

WORKING PAPER SERIES

**CENTRE FOR STRATEGIC
ECONOMIC STUDIES**

OVEREDUCATION AND OVERSKILLING IN AUSTRALIA: SECOND GENERATION GREEK-AUSTRALIANS AND ITALIAN- AUSTRALIANS

GEORGE MESSINIS

**CSES WORKING PAPER
No. 37**

Overeducation and overskilling in Australia: Second generation Greek-Australians and Italian-Australians

George Messinis*

Centre for Strategic Economic Studies
Victoria University, Melbourne, Australia

Abstract

We utilise HILDA data over the period 2001-2005 to evaluate the performance of second generation Greek-Australians and Italian-Australians in the labour market. We focus on the effect of overeducation, undereducation, languages-other-than-English (LOTE), and ethnicity on weekly earnings of full-time workers. The evidence has a follows: (a) most Greek-Australians are over-represented amongst the overeducated; (b) overeducation and overskilling can be attributed to a lack of new skills on the job, parental occupational status, non-English speaking overseas born, and unobserved characteristics of second generation females; (c) LOTE does not seem to make a contribution to earning of individual workers, and (d) the use of LOTE amongst the two second generation groups has declined; second generation women in part-time employment are an exception.

* I thank Conference participants at 7th International Conference on Greek Research Flinders University, Adelaide, 2007 for comments and Zdenko Miholic for his excellent research assistance. Any remaining errors are my responsibility.

1. Introduction

Labour market integration of new immigrants in the new country of residence has been a key measure of success of immigration policy in OECD countries (Coppel *et al.* 2001; House of Representatives 2006). Recently, the economics literature has paid more attention to the second generation of immigrants (i.e., persons who have at least one parent born in another country). The question is whether second generations overcome the earnings disadvantage associated with their parents¹ and whether their socio-economic position converges to that of third generation of immigrants (i.e., persons with both parents born in the country of settlement).

It has now emerged that the second generation often achieves higher levels of education than the first generation in North America (Borjas 1994). However, USA and Canadian evidence in Aydemir and Sweetman (2007) casts doubt about the prospects of a catch up with respect to the third generation. Furthermore, it appears that some groups of second-generation migrants may be more vulnerable to the intergenerational transmission of disadvantage. Borjas (2006), for example, is very pessimistic about the position of the second generation of Latinos in the USA while Hammarstedt and Palme (2006) show that pockets of second generation immigrants in Sweden have not been able to improve their status. Blackaby *et al.* (2005) are also pessimistic of the potential of British-born non-white ethnic minorities to escape the disadvantage faced by their parents. OECD (2007) raises similar concerns with respect to second generation immigrants in Denmark and Germany. In the latter country, women of second generation seem particularly disadvantaged.

Amongst OECD countries, Australia rates favourably as a success story in OECD (2007).² Second generation Australians have improved their socio-economic status when compared to their overseas-born parents (Khoo *et al.* 2002) but it is not clear whether the rewards to education match those of older-generation Australians.

¹ Immigrants from non-English-speaking countries earn less than native-born workers with similar observable characteristics in the USA (Friedberg 2000) and in Australia (Voon and Miller 2005).

² OECD (2007) defines the 'second generation' as those with both parents foreign-born. This is a more restrictive concept than the one applied in previous studies (e.g. Le and Miller 2002) and here where we define the 'second generation' as those persons born in Australia with *at least one* parent born overseas.

Over the last decade, the economics profession has made significant progress in the evaluation of the impact of education in the labour market. Advances in economic theory and empirical measurement have allowed economists to make a direct link between education and wages. This link is then exploited to provide an estimate of the dollar value of one extra year of education.³ Since Duncan and Hoffman (1981), however, economists have paid attention to two important facts. First, different jobs or occupations require different levels of education. Second, there is the phenomenon of job-skill mismatch whereby some people hold fewer qualifications than what is required for a particular job while others may have acquired skills and knowledge that are in excess of what is necessary for the job. The former is known as 'undereducation' and the latter as 'overeducation' or 'overqualification'. First generation migrants tend to be over-represented amongst the overeducated in Australia and Denmark (OECD 2007; Green *et al.* 2007; Messinis and Olekalns 2007; Nielsen 2007). In terms of earnings, the international evidence overwhelmingly shows that overqualified workers receive markedly lower returns (i.e., wages per year of education) for additional years of education than workers who have attained the same level of education but work in a job that requires that extra education. Conversely, the undereducated are found to earn substantially higher yearly returns than workers with the same but just-the-right qualifications for the job.⁴ Thus, this new literature suggests that more education *per se* does not guarantee a better job or better pay. In fact, a person who has completed secondary education may be better paid than someone with tertiary education if the former is undereducated and the latter is overeducated.

Previous studies have also highlighted the role of language as an important determinant of labour market performance. The main emphasis here has been on 'language capital' in the country of destination; i.e., official language proficiency is seen to be useful for employment and the application of general and technical knowledge (OECD 2007; Borjas 1994). The importance of language in Borjas (1994) has been confirmed by Berman *et al.* (2000) and Chriswick and Miller (2007). This result also stands in non-English-speaking countries such as France (Meng and Meurs 2006) or Israel (Berman *et al.* 2000). Voon and Miller (2005) also find an

³ Noter, however, standard estimates of returns to education using labour earnings is likely to underestimate the benefits of education. A more comprehensive assessment of the value of education would also include non-monetary benefits such as mental health and enjoyment (Ehrenberg and Smith 2006).

⁴ For more details, see Miller (2007), and Messinis and Olekalns (2007).

earnings gap between native-born Australians and overseas-born immigrants from non-English-speaking background (NESOB).

However, when proficiency in the national language of the new place of residence is combined with a second language, second-generation immigrants may be able to outperform their native co-workers. This may be due to a foreign language effect that enables people to: (a) exploit trade advantages (Melitz 2002); (b) access new ideas that are important for business innovation or technological catch-up (Javorcik *et al.* 2006; Niebuhr 2006; Mokyr 1999); (c) access tacit knowledge or 'social capital' (Giorgas 2000); or (d) build complementary skills and human capital (Galasi 2003; Chriswick and Miller 2002).

However, a less optimistic view of the role of 'ethnic capital' emerges in the literature of 'ethnic enclaves'⁵. Here, research points to employment and poverty traps that await new migrants who rely on 'ethnic employment' due to low language skills or a 'taste for isolation' or even 'oppositional identities' (Shippler 2005; Blackaby *et al.* 2005; Borjas 1999). Warman (2007) and Hayfron (2002) argue and show that women suffer most from ethnic enclaves. Australian evidence by Cobb-Clark and Connolly (2001) also indicates that immigrant women may work in jobs with a few promotion or training prospects. They attribute this to what they call 'family-investment' model of decision making. According to this model, immigrant wives sacrifice their educational development in order to support their husbands' investment in education and skills. An alternative interpretation of the disadvantage facing immigrant women relies on cultural factors or ideology that restricts women in housework and discourages labour market participation and skill development.⁶

This paper utilises the empirical methodology proposed by Hartog (2000) and applied by Voon and Miller (2005) in Australia. This allows us to estimate the dollar value of education for men and women as well as that of second generation Greek-Australians, Italian-Australians and Indigenous Australians. Further, we examine whether the use of another language other than English (LOTE) impacts on earnings of Australian workers. The paper is organised as follows. Section two outlines the empirical methodology adopted in this study. Section three presents the empirical results. Finally, section four concludes.

⁵ See Warman (2007) for a review.

⁶ Examples are Folbre and Nelson (2000), Callan and Gallois (1982) and McDonald (2000).

2. Methodology

In our methodology, we follow Voon and Miller (2005). They partition actual years of education, S_A , into required years of education, S_R (i.e., the average of years of actual education by occupation), years of overeducation, S_O , being equal to $(S_A - S_R)$ if $S_A > S_R$ and zero otherwise, and years of undereducation, S_U , being equal to $(S_R - S_A)$ if $S_A < S_R$ and zero otherwise. In particular, Voon and Miller (2005) estimate the following model:

$$\ln W_i = \alpha S_{R,i} + \beta S_{U,i} + \gamma S_{O,i} + \sum_{j=1}^n \theta_j E_i^j + X_i \phi + \eta_i \quad (1)$$

where $\ln W_i$ is the log of average weekly earnings for worker i , $S_{R,i}$, $S_{O,i}$, $S_{U,i}$ stand for required education, overeducation and undereducation respectively, the fourth term is a polynomial of experience, E_i , n is usually set equal to two, X_i is a vector of other explanatory variables, α , β , γ , θ , ϕ are parameters and η_i is a random error term.

Australian and international evidence shows that $\alpha > 0$, $\beta < 0$, $\gamma > 0$, $-\beta < \alpha$ and $\gamma < \alpha$. In other words, a worker with the same level of education as the average worker in same occupation should received a positive return per year of education (i.e., $\alpha > 0$). An undereducated worker with one year less education than what is required for the job is likely to receive a higher return than a worker in the same who has exactly the right level of education. Thus, the undereducated escape from α less income per year of education deficit (i.e., $\beta < 0$ and the absolute value of β is lower than α). Hence, we say that the undereducated receive a wage *premium* when compared to those workers who have the same level of education but they work in a job that requires exactly that level of education (i.e., the wage premium would be equal to the difference between α and the absolute value of β). This premium has been attributed to work-related skills that undereducated workers have and which compensate for the lack of formal education.

In contrast, the worker who has undertaken sixteen years of education and works in a job that typically requires qualifications that can be obtained with fifteen years of education is considered to be overeducated. This worker will receive a return of α for her fifteen years of education and only a return equal to γ for her sixteenth year which is much lower than α . Thus, the more one studies in excess of what is required at the job the higher the wage penalty. Put differently, the more overeducated one is the

lower the return received for extra education. Research, so far, has struggled to explain this phenomenon and has suggested a number of causes: (a) employers are slow to introduce new technology that can match the overqualified persons' superior skills; (b) overeducated workers may lack skills or experience that are important at the workplace, and (c) they may choose to work in jobs that do not demand high skills or effort due to family reasons or lifestyle.⁷

We adopt the Voon and Miller (2005) approach of restricting analysis to full-time workers. We follow Voon and Miller (2005) to consider the natural log of weekly earnings in the main job as the explained variable and to include the following explanatory variables: S_R , S_U , S_O , experience, E , and experience squared, E^2 , and three indicator variables that take the value of one when a certain condition is met and equal zero if otherwise. The first indicator takes the value of one if the person is married or in a de facto relationship, MAR , the second takes the value of one if the person worked in the public sector, GOV , and the third takes the value of one if the person was born overseas in a non-English-speaking country, $NESOB$ ⁸.

In addition to the above, we consider the following extra explanatory variables as part of the X_i vector in (1). These are: (a) a variable that takes the value of one if the person has identified herself as being an Indigenous Australian (we call this person 'indigenous-Australian' $INDIG$); (b) an indicator variable that takes the value of one if the person speaks a language other than English (we call this variable $LOTE$)⁹; (c) a variable that takes the value of one if the person is born in Australia and at least one of her parents was born in Italy (we call this person 'second-generation Italian-Australians, $2G_IA$)¹⁰, and (d) an indicator variable that takes the value of one if the person is born in Australia and at least one of her parents was born in Greece or Cyprus (we call this person 'second-generation Greek-Australians, $2G_GA$)¹¹.

Next, we summarise our data. We employ the new Household, Income and Labour Dynamics in Australia (HILDA) survey which is a household-based panel conducted since 2001. We use Release 5.1 that combines waves 1-5 (i.e., first 5 years). HILDA

⁷ For more detail, see Messinis and Olekalns (2007) and Cobb-Clark and Connolly (2001).

⁸ Voon and Miller (2005) also consider English-speaking overseas born. In earlier estimations, we included this variable but it proved to be statistically insignificant.

⁹ Note that indicator or 'dummy' variables take the value of zero if the condition specified does not apply.

¹⁰ The $2G_IA$ group excludes those with at least one parent born in Greece or Greek-Cyprus.

¹¹ Persons of Turkish-Cypriot descent were excluded by using extra information on religion.

is an exhaustive source of information of around twelve thousand individuals per year. Each year, the survey introduces new persons and households while some previous participants cease to participate due to a variety of ‘attrition’ factors. It is an Australia-wide survey with a large longitudinal component (i.e., it follows the same persons every year). Overall, the vast majority of participants remain in the survey for some time. For example, 70.2% of respondents in wave 1 also took part in wave 5. Although analysis may fail to capture national trends overtime, we limit our analysis to the balanced panel (i.e., those individuals that are present in all five waves) in order to focus on the labour market dynamics of fixed individuals with respect to ethnicity and linguistic diversity. HILDA provides rich information that makes it possible to analyse individual performance in the labour market.

3. Results

Table 1 summarises the profile of four groups: (1) second-generation Australians of Greek background, 2G_GA; (2) second-generation Italian Australians, 2G_IA; (3) persons born in Australia with both parents born in Australia (i.e., ‘third’ generation Australians), 3G, and (4) indigenous people, INDIG. We focus on several labour market indicators. We find that Greek-Australian women have experienced a very high rate of unemployment of 11.6%. Indigenous Australians are over-represented amongst the unemployed and experience relatively low labour market participation rates. HILDA also makes it possible to assess the profile of other members of the same household.

Table 1 also presents a summary of spouse’s working hours. It shows that 2G_GA and 2G_IA women have spouses with substantial working loads. On the other hand, indigenous workers live in households where second income is little. More interesting, however, is the fact that 35.4% of Greek-Australian women spend more than 20 weekly hours on housework while only 29.8% of the third-generation women do that¹².

The last two findings combined are intuitive but the cause of these is not clear; it could be that Greek-Australian women choose to stay home and take care of family matters and, as a result, they spent more time on household chores, or it could also

¹² All statistics are weighted using the re-scaled ‘cross-section weights (enumerated person sample weight)’; this is “xHHWTES” in HILDA where x=a, b,...,e and a, b,...,e are waves 1,2, ...,5 respectively.

mean that they are spend a lot of time on housework and as a consequence they cannot be as active in the labour market. Table 1 also reveals that Greek-Australian men have the highest rate of participation in paid employment, their spouses have relatively fewer hours in paid employment, and they contribute very little to household chores, though Italian-Australians males do even less housework. Note also that twice as many third generation and indigenous Australian males contribute to housework than second generation Greek and Italian males.

Table 1. Second and older generations of Australians: HILDA, 2001-2005

	(1) 2G Greek-Australians (2G_GA)		(2) 2G Italian-Australians (2G_IA)	
	Women	Men	Women	Men
Unemployment (%)	11.6	3.9	3.0	3.5
Work Participation (%)	58.8	89.4	71.7	80.7
Part-time Work (%)	22.3	5.4	36.8	5.4
Working Hours: Own	31.6	43.0	28.0	45.8
Working Hours: Spouse	18.1	5.8	21.2	11.4
20+hrs Housework (%)	35.4	1.6	25.8	0.8
Weekly Wage (\$)	725	802	547	964
No. of Observations	159	155	370	477
<hr/>				
	(3) Older-Generations (3G)		(4) Indigenous Australians (INDIG)	
	Women	Men	Women	Men
Unemployment (%)	3.9	3.9	5.9	5.8
Work Participation (%)	59.8	74.3	27.9	30.5
Part-time Work (%)	23.6	9.1	9.6	3.6
Working Hours: Own	31.1	43.0	32.3	41.7
Working Hours: Spouse	15.6	10.3	6.3	4.3
20+hrs Housework (%)	29.8	3.9	29.2	4.2
Weekly Wage (\$)	582	940	666	992
No. of Observations	14481	12664	5896	6241

Note: Percentages may not sum up to 100 due to rounding. Required education is the *weighted* mean of actual education by occupational class using the HILDA cross-section weights. Except observations, all estimates are weighted averages of the whole period. Only currently employed persons are included in the wages and working-hours estimates. Hours and wage rates are weekly rates.

Source: HILDA Waves 1-5, Melbourne Institute, Unit Record File.

Table 2 concentrates more on education and social characteristics by labour market status. Here, Greek-Australian women have higher levels of educational attainment than Italian-Australians or third generation Australians, consistent with the evidence

in Khoo *et al.* (2002).¹³ However, this becomes problematic when combined with the high incidence of overeducation amongst Greek-Australians. In particular, 35.9% of employed women in this group are overeducated while only 13% of 3G females and 15.8% of Italian Australian women are overeducated. More surprising, Greek-Australian women who are not in employment are also overeducated. Moreover, Greek-Australian employed males with standard levels of actual education are over-represented in the overeducated; 20.4% are mismatched. None of these three findings apply to second generation Italian Australians. Employed Greek-Australian female workers, on the other hand, are under-represented amongst the undereducated.

In the literature of overeducation, there is some debate as to whether the above are accurate measures of overeducation and job-skill mismatch. An alternative measure proposed by Mavromaras *et al.* (2007) emphasises the gap between skills acquired by the worker and skills required on the job. HILDA provides data on the degree of use of acquired skills at work that the above study has used to study the incidence of overskilling. They derive the HILDA measure of overskilling from self-recorded responses scored on a seven point scale to the statement “I use many of my skills and abilities in my current job”. A response of 1 translates into “strongly disagree” and 7 to “strongly agree”. We follow their approach to focus on those workers who select 1, 2 or 3 whom they classify as “severely over-skilled”. The above authors argue that this variable represents a more direct measure of mismatch. However, like the measure of “overeducation”, their measure of mismatch is also imperfect since it relies on subjective self-assessments of “skills and abilities” and assumes that that assessment is comparable across occupations and individuals.

In this study, we adopt a hybrid approach and define “overskilling” as an indicator variable that takes the value of one if workers are “severely over-skilled”, as defined by Mavromaras *et al* (2007) or they are “severely overeducated” (i.e., one and a half standard deviations above the mean level of educational attainment within their occupational group). The estimated incidences of our measure of overskilling are summarised in Table 2, row 4. According to this hybrid measure, 17.8% and 16.5% of third generation males are over-skilled. Second generation Greek Australians in employment are again over-represented amongst the over-skilled. However, now

¹³ ‘Greek-Australians’ or ‘Italian-Australians’ refer hereafter to second-generation immigrants.

even employed second generation Italian Australian women and indigenous workers are severely over-skilled.

Table 2. Education, LOTE and generations of Australians: HILDA, 2001-2005

	(1) 2G Greek-Australians (2G_GA)				(2) 2G Italian-Australians (2G_IA)			
	Employed		Not in employed		Employed		Not in employed	
	Women	Men	Women	Men	Women	Men	Women	Men
Education (years)	15.1	13.0	11.9	11.1	12.7	12.8	11.5	10.5
Undereducated (%)	0.9	12.5	19.4	0.0	17.8	17.6	21.2	35.6
Overeducated (%)	35.9	20.4	27.3	0.0	15.8	9.8	15.5	5.8
Overskilled (%)	29.9	25.9	18.4	0.0	22.0	14.0	11.3	0.0
LOTE Incidence (%)	53.6	59.9	46.1	61.7	25.2	27.5	31.1	25.1
Change in LOTE (%)	19.5	-9.0	-19.5	-13.4	-1.7	-3.4	-12.0	-3.8
Smoking Rate (%)	9.9	16.2	21.5	67.3	9.1	20.4	7.4	24.2
Social Participation (%)	31.6	30.9	21.2	15.7	29.5	32.7	37.7	25.4
No. of Observations	83	133	76	22	257	371	113	106

	(3) Older-Generations (3G)				(4) Indigenous Australians (INDIG)			
	Employed		Not in employed		Employed		Not in employed	
	Women	Men	Women	Men	Women	Men	Women	Men
Education (years)	12.8	12.9	10.8	11.1	13.5	13.5	11.6	11.9
Undereducated (%)	21.1	13.4	31.8	31.4	13.8	12.4	10.5	6.5
Overeducated (%)	13.0	13.1	11.9	13.0	19.5	22.6	5.3	5.1
Overskilled (%)	17.8	16.5	7.1	7.7	23.6	20.2	3.5	2.8
LOTE Incidence (%)	0.4	0.8	0.5	0.6	2.6	5.1	1.5	0.7
Change in LOTE (%)	-0.1	0.3	0.1	0.2	-0.4	1.5	0.3	-0.1
Smoking Rate (%)	17.0	19.6	14.0	17.7	13.1	17.2	5.3	4.3
Social Participation (%)	39.4	45.5	43.2	49.0	31.9	33.1	31.3	34.0
No. of Observations	8325	9046	6156	3618	1547	1794	4350	4447

Note: Percentages may not sum up to 100 due to rounding. Required education is the *weighted* mean of actual education by occupational class using the HILDA cross-section weights. Except observations, all estimates are weighted averages of the whole period. Undereducation and overeducation are defined as those whose actual years of education are lower and greater than the required level by one standard deviation respectively. The overskilled consist of workers who have either a level of education that exceeds the required by 1.5 standard deviations or have reported one of the three strongest levels of disagreement to the HILDA question: "My job often requires me to learn new skills".

Source: HILDA Waves 1-5, Melbourne Institute, Unit Record File.

Table 2 includes a summary on the incidence of LOTE. About half of the sample of persons of Greek background report using LOTE at home, particularly Greek-Australian men. The corresponding figure for 2G Italian Australians is about half of

that observed amongst 2G Greek-Australians. When, however, we look at changes in LOTE use from 2001 to 2005, we find that the proportion of employed Greek-Australians using LOTE declined by 9%, 19.5% and 13.4% for employed men, women not in employment and men not in employment respectively. Employed women stand out with an improvement of almost 10% increase. Although much lower, there are also substantial rates of language loss observed amongst Italian-Australians.

We proceed with two selective indicators of health status and social life. First is the rate of tobacco consumption. This indicator suggests that Greek-Australians who are not in employment are the heaviest users of tobacco. In this group, the fact that 61.7% of men are smokers is quite alarming. We also consider an indicator of 'social participation', defined as the share of persons who are active members of 'sporting/hobby/community based association'. The results show that Greek-Australians and Italian-Australians report similar levels of 'social isolation' and the two groups of immigrants contrast sharply with the third generation of Australians with respect to 'social participation'. Both groups exhibit much lower rates of active involvement in social clubs of community organisations. Indigenous people exhibit similar rates of social isolation.

Table 3 sharpens the focus on working individuals classified by gender and employment status. The results here clarify those in Table 2 in several ways. First, the high incidence of overeducation amongst 2G Greek Australians is now more closely associated with women in full-time employment and part-time workers, especially males. Second, the problem of overskilling generally relates to part-time workers but it is still prevalent amongst full-time Greek Australian and Italian Australian women. Third, Table 3 makes it unambiguous that the decline in LOTE is especially more serious amongst full-time Greek Australians while a surge in LOTE is observed amongst part-time Greek Australian females; a similar pattern is discernible amongst part-time Italian Australians. Fourth, full-time Greek Australians are still the ones with a heavy working load both at home and at work while it is Greek Australian males in part-time employment that share the least in household chores.

The above results suggest that Greek-Australian women are affected most by the wage penalty associated with overeducation. However, Italian Australian females in full-time employment also have experienced a wage penalty. The results on overeducation and overskilling are important in the sense that they grind against the

view that education is always desirable or advantageous. Perhaps, parental aspirations for high education achievements may have been a motivating factor behind this strong emphasis on formal education by the second generation of Greek-Australians (Holeva 2004).

Table 3. Second and older generation working Australians: HILDA, 2001-2005

	(1) 2G Greek-Australians (2G_GA)				(2) 2G Italian-Australians (2G_IA)			
	Full-time		Part-time		Full-time		Part-time	
	Women	Men	Women	Men	Women	Men	Women	Men
Hourly Wage (\$)	25.2	20.9	15.9	19.4	20.4	25.0	19.7	24.5
Education (years)	13.5	12.6	14.0	15.0	12.4	12.3	12.2	12.0
Undereducated (%)	12.0	11.3	2.2	0.0	17.6	20.8	20.9	36.7
Overeducated (%)	32.9	14.7	28.0	66.0	17.7	8.8	12.2	4.0
Overskilled (%)	23.4	18.6	28.0	87.9	19.3	10.8	17.7	12.5
LOTE Incidence (%)	47.3	62.4	59.4	21.9	30.9	27.1	20.2	25.4
Change in LOTE (%)	-10.3	-10.1	39.3	0.0	-12.2	-3.1	7.9	-10.3
Working Hours: Own	41.5	44.7	18.3	17.5	39.9	48.1	17.4	16.0
Working Hours: Spouse	10.4	6.1	37.0	0.0	19.3	11.3	23.5	13.5
20+hrs Housework (%)	33.5	1.7	42.2	0.0	25.6	0.9	26.1	0.0
No. of Observations	123	146	35	8	234	451	136	26
	(3) Older-Generations (3G)				(4) Indigenous Australians (INDIG)			
	Full-time		Part-time		Full-time		Part-time	
	Women	Men	Women	Men	Women	Men	Women	Men
Hourly Wage (\$)	19.4	25.7	23.2	27.5	21.3	27.0	22.9	24.8
Education (years)	11.9	12.4	12.3	12.0	12.0	12.3	12.9	13.4
Undereducated (%)	26.2	18.8	23.9	15.5	11.0	8.0	14.3	12.4
Overeducated (%)	13.0	13.2	10.8	11.5	8.1	9.5	17.3	27.3
Overskilled (%)	10.1	12.7	23.5	26.3	6.7	7.2	28.3	25.1
LOTE Incidence (%)	0.4	0.7	0.4	0.9	1.7	1.9	2.4	4.7
Change in LOTE (%)	-0.04	0.25	-0.04	0.06	0.10	0.32	-0.19	0.18
Working Hours: Own	41.6	47.2	15.9	14.6	41.1	45.4	17.0	15.5
Working Hours: Spouse	12.0	10.8	25.6	5.6	4.5	4.2	22.3	6.5
20+hrs Housework (%)	29.3	4.0	31.3	2.8	29.4	4.2	28.2	3.9
No. of Observations	11065	11511	3416	1153	5330	6019	567	222

Note: Percentages may not sum up to 100 due to rounding. Required education is the *weighted* mean of actual education by occupational class using the HILDA cross-section weights. Estimates are weighted averages of the whole period, except observations. The change in LOTE is calculated between the years 2005 and 2001. Undereducation, overeducation and overskilling are defined in the note to Table 2 above.
Source: HILDA Waves 1-5, Melbourne Institute, Unit Record File.

We proceed with the estimation of the econometric model of Voon and Miller (2005). We take the log of weekly labour earnings to be our explained variable to examine the effect of undereducation, overeducation, experience (i.e., years of employment in the current job), gender, first-generation NESOB, second-generation Greek-Australians and Italian-Australians, Indigenous identity and the use of LOTE on labour income for males and females in full-time employment.

In order to estimate model (1), we employ panel data estimation techniques that control for random effects. The estimation results appear in Table 4. We find that those workers that are correctly matched to their jobs (i.e., those with just-the-right level of education, that is that required for the job – we call it ‘required education’) earn 9.4% (men) and 10.2% (women) per year of education. Also as in previous studies, we find that one year of undereducation only attracts a 5.7% and 4.1% decline in wages respectively. That is, undereducated men and women earn a premium of 3.7% ($=9.4\% - 5.7\%$) and 6.1% ($=10.2\% - 4.1\%$) for that extra year of education deficit. In contrast, the overeducated earn only 6.5% (men) and 6.4% (women) for an extra year of education; this is the wage penalty explained earlier.

Work experience adds 2.6% (men) and 2% (women) to earning. Married workers also earn about 11% (men) and 3.2% (women) more than other full-time workers. Also, working in the public sector yields 6.6% more earnings for women. Further, indigenous men and women in full-time employment earn a premium of 5.6% and 3.7% respectively. This seems surprising and further work is required to examine whether the low rates of labour market participation bias these results due to a selection problem.

Also surprising is the absence of any wage premium for LOTE in full-time employment, although this is consistent with the decline in the LOTE incidence observed in Table 3. This result could be due to the increasing role of the English language as the international ‘lingua franca’ and language of commerce where English-speaking nations assess the learning of foreign languages to be of little benefit if non-English-speaking nations converge to English (The Nuffield Languages Inquiry 2000). It may also be the result of a shift in perceptions of value in learning a LOTE. This seems consistent with Papademetre and Routoulas (2001) who find that Greek-Australians have been re-assessing the value of Greek language and finding it to be not advantageous. Further, it could also relate to a shift in LOTE preferences by

Australians towards Asian languages as the Australian economy is re-aligning itself closer to Asian economies, a view that is in line with the moderate increase of LOTE observed among the third generation of Australians (Table 2).

Table 4. Returns to Education, LOTE and Second-Generation Migrants: Full-time Workers, HILDA 2001-2005

	Men	Women
Constant	5.095 (0.056)**	4.852 (0.054)**
Required Education (S_R)	0.094 (0.004)**	0.102 (0.004)**
Undereducation (S_U)	-0.057 (0.005)**	-0.041 (0.005)**
Overeducation (S_O)	0.065 (0.005)**	0.064 (0.005)**
Experience (E)	0.026 (0.002)**	0.020 (0.002)**
EXP squared/100 (E^2)	-0.044 (0.005)**	-0.033 (0.007)**
Married (MAR)	0.111 (0.012)**	0.032 (0.011)**
Public Sector (GOV)	0.003 (0.013)	0.066 (0.012)**
Indigenous (INDIG)	0.056 (0.010)**	0.037 (0.014)**
NES Overseas Born	-0.108 (0.034)**	-0.013 (0.030)
Language other than English (LOTE)	-0.027 (0.029)	-0.012 (0.028)
2G Italian-Aus (2G_IA)	0.053 (0.061)	0.094 (0.057)
2G Greek-Aus (2G_GA)	0.009 (0.079)	-0.066 (0.099)
Observations	12156	6667
R ² Overall	0.23	0.33
Wald (χ^2)	1055 [0.000]	1204 [0.000]

Note: * and ** indicate statistical significance at 10% and 5% levels respectively. Standard-errors in parentheses and p-values (level of significance) in square brackets. The married group includes de facto relationships while LOTE includes indigenous languages. The explained variable is the natural log of weekly earnings in the main job. Both couples in a marriage or in a de facto relationship are included in the “married” group.

Source: HILDA Waves 1-5, Melbourne Institute, Unit Record File.

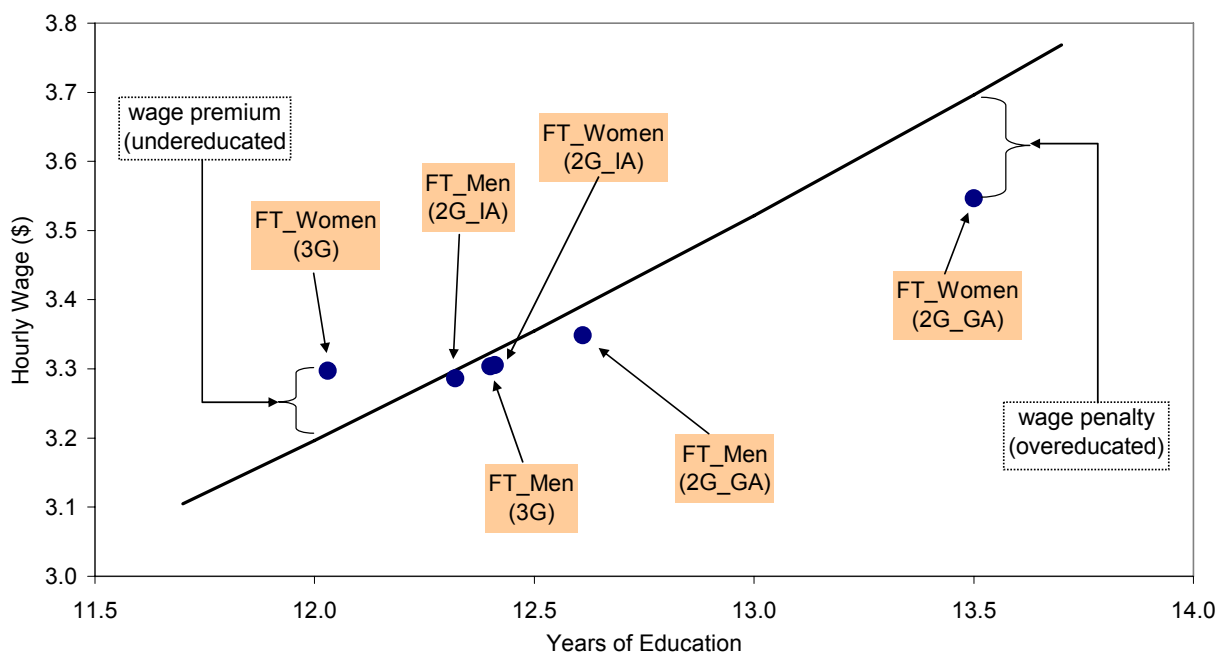
Also, we acknowledge that the absence for LOTE effect in full-time employment does not necessarily imply that workers do not benefit from linguistic diversity. We note here the possibility of spillover effects. As explained by Breton (1998) and Chorney (1998), the benefits of bilingual education are often conferred to other persons who do not invest in languages. This is consistent with new evidence by Peri (2007).

Following Miller (2007), Figure 1 illustrates the wage effect of undereducation and overeducation for Greek-Australians, Italian-Australians, and the third generation of Australians, on the basis of the average educational profile of these groups. The chart summarises the hourly wage effect of undereducation and overeducation by using the coefficient estimates in Table 4.

Clearly, Figure 1 shows that Greek-Australian men and part-time Greek-Australian women (PT_Women_2GGA) are on the overeducation zone (i.e., below the bold line

which indicates the return to ‘required education’; that is the return for those who are neither undereducated, nor overeducated). As a result, we observe that, full-time Greek-Australian workers and, especially women, FT_Women (2G_GA), earn much less than others with the same level of education, even though they have invested much more on formal qualifications. Italian-Australian full-time workers, on the other hand, seem to have avoided the overeducation trap.

Figure 1: Under- and Overeducation:
2nd and 3rd generation Immigrants in Australia



Label	Definitions	
FT:	Full-time workers	2G_IA: 2nd Generation Italian-Australians
2G_GA:	2nd Generation Greek-Australians	3G: 3rd Generation Australians

Finally, we seek to explore some of the possible determinants of overeducation and overskilling. Again, we apply panel data estimation but now we simply employ a Probit model with random effects. We have undertaken an exhaustive search using many variables and focused on (a) housework hours; (b) child care and the number of children below 14 years old; (c) interactions of marriage and housework or child care; (d) spouse salary and working hours, and (e) history of unemployment or being outside the labour force in the past. None of these variables appeared to be statistically significant predictors of overeducation or overskilling.

However, we identified six key variables that significantly impact on the probability of being observed to be over-educated or over-skilled. These are the following: (1) an indicator variable taking the value of one if the worker reports her job to provide very

limited opportunities for new skills (denoted as “NO New Skills in Job”)¹⁴; (2) one’s father’s ANU4 occupational status scale (xFMFOCCS); (3) mother’s occupational status scale (xFMMOCCS); (4) non-English-speaking overseas born status, NESOB; (5) 2G Italian-Australian status, and (6) 2G Greek-Australian status. The estimation results appear in Table 5. In the first panel, we examine overeducation. Here, parental occupation is a very important predictor of overeducation; the higher one’s parent is on the ANU4 occupational status scale, the greater the chances that the person will be an overeducated full-time worker. Note that father’s occupational status is much more important for males while both parents’ occupational status is important for females. Further, being a NESOB worker increases the probability of being overeducated. Confirming our suspicion above, second-generation females of Greek background are also more likely to be overeducated.

**Table 5. Overeducation and Overskilling: Full-time Workers, HILDA 2001-05:
Panel Probit Estimation**

	(1) Overeducation (DS _O)		(2) Overskilling (DOS)	
	Men	Women	Men	Women
Constant	-8.093 (0.232)**	-6.641 (0.288)**	-2.801 (0.137)**	-2.948 (0.192)**
NO New Skills in Job	0.042 (0.125)	-0.036 (0.149)	1.179 (0.069)**	1.215 (0.099)**
Father’s Occupation	0.034 (0.004)**	0.020 (0.004)**	0.007 (0.002)**	0.007 (0.003)**
Mother’s Occupation	0.016 (0.004)**	0.022 (0.005)**	0.006 (0.002)**	0.004 (0.003)
Birthplace: NESOB	1.990 (0.296)**	1.298 (0.408)**	0.463 (0.183)**	0.804 (0.228)**
2G Italian-Aus	0.101 (0.530)	0.464 (0.872)	0.151 (0.312)	1.353 (0.477)**
2G Greek-Aus	1.063 (0.931)	5.960 (1.231)**	0.803 (0.137)*	1.719 (0.719)**
Observations	9086	4963	9086	4963
Rho (ρ)	0.969 (0.002)	0.956 (0.003)	0.743 (0.016)	0.751 (0.021)
LR of h ₀ : p=0	3787 [0.000]	1900 [0.000]	1620 [0.000]	789 [0.000]

Note: * and ** indicate statistical significance at 10% and 5% levels respectively. Standard-errors in parentheses and p-values (level of significance) in square brackets. The explained variables in (1) and (2) are indicator variables. In (1), DS_O takes the value of one if S_A>S_R by one standard deviation and zero if otherwise. In (2), DOS is equal to one if S_A>S_R by 1.5 standard deviations or if the worker recorded one of the three strongest levels of disagreement to the HILDA question: “My job often requires me to learn new skills”.

Source: HILDA Waves 1-5, Melbourne Institute, Unit Record File.

Panel (2) of Table 5 models the probability of being overskilled. Here, the lack of provision for new skills on the job is a significant predictor of that probability. The

¹⁴ This is variable “xJOMNS” in HILDA that records responses to the statement “My job often requires me to learn new skills”. Responses are scored on a seven point scale ranging from 1 being “strongly disagree” and 7 being “strongly agree”. For consistency with our measure of overskilling, we define “NO New Skills in Job” as equal to one if workers select 1, 2 or 3 and zero if otherwise.

more a worker assesses her current employer to be a poor provider of new skills, the higher the probability is that the worker will be overskilled. The rest of the results again confirm those in panel (1) of Table 5. The only difference is that second generation Italian Australian full-time women are also susceptible to overskilling.

4. Conclusion

This paper utilised HILDA longitudinal data to revisit the debate on overeducation, overskilling and labour market performance by two groups of second-generation Australians. Furthermore, it has sought to examine the value of languages other than English (LOTE). The question of immigrant settlement and the role linguistic diversity plays in the labour market are of strategic importance in public policy for Australia and developed OECD economies confronted with major waves of immigration. Previous research has praised the Australian experience as a highly successful experiment and noted that many of the disadvantages faced by first generation of immigrants of diverse linguistic and cultural background have been overcome by the second generation. The evidence of strong education performance by second-generation immigrants suggests success in Australia's immigration policy. International research, however, cautions on the likely failures of immigration policy.

This paper more closely examines the incidence of overeducation and overskilling amongst second generation Greek-Australian and Italian-Australian full-time workers. It uses an established framework of analysis that identifies the role and wage effects of mismatch between skills acquired and skills required on the job. It further extends the literature to uncover some of the underlying factors giving rise to overeducation and overskilling.

The empirical evidence here suggests that second generation full-time Australian workers of Greek-Australian background are overrepresented amongst the overeducated and the overskilled. The econometric evidence has identified women of both Greek and Italian background to be susceptible to overeducation or overskilling. The use of a language other than English, on the other hand, does not yield any monetary benefits to individuals. Finally, the incidence of overeducation and overskilling is highly associated with parental occupation status and the lack of provision for new skills on the job.

References

- Aydemir, A. and Sweetman, A. (2007), 'First and Second Generation Immigrant Educational Attainment and Labor Market Outcomes: A Comparison of the United States and Canada', IZA Discussion Paper 2298.
- Berman, E. Lang, K. and Siniver, E. (2000), 'Language-Skill Complementarity: Returns to Immigrant Language Acquisition', National Bureau of Economic Research, NBER Working Paper 7737.
- Blackaby, D.H., Leslie, D.G., Murphy, P.D. and O'Leary, N.C. (2005), 'Born in Britain: How Are Native Ethnic Minorities Faring in the British Labour Market?', *Economics Letters*, 88, 370-75.
- Borjas, G.I. (2006), 'Making it in America: Social Mobility in the Immigration Population', NBER Working Paper 12088.
- Borjas, G.I. (1999), *Heaven's Door: Immigration Policy and the American Economy*, Princeton: Princeton University Press.
- Borjas, G. (1994), 'The Economics of Immigration', *Journal of Economic Literature*, 32 (4), 1667-1717.
- Breton, A. (1998) 'An Economic Analysis of Language', In A. Breton (ed) *Economic Approaches to Language and Bilingualism*, Department of Canadian Heritage.
- Callan, V.J. and Gallois, C. (1982), 'Language Attitudes of Italo-Australian and Greek-Australian Bilinguals', *International Journal of Psychology*, 17, 345-58.
- Chorney, H.(1998) 'Bilingualism in Employee Recruitment and the Role of Symbolic Analysts in Leading Export-Oriented Firms', In A. Breton (ed.) *Economic Approaches to Language and Bilingualism*, Department of Canadian Heritage.
- Chriswick, B.R. and Miller, P. (2007), 'Occupational Language Requirements and the Value of English in the U.S. Labor Market', Institute for the Study of Labor (IZA) Discussion Paper 2664.
- Chriswick, B.R. and Miller, P. (2002), 'The Complementarity of Language and Other Human Capital: Immigrant Earnings in Canada', IZA Discussion Paper 451.
- Cobb-Clark, D.A. and Connolly, M.D. (2001), 'Wives and Mothers: The Labour-Market Experiences of Immigrant Women', in Jeff Borland, Robert Gregory, and Peter Sheehan (eds.). *Earnings Inequality in Australia*, Melbourne: Centre for Strategic Studies, Victorian University, 78 – 94.
- Coppel, J., Dumont, J. and Visco, I. (2001), 'Trends in Immigration and Economic Consequences', Economics Department, Organisation for Economic Co-operation and Development (OECD), Working Paper 284.
- Duncan, G.J. and Hoffman, S.D. (1981), 'The incidence and Wage Effects of Overeducation', *Economics of Education Review* 1 (1), 75-86.
- Ehrenberg, R.G. and Smith, R.S. (2006), *Modern Labor Economics: Theory and Public Policy*, 9th edition, Pearson: Boston.

- Folbre, N. and Nelson, J.A. (2000), 'For Love or Money - or Both?', *Journal of Economic Perspectives*, 14 (4), 123-140.
- Friedberg, R.M. (2000), 'You Can't Take It With You? Immigrant Assimilation and the Portability of Human Capital', *Journal of Labor Economics*, 18 (2), 221-51.
- Galasi, P. (2003), 'Estimating Wage Equations for Hungarian Higher-Education Graduates', Budapest Working Papers on the Labour Market, Institute of Economics, Hungarian Academy of Sciences, Working Paper 2003/4, Budapest.
- Giorgas, D. (2000), 'Social Capital Within Ethnic Communities', Sociological Sites/Sights, TASA Conference, Flinders University, Adelaide.
- Green, C., Kler, P. and Leeves, G. (2007), 'Immigrant Overeducation: Evidence from Recent Arrivals to Australia', *Economics of Education Review*, forthcoming.
- Hartog, J. (2000), 'Overeducation and earnings: where are we, where should we go?', *Economics of Education Review*, 19, pp. 131-147.
- Hammarstedt, M. and Palme, M. (2006), 'Intergenerational Mobility, Human Capital Transmission and the Earnings of Second-Generation Immigrants in Sweden', IZA Discussion Paper 1943.
- Hayfron, J.E. (2002), 'Panel Estimates of the Earnings Gap in Norway: Do Female Immigrants Experience a Double Earnings Penalty?', *Applied Economics*, 34, 1441-52.
- Holeva, A. (2004), 'Current Trends of the Linguistic and Cultural Values of the Greek Australian Community in South Australia', *International Education Journal*, 4 (4), 212-25.
- House of Representatives (2006), *Balancing Work and Family*, Standing Committee on Family and Human Services, Commonwealth of Australia, Canberra.
- Javorcik, B.S., Ozden, C., Spatareanu, M. and Neagu, C. (2006), 'Migrant Networks and Foreign Direct Investment', World Bank Policy Research Working Paper 4046.
- Khoo, S.E., McDonald, P., Giorgias, D. and Birrell, R. (2002), *Second Generation Australians. Report for the Department of Immigration and Multicultural and Indigenous Affairs*, Department of Immigration and Multicultural and Indigenous Affairs, Canberra.
- Le, A.T. and Miller, P. (2002), 'Educational Attainment in Australia: A Cohort Analysis. Longitudinal Survey of Australian Youth Research Report No. 25', Australian Council of Educational Research, Camberwell.
- Mavromaras, K., McGuinness, S., O'Leary, N., Sloane, P. and Fok, Y.K. (2007), 'The Problem of Overskilling in Australia and Britain', IZA Discussion Paper No. 3136.
- McDonald, P. (2000), 'Gender Equity, Social Institutions and the Future of Fertility', *Journal of Population Research*, 17 (1), 1-16.
- Melitz, J. (2002), 'Language and Foreign Trade', Centre for Economic Policy Research, CEPR, Discussion Paper 3590.
- Meng, X. and Meurs, D. (2006), 'Intermarriage, Language, and Economic Assimilation Process: A Case Study of France', IZA Discussion Paper 2461.
- Messinis, G. and N. Olekalns (2007), 'Skill Mismatch and Returns to Training in Australia: Some New Evidence', Economics, University of Melbourne Working Paper 997.

- Miller, P. (2007), 'P Overeducation and Undereducation in Australia', *Australian Economic Review, Policy Forum*, forthcoming.
- Mokyr, J. (1999), 'Invention and Rebellion: Why Do Innovations Occur at All? An Evolutionary Approach'. In E.S. Brezis and P. Temin (eds.), *Elites, Minorities and Economic Growth*, Amsterdam: North-Holland.
- Niebuhr, A. (2006), 'Migration and Innovation: does cultural diversity matter for regional R&D activity?', Institute for Employment Research, Research Paper 14/2006, Nuremberg, Germany.
- Nielsen, C.P. (2007), 'Immigrant Overeducation: Evidence from Denmark', World Bank Policy, Research Paper 4234.
- OECD (2007), *Jobs for Immigrants Volume 1: Labour Market Integration in Australia, Denmark, Germany and Sweden*, Organisation for Economic Co-operation and Development, OECD: Paris.
- Papademetre, L. and Routoulas, S (2001), 'Social, Political, Educational, Linguistic and Cultural (dis-)incentives for Languages Education in Australia', *Journal of Multilingual and Multicultural Development*, 22: 134-51.
- Peri, G. (2007), 'Immigrants' Complementarities and Native Wages: Evidence from California', NBER Working Paper 12956.
- Shippler, D.K. (2005), *The Working Poor: Invisible in America*, Vintage.
- The Nuffield Languages Inquiry (2000), *Languages: the next generation*. London: The Nuffield Foundation.
- Voon, D, Miller, P. W (2005). 'Undereducation and Overeducation in the Australian Labour Market', *Economic Record*, Special Issue, 81, pp. S22-33.
- Warman, C. (2007), 'Ethnic Enclaves and Immigrant Earnings', *Canadian Journal of Economics*, 40 (2), 401-22.