The Problem of Overskilling in Australia and Britain

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ABSTRACT

The Problem of Overskilling in Australia and Britain[*]

This paper examines the parallel trends in education and labour market developments in Australia and Britain. It uses unique information in the WERS and HILDA surveys on reported overskilling in the workplace. To a degree, the overskilling information overcomes the problem of unobserved ability differences and focuses on the actual job-employee mismatch more than the conventional overeducation variables can. The paper finds that the prevalence of overskilling decreases with education at least for Australia, but the wage penalty associated with overskilling increases with education. Although the general patterns of overskilling (prevalence and penalties) are fairly similar between Australia and Britain, the problem appears to be greater in Britain.

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1.   INTRODUCTION

This paper is motivated by parallel trends in education and labour market developments in Australia and Britain, particularly with respect to higher education. In Australia, university participation rates rose from 24.4% in 1988 to 38.0% in 1999 but the increase was much greater for women – from 22.1% to 41.6% than for men – 27.3% to 33.2% (Chapman and Ryan, 2003). In Britain, the proportion of young people studying full time in universities increased from 13% in 1980 to 33% in 2000, with a government set target of 50%. Between 1990/91 and 2000/01 the number of male undergraduates increased by over one third and the number of females almost doubled (Elias and Purcell, 2003).[1] The increase in the number of persons with qualifications in the labour market has given rise to concerns about the possibility of employer-employee mis-matches in terms of the failure of educated individuals to obtain jobs commensurate with their qualifications. Traditionally this mis-match has been called over-education and has been measured by the proportion of educated individuals who work in jobs where their qualifications are not necessary. This mis-match has been measured in terms of over-education, with a general over-education rate of as much as 30% of the workforce being reported in both Australia and Britain. A common result in the literature is that over-educated persons are also under-paid for their qualifications. However, doubts remain about the extent to which this mis-match represents a form of market failure and the extent to which it represents inferior quality in those individuals subject to it. One of the major problems in the

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[1] Chapman and Ryan (2003) report internal rates of return for graduates in Australia of 13.1% for men and 12.6% for women in 1997/98, while O'Leary and Sloane (2005) report rates of return for graduates in England and Wales averaged over the period 1994-2002 of 10.1% for men and 15.0% for women. Thus, staying on represents a better investment for women in Britain than for men, while there is no discernible difference in Australia.

empirical over-education literature is that it cannot distinguish between the case where an observed overeducated person is (i) well-matched but paid less because there is some other (unobserved by the data) compensating differential at play, or (ii) not well-matched and therefore being paid less due to a market failure. As with many empirical investigations involving the estimation of the relationship between education and labour market performance, the inability of the over-education measures in the literature to account for unobserved ability introduces serious problems regarding the interpretation of empirical results. The fact that these two competing explanations of what over-education means clearly lends itself to very different policy implications, making the results from the over-education literature limited in their policy usefulness.

This paper overcomes this problem by using a variable which measures directly and more generally the mismatch between employer and employee. We use information on reported overskilling in the workplace which is measured by employed individuals reporting the degree to which they utilise their skills and abilities in their workplace. To do this, we make use of questions in recent data sets, namely the Household, Income and Labour Dynamics in Australia (HILDA) survey and the 2004 British Workplace Employment Relations Survey (WERS) which both ask respondents about the extent they are able to use their abilities and previously acquired skills on the job. This measure of mis-match in the workplace seems less likely to be biased through failure to control for unobserved ability differences. Over-education and overskilling, however, may be measuring different things. Green and McIntosh (2002) found, for example, that less than half the over-educated were also over-skilled. Using the International Adult Literacy

Survey (IALS) they estimated that over 20 percent of the British workforce were over-skilled and 4 percent under-skilled, with significant wage effects for both groups. Of course, eliminating over-education implies moving a worker up the job hierarchy, while eliminating overskilling can be achieved by the employer re-organising work in existing jobs as well as promoting workers to higher ranked jobs. Promotion will be more easily achieved in well-developed internal labour markets.

It has become conventional to use some version of assignment theory (Sattinger, 1993) to explain the existence of mis-matches in the workplace. This theory suggests that both demand and supply factors explain the level of wages and that, if the employers' demand for different levels of skill is not matched by equivalent levels of the supply of skills, some mis-matching is inevitable. This will be more likely when there is rapid technological change as adjustment takes time, both in creating new types of skill and training workers in these new skills. Allen and van der Velden (2001) and Allen, Badillo-Amador and van der Velden (2006) argue in fact that there is an implicit assumption in the above theory that educational mis-matches give rise to skill mis-matches and it is the latter that lead to negative wage effects. This in turn implies that education and skill mis-matches should be highly correlated and that skill mis-matches should still show a negative effect on wages after controlling for educational mis-matches. Allen, Badillo-Amador and van der Velden (2006) also hypothesise that educational mis-matches will be associated with stronger wage effects and skill mis-matches with weaker wage effects in those countries with strong wage setting institutions compared to countries with more market-based wage setting processes. They test these hypotheses on a 2005 survey of

graduates across nine countries (including Britain), which includes data on both educational and skills mis-match. In single country studies that use data sets containing comparable information, Allen and van der Velden (2001), Green and McIntosh (2002) and Di Prieto and Urwin (2006) all found that there was little support for the above hypotheses with skill mis-matches having little effect on wages after controlling for educational qualifications. These results were largely confirmed by their nine country study, but Britain was an exception with the strong effects of overskilling remaining and a sizeable decrease in the effect of over-education occurring with the introduction of the former. It should be noted that both Britain and Australia (which was not included in the above study) have market based wage setting arrangements. Neither of our two data sets have questions on over-education, although it is possible to derive a measure of it.

One of the main questions addressed in this paper is whether there is a sizeable wage penalty associated with overskilling in both Britain and Australia. If we find that overskilling imposes a wage penalty with current graduate numbers, then this will raise the question of what will happen with future increases in their number to which both Australia and Britain are committed. This has implications both for the type of graduates produced and the use that is made of them by employers. Key questions are whether overskilling follows a similar pattern in the two countries and whether the same is true of the wage penalty.

This paper is structured as follows. Section 2 presents the Australian and British data sets that are used in this paper. Section 3 investigates the relationship between over-education

and overskilling. As the paper argues that the overskilling question contains different information from what the traditional over-education variables contain, it is necessary that these differences be established. Section 4 presents the bulk of the estimation results. These contain comparisons of the wage impact of overskilling for different parts of the labour force in both Australia and Britain. Section 5 investigates the possible impact of job discretion in the presence of overskilling, using some information present in the British data set. Section 6 concludes. An appendix contains detailed tables.

2. THE DATA

HILDA is an annual household based panel study which began in 2001 covering 7,682 Australian Households and 19,914 individuals in wave 1, with panel members followed over time. It is funded by the Australian Government through the Department of Families, Community Services and Indigenous Affairs, with responsibility for its design and management resting with a group comprising the Institute of Applied Economic and Social Research, University of Melbourne, the Australian Council for Educational Research and the Australian Institute of Family Studies. The British Workplace Employment Relations Survey (WERS) 2004 is a cross-section establishment-based data set (and the fifth in a series of surveys) which aims to provide a nationally representative sample of establishments to examine aspects of work inside the workplace. It is sponsored by the Department of Trade and Industry (DTI), the Economic and Social Research Council (ESRC), the Advisory, Conciliation and Arbitration Service (ACAS) and the Policy Studies Institute (PSI). Previous surveys were conducted in 1980, 1984, 1990 and 1998, but only the 2004 survey contains a question on skill utilisation. WERS

2004 interviewed managers from 2,295 establishments with at least five employees. In addition, up to 25 employees at such workplaces were randomly selected for individual survey and asked questions about education, training, pay and job satisfaction, as well as a range of personal characteristics. These two data sets are then quite different in a number of respects. HILDA is a panel, which means that one can examine the effect of past circumstances, such as previous under utilisation, on current skill utilisation, which is not possible in WERS. WERS, however, is a matched employer/employee survey which means one can examine the impact of establishment characteristics on skill utilisation, which is not possible in HILDA.

The HILDA measure of overskilling is derived from 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 corresponds to strongly disagree and 7 to strongly agree. The WERS measure is derived from responses to the question "How well do the skills you personally have match the skills you need to do your present job?". There is a five point scale with respondents answering that their own skills are much higher, a bit higher, about the same, a bit lower and much lower than needed. In this paper we use these two measures of overskilling. Using HILDA, individuals selecting 1, 2 or 3 on the scale are classified as severely over-skilled, those selecting 4 or 5 as moderately over-skilled and those selecting 6 or 7 as well matched (the reference category in regression analysis). In the HILDA sample, 30.6 percent are moderately over-skilled and 11.5 percent are severely over-skilled. In WERS, 31.9 percent have skills a bit higher than needed in their job, and 21.1 percent much higher than needed. Whilst moderate overskilling appears to be

equally prevalent in Australia and Britain, this way of cutting the data suggests a much higher prevalence of severe overskilling in Britain than in Australia.

3. OVEREDUCATION AND OVERSKILLING

Given the recent emphasis placed on the relationship between overeducation and overskilling as means for assessing theoretical models of labour markets (Allen & Van der Velden 2001 and 2006), we need to consider in some detail the empirical relationship between these two variables. The overskilling variable used in this study represents a more direct measure of mismatch relative to over-education, given that respondents are asked to benchmark directly all their skills (innate, schooling and experience-related) against the actual requirements of their job. Over-education, on the other hand, represents a much more indirect measure of mismatch as it uses educational attainment as a proxy for skills possessed and compares this against job entry requirements which are used to proxy job requirements. There are numerous reasons why the over-education proxies may not accurately reflect either acquired skills or job content and, as such, it is reasonable to expect some divergence between the over-education and overskilling estimates. However, a low correlation between measures does not necessarily imply inaccuracy. For instance, Battu, Belfield and Sloane (2000) examined the level of correlation between different measures of over-education derived from two separate panels of data (1985 and 1990). Despite poor correlation between the measures (as low as 20 per cent in some cases), the authors report that the various approaches generate similar results with respect to the effect of over-education on earnings. Green and McIntosh (2002) use a somewhat broader definition of overskilling than the one adopted here, and report a level of

correlation between over-education and overskilling that is somewhat higher, with around 50 per cent of all overeducated British workers reported to be also over-skilled.

We assess the strength of the over-education / overskilling relationship using the HILDA data only. The WERS data was considered to be unsuitable for such an analysis due to difficulties associated with deriving over-education measures[2]. We adopt 3 over-education measures; all are variations of the empirical method and are estimated at the 2 digit level. The over-education definitions employed are as follows:

Definition 1: One education level above the modal level of educational attainment within the occupation.

Definition 2: One standard deviation above the mean level of educational attainment within the occupation.

Definition 3: Half a standard deviation above the mean level of educational attainment within the occupation.

The estimated incidences of over-education were 20 per cent under definition 1, 5 per cent under definition 2 and 17 per cent under definition 3. The very low estimate associated with definition 2 is because education attainment is a ranked variable that takes a value between 1 and 6 and, as such, there is limited variation in the data. Definitions one and three generate similar estimates and, due to the nature of the data, we can consider definition 2 to represent the least reliable estimate. Consistent with Green and McIntosh (2002), approximately 50 percent of those individuals identified as over-educated were also found to be over-skilled, with approximately 20 per cent of the over-

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[2] For instance, within a number of occupations the modal education level was the category Other, which cannot reasonably be used as an education benchmark as it does not relate to any particular level of attainment.

educated classed as severely over-skilled and the remaining 30 percent as moderately over-skilled (Table 1). The rates do not vary with the over-education definition employed.

Table 1: Percentage of over-skilled workers by definition of over-education

	Alternative definitions of over-education		
Extent of overskilling	*Definition 1: Overeducated relative to majority in occupation*	*Definition 2: Overeducated relative to occupational mean + 1 stand. dev.*	*Definition 3: Overeducated relative to occupational mean + ½ stand. dev.*
Severely Over-skilled	18.62	22.48	18.86
Moderately Over-skilled	29.39	29.46	28.86
Well Matched	52.00	48.06	52.29
Total	100.00	100.00	100.00

Source: HILDA waves 1 to 4 (2001-2004).

Given that the estimated rate of mismatch under the overskilling approach is at least twice that of over-education using methods 1 and 3, the proportions of over-skilled workers who are also over-educated are much lower (see Table 2). The greatest level of consistency was again with definitions 1 and 3 where between 21 and 25 percent of severely over-skilled and between 16 and 20 per cent of moderately over-skilled workers have been identified as over-educated. Unsurprisingly, the proportion of over-skilled workers identified as over-educated under definition 3 was extremely low.

Table 2: Proportion of overeducated workers by extent of overskilling

Alternative definitions of over-education	Extent of Overskilling	
	Severely Over-skilled	Moderately Over-skilled
Overeducated relative to the occupational mode	24.70	19.17
Overeducated relative to occupational mean + 1 stand. dev.	8.96	5.85
Overeducated relative to occupational mean + ½ stand. dev.	21.11	15.88

Source: HILDA waves 1 to 4 (2001-2004).

Nevertheless, the variation in the rates of over-skilled workers who are also overeducated enables us to gain some further insights into the relationship between the two variables. It has recently been argued, as noted in the Introduction, that the inclusion of an over-education variable in a wage equation containing an overskilling variable constitutes an effective test of the job assignment theory. Allen et al. (2006) argue that the assignment theory can be rejected on the grounds that the overeducation coefficients remain unchanged when the wage equation is adjusted to include controls for overskilling. This seems a somewhat extreme interpretation given that the low impact on the overskilling variable could well be due to the low rate of correlation between the two variables. The point is illustrated in Table 3, which presents the results of estimations which contain overskilling alone (Model 1), over-education alone (Model 2) and both overskilling and over-education (Model 3).[3] As expected, the impact on the overskilling variables is greatest under over-education definitions 1 and 3 which were more heavily correlated with overskilling, whereas the impact of the much more weakly related definition 2 was negligible. The results suggest that the magnitude of adjustment on the coefficients will simply reflect the level of correlation between the overskilling and over-education

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[3] All previous covariates were also included but are omitted from the table for convenience purposes.

measure and, therefore, it is potentially misleading to place a heavy emphasis upon the

outcomes of such simulations.

Table 3: The effects of overskilling and over-education on wages - comparison of alternative over-education definitions

	Model 1	Model 2	Model 3
Overeducation definition 1: (overeducated relative to the occupational mode)			
Severely overskilled		-0.082*** (0.015)	-0.065*** (0.015)
Moderately overskilled		-0.023** (0.010)	-0.015 (0.010)
Overeducated	-0.147*** (0.013)		-0.141*** (0.013)
Overeducation definition 2: (overeducated relative to occupational mean + 1 stand. dev.)			
Severely overskilled		-0.082*** (0.015)	-0.077*** (0.015)
Moderately overskilled		-0.023** (0.010)	-0.028*** (0.010)
Overeducated	-0.153*** (0.023)		-0.015*** (0.023)
Overeducation definition 3: (overeducated relative to occupational mean + ½ stand. Dev.)			
Severely overskilled		-0.082*** (0.015)	-0.065*** (0.015)
Moderately overskilled		-0.023** (0.010)	-0.016* (0.010)
Overeducated	-0.159*** (0.014)		-0.152*** (0.014)

Note: Dependent variable is weekly wages. Standard errors in brackets. HILDA survey waves 4 and 5. ***/**/* denote significance at 1%, 5% and 10% respectively.

In conclusion, the two variables of overskilling and overeducation appear to be different

in the information they contain. The overskilling variable is likely to be more attractive to

use for estimation purposes as it links the level of the employee skills with current job

needs more directly than the overeducation variable which looks only at formal

qualifications. A crucial empirical observation in this context is that the coefficients of the overskilling variable in a wage equation are robust to the inclusion of the overeducation variable in the estimation.

4.   PATTERNS OF OVERSKILLING IN AUSTRALIA AND BRITAIN

We focus on full-time employees only, using weekly earnings[4] and correcting for usual hours worked. Regressions are run for all workers, men and women separately, and by highest education level (six categories). The education level equivalences have been set as follows: (i) *below year 10* in Australia, corresponds to *no qualifications* in Britain; (ii) *year 10* in Australia, corresponds to *GCSEs or equivalent* in Britain; (iii) *year 11 to 12* in Australia, corresponds to *A-levels or equivalent* in Britain; (iv) Australian *certificates and diplomas*, corresponds to *other academic or vocational qualifications* in Britain; (v) *first degrees or equivalent*; and finally (vi) *higher degree or equivalent*. The variables included are the closest match that could be obtained in terms of the available questions in each data set. This required us to drop some variables that were significant in extended models in each country, but results on overskilling are robust to changes in the explanatory variables in each country and the coefficients and significance of the remaining explanatory variables are not affected in a discernible way.

The results presented in Tables 4a and 4b suggest that overskilling is more prevalent in Britain than in Australia and is distributed differently. In Australia, severe overskilling declines from over 18 percent for those completing education below year 10 to less than

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[4] The WERS earnings data are grouped into 12 categories. For this reason, the data are analysed by interval regression for Britain and OLS for Australia where the earnings data are continuous.

10 percent for undergraduates, averaging 14 percent, while in Britain it is invariant to highest education level at around 18-21 percent.

Thus, Britain's overskilling problem is more severe in two respects – it is more extensive overall and it is distributed proportionately more at the higher skill end of the labour market.

Table 4a: Overskilling by education (Australia)

| Highest Education Level | Extent of Overskilling (%) | | | % |
	Well Matched	Moderately Over-skilled	Severely Over-skilled	
Below Year 10	55.01	26.70	18.30	4.0
Year 10	51.71	33.04	15.25	10.8
Year 11-12	52.70	33.60	13.70	20.6
Certificates and diplomas	58.77	30.89	10.34	37.6
Undergraduate	61.91	28.25	9.85	24.7
Postgraduate	55.01	26.70	18.30	2.2
Total	52.36	33.41	14.23	100.00

Note: Sample size is 7,816. Source: HILDA.

Table 4b: Overskilling by education (Britain)

| Highest Education Level | Extent of Overskilling (%) | | | % |
	Well Matched	Moderately Over-skilled	Severely Over-skilled	
No qualifications	53.64	26.75	19.61	9.8
GCSEs or equivalent	47.55	33.63	18.82	11.0
A-levels or equivalent	44.18	37.53	18.29	5.9
Other academic or vocational	44.47	33.55	21.98	40.8
First degree or equivalent	44.43	34.65	20.92	24.1
Higher degree or equivalent	45.55	33.22	21.23	8.2
All qualifications	**45.78**	**33.36**	**20.86**	**100.00**

Note: Sample size is 14,237. Source: WERS 2004.

The question that arises is to what extent overskilling is a function of occupation and industry. Occupation and industry matter because we need to identify where employers need to focus more on the way in which they utilise skills available to them. Using two

countries is helpful as there may be basic reasons for the distribution of overskilling. If the distributions are different in Britain and Australia, this suggests that they are not immutable. The degree of mismatch is higher in higher occupations in Britain than in Australia. Tables 5a and 5b present all occupations in Australia and Britain, and Tables 6a and 6b all industries.

Table 5a: Overskilling by occupation (Australia)

Occupation	Extent of Overskilling (%)		
	Well Matched	Moderately Over-skilled	Severely Over-skilled
Managers &administrators	70.54	24.65	4.82
Professionals	71.86	22.83	5.31
Associate professionals	61.48	29.96	8.57
Tradespersons & related	63.7	29.19	7.11
Advanced clerical& services workers	52.93	33.54	13.54
Intermediate clerical, sales & services workers	49.23	34.82	15.94
Intermediate production & transport workers	44.49	33.37	22.14
Elementary clerical, sales & services workers	33.74	34.74	31.51
Labourers & related workers	36.42	32.64	30.95
All occupations	56.51	29.64	13.84

Note: Selected occupations. Full time employees only. Source: HILDA.

Considering first occupations in Tables 5a and 5b, the distribution of overskilling over the two countries is consistent in so far as its incidence is inversely related to occupational level, but the extent to which incidence changes with respect to occupational distribution is very different. In Australia less than five percent of managers and administrators are severely over-skilled, while the comparable figure for Britain is 16 percent.

Table 5b: Overskilling by occupation (Britain)

Occupation	*Extent of Overskilling (%)*		
	Well Matched	*Moderately Over-skilled*	*Severely Over-skilled*
Managers & senior officials	47.97	36.11	15.92
Professional	52.93	33.01	14.07
Associate professional & technical	47.88	34.21	17.91
Administrative & secretarial	44.19	35.40	20.41
Skilled trades	42.75	33.30	23.95
Personal service	49.10	28.62	22.28
Sales & customer service	39.38	35.35	25.27
Process, plant & machine operatives	40.63	31.10	28.28
Elementary	38.62	29.14	32.24
All occupations	45.74	33.46	20.81

Note: Selected occupations. Full time employees only. Source: WERS 2004.

For elementary occupations, the figures are very close at 31 and 32 percent respectively. Turning to the industrial distribution of overskilling in Tables 6a and 6b, the variation is much greater in Australia, ranging from just over seven percent in Government Administration to 25 percent in the Retail Trade and Accommodation, Restaurants and Cafes. In Britain, the range is from 17 percent in Education to over 27 percent in Transport and Communications. It is noteworthy that overskilling appears to be less marked in the Public Sector, especially in Australia where the severe overskilling proportions for Government Administration, Education, and Health and Community Services are 7.31, 5.23 and 8.4 percent respectively. The Private Sector incidence varies across the two countries.

Table 6a: Overskilling by Industry (Australia)

Industry	Extent of Overskilling (%)		
	Well Matched	*Moderately Over-skilled*	*Severely Over-skilled*
Agriculture, forestry	60.28	28.23	11.49
Mining	58.06	30.65	11.29
Manufacturing	51.84	32.41	15.75
Electricity, gas & water	55.26	33.33	11.4
Construction	61.75	30.13	8.12
Wholesale trade	49.23	34.48	16.28
Retail trade	42.12	33.13	24.74
Accommodation, restaurant & cafes	40.91	34.24	24.85
Transport & storage	50.82	34.55	14.63
Communication services	45.08	37.5	17.42
Finance & insurance	62.55	26.69	10.76
Property & business services	58.38	28.47	13.14
Government administration	58.64	34.04	7.31
Education	72.91	21.85	5.23
Health & community services	65.59	26.01	8.4
Cultural & recreational services	58.44	27.71	13.85
Personal & other services	61.92	25.51	12.57
All industries	56.51	29.64	13.84

Note: Full time employees only. Source: HILDA (2004-5).

Table 6b Overskilling by Industry (Britain)

Industry	Extent of Overskilling (%)		
	Well Matched	*Moderately Over-skilled*	*Severely Over-skilled*
Manufacturing	42.72	33.42	23.86
Electricity, gas & water supply	42.95	38.24	18.81
Construction	49.31	32.50	18.19
Wholesale & retail	44.72	31.74	23.53
Hotels & restaurants	44.05	30.56	25.40
Transport & communication	39.61	32.90	27.49
Financial services	45.16	36.42	18.42
Other business services	48.53	33.21	18.27
Public administration	44.41	35.84	19.75
Education	49.40	33.48	17.12
Health	51.51	30.90	17.59
Other community services	41.01	33.82	25.17
All industries	45.78	33.36	20.86

Note: Full time employees only. Source: WERS 2004.

5. ESTIMATION RESULTS

We estimate a standard wage regression in which the log of weekly wages is regressed on a vector of characteristics for individual i in workplace j:

$$\ln W_{ij} = X_i \alpha_1 + Z_j \alpha_2 + SOS_i \alpha_3 + MOS_i \alpha_4 + \varepsilon_i \qquad [1]$$

where X_i includes a vector of demographic variables such as gender, marital status, age, tenure and educational attainment (full details available in Appendix), Z_j includes a vector of employment characteristics such as size of firm and industry, *SOS* is a dummy for severe overskilling and *MOS* a dummy for moderate overskilling (with well matched being the reference category), α denotes the estimated returns to the characteristic vectors and ε_i is a standard iid error term.

In Table 7 we assess the effects of overskilling on earnings for all full-time employees in the two countries. In each case earnings are significantly lower for the over-skilled: by 8.2 percent for the severely over-skilled in Australia and by 12.0 percent in Britain. For the moderately over-skilled, the corresponding figures are 2.5 and 2.9 percent respectively. Thus, Britain suffers not only from more extensive overskilling than Australia, but also from a greater negative impact on earnings. Women earn 12 percent less than men in Australia and 14% less than men in Britain. The mark-up to obtaining a degree compared to no qualification is 42% in Australia and 56% in Britain, with corresponding figures for postgraduates being 51% in Australia and 68% in Britain respectively. Those who are not married earn 6.8 and 5.7% less than those who are married. Age-earnings profiles follow the expected inverted U-shaped pattern and earnings also increase with tenure.

Table 7: OLS and interval regression estimates for effects of overskilling on weekly wages - Australia vs. Britain

Explanatory variable	Weekly Wages	
	Australia	*Britain*
Severely over-skilled	-0.082*** (0.015)	-0.120*** (0.008)
Moderately over-skilled	-0.025** (0.010)	-0.029*** (0.007)
Female	-0.120*** (0.010)	-0.142*** (0.007)
Educational attainment – Year 10	0.088*** (0.024)	0.191*** (0.013)
Educational attainment – Year 11 to 12	0.163*** (0.023)	0.301*** (0.016)
Educational attainment – Certificate / diploma	0.192*** (0.022)	0.273*** (0.011)
Educational attainment – Undergraduate	0.417*** (0.023)	0.555*** (0.012)
Educational attainment – Postgraduate	0.512*** (0.030)	0.675*** (0.015)
Not married (or de facto)	-0.068*** (0.010)	-0.056*** (0.007)
Employment tenure- 1-<2 years	-0.061*** (0.016)	0.030*** (0.011)
Employment tenure- 2-5 years	-0.042*** (0.012)	0.064*** (0.010)
Employment tenure- 5-10 years	(dropped)	0.047*** (0.011)
Employment tenure- >10 years	0.034*** (0.012)	0.109*** (0.011)
Hours usually worked in main job (weekly)	0.014*** (0.001)	0.014*** (0.0005)
Age – 18 to 19 years	0.163** (0.073)	0.042 (0.047)
Age – 20 to 21 years	0.351*** (0.070)	0.183*** (0.045)
Age – 22 to 29 years	0.496*** (0.067)	0.331*** (0.042)
Age – 30 to 39 years	0.565*** (0.067)	0.470*** (0.042)
Age – 40 to 49 years	0.606*** (0.067)	0.516*** (0.042)
Age – 50 to 59 years	0.639*** (0.067)	0.533*** (0.042)
Age – 60 to 64 years	0.604*** (0.072)	0.460*** (0.046)
Has supervisory role	0.084*** (0.009)	0.223 (0.007)
A Union Member	0.054*** (0.010)	0.008 (0.007)
Have children aged between 5 and 14	0.020* (0.011)	0.007[d] (0.007)
Have children aged below 5	0.038** (0.015)	0.044*** (0.010)
Employed on fixed term	0.014 (0.016)	-0.019 (0.018)
Casual worker	-0.045** (0.022)	-0.075*** (0.021)
Differences in the models		
Coloured (UK)		-0.063*** (0.013)
Migrant from English speaking country (Aus)	0.028* (0.014)	
Migrant from non-English speaking country (Aus)	-0.048*** (0.013)	
Firm that employs less than 5 people	-0.208*** (0.018)	
Firm that employs between 5-9 people	-0.143*** (0.016)	-0.131*** (0.018)
Firm that employs between 10-19 people	-0.113*** (0.014)	-0.096***e (0.011)
Firm that employs between 20-49 people	-0.061*** (0.012)	-0.035***[f] (0.008)
Constant	5.477*** (0.075)	4.526*** (0.048)
N	5843	14237
Prob > F	0.0000	0.0000
R square	0.4852	*NA*

Note: Standard errors in parentheses. Reference groups are as follows: age 16-17; education attainment below yr 10; employed with current employer for less than a year; employed on continuing contract with a firm that employs at least 50 people. ***/**/* denote significance at 1%, 5% and 10% respectively.

Supervisory status has a much stronger effect in Britain, while trade union membership, which is significant in Australia, is insignificant in Britain.[5] A number of other variables such as employer size, children and temporary contracts have a similar effect in each country and are shown in detail in Table A7 in the Appendix. The overall conclusion from Table 7 is that, so far as wages and skills go, the main manifestation of mis-matches in the labour market is amongst those who perceive themselves as severely over-skilled.

Despite the inclusion of a large number of human capital variables as well as variables that relate to the employers, the wage penalty due to severe overskilling remains at 8 percent in Australia and 12 percent in Britain. This means that severe overskilling is associated with labour market mis-matches. Considering that the wage penalty will only be one part of the loss generated by a mis-match (the other part will be lost output and profit for the employer), the estimated wage penalties presented in this paper can be thought of as a fraction of the total productivity losses resulting from severe overskilling. Reported moderate overskilling yields different results with a lesser empirical presence. Although the estimated wage penalties are significant for both Australia and Britain, their sizes are only 2.5 and 2.9 percent respectively. Nevertheless, given the large number of individuals that report moderate overskilling, the estimated small per person wage penalty (and the implied productivity loss) could add up to sizeable economy-wide losses.

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[5] In the case of the WERS data we experimented by including a training variable with varying lengths of training included relative to the baseline of no training. The data questions we used relate to recent training in the last twelve months and so they do not capture all training received in the past. Training of one day or more significantly increased earnings, but only marginally reduced the negative effect of overskilling on earnings from 12 percent to 11.3 percent for those severely over-skilled and from 3 percent to 2.8 percent for those moderately over-skilled.

Next we consider separately how the wage penalty differs amongst the different categories of educational qualifications in Table 8. We have defined six categories and we present them all.

Table 8: Effects of overskilling on weekly earnings by education level [6]

Explanatory variable	Weekly Wages			
	Australia	Britain	Australia	Britain
Education level comparison	*Below yr. 10/No qualifications*		*Year 10/ GCSE*	
Severely over-skilled	0.030	-0.028	-0.113***	-0.050**
	(0.092)	(0.023)	(0.036)	(0.024)
Moderately over-skilled	0.019	-0.001	-0.070***	-0.028
	(0.071)	(0.021)	(0.026)	(0.020)
Female (=1, Male = 0)	-0.094	-0.213***	-0.084***	-0.147***
	(0.077)	(0.022)	(0.026)	(0.020)
Sample size	217	1402	625	1573
Prob > F	0.0001	0.0000	0.0000	0.0000
R square	0.4293	[1]	0.5417	[1]
Education level comparison	*Year 11-12/ A-level*		*Certificates*	
Severely over-skilled	-0.094***	-0.133***	-0.044*	-0.094***
	(0.029)	(0.035)	(0.026)	(0.012)
Moderately over-skilled	0.008	0.001	-0.040**	-0.012
	(0.021)	(0.028)	(0.016)	(0.010)
Female (=1, Male = 0)	-0.159***	-0.135***	-0.095***	-0.150***
	(0.021)	(0.027)	(0.019)	(0.011)
N	1123	842	2075	5815
Prob > F	0.0000	0.0000	0.0000	0.0000
R square	0.4866		0.4227	
Education level comparison	*Undergraduates*		*Postgraduates*	
Severely over-skilled	-0.159***	-0.203***	-0.157	-0.183***
	(0.034)	(0.016)	(0.124)	(0.028)
Moderately over-skilled	-0.003	-0.058***	-0.077	-0.096***
	(0.020)	(0.014)	(0.054)	(0.025)
Female (=1, Male = 0)	-0.115***	-0.102***	-0.111**	-0.141***
	(0.019)	(0.013)	(0.050)	(0.023)
N	1490	3437	308	1168
Prob > F	0.0000	0.0000	0.0000	0.0000
R square	0.4227		0.3722	

Note: Standard errors in parentheses. OLS regression results for Australia and Interval Regression results for Britain, with weekly wage as the dependent variable. A large number of covariates has been included and is reported in Appendix Tables A5a, A5b and A5c. ***/**/* denote significance at 1%, 5% and 10% respectively

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[6] Although the education systems in the two countries are very similar, there are some small differences. In Britain, the minimum school leaving age is sixteen, while in Australia in all states and territories other than Tasmania, education is compulsory for children between the age of six and fifteen. In Tasmania, meanwhile, education is compulsory between six and sixteen. Freebairn (2007) reports that a third of students in Australia did not complete secondary school and for those who did not complete year 12, only half of those of workforce age were employed.

There do not appear to be any wage penalties for both severe and moderate overskilling in both Australia and Britain for the lowest education category. These are the people with the largest proportion of reported overskilling, but they do not appear to be penalised for their overskilling after their own and their employers' characteristics have been controlled for. One possible explanation is that their pay is very close to a lower bound defined by the minimum wage legislation that both countries have in place. This simply precludes the presence of any wage penalty. With the year 10/GCSE category, a considerable wage penalty appears in Australia for both severe (11.3%) and moderate (7%) overskilling and a modest wage penalty only for severe overskilling (5%) in Britain. The implication is that there are severe mis-matches in this education category in Australia, but not so much in Britain.

Moving to categories with higher educational attainment, most of the wage penalty estimates for moderate overskilling disappear, with only a modest 4 percent penalty for those in possession of certificates and diplomas in Australia and a 5.8 and 9.6 percent penalty for those with graduate and postgraduate qualifications respectively in Britain. All remaining action is concentrated on the severe overskilling wage penalties, which increase as education levels rise. In all (comparable) education categories from year 11 and higher, the wage penalty for overskilling is higher in Britain than in Australia. The highest wage penalty for severe overskilling in Britain appears to be amongst those who completed an undergraduate degree (at 20.3%) followed closely by those with a postgraduate degree (at 18.3%). Similarly, the highest wage penalty for severe overskilling in Australia is amongst those who completed an undergraduate degree (at

15.9%), almost equal to that for postgraduate degree holders (at 15.7%), although it should be noted that this last estimate is not very precise. It is noteworthy that the overskilling wage penalty for those with vocational qualifications (certificates) is considerably lower than all categories with education from year 11 and higher in both countries.

To the extent that these different levels of education may generate a different mix of general and specific human capital (broadly speaking, the category 'Year 11-12/A-level' has a higher ratio of general/specific human capital than the category 'Certificates'), this may be an important finding. Another important observation that arises from Table 8 is that the wage effects of overskilling and any associated mis-match generated productivity losses are present in a much larger proportion of the labour market than the over-education literature suggests, where the analysis is limited to University graduates or similar. In Table 8, conditional estimates and sample sizes show that in Australia a penalty of around 10 percent and more applies to 61 percent of the Australian labour force and 79 percent of the British labour force.

Table 9 looks briefly at the gender dimension of the overskilling issue, with detailed results given in Table A9 in the Appendix. In Australia, the wage penalty is greater for severely over-skilled males relative to severely over-skilled females (9.5% compared to 5.7%). There is no significant penalty for moderately over-skilled Australian males, whereas for females there is a significant negative effect on wages of 3.8%. In Britain, the effects are generally stronger with a wage penalty of 12.4% for severely over-skilled

males, 11.4% for severely over-skilled females, 2.4% for moderately over-skilled males and 4.0% for moderately over-skilled females. Gender differences in the overskilling penalty are only present in Australia and for the severely over-skilled. Looking at the results as a whole, males are more damaged than females by being severely over-skilled in both countries and females are more damaged than males for being moderately over-skilled in both countries.

Table 9: Effects of overskilling on weekly earnings by gender (for full-time working age)

Explanatory variable	Males		Females	
	Australia	UK	Australia	UK
Severely over-skilled	-0.095***	-0.124***	-0.057***	-0.114***
	(0.019)	(0.010)	(0.022)	(0.012)
Moderately over-skilled	-0.015	-0.024**	-0.038***	-0.040***
	(0.013)	(0.009)	(0.014)	(0.010)
Sample size	3653	8107	2185	6130
Prob > F	0.0000	0.0000	0.0000	0.0000
R square	0.4741	-	0.4989	-

Note: ***/**/* denote significance at 1%, 5% and 10% respectively.

5. JOB DISCRETION AND OVERSKILLING

It has been argued in the over-education literature that over-educated workers may be able to change the nature of their job in such a way as to minimise the effects of a mis-match. The degree to which they may be able to do this will depend on the extent to which they have job discretion. The WERS data set, but not the HILDA survey, contains questions relating to job discretion in the employee questionnaire. Employees are asked "overall, how satisfied are you with the amount of involvement you have in decision-making at this workplace?". They are also asked how satisfied they are with the following aspects of their job: (i) the scope for using their own initiative and (ii) the amount of influence they have over their job. In each case there are five possible

responses, ranging from very satisfied to very dissatisfied. We enter these into our earnings regressions as a series of dummies with the category "very dissatisfied" being the excluded (reference) category in all cases. We hypothesise that where workers are able to influence the way in which they work, this should raise their productivity and thus reduce their negative effect of overskilling on wages. We present the results from these regressions in the following Table 10.

Table 10: The relationship between various forms of job discretion and the wage effect of overskilling

	Model 1	*Model 2*	*% reduction*
Severely over-skilled	-0.118***	-0.104***	12.6
Moderately over-skilled	-0.029***	-0.025***	13.8
Involvement in decision-making			
1 (Very satisfied)		0.178***	
2		0.108***	
3		0.053***	
4		0.045***	
Severely over-skilled	-0.118***	-0.109***	7.6
Moderately over-skilled	-0.030***	-0.027***	6.9
Scope for initiative			
1 (Very satisfied)		0.133***	
2		0.086***	
3		0.047***	
4		0.047***	
Severely over-skilled	-0.118***	-0.110***	7.6
Moderately over-skilled	-0.030***	-0.030***	0.0
Influence on the job			
1 (Very satisfied)		0.172***	
2		0.113***	
3		0.075***	
4		0.076***	
Severely over-skilled	-0.118***	-0.101***	14.4
Moderately over-skilled	-0.030***	-0.026***	13.3
Combined discretion variables			

Note: In all job discretion variables the reference category is "very dissatisfied". *** imply significance at the 1 percent level. The same specification has been used as in all other regressions. Source: WERS 2004.

Table 10 estimates the same wage regression with (Model 2) and without (Model 1) the discretion variables in the right hand side. All three discretion variables produce very similar results. First, discretion and wages are positively associated. Second, the relationship is particularly strong where discretion is at its highest. Third, the association is statistically significant at all levels of discretion. The variable "involvement in decision-making" appears to be the one with the strongest association with wages, as it is probably the one with the clearest definition in the workplace. It has to be noted that this can be a variable with considerable endogeneity in the context of wage regressions, as discretion may generate higher wages and higher wages may simply be the result of well-used past discretion. The data at hand does not allow us to test this, but what is evident in the present context is that when each of the discretion variables are present in the estimation the overskilling coefficients are lower. The largest reduction in the overskilling coefficient occurs when all discretion variables are introduced together: the negative effect of severe overskilling on wage drops by 14 percent and that of moderate overskilling drops by 13 percent. It should be noted that, although the relationship between job discretion and the wage penalty caused by overskilling is weak, it is very precisely estimated.

6.   CONCLUSION

The phenomenon of overskilling is present in both Australia and Britain, but more so in the latter and particularly so for those with degree qualifications. There are also wage penalties associated with overskilling in both countries, with the effects being stronger in Britain. For the severely over-skilled, the wage penalties are larger for men than for

women, while this pattern (albeit with lower estimates) is reversed for the moderately over-skilled. When the data are split by highest educational qualifications, the wage penalties are seen to be greater for degree holders, but the prevalence of overskilling is higher for the lower education levels. Overskilling is found to be less prevalent amongst graduates, but is also found to carry the highest wage penalty amongst graduates. Thus, in general, the problem of overskilling is greater in the case of graduates and particularly so in Britain.

In this paper we have argued that overskilling is a more appropriate measure of labour market mis-match than over-education, because workers' responses to the overskilling question should incorporate differences in abilities and differences with regards to the real demands of jobs. Although abilities and job demands are anything between unobservable to only imperfectly observed, the overskilling response provides a unique insight in this direction. We find some evidence that increased job discretion is associated with lower penalties for overskilling which, though small in magnitude, illustrates the fact that employers can moderate the effects of mis-matches by responding positively to the perceptions of the workforce and involving them more in decisions about how work is carried out.

Overskilling may occur because some workers choose less onerous jobs, but whether or not this is the case, it always represents a financial loss to the employee which ultimately may lead to unintended losses in job satisfaction and productivity with associated losses to the employer also. Overskilling has the potential also to lower returns to the state

insofar as lower earnings result in lower contributions towards the repayment of income contingent loans.

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APPENDIX

Definition of variables

Female: Dummy variable, takes the value 1 if female, zero otherwise (Australia and UK).

Migrant (English speaking country): Dummy variable, takes the value 1 if migrant from an English speaking country, zero otherwise (Australia only). For Britain, there is a dummy variable that takes the value 1 if coloured and 0 otherwise, for which being a migrant from English speaking country would fall under.

Migrant (non-English speaking country): Dummy variable, takes the value 1 if migrant from an non English speaking country, zero otherwise(Australia only). For Britain, there is a dummy variable that takes the value 1 if coloured and 0 otherwise, for which being a migrant from non-English speaking country would fall under.

Education – year 10: Dummy variable that takes the value 1 if highest qualification is year 10 (Australia) or GCSEs or equivalent (UK), zero otherwise.

Education – year 11 to 12: Dummy variable, takes the value 1 if highest qualification is between years 11 and 12 (Australia) or A-levels or equivalent (UK), zero otherwise.

Education – Certificate / Diploma: Dummy variable, takes the value 1 if highest qualification is a certificate or diploma (Australia) or Other academic or vocational (UK), zero otherwise.

Education – Undergraduate: Dummy variable, takes the value 1 if highest qualification is university undergraduate degree (Australia) or First degree or equivalent (UK) , zero otherwise.

Education – Postgraduate: Dummy variable, takes the value 1 if highest qualification is postgraduate degree (Australia) or Higher degree or equivalent (UK), zero otherwise.

Hours usually worked in main job (weekly): Continuous variable (Australia and UK).

Not married (or de facto): Dummy variable, takes the value 1 if individual is single, zero otherwise (Australia and UK).

Age between 18 and 19 years: Dummy variable, takes the value 1 if individual aged between 18 and 19, zero otherwise (Australia and UK).

Age between 20 and 21 years: Dummy variable, takes the value 1 if individual aged between 20 and 21, zero otherwise (Australia and UK).

Age between 22 and 29 years: Dummy variable, takes the value 1 if individual aged between 22 and 29, zero otherwise (Australia and UK).

Age between 30 and 39 years: Dummy variable, takes the value 1 if individual aged between 30 and 39, zero otherwise (Australia and UK).

Age between 40 and 49 years: Dummy variable, takes the value 1 if individual aged between 40 and 49, zero otherwise (Australia and UK).

Age between 50 and 59 years: Dummy variable, takes the value 1 if individual aged between 50 and 59, zero otherwise (Australia and UK)

Age between 60 and 64 years: Dummy variable, takes value 1 if individual aged between 60 and 64, zero otherwise (Australia and UK).

Has supervisory role: Dummy variable, takes value 1 if individual has supervisory role, zero otherwise (Australia and UK).

Union member: Dummy variable, takes the value 1 if individual is a member of a trade union, zero otherwise (Australia and UK).

Have children aged between 5 and 14: Dummy variable, takes the value 1 if individual has children between the ages of 5 and 14, zero otherwise (Australia and UK).

Have children aged under 5: Dummy variable, takes the value 1 if an individual has children aged under 5, zero otherwise (Australia and UK).

Employment tenure- 1-<2 years: Dummy variable, takes the value 1 if individual is employed with current employer for at least one yr and less than 2 years, zero otherwise (Australia and UK).

Employment tenure- 2-5 years: Dummy variable, takes the value 1 if individual is employed with current employer for between 2-5 years, zero otherwise (Australia and UK).

Employment tenure- 5-10 years: Dummy variable, takes the value 1 if individual is employed with current employer for between 5-10 years, zero otherwise (Australia and UK).

Employment tenure- >10 years: Dummy variable, takes the value 1 if individual is employed with current employer for more than 10 years, zero otherwise (Australia and UK).

Employed on fixed term: Dummy variable, takes the value 1 if individual is employed on fixed term contracts, zero otherwise (Australia and UK).

Casual worker: Dummy variable, takes the value 1 if individual is employed on casual basis, zero otherwise (Australia and UK).

Firm that employs less than 5 people: Dummy variable, takes the value 1 if the firm the individual is employed at employs less than 5 people, zero otherwise (Australia and UK).

Firm that employs between 5-9 people: Dummy variable, takes the value 1 if the firm the individual is employed at employs between 5 and 9 people, zero otherwise (Australia and UK).

Firm that employs between 10-19 people: Dummy variable, takes the value 1 if the firm the individual is employed at employs between 10 and 19 people (Australia) or 10 and 24 people (UK), zero otherwise.

Firm that employs between 20-49 people: Dummy variable, takes the value 1 if the firm the individual is employed at employs between 20 and 49 people (Australia) or 25 and 49 people (UK), zero otherwise.

Full regression results

Table A7: OLS and interval regression estimates for effects of overskilling on weekly wages: Australia vs. UK

Explanatory variable	Weekly Wages	
	Australia	*UK*
Severely over-skilled	-0.082*** (0.015)	-0.120*** (0.008)
Moderately over-skilled	-0.025** (0.010)	-0.029*** (0.007)
Female	-0.120*** (0.010)	-0.142*** (0.007)
Educational attainment – Year 10	0.088*** (0.024)	0.191***[a] (0.013)
Educational attainment – Year 11 to 12	0.163*** (0.023)	0.301***[b] (0.016)
Educational attainment – Certificate / diploma	0.192*** (0.022)	0.273***[c] (0.011)
Educational attainment – Undergraduate	0.417*** (0.023)	0.555*** (0.012)
Educational attainment – Postgraduate	0.512*** (0.030)	0.675*** (0.015)
Not married (or de facto)	-0.068*** (0.010)	-0.056*** (0.007)
Employment tenure- 1-<2 years	-0.061*** (0.016)	0.030*** (0.011)
Employment tenure- 2-5 years	-0.042*** (0.012)	0.064*** (0.010)
Employment tenure- 5-10 years	(dropped)	0.047*** (0.011)
Employment tenure- >10 years	0.034*** (0.012)	0.109*** (0.011)
Hours usually worked in main job (weekly)	0.014*** (0.001)	0.014*** (0.0005)
Age – 18 to 19 years	0.163** (0.073)	0.042 (0.047)
Age – 20 to 21 years	0.351*** (0.070)	0.183*** (0.045)
Age – 22 to 29 years	0.496*** (0.067)	0.331*** (0.042)
Age – 30 to 39 years	0.565*** (0.067)	0.470*** (0.042)
Age – 40 to 49 years	0.606*** (0.067)	0.516*** (0.042)
Age – 50 to 59 years	0.639*** (0.067)	0.533*** (0.042)
Age – 60 to 64 years	0.604*** (0.072)	0.460*** (0.046)
Has supervisory role	0.084*** (0.009)	0.223 (0.007)
A Union Member	0.054*** (0.010)	0.008 (0.007)
Have children aged between 5 and 14	0.020* (0.011)	0.007[d] (0.007)
Have children aged below 5	0.038** (0.015)	0.044*** (0.010)
Employed on fixed term	0.014 (0.016)	-0.019 (0.018)
Casual worker	-0.045** (0.022)	-0.075*** (0.021)
Differences in models		
Coloured (UK only)		-0.063*** (0.013)
Migrant from English speaking country (Aus)	0.028* (0.014)	
Migrant from non-English speaking country (Aus)	-0.048*** (0.013)	
Worked at a firm that employs less than 5 people	-0.208*** (0.018)	
Worked at a firm that employs between 5-9 people	-0.143*** (0.016)	-0.131*** (0.018)
Worked at a firm that employs between 10-19 people	-0.113*** (0.014)	-0.096***e (0.011)
Worked at a firm that employs between 20-49 people	-0.061*** (0.012)	-0.035***[f] (0.008)
Industry- Agriculture, forestry and fishery	-0.153*** (0.034)	
Industry- Mining	0.362*** (0.032)	
Industry- Electricity, gas and water	0.070* (0.040)	0.143 (0.021)
Industry- Construction	0.135*** (0.021)	0.086 (0.014)
Industry- Wholesale	0.011 (0.023)	-0.111(0.013)
Industry- Retail	-0.127*** (0.018)	
Industry- Accommodation, Cafes and Restaurants	-0.121*** (0.028)	-0.357 (0.023)
Industry- Transport	0.076*** (0.022)	0.021 (0.013)

Industry- Communication	0.064** (0.027)	
Industry- Finance	0.219*** (0.023)	0.207 (0.014)
Industry- Property& Business Services (/other Business Services)	0.112*** (0.018)	0.151 (0.011)
Industry- Defence	0.074*** (0.019)	0.082[g] (0.012)
Industry- Education	-0.089*** (0.019)	-0.009 (0.013)
Industry- Health	-0.088*** (0.018)	-0.042 (0.012)
Industry- Cultural & recreational Services	-0.045 (0.031)	-0.047[h] (0.015)
Industry- Personal & other services	-0.050** (0.024)	
Constant	5.477*** (0.075)	4.526*** (0.048)
N	5843	14237
Prob > F	0.0000	0.0000
R square	0.4852	

Notes: ***/**/* denote significance at 1%, 5% and 10% respectively. Standard errors in parentheses.

[a] For UK, the equivalent variable is "Educational attainment – GCSEs or equivalent"

[b] For UK, the equivalent variable is "Educational attainment – A-levels or equivalent"

[c] For UK, the equivalent variable is "Educational attainment – Other academic or vocational"

[d] For UK, the variable is "Have children aged between 5 and 18"

[e] For UK, the variable is "Worked at a firm that employs between 10-24 people"

[f] For UK, the variable is "Worked at a firm that employs between 25-49 people"

[g] For UK, the variable is "Industry- Public Administration"

[h] For UK, the variable is "Industry- other Community Services"

Table A8a: Effects of overskilling on weekly earnings by education level

Explanatory variable	Weekly Wages			
	Below yr. 10/No qualifications		*Year 10/ GCSE*	
	Australia	*UK*	*Australia*	*UK*
Severely over-skilled	0.030	-0.028	-0.113***	-0.050**
	(0.092)	(0.023)	(0.036)	(0.024)
Moderately over-skilled	0.019	-0.001	-0.070***	-0.028
	(0.071)	(0.021)	(0.026)	(0.020)
Female	-0.094	-0.213***	-0.084***	-0.147***
	(0.077)	(0.022)	(0.026)	(0.020)
Not married (or de facto)	-0.017	-0.058***	-0.079***	-0.056***
	(0.072)	(0.020)	(0.027)	(0.020)
Employment tenure- 1-<2 years		-0.008	0.024	0.011
	(dropped)	(0.040)	(0.044)	(0.034)
Employment tenure- 2-<5 years	-0.098	0.034	-0.027	0.067**
	(0.124)	(0.033)	(0.031)	(0.028)
Employment tenure- 5-10 years	-0.028	0.031		0.069**
	(0.122)	(0.034)	(dropped)	(0.031)
Employment tenure- >10 years	-0.011	0.113***	0.049	0.115***
	(0.121)	(0.033)	(0.033)	(0.032)
Hours usually worked in main job (weekly)	0.015***	0.011***	0.014***	0.012***
	(0.003)	(0.001)	(0.002)	(0.001)
	0.754***	-0.167	-0.106	0.239***
Age – 18 to 19 years	(0.286)	(0.188)	(0.109)	(0.077)
	0.990**	-0.074	0.185	0.402***
Age – 20 to 21 years	(0.421)	(0.195)	(0.120)	(0.077)
	0.786***	0.132	0.263**	0.524***
Age – 22 to 29 years	(0.294)	(0.170)	(0.101)	(0.070)
	1.077***	0.113	0.336***	0.587***
Age – 30 to 39 years	(0.268)	(0.165)	(0.096)	(0.069)
	1.030***	0.162	0.360***	0.672***
Age – 40 to 49 years	0.260)	(0.164)	(0.095)	(0.069)
	1.106***	0.177	0.409***	0.700***
Age – 50 to 59 years	(0.257)	(0.164)	(0.096)	(0.072)
	1.055***	0.110	0.397***	0.705***
Age – 60 to 64 years	(0.272)	(0.167)	(0.110)	(0.118)
	-0.070	0. 200***	0.057**	0.168***
Has supervisory role	(0.065)	(0.021)	(0.024)	(0.020)
A Union Member	0.246***	0.026	0.086***	-0.007
	(0.068)	(0.021)	(0.029)	(0.021)
Have children aged between 5 and 14	0.064	0.029	-0.004	-0.007
	(0.096)	(0.040)	(0.033)	(0.021)
Have children aged below 5	0.047	-0.003	0.082	0.042
	(0.153)	(0.022)	(0.055)	(0.028)
Differences				
Migrant from English speaking country	-0.029		0.003	
	(0.113)	-0.078**	(0.038)	-0.071*
Migrant from non-English speaking country	-0.031	(0.037)	0.159***	(0.041)
	(0.113)		(0.044)	
Worked at a firm that employs less	-0.184		-0.167***	

	(1)	(2)	(3)	(4)
than 5 people	(0.122)		(0.043)	
Worked at a firm that employs between 5-9	-0.126	-0.099	-0.102**	-0.061
	(0.106)	(0.054)	(0.039)	(0.048)
Worked at a firm that employs between 10-19 people	-0.171	-0.023	-0.051	-0.002
	(0.108)	(0.030)	(0.037)	(0.031)
Worked at a firm that employs between 20-49 people	-0.116	-0.00004	-0.003	0.026
	(0.085)	(0.023)	(0.033)	(0.024)
Industry- Agriculture, forestry and fishery	0.645**		-0.254***	
	(0.264)		(0.073)	
Industry- Mining	0.490**		0.546***	
	(0.219)		(0.069)	
Industry- Electricity, gas and water	-0.006	0.304***	0.186	0.177**
	(0.267)	(0.094)	(0.124)	(0.070)
Industry- Construction	0.339***	0.113***	0.132**	0.113**
	(0.114)	(0.041)	(0.053)	(0.044)
Industry- Wholesale	-0.015	-0.086***	-0.043	-0.059*
	(0.157)	(0.029)	(0.048)	(0.032)
Industry- Retail	0.114		-0.095**	
	(0.122)		(0.043)	
Industry- Accommodation, Cafes and Restaurants	-0.038	-0.251***	0.073	-0.247***
	(0.152)	(0.056)	(0.076)	(0.065)
Industry- Transport	0.103	0.074**	0.152***	0.067**
	(0.120)	(0.030)	(0.051)	(0.032)
Industry- Communication	0.219		0.196***	
	(0.181)		(0.071)	
Industry- Finance	-0.447	0.233***	-0.029	0.271***
	(0.549)	(0.074)	(0.078)	(0.037)
Industry- Property& Business Services	0.349**	0.028	0.001	0.164***
	(0.164)	(0.035)	(0.058)	(0.035)
Industry- Defence	-0.040	0.176***	0.256***	0.185***
	(0.177)	(0.043)	(0.053)	(0.034)
Industry- Education	0.032	-0.246***	-0.056	-0.121**
	(0.173)	(0.061)	(0.088)	(0.059)
Industry- Health	0.012	-0.138***	-0.101**	-0.113***
	(0.128)	(0.035)	(0.046)	(0.037)
Industry- Cultural & recreational Services		-0.091**	0.214**	-0.103**
	(dropped)	(0.038)	(0.099)	(0.047)
Industry- Personal & other services	-0.162		0.068	
	(0.141)		(0.068)	
Employed on fixed term contract	-0.077	0.017	-0.056	0.030
	(0.125)	(0.073)	(0.048)	(0.082)
Casual worker	-0.083	-0.025	0.010	0.144**
	(0.136)	(0.059)	(0.045)	(0.065)
Constant	4.869***	5.021***	5.738***	4.600***
	(0.310)	(0.174)	(0.127)	(0.095)
N	217	1402	625	1573
Prob > F	0.0001	0.0000	0.0000	0.0000
R square	0.4293	*NA*	0.5417	*NA*

Note: ***/**/* denote significance at 1%, 5% and 10% respectively. Standard errors in parentheses.

Table A8b: Effects of overskilling on weekly earnings by education level

Explanatory variable	Weekly Wages			
	Year 11-12/ A-level		Certificates	
	Australia	UK	Australia	UK
Severely over-skilled	-0.094*** (0.029)	-0.133*** (0.035)	-0.044* (0.026)	-0.094*** (0.012)
Moderately over-skilled	0.008 (0.021)	0.001 (0.028)	-0.040** (0.016)	-0.012 (0.010)
Female	-0.159*** (0.021)	-0.135*** (0.027)	-0.095*** (0.019)	-0.150*** (0.011)
Not married (or de facto)	-0.058*** (0.022)	-0.058** (0.028)	-0.106*** (0.017)	-0.046*** (0.011)
Employment tenure- 1-<2 years	(dropped)	0.019 (0.043)	-0.035 (0.027)	0.008 (0.018)
Employment tenure- 2-<5 years	0.056* (0.030)	0.042 (0.038)	-0.052** (0.020)	0.026* (0.016)
Employment tenure- 5-10 years	0.063* (0.034)	0.069 (0.046)	(dropped)	0.010 (0.017)
Employment tenure- >10 years	0.135*** (0.037)	0.060 (0.046)	0.052** (0.020)	0.075*** (0.017)
Hours usually worked in main job (weekly)	0.013*** (0.001)	0.020*** (0.002)	0.013*** (0.001)	0.013*** (0.001)
Age – 18 to 19 years	0.236* (0.122)	0.592*** (0.188)	0.223 (0.196)	0.012 (0.076)
Age – 20 to 21 years	0.446*** (0.118)	0.736*** (0.185)	0.436** (0.189)	0.198*** (0.074)
Age – 22 to 29 years	0.642*** (0.115)	0.846*** (0.182)	0.570*** (0.186)	0.384*** (0.069)
Age – 30 to 39 years	0.663*** (0.116)	0.974*** (0.184)	0.624*** (0.186)	0.482*** (0.069)
Age – 40 to 49 years	0.728*** (0.118)	1.094*** (0.185)	0.647*** (0.186)	0.509*** (0.069)
Age – 50 to 59 years	0.803*** (0.118)	1.064*** (0.186)	0.666*** (0.186)	0.523*** (0.069)
Age – 60 to 64 years	0.729*** (0.145)	0.894*** (0.224)	0.663*** (0.190)	0.431*** (0.074)
Has supervisory role	0.061*** (0.019)	0.230*** (0.028)	0.091*** (0.015)	0.225*** (0.010)
A Union Member	0.039* (0.022)	-0.101*** (0.030)	0.089*** (0.016)	0.021** (0.011)
Have children aged between 5 and 14	-0.003 (0.027)	0.037 (0.034)	0.036* (0.019)	0.015* (0.011)
Have children aged below 5	0.030 (0.033)	-0.004 (0.044)	0.030 (0.025)	0.040*** (0.015)
Differences				
Migrant from English speaking country	0.006 (0.031)	-0.110* (0.057)	0.068*** (0.025)	-0.085*** (0.022)
Migrant from non-English speaking country	-0.070** (0.029)		-0.040* (0.024)	
Worked at a firm that employs less than 5 people	-0.194*** (0.034)		-0.184*** (0.031)	
Worked at a firm that employs between 5-9	-0.151*** (0.034)	-0.251*** (0.067)	-0.121*** (0.025)	-0.081*** (0.027)
Worked at a firm that employs	-0.113***	-0.129***	-0.075***	-0.106***

between 10-19 people	(0.028)	(0.042)	(0.022)	(0.017)
Worked at a firm that employs between 20-49 people	-0.093***	-0.019	-0.026	-0.035***
	(0.027)	(0.034)	(0.020)	(0.012)
Industry- Agriculture, forestry and fishery	-0.159**		-0.187***	
	(0.070)		(0.056)	
Industry- Mining	0.414***		0.293***	
	(0.078)		(0.044)	
Industry- Electricity, gas and water	-0.106	0.003	0.080	0.203***
	(0.116)	(0.092)	(0.052)	(0.031)
Industry- Construction	0.046	0.021	0.151***	0.092***
	(0.045)	(0.071)	(0.031)	(0.020)
Industry- Wholesale	-0.067	-0.115	0.058	-0.116***
	(0.046)	(0.057)	(0.036)	(0.019)
Industry- Retail	-0.174***		-0.139***	
	(0.033)		(0.029)	
Industry- Accommodation, Cafes and Restaurants	-0.186***	-0.293***	-0.181***	-0.352***
	(0.048)	(0.089)	(0.045)	(0.035)
Industry- Transport	-0.003	0.040	0.079**	0.011
	(0.042)	(0.059)	(0.034)	(0.019)
Industry- Communication	0.039		0.018	
	(0.050)		(0.045)	
Industry- Finance	0.180***	0.169***	0.148***	0.229***
	(0.045)	(0.050)	(0.042)	(0.020)
Industry- Property& Business Services	0.101***	0.224***	0.066*	0.144***
	(0.038)	(0.052)	(0.035)	(0.018)
Industry- Defence	0.015	0.199***	0.024	0.121***
	(0.041)	(0.050)	(0.031)	(0.019)
Industry- Education	0.012	-0.013	-0.062*	0.018
	(0.055)	(0.074)	(0.036)	(0.022)
Industry- Health	-0.146***	-0.179***	-0.139***	-0.022
	(0.044)	(0.054)	(0.029)	(0.017)
Industry- Cultural & recreational Services	-0.089	0.032	-0.011	-0.053**
	(0.066)	(0.065)	(0.047)	(0.023)
Industry- Personal & other services	-0.117**		0.022	
	(0.053)		(0.035)	
Employed on fixed term contract	-0.033	-0.033	-0.006	-0.007**
	(0.036)	(0.065)	(0.027)	(0.031)
Casual worker	-0.033	-0.023	0.007	-0.077
	(0.042)	(0.079)	(0.037)	(0.035)
Constant	5.538***	4.069***	5.599***	4.814***
	(0.135)	(0.210)	(0.192)	(0.077)
N	1123	842	2075	5815
Prob > F	0.0000	0.0000	0.0000	0.0000
R square	0.4866	NA	0.4227	NA

Note: ***/**/* denote significance at 1%, 5% and 10% respectively. Standard errors in parentheses.

Table A8c: Effects of overskilling on weekly earnings by education level

Explanatory variable	Weekly Wages			
	Undergraduates		Postgraduates	
	Australia	UK	Australia	UK
Severely over-skilled	-0.159***	-0.203***	-0.157	-0.183***
	(0.034)	(0.016)	(0.124)	(0.028)
Moderately over-skilled	-0.003	-0.058***	-0.077	-0.096***
	(0.020)	(0.014)	(0.054)	(0.025)
Female	-0.115***	-0.102***	-0.111**	-0.141***
	(0.019)	(0.013)	(0.050)	(0.023)
Not married (or de facto)	-0.026	-0.053***	-0.071	-0.080***
	(0.021)	(0.014)	(0.057)	(0.025)
Employment tenure- 1-<2 years		0.052**	-0.037	0.062*
	(dropped)	(0.021)	(0.081)	(0.037)
Employment tenure- 2-<5 years	0.064**	0.098***	-0.018	0.092***
	(0.031)	(0.018)	(0.059)	(0.033)
Employment tenure- 5-10 years	0.123***	0.075***		0.035
	(0.033)	(0.021)	(dropped)	(0.038)
Employment tenure- >10 years	0.134***	0.138***	-0.061	0.105***
	(0.035)	(0.022)	(0.061)	(0.039)
Hours usually worked in main job (weekly)	0.015***	0.016***	0.011***	0.013***
	(0.001)	(0.001)	(0.002)	(0.001)
		-0.623***		-0.652
Age – 18 to 19 years	(dropped)	(0.195)	(dropped)	(0.307)
	-0.111	-0.600***		-0.398
Age – 20 to 21 years	(0.188)	(0.145)	(dropped)	(0.308)
	-0.157	-0.297**	0.049	-0.095
Age – 22 to 29 years	(0.097)	(0.134)	(0.192)	(0.251)
	-0.038	-0.083	0.237	0.080
Age – 30 to 39 years	(0.096)	(0.134)	(0.154)	(0.250)
	0.0001	-0.020	0.414***	0.140
Age – 40 to 49 years	(0.096)	(0.134)	(0.152)	(0.251)
	0.038	0.002	0.404***	0.216
Age – 50 to 59 years	(0.096)	(0.134)	(0.148)	(0.251)
		-0.078		0.166
Age – 60 to 64 years	(dropped)	(0.146)	(dropped)	(0.268)
	0.111***	0.218***	0.145***	0.225***
Has supervisory role	(0.020)	(0.013)	(0.050)	(0.023)
A Union Member	0.001	-0.032**	-0.063	0.001
	(0.022)	(0.015)	(0.051)	(0.026)
Have children aged between 5 and 14	0.040*			
	(0.023)	-0.004	-0.001	-0.029
		(0.016)	(0.054)	(0.026)
Have children aged below 5	0.040	0.036*	0.016	0.038
	(0.029)	(0.019)	(0.076)	(0.035)
Differences				
Migrant from English speaking country	0.046		-0.045	
	(0.028)	-0.037	(0.067)	-0.008
Migrant from non-English speaking country	-0.088***	(0.024)	-0.023	(0.040)
	(0.025)		(0.060)	
Worked at a firm that employs less than 5 people	-0.225***		-0.995***	
	(0.046)		(0.304)	
Worked at a firm that employs between 5-9	-0.141***	-0.246***	-0.207*	-0.145*
	(0.040)	(0.037)	(0.108)	(0.078)
Worked at a firm that employs	-0.130***	-0.121***	-0.197**	-0.157***

between 10-19 people	(0.031)	(0.024)	(0.086)	(0.056)
Worked at a firm that employs	-0.074***	-0.051***	-0.053	-0.062**
between 20-49 people	(0.022)	(0.016)	(0.074)	(0.031)
Industry- Agriculture, forestry	-0.117		-0.091	
and fishery	(0.086)		(0.173)	
	0.408***		0.492*	
Industry- Mining	(0.098)		(0.281)	
Industry- Electricity, gas and	-0.051	0.072*	0.232	-0.047
water	(0.132)	(0.038)	(0.181)	(0.119)
	-0.015	0.059*	0.355	0.013
Industry- Construction	(0.069)	(0.031)	(0.221)	(0.078)
	0.077		0.773***	
Industry- Wholesale	(0.073)	-0.164***	(0.213)	-0.224
	-0.065	(0.033)	-0.034	(0.081)
Industry- Retail	(0.054)		(0.270)	
Industry- Accommodation, Cafes	0.238*	-0.523***	-0.019	-0.592***
and Restaurants	(0.130)	(0.057)	(0.248)	(0.126)
	0.120*		0.346	
Industry- Transport	(0.062)	-0.008	(0.400)	-0.192***
	0.125*	(0.035)	0.074	(0.080)
Industry- Communication	(0.074)		(0.135)	
	0.292***	0.143***	0.403***	0.188**
Industry- Finance	(0.043)	(0.030)	(0.112)	(0.065)
Industry- Property& Business	0.132***	0.151***	0.091	0.082***
Services	(0.036)	(0.022)	(0.106)	(0.049)
	0.101**	-0.051**	0.175*	-0.006*
Industry- Defence	(0.040)	(0.026)	(0.096)	(0.055)
	-0.110***	-0.029	0.110	-0.072
Industry- Education	(0.038)	(0.025)	(0.093)	(0.049)
	-0.010	-0.057**	0.146	0.012
Industry- Health	(0.040)	(0.025)	(0.111)	(0.053)
Industry- Cultural & recreational	-0.126**	-0.047	-0.154	-0.036
Services	(0.062)	(0.030)	(0.174)	(0.061)
Industry- Personal & other	-0.283***		0.342*	
services	(0.066)		(0.185)	
Employed on fixed term contract	0.102***	-0.005	0.082	-0.069
	(0.030)	(0.031)	(0.060)	(0.043)
Casual worker	-0.234***	-0.104***	-0.212	-0.168**
	(0.056)	(0.039)	(0.173)	(0.070)
	6.328***	5.621***	6.312***	5.731***
Constant	(0.118)	(0.141)	(0.225)	(0.261)
N	1490	3437	308	1168
Prob > F	0.0000	0.0000	0.0000	0.0000
R square	0.4227	*NA*	0.3722	*NA*

Note: ***/**/* denote significance at 1%, 5% and 10% respectively. Standard errors in parentheses.

Table A9: Effects of overskilling on weekly earnings by gender (for full-time working age)

Explanatory variable	Males		Females	
	Australia	*UK*	*Australia*	*UK*
Severely over-skilled	-0.095***	-0.124***	-0.057***	-0.114***
	(0.019)	(0.010)	(0.022)	(0.012)
Moderately over-skilled	-0.015	-0.024**	-0.038***	-0.040***
	(0.013)	(0.009)	(0.014)	(0.010)
Educational attainment –	0.070**	0.171***	0.135***	0.235***
Year 10	(0.031)	(0.017)	(0.036)	(0.021)
Educational attainment –	0.177***	0.293***	0.172***	0.328***
Year 11 to 12	(0.029)	(0.022)	(0.035)	(0.024)
Educational attainment –	0.183***	0.244***	0.210***	0.318***
Certificate / diploma	(0.027)	(0.014)	(0.034)	(0.018)
Educational attainment –	0.415***	0.523***	0.414***	0.590***
Undergraduate	(0.030)	(0.016)	(0.035)	(0.020)
Educational attainment –	0.510***	0.662***	0.517***	0.697***
Postgraduate	(0.038)	(0.020)	(0.046)	(0.024)
Not married (or de facto)	-0.090***	-0.092***	-0.026*	-0.008
	(0.015)	(0.010)	(0.014)	(0.009)
Employment tenure- 1-<2 years	-0.045**	0.037**		0.021
	(0.021)	(0.016)	(dropped)	(0.015)
Employment tenure- 2-5 years	-0.042***	0.076***	0.045**	0.051***
	(0.015)	(0.014)	(0.022)	(0.014)
Employment tenure- 5-10 years		0.052***	0.088***	0.048***
	(dropped)	(0.015)	(0.023)	(0.015)
Employment tenure- >10 years	0.030*	0.117***	0.133***	0.100***
	(0.016)	(0.015)	(0.025)	(0.016)
Hours usually worked in main job	0.014***	0.012***	0.014***	0.015***
(weekly)	(0.001)	(0.001)	(0.001)	(0.001)
	0.101	-0.102	0.273***	0.186***
Age – 18 to 19 years	(0.104)	(0.069)	(0.095)	(0.063)
	0.291***	0.031	0.432***	0.324***
Age – 20 to 21 years	(0.101)	(0.066)	(0.088)	(0.060)
	0.458***	0.191***	0.589***	0.473***
Age – 22 to 29 years	(0.097)	(0.061)	(0.084)	(0.057)
	0.537***	0.352***	0.661***	0.600***
Age – 30 to 39 years	(0.097)	(0.061)	(0.084)	(0.057)
	0.587***	0.407***	0.652***	0.629***
Age – 40 to 49 years	(0.097)	(0.061)	(0.084)	(0.057)
	0.630***	0.437***	0.657***	0.621***
Age – 50 to 59 years	(0.098)	(0.061)	(0.084)	(0.057)
	0.586***	0.345***	0.644***	(dropped)
Age – 60 to 64 years	(0.102)	(0.064)	(0.095)	
	0.088***	0.235***	0.074***	0.196***
Has supervisory role	(0.012)	(0.009)	(0.013)	(0.010)
A Union Member	0.067***	-0.017*	0.028*	0.044***
	(0.013)	(0.009)	(0.015)	(0.010)
Have children aged between 5 and	0.049***	0.039***	-0.055***	-0.057***
14	(0.015)	(0.010)	(0.017)	(0.011)
Have children aged below 5	0.034*	0.035***	0.011	0.050***
	(0.018)	(0.012)	(0.032)	(0.018)
Differences				
Migrant from English speaking	0.022		0.038*	
country	(0.019)	-0.088***	(0.021)	-0.031*
Migrant from non-English	-0.032*	(0.018)	-0.040**	(0.018)
speaking country	(0.018)		(0.020)	

	(1)	(2)	(3)	(4)
Worked at a firm that employs less than 5 people	-0.191*** (0.024)		-0.225*** (0.028)	
Worked at a firm that employs between 5-9 people	-0.160*** (0.021)	-0.133*** (0.025)	-0.097*** (0.023)	-0.117*** (0.024)
Worked at a firm that employs between 10-19 people	-0.130*** (0.018)	-0.095***[a] (0.016)	-0.074*** (0.021)	-0.103***[a] (0.015)
Worked at a firm that employs between 20-49 people	-0.061*** (0.016)	-0.025**[b] (0.011)	-0.061*** (0.017)	-0.054***[b] (0.011)
Industry- Agriculture, forestry and fishery	-0.117*** (0.040)		-0.441*** (0.070)	
Industry- Mining	0.360*** (0.035)		0.218* (0.114)	
Industry- Electricity, gas and water	0.061 (0.046)	0.146*** (0.025)	0.064 (0.097)	0.132*** (0.039)
Industry- Construction	0.149*** (0.025)	0.086*** (0.017)	0.047 (0.049)	0.087*** (0.029)
Industry- Wholesale	-0.009 (0.029)	-0.091*** (0.016)	0.073* (0.039)	-0.132*** (0.021)
Industry- Retail	-0.122*** (0.023)		-0.126*** (0.030)	
Industry- Accommodation, Cafes and Restaurants	-0.151*** (0.038)	-0.381*** (0.033)	-0.074* (0.041)	-0.300*** (0.034)
Industry- Transport	0.089*** (0.026)	0.006 (0.015)	-0.004 (0.044)	0.072*** (0.025)
Industry- Communication	0.046 (0.033)		0.097** (0.047)	
Industry- Finance	0.302*** (0.031)	0.243*** (0.019)	0.116*** (0.032)	0.182*** (0.021)
Industry- Property& Business Services	0.140*** (0.024)	0.154*** (0.015)	0.074** (0.029)	0.164*** (0.019)
Industry- Defence	0.030 (0.024)	0.081*** (0.016)	0.163*** (0.031)	0.088*** (0.020)
Industry- Education	-0.162*** (0.028)	-0.061*** (0.020)	-0.005 (0.028)	0.036* (0.020)
Industry- Health	-0.164*** (0.029)	-0.041** (0.019)	-0.033 (0.026)	-0.022 (0.017)
Industry- Cultural & recreational Services	-0.088** (0.038)	-0.085*** (0.019)	0.058 (0.052)	0.017 (0.024)
Industry- Personal & other services	-0.037 (0.030)	-	-0.097** (0.042)	-
Employed on fixed term	0.033 (0.021)	-0.050* (0.025)	-0.012 (0.023)	0.007 (0.024)
Casual worker	-0.026 (0.029)	-0.090*** (0.028)	-0.066** (0.030)	-0.048 (0.030)
Constant	5.492*** (0.106)	4.733*** (0. 068)	5.160*** (0.099)	4.157*** (0.067)
Sample size	3653	8107	2185	6130
Prob > F	0.0000	0.0000	0.0000	0.0000
R square	0.4741	NA	0.4989	NA

Note: ***/**/* denote significance at 1%, 5% and 10% respectively. Standard errors in parentheses.

[a] For UK, the variable is "Worked at a firm that employs between 10-24 people"
[b] For UK, the variable is "Worked at a firm that employs between 25-49 people"