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Abstract

This paper uses longitudinal data from Australia to examine the extent to which overskilling is a transitory phenomenon that declines with increased labour market mobility. The results suggest that while overskilled workers are more likely to want to quit, they are relatively unconfident of finding an improved labour market match. Furthermore, some of the greater mobility observed among overskilled workers is due to involuntary job separations and even in instances where job separations are voluntary, the majority of moves do not result in improved skills matches.

1. Introduction

The issue of skills mismatch, and especially overskilling, has received substantial attention in recent years. In particular, a debate has taken place regarding the extent to which overskilling, or more strictly overeducation, imposes significant wage costs on affected individuals (see McGuinness, 2006). Most empirical studies use a measure of overeducation as a proxy for overskilling, where the overeducation measure is derived from some assessment of the difference between educational qualifications held and that regarded as necessary to perform the job. However, it is estimated that overskilling effects account for just over a third of the overeducation pay penalty indicating that overeducation is a relatively unreliable proxy for overskilling (McGuinness, 2003). Although some previous Australian studies have assessed the incidence and wage affects of overeducation (Kler, 2005, Linsley, 2005a, 2005b, Voon & Miller, 2005) this is the first study to examine the impacts of overskilling.

Clearly overskilling would be of little concern if, as has been asserted by some (e.g., Sicherman, 1991; Alba-Rameriz, 1993), it is only a transitory phenomenon, with overskilled workers eventually achieving a more appropriate match through repeated job search activity. Implicit in such assertions is the belief that job separations experienced by overskilled workers will mostly be voluntary in nature, suggesting that such workers will be both more likely to quit and relatively confident with respect to their future employment prospects. In addition, this mobility hypothesis also suggests that job search activities and the subsequent job separations should commonly result in an improved match and a reduction in the level of overskilling.

This paper uses Australian data to test these predictions. The study is unique on two counts. First, overskilling is examined using a longitudinal dataset, and second, a direct measure of skills mismatch is used, as opposed to the more routinely used education-based proxies.

2. Data and Methods

The data for this study comes from the first four waves of the Household, Income and Labour Dynamics in Australia (HILDA) Survey. Modelled on household panel

surveys undertaken in other countries, the HILDA Survey began in 2001 with a large national probability sample of Australian households and their members. The sample used here is restricted to working-age employees providing complete information on the variables of interest in any of the four annual survey waves.

Our measure of overskilling is derived from responses, scored on a 7-point scale, to the question "I use many of my skills and abilities in my current job". A response of 1 corresponds with strongly disagree and 7 with strongly agree. All respondents in the sample were then classified into one of three groups for each yearly observation: (i) the severely overskilled (individuals selecting 1, 2 or 3 on this scale); (ii) the moderately overskilled (those selecting 4 or 5); and (iii) the well matched (individuals selecting 6 or 7).

We first assess the extent to which overskilling is associated with the perceived probabilities of quitting, job loss and regaining similar quality employment in the event of job loss. If the mobility hypothesis is correct we would expect our overskilling measure to exhibit a positive relationship with quit intentions, a negative relationship with re-employment probabilities, and no obvious relationship with job loss expectations. These three outcome variables are derived from questions that are identical to those used in the study of job insecurity by Manski and Straub (1999). They are all probabilistic in nature with responses ranging between 0 and 100, but with many observations grouped at the lower (in the case of the quit and job loss variables) and upper (in the case of the re-employment variable) limits. With data of this nature Wagner (2001) demonstrates that the fractional logit model, developed by Papke and Wooldridge (1996), is the most suitable approach as it overcomes many of the flaws associated with the more widely used Tobit and OLS models and, consequently is applied here.

Papke and Wooldridge (1996) propose a non-linear function for estimating the expected values of dependent variables y_i conditional on a vector of covariates x_i

$$E\left(y_i \mid x_i\right) = G\left(x_i \beta\right) \qquad (1)$$

where G is any cumulative distribution function and betas are the true population parameters. They chose a logistic distribution

$$E\left(y_i \mid x_i\right) = \frac{\exp\left(x_i\beta\right)}{1+\exp\left(x_i\beta\right)} \qquad (2)$$

and suggest the use of Bernoulli log-likelihood function

$$l_i\left(\beta\right) = y_i \log\left[G\left(x_i\beta\right)\right] + \left(1-y_i\right)\log\left[1-G\left(x_i\beta\right)\right] \qquad (3)$$

to obtain the quasi-maximum likelihood estimator, $\hat{\beta}$. The covariates selected include controls for the usual array of demographic characteristics (such as sex, age and marital status) as well as controls for various job characteristics, including underskilling and upskilling. Both of these latter variables are based on subjective responses to questions similar to those used in the construction of the overskilling variable.[1]

A random effects probit model is then estimated on an unbalanced panel to assess the degree to which overskilled workers are more likely to experience voluntary and involuntary job separations in the following period. Finally, having established the relationship between overskilling and job separation, simple descriptive statistics on the extent to which voluntary separations lead to reductions in the incidence of overskilling are reported.

3. Results

Table 1 gives the rates of overskilling within the Australian workforce over the period 2001 to 2004. Between 15 and 20 per cent of employees believe themselves to be severely overskilled and another 25 to 28 per cent moderately overskilled, leaving approximately 60 per cent of employees reporting themselves as well matched over the period. The rates of severe overskilling are broadly in line with the incidences of

[1] The underskilling measure was constructed from responses to the item "My job is complex and difficult", while the upskilling measure was derived from the item "My job often requires me to learn new skills".

Australian overeducation reported by (Voon & Miller, 2005). Consistent with previous research, labour market mobility rates were much higher for overskilled workers (Table 2), with between 15 and 20 per cent of severely overskilled workers having changed jobs since the last wave compared with approximately 11 per cent of well matched employees.

Table 1

Incidence of skills mismatch (% of employees), HILDA Survey waves 1 to 4

	Severely overskilled	Moderately overskilled	Well matched
Wave 1 (2001)	13.9	25.1	60.0
Wave 2 (2002)	15.0	28.0	57.0
Wave 3 (2003)	13.0	27.7	59.3
Wave 4 (2004)	15.4	28.3	56.3

Table 2

Rates of annual job mobility (% of employees) by skills mismatch,

HILDA Survey waves 2 to 4

	Severely overskilled	Moderately overskilled	Well matched
Wave 2 (2002)	15.3	13.8	11.1
Wave 3 (2003)	20.3	14.1	11.6
Wave 4 (2004)	18.4	14.5	10.3

The results of the fractional logits are reported in Table 3. Each model is estimated on a pooled sample with cross-sectional weights applied. In line with the mobility hypothesis, the results indicate that, relative to the well matched base case, severely overskilled workers believe themselves, on average, to be 10 per cent more likely to quit within 12 months and moderately overskilled workers 3 per cent more likely to quit. However, there are no indications that overskilled workers believe that it would be relatively easy to secure similar quality employment in the event of job loss. The intention to quit is thus not necessarily accompanied by an anticipated improvement in skills match. Indeed, moderately matched workers believe that they would have difficulty in finding similar, presumably equally underutilised, employment in the event of a job loss. Also counter to expectations, overskilled workers were found to be

more likely to fear job loss relative to their well matched counterparts, suggesting that at least some of the higher labour market mobility rates observed among overskilled workers will have been due to involuntary separations.

We next estimated models of actual job separation. We distinguished between voluntary and involuntary separations among workers employed in the previous wave and estimated random effects probit models which include the overskilling variable along with a small number of covariates (controlling for sex, age, marital status, immigrant status, education and fathers' occupational status). Consistent with the mobility hypothesis, being severely or moderately overskilled in the previous period raises the probability of a voluntary separation having taken place by the next wave by 8.2 and 4.4 per cent respectively. However, overskilled workers were also more likely to be laid off, and although the marginal impacts are much smaller, at 1 per cent, these are likely to be under-estimates given many of the overskilled workers previously under threat of job loss will have left voluntarily prior to the lay off actually occurring.

Finally, the data also reveal that only a minority of overskilled workers (38 per cent) who voluntarily changed their job between wave 3 and wave 4 reported an improvement in skills utilisation by wave 4.

Table 3

Overskilling and job insecurity – Fractional logit (marginal effects)

Explanatory variable	Probability of job loss	Probability of quitting	Re-employment prospects
Female	-0.013***	-0.007	0.028***
	(0.004)	(0.006)	(0.006)
Age – 30 to 39 years	0.014***	-0.062***	-0.031***
	(0.005)	(0.006)	(0.008)
Age – 40 to 49 years	0.027***	-0.109***	-0.083***
	(0.005)	(0.006)	(0.008)
Age – 50 to 50 years	0.037***	-0.111***	-0.161***
	(0.007)	(0.007)	(0.011)
Age – 60 to 64 years	0.020	-0.045**	-0.330***
	(0.015)	(0.018)	(0.024)
Not married	0.011***	0.046***	0.011*
	(0.004)	(0.006)	(0.006)
Born overseas in an English-speaking country	0.022***	-0.022***	-0.038***
	(0.001)	(0.008)	(0.009)
Born overseas in a non-English-speaking country	0.006	0.028***	0.031***
	(0.005)	(0.009)	(0.008)
Educational attainment – Year 10 to 12	-0.007*	-0.005	-0.010
	(0.004)	(0.006)	(0.007)
Educational attainment – Certificate / diploma	-0.019***	0.040	0.052***
	(0.004)	(0.010)	(0.009)
Educational attainment – Degree or higher	0.000	0.062***	0.083***
	(0.004)	(0.008)	(0.007)
Urban	0.013***	0.014***	0.035***
	(0.003)	(0.005)	(0.006)
Long-term ill / disabled	-0.025***	-0.045***	0.043***
	(0.004)	(0.007)	(0.008)
Father was a professional	-0.002	0.016**	0.012*
	(0.004)	(0.007)	(0.007)
Proportion of past year spent in unemployment	0.065***	-0.044**	-0.084***
	(0.010)	(0.020)	(0.023)
Working full-time	0.005	-0.014*	0.020***
	(0.004)	(0.007)	(0.007)
Fixed-term contract worker	0.097**	0.003	-0.007
	(0.008)	(0.008)	(0.009)
Casual employee	0.081***	0.062***	0.017**
	(0.006)	(0.008)	(0.008)
Job tenure (years)	-0.002***	-0.004***	-0.009***
	(0.000)	(0.001)	(0.001)
Occupation experience (years)	-0.000	-0.001**	-0.004***
	(0.000)	(0.000)	(0.000)
Severely overskilled	0.030***	0.097***	0.002
	(0.006)	(0.009)	(0.009)
Moderately overskilled	0.023***	0.026***	-0.039***
	(0.004)	(0.006)	(0.006)
Underskilling	0.000	0.011***	0.004**
	(0.001)	(0.004)	(0.002)
Upskilling	0.001	-0.012***	-0.001
	(0.001)	(0.002)	(0.002)
Observations	22835	22850	22443
Log pseudo-likelihood	-6415.7	-9850.3	-11508.6

Notes: Robust standard errors in parentheses. Also included in the model, but not reported in this table are controls for industry dummies and firm size.
*, ** and *** denote significance at the 10, 5 and 1 per cent levels, respectively.

Table 4

Overskilling and job separation – Random effects probit (marginal effects)

Explanatory variable	Involuntary separation	Voluntary separation
Female	-0.004***	-0.003
	(0.001)	(0.003)
Age – 30 to 39 years	0.003**	0.000
	(0.001)	(0.003)
Age – 40 to 49 years	0.001	-0.023***
	(0.001)	(0.003)
Age – 50 to 59 years	-0.001	-0.033***
	(0.001)	(0.002)
Age – 60 to 64 years	-0.005***	-0.041***
	(0.001)	(0.003)
Not married	0.005***	0.027***
	(0.001)	(0.003)
Born overseas in an English-speaking country	0.001	-0.002
	(0.002)	(0.005)
Born overseas in a non-English-speaking country	0.005***	0.018***
	(0.002)	(0.005)
Educational attainment – Year 10 to 12	0.004***	0.027***
	(0.001)	(0.004)
Educational attainment – Certificate / diploma	0.002	0.029***
	(0.002)	(0.007)
Educational attainment – Degree or higher	0.004***	0.034***
	(0.002)	(0.005)
Father was a professional	-0.001	0.017***
	(0.000)	(0.005)
Severely overskilled	0.008***	0.082***
	(0.003)	(0.008)
Moderately overskilled	0.006***	0.044***
	(0.002)	(0.005)
Log likelihood	-2700.7	-6973.9
Wald chi^2 (14)	143.26***	798.87***
Observations	25676	27237
Number of individuals	15680	15981

Notes: In both models the base state is not changing jobs. People who change or cease employment for other reasons (e.g., sickness, pregnancy) are thus excluded from the analysis.
Standard errors in parentheses.
*, ** and *** denote significance at the 10, 5 and 1 per cent levels, respectively.

4. Summary and conclusions

This paper uses longitudinal data on overskilled workers to demonstrate that there is only modest support for the hypothesis that overskilling is a transitory phenomenon. Overskilled workers while more likely to quit, are also more likely to fear job loss and tend to be relatively unconfident with respect to their labour market prospects. Furthermore, it is demonstrated that at least some of the higher mobility levels observed among overskilled workers is due to involuntary separations. Finally, the majority of overskilled workers that voluntarily separate from their employer do not experience an improved skills match.

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