplus Education	The additional years of education of jobholder over what is required to do his/her job
<i>Visa Category</i>	<i>Business/ENS visa is the omitted category</i>
Humanitarian	Individual entered under a humanitarian visa
Preferential Family	Individual entered under a preferential family visa
Concessional Family	Individual entered under a concessional family visa
Independent Skilled	Individual entered under an independent skilled visa
Unemployment Rate	Monthly unemployment rate for the State the immigrant was living in at time of each interview
Days since Arrival	Length of time the immigrant has been residing in Australia at time of interviews
Qualification Assessed	Individual has had their foreign obtained qualification assessed
Never Visited Australia	Individual had previously visited prior to immigrating
No Funds on Arrival	Individual arrived with funds
No Car	Individual has access to a privately owned motor vehicle
Employed in Former country	Individual was an employee in his/her former country in the last 12 months prior to immigration
Not Married	Individual was not married
<i>English Language Skills</i>	<i>Speak English Fluently is the omitted category</i>
Speak English Well	Individual claims to speak English "very well" or "well"
Speak English Poorly	Individual claims to speak English "not well" or "not at all"