The Incidence and Intensity of Employer Funded Training:

Australian Evidence on the Impact of Flexible Work

by

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Abstract

The interaction between the growth of flexible forms of employment and employer funded training is important for understanding labour market performance. In particular, the idea of a trade-off has been advanced to describe potential market failures in the employment of flexible workers. This study finds that evidence of a trade-off is apparent in both the incidence and intensity of employer funded training. Flexible workers receive training that is 50-80% less intense than the workforce average. Casual workers – especially males – suffer more acutely from the trade-off. This suggests that flexible production externalities may seriously reduce human capital formation in the workforce.

KEYWORDS: TRAINING, FLEXIBLE WORK.

JEL CLASSIFICATION: J24

I INTRODUCTION

The growth of "flexible" forms of employment represents one of the defining characteristics of labour markets in the advanced OECD economies. Encouraged by a process of labour market deregulation begun in the 1980s, employers have created jobs that are defined by high levels of employment flexibility, while on the supply-side the increased labour market participation of groups such as women and young people has ensured that this demand has been met. Although flexible work is being accommodated on the supply-side, the defining feature of employment flexibility lies in the increased scope it provides for employers to adjust the size and structure of their workforces. Technological and organizational change has also played a role in encouraging the growth of flexible employment. In particular, it is speculated that the restructuring of production processes within firms has raised the efficiency costs of institutions that impede flexibility, such as centralized bargaining (Lindbeck and Snower, 1996).

There is concern however that flexible employment arrangements can themselves raise efficiency costs in important ways. Chiefly, the proliferation of casual and temporary working arrangements may lead to reduced employer-led investments in training and a sub-optimal level of training provision in the economy (Streeck, 1989; Arulampalam and Booth, 1998). Arulampalam and Booth (1998) find that workers employed on flexible arrangements – defined in terms of union membership, hours worked and employment contract – face a decreased likelihood of experiencing work-related training. This suggests that there may be a substantial market failure occurring with respect to the training of workers employed in the flexible workforce. Employees falling into this group acquire fewer skills and less human capital than their counterparts in the permanent workforce.

Theoretically, the relationship between flexible employment and the provision of employer-funded training hinges on how firms invest in specific and general human capital. The availability of a short-term labour force employed on part-time, fixed-term

and / or casual contracts means that firms have the option to organise part of their production around a workforce of temporary workers that can be adjusted at will. After Oi (1962), the fixity of labour is relaxed such that firms can use labour as a "flexible factor of production". In this situation firms face a reduced incentive to invest in the training and retention of a significant workforce of long-term, permanent employees. In turn, the pursuit of "flexible production" by firms has the potential to affect a negative externality with respect to the skills, welfare and productivity of the aggregate workforce. For example, Arulampalam and Booth (1998) highlight the tensions that exist between enhancing labour market flexibility through the removal of "institutional rigidities" that impede the decision-making of firms (ie: unions, employment legislation and government regulation) and enhancing flexibility by improving the skills and adaptability of workers.

Recent evidence on the labour market performance of temporary and fixed-term contract (FTC) workers provides some support for the idea that such workers are being used as flexible factor inputs. Guell and Petrongolo (2003) conduct an extensive study of employment durations in the Spanish labour market, finding early and late spikes in the timing of FTC worker's contract renewals. The early spike is consistent with a screening explanation while the later spike reflects the 3-year legal limit on FTC employment. Noting that the later spikes are more pronounced for male and less-skilled workers, Guell and Petrongolo (2003:17) posit that such spikes could be indicative of employers "using FTCs as a cheaper alternative to permanent contracts up to their legal duration limit of three years". Other studies by Booth et al (2002) and Brown and Sessions (2003) examine wage differentials between permanent workers and those on FTCs. In particular, Brown and Sessions (2002) find that the wages of FTC workers in the UK are 13% lower than their permanent counterparts (even after controlling for personal and job characteristics), with 70% of the difference attributable to price effects, that is, variations in how permanent and FTC workers are paid according to their characteristics.

Given this evidence on how employers pay and utilize flexible workers it is plausible that patterns of training could also have some relationship to the employment status of

workers. Employer funded training could be expected to take a leading role in such a trade-off relationship since it is the most direct manifestation of employers' human capital investments. Existing research on the pattern of employer funded training has considered a wide range of factors and focused primarily on measures of incidence, that is, the question of *who* receives employer funded training[1]. However, the *intensity* of training provided by employers to workers in different working arrangements is also likely to be a crucial issue when considering the possibility of the trade-offs discussed above. For instance, casual workers might not be excluded from general and informal training provided within a workplace, but may be excluded from more intensive training which is expected to have long-lasting effects on productivity.

Therefore, it is possible that differences in the incidence of training between different groups of workers may hide even larger differentials in the amount of training provided by employers. In turn, information on the intensity of training has the potential to shed light on the *extent* of underinvestment and market failure in training. For example, in cases where members of the flexible workforce do receive employer funded training is this training of a lower intensity? And are there particular groups in the flexible workforce that suffer more acutely from the trade off between training and flexibility?

This paper assesses the influence of flexible working arrangements on the provision of employer funded training in Australia. The Australian economy provides a good context for examining the link between flexibility and training since it is an economy characterized by both a large flexible workforce and a large non-traded goods sector, a trend that has been associated with skill deficits in the workforce[2]. We use the 1997 Survey of Employment and Training Experience (SETE) conducted by the Australian Bureau of Statistics (ABS) to investigate the incidence and intensity of employer funded training. This survey is useful as it was developed in consultation with a range of training

[1] See, for example, Green (1991), Shields (1998) and Arulampalam and Booth (1998). The papers by Green and Zanchi (1997) and Miller (1994) examine the time spent in training in the context of gender differentials in the receipt of training.

[2] Oulton (1996) makes a connection between Britain's skill profile and non-traded goods sector in comparison to the higher skills and exports of the German economy.

policy bodies and contains very detailed information on the incidence, costs and intensity of training undertaken by workers. Our particular interest in the SETE data lies with the extent to which casual, part-time and non-unionised workers fail to attract training investment from their employers. Therefore we are able to extend previous studies (for instance Arulampalam and Booth, 1998) by not only examining training incidence but also training intensity; measured by training duration and the number of courses attended.

We find that workers in flexible employment face a substantially diminished probability of receiving employer funded training, and that these differences are even more marked for training intensity. In common with other recent studies we find that the gender differences in the incidence of employer funded training are minimal (Green and Zanchi, 1997). Male casual workers, for instance, were 19 percent less likely to receive employer funded training than permanent employees, with a corresponding figure of 17 percent for females. Our findings for training intensity uncover some major gender differences. Males in part-time and casual employment benefit from 14.5 hours less training than their permanent counterparts, which is markedly less than the 9 hour disadvantage experienced by female workers in part-time and casual employment. Insofar that male flexible employment is mainly determined on the demand-side[3], this suggests that males in marginal employment suffer more acutely from the trade-off between training and labour market flexibility.

The remainder of this paper is organized into four sections. The next section discusses recent work on the incidence and structure of nonstandard work, outlining the special significance of flexible workers in the Australian economy. Section three provides details of the empirical methods used in this paper. Section four contains a discussion of the empirical results, whilst section five concludes.

[3] Mangan (2000) provides a classification of the supply-side and demand-side determinants of flexible employment. For example, women are more likely to choose flexible work as a complement to family

II DATA SUMMARY AND BACKGROUND

Flexible Work in Australia

Before continuing, what is meant by flexible employment must be clarified. Generally, flexible work refers to jobs that vary from permanent, full-time positions. We focus on two dimensions of flexible employment, casual employment and part-time work. Following Arulampalam and Booth (1998) union membership is examined as another factor influencing workforce flexibility, as the presence of union representation has implications for the decision-making autonomy available to a firm[4].

The Australian labour market provides a useful setting to examine the possibility of externalities in the relationship between workforce flexibility and training investment. High levels of casual employment make the Australian experience of flexible work distinctive. Casual employment is a legally recognized employment state in Australia. It is the most prevalent form of flexible employment in Australia with the proportion of casual workers in the workforce rising from 19% in 1988 to 26% in 1999 (Mangan and Williams, 1999). Casual employees in Australia do not receive leave entitlements (ABS, 1996) and are easier to dismiss than permanent workers. Whilst there is a correlation between part-time work and casual employment, many casual employees work full-time hours. Approximately 32% of casuals in 1998 worked 30 or more hours a week (ABS, 2001). Also casual employment in Australia has historically been concentrated in highly feminised occupations and industries, although this gender bias has narrowed over time (Simpson *et al*, 1997). As a result, casual employment may be a more stigmatised form of employment for males. Finally, unlike temporary employment contracts in many European countries, there are no maximum periods for casual employment in Australia.

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activities than men. Furthermore, Booth *et al* (2002) suggest that flexible working arrangements may act as a signal of low ability for men.

[4] Although it is also possible that, for a number of reasons related to union imposed rules and higher labour costs in unionised firms, unionisation may actually reduce the provision of employer funded training (Kennedy *et al* 1994).

Data

SETE was conducted by the ABS in 1997. It covers a sample of 22,704 individuals who were living in a private dwelling and had worked as salary or wage earnings in the past 12 months. SETE contains a large amount of information regarding training and education undertaken in the last twelve months. Furthermore, some of this information is split according to whether the training occurred with the current employer (as at the end of the year) or the main period employer. SETE also contains information on how many jobs a respondent held in the past 12 months. To make sure that training and education episodes during the year relate to the job characteristics for the current employer we restrict our sample to those individuals who only held one job in the past twelve months[5].

Our interest here lies with employer provision of training and as a result we restrict the sample to those employed at the time of the survey. We further restrict the sample to prime-age (25 to 64 year olds) employees, omitting the self-employed and employers.

INSERT TABLE 1

Table 1 reports summary statistics for employees in the SETE data. Notably, 27% of women and 13% of men are employed in casual jobs. Approximately 24% of all employees are in part-time positions although this figure is inclusive of casual workers. The proportion of individuals not in a union is 60%, although this figure varies substantially between the private (71%) and public sectors (26%). Women are substantially more likely to be in casual or part-time employment than men. Finally, women are more concentrated in the service industry and in clerical and intermediate skill occupations.

INSERT TABLE 2

[5] 34 per cent of casual employees and 24 per cent of part-time employees had more than one job in the twelve month period.

Information on the training experience of workers in the past 12 months is reported in Table 2. SETE contains information on all training undertaken by the respondent in the past 12 months. However, the most detailed information, such as whether the training was employer funded, was only collected for the four most recent courses. As our focus is on employer funded training it is this information that is used as the basis for our analysis (further details on training information in SETE is provided as appendix 1). Training information recorded includes on-the-job training and employer funded external and internal training. On-the-job training in the SETE survey consists of mostly informal training arrangements (i.e. *ad hoc* on-the-job instruction), as a result we restrict ourselves to an analysis of employer funded training[6]. In SETE, individuals also identify whether the skills / knowledge gained from training episodes would be transferable to other employers. We exclude from our analysis training that was identified as being strictly non-transferable. This has only a minor effect on training incidence and intensity figures (for instance only approximately 5 per cent of all employer funded training was identified as not being transferable), but has the advantage of excluding very specific forms of employer funded training such as induction training that are likely to be offered to all employees within a workplace irrespective of work flexibility. Data presented in Table 3 shows that there were minimal differences in the overall incidence of employer funded training by gender. However, hours in training was higher for males than it was for females (18.5 hours versus 15.0 hours).

In terms of labour market flexibility and training, males in part-time or casual work have a substantially lower incidence of training than females. This mirrors UK evidence on worker flexibility and employer funded training (Arulampalam and Booth, 1998). Also union membership appears to have a substantial impact on training incidence, especially for women. Table 3 indicates that non-unionised women are 6 per cent less likely to gain training than women who are in a union. Flexible work appears to have similar effects on hours in training and number of courses attended. Most noticeably, the intensity of

[6] This is defined as those training episodes that were identified as being either external and funded by the employer or conducted internally to the firm.

training for men in casual work is very low; on average they receive only 5 hours of training in the year and 0.3 of a training course.

III METHOD

Incidence of Employer Funded Training

In the absence of separate data on employer supply of and employee demand for training, the incidence of employer funded training is specified as a reduced-form equation:

$$Tr_i^* = \beta' x_i + \varepsilon_i \qquad (1)$$

Where x is a vector of personal and work-related characteristics, β is a vector of coefficients to be estimated, and ε is the error term. Tr_i* is the ith individual's propensity to receive training, which is unobservable. Instead we observe a dummy variable (Tr_i) such that

$Tr_i = 1$ if $Tr_i^* > 0$

$Tr_i = 0$ otherwise.

As a result (1) is estimated by probit and to aid interpretation the estimates are reported as marginal effects.

Intensity of Employer Funded Training

Next we examine training intensity. There are two measures of intensity available in SETE, hours in employer funded training and number of employer funded training courses undertaken. Together these provide a comprehensive description of training intensity. We estimate separate models for each of these measures.

Hours in training (H_i) can be specified as:

$$H_i = \beta' x_i + \varepsilon_i \qquad (2)$$

It is clear though that for those employees who do not undertake training, H_i is left censored. As a result the correct specification is:

$H_i = \beta' x_i + \varepsilon_i$ if $H_i > 0$;

$H_i = 0$ otherwise.

Equation (2) is estimated by Tobit that allows for the left censoring when no training course was undertaken (Maddala, 1983).

The data on number of courses in SETE is a count variable (c_i) denoting whether an individual attended 0 through to 4 or more courses during the year. The simplest approach to model count variables is a Poisson model. The Poisson model is based on the assumption that the sample variance is equal to the sample mean. In our data though the variance exceeds the mean and the data is said to be overdispersed, and as a result the

Poisson model provides inefficient estimates (Long and Freese, 2003). The negative binomial model can overcome this by adding a random error term to the Poisson model that reflects unobserved heterogeneity among individuals:

$$E(c_i) = \exp(x_i\beta + \mu_i) \tag{3}$$

If it is assumed that *v*i is drawn from a gamma distribution where $v_i \equiv \exp(\mu_i)$ and *E(v)* = 1 and $Var(v) \equiv \sigma^2 = \frac{1}{\alpha}$ then the following expression for the negative binomial distribution can be derived:

$$\Pr(c_i \mid \mu_i, \alpha) = \frac{\Gamma(c_i + \alpha^{-1})}{\Gamma(c_i + 1)\Gamma(\alpha^{-1})}\left(\frac{\alpha^{-1}}{\alpha^{-1} + \mu_i}\right)^{\alpha^{-1}}\left(\frac{\mu_i}{\alpha^{-1} + \mu_i}\right)^{c_i} \tag{4}$$

where Γ is the gamma distribution and the log likelihood function is:

$$\ln L = \sum_{i=1}^{N}\left\{\left(\sum_{j=0}^{c_i-1}\ln(j + \alpha^{-1})\right) - (c_i - \alpha^{-1})\ln[1 + \alpha\exp(X_i\beta)] + c_i\ln\alpha + c_i X_i\beta\right\} \tag{5}$$

IV RESULTS

INSERT TABLE 3

INSERT TABLE 4

Table 3 reports marginal effects on the incidence of employer funded training for males and females separately (pooling of males and females was rejected at the 1% level). Three variables are used to proxy flexible working arrangements, casual employment, part-time work and not a member of a trade union. Of the three, workers in casual employment arrangements appear to face the largest penalty with respect to receiving employer funded training. Casual employees are 19 and 17 percentage points (for males and females respectively) less likely to have received employer funded training than those in permanent positions. Part-time workers also face a 10 and 8 percentage point (for males and females respectively) reduced likelihood of receiving training. Finally, not being a member of a union only significantly impacts on females incidence of employer funded training (7 percentage points). Overall these results suggest that worker flexibility has a substantial negative impact on the incidence of employer funded training.

Table 4 presents estimates for the two measures of training intensity for males and females respectively. The coefficient results from the negative binomial regression can be interpreted as a percentage impact on the number of courses attended. Overall, the results for hours in training and number of courses suggest that employees in flexible work attract a lower training intensity. From table 4 the impact of flexible work on number of

courses attended is similar for both males and females, although the impact of casual on number of courses attended appears slightly worse for males. There are, however, marked differences between males and females with respect to the impact of flexible work on hours in training. Male casual employees suffer a much higher penalty in terms of time in employer funded training than females do[7]. Part-time workers also receive a lower intensity of training. That casual employment arrangements do not have as large a negative impact on females may reflect more traditional use of casual working arrangements in female dominated occupations and industries. More pointedly, casual work may be a particularly marginalized form of employment arrangement for men.

Not being a member of a union diminishes the incidence of training for females, but has no effect for males. Similarly, it has mixed effects on the intensity of training received. With respect to hours in training, there was no statistically significant difference for males or females between those employees who were union members and those who were not union members. For courses, non-union females received less training courses, for males this effect was at best marginally significant.

INSERT TABLE 5

It must be recognized that these characteristics of flexible work are correlated. Whilst some casual jobs are full-time, the majority are part-time. Workers in casual employment are also less likely to be unionised than permanent workers (Mangan, 2000). As a result,

[7] The casual coefficients between males and females are significantly different at the 5 per cent level in both

for many individuals in the work force these training penalties will be cumulative (i.e. male part-time casuals are 29 per cent less likely to receive training than male full-time permanent workers). [8] To further illustrate this table 5 provides some predicted training probabilities for all three training outcomes. These results further emphasize the large impact of flexible work on employer funded training for men. For instance, whilst male and female training incidences are similar, men who work in employment that has multiple dimensions of flexibility have a training incidence that is between 6 to 9 percentage points lower than women in similar types of flexible work. A similar pattern is evident for number of courses. More strikingly, males have an overall advantage in terms of hours in employer funded training (of around 1.5 hours), but men in flexible working arrangements receive 1.5 to 4 hours less training than women in similar arrangements.[9]

A further issue is that tenure and training may be jointly determined. As a result, the inclusion of tenure as an independent variable in training models may lead to biased estimates. To investigate this models of incidence and intensity were estimated with tenure excluded. This had only a minor impact on covariate estimates, although the casual employment estimate for male training incidence and the hours of training did increase to –21% and –16 hours, respectively (from –16% and –13 hours), indicating some bias in the original estimates.

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the number of courses and duration in training models.

[8] We evaluated whether there is any additional training penalty for belonging to more than one of these categories of flexible work by including three multiplicative terms (casual and not in a union, part-time and not in a union, part-time and casual) in a training incidence regression. However these terms were not statistically significant at standard levels.

[9] Male and female differences in intensity of training were significant at the 5 per cent level for the casual employment categories (i.e. casual and part-time, casual and not in a union, and casual part-time and not in a union).

Estimates of the impact of other personal and work characteristics on training incidence largely follow those found in existing UK and Australian research (Green, 1991; Miller, 1994; Arulampalam and Booth, 1998; Shields, 1998). Younger employees, those with higher qualification levels, and those in higher skilled occupations were more likely to gain training. Only the results for tenure are dissimilar to previous studies. Unlike the generally inverse relationship between tenure and training incidence in existing research we find a less clear cut relationship. Both males and females who have been in the job for over a year have an advantage over short-term workers (the omitted case less than a year of tenure). Training incidence rises with tenure for males, but in a sporadic fashion. There are no significant differences in the impact of tenure for females between 1 and 15 years, and the coefficient for greater than 15 years tenure is smaller and only significant at the 10 per cent level. Public sector employees and those in larger establishments face a substantially higher incidence of training.

Less research has been conducted on the intensity of training, so some discussion on the impact of other personal and work characteristics on training intensity is warranted. Generally, training intensity appears to increase with occupational skill level and size of firm, and decrease with age. Public sector employees gain more training, while those from a Non-English Speaking Background suffer a large penalty to training intensity. Similar to the results for incidence, training intensity appears to increase with tenure for men. For females, there is an advantage in terms of courses attended of having tenure of greater than one year (the omitted category), but no significant pattern otherwise.

A few points can be made about these results. First, highly educated employees are clearly at an advantage in attracting employer funded training. This is in line with other research that indicates there are substantial complementarities between education and training (Lillard and Tan, 1992, Bartel, 1995 and Hill, 2001). The relationship between tenure and training found in this study is distinct from that illustrated in studies of the UK and US. Tenure was positively related to training incidence and intensity for males, whilst there was no clear relationship for females. An earlier Australian study, Miller (1994), found no relationship between tenure and 'structured training' (internal training and external training) for either males or females. Whilst in another Australian study Kennedy *et al* (1994) found that tenure and employer funded training were positively related, and suggested that this may be due to training being used as a reward for seniority. Our estimates indicate that males with over 15 years or more tenure in the firm gain the most training (in terms of both incidence and intensity) of all male employees. This appears to support the seniority-reward explanation of training provision. To the extent that male flexible workers have shorter tenure, this would present a further disadvantage to male flexible workers in terms of gaining access to employer funded training. Together, these results suggests that the influence of tenure on employer funded training may not be as clear-cut in Australia as it is in the UK and US.

V CONCLUSION

In this paper we have focused on one dimension of the trade off between training and labour market flexibility, namely the way in which employer funded training varies with employment flexibility. As the most direct manifestation of employer's human capital investments, this type of training is more likely to reflect the production decisions of firms and therefore the impact on training of firms using labour as a "flexible factor of production". Previous research on the training-flexibility trade off (Arulampalam and Booth, 1998) has focused on work-related training generally rather than any particular types of externality. Therefore, by examining a specific dimension of work-related training this study provides three insights into the relationship between training and labour market flexibility.

Firstly, we find that evidence of a trade-off is apparent in the intensity as well as the incidence of training. Our examination of the intensity of training revealed large penalties for those in flexible working arrangements. This indicates that when firms *do* invest in flexible workers they seem to invest at a much lower rate. For instance, based on predicted training outcomes, male casual part-time workers receive 14.5 hours less employer funded training than that received by the male workforce generally. Female casual part-time workers fare better, receiving 9 hours less training than the overall female workforce. More intuitively, these predicted outcomes indicate that the employer-funded training received by flexible workers is 50-80% less intense than the workforce average.

Secondly, our study finds that casual employment – a uniquely flexible form of employment that is prevalent in the Australian economy - has a sizeable effect on the incidence and intensity of employer funded training. These effects exceed those found for alternative indicators of flexibility such as part-time work and non-union coverage.

Finally, it appears that males in casual working arrangements face a greater penalty in terms of the intensity of employer-funded training than females in similar arrangements. Males in casual employment receive 13.3 hours less training in the year than those in permanent employment (the corresponding figure for females is 8.7 hours). The impact of casual work on number of training courses attended is also larger for males.

Overall, this suggests that males in casual employment may suffer more acutely from the negative aspects of the trade-off between training and labour market flexibility. Arguably, this can be attributed to the contrasting demand and supply-side determinants of flexible work. That is, males are less likely to deliberately choose casual employment as part of their labour supply decisions. This suggests that males who find themselves in casual working arrangements may face serious impediments to human capital formation.

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APPENDIX

Training Questions in SETE.

Individuals interviewed in SETE reported the following information (amongst others) for each of their last four training courses.

1. Was the course in-house (as opposed to external)?
2. If the course was external, did the employer either provide financial support for the course?
3. Was the individual a wage or salary earner at the time of the course?;
4. Were the skills transferable?

If for any of the last four courses the respondent answered yes to either question 1 or 2, and yes also to questions 3 and 4 then this training course was considered employer-funded for the purpose of our analysis. In terms of our training variables, if an individual reporting any employer-funded training episodes during the year (subject to the conditions above), Tr_i =1, 0 otherwise. Number of employer funded training courses (c_i) is simply a count of courses the individual undertook that conform to the requirements listed above. Hours in training (H_i) is the sum of hours for each identified employer funded training course. For further details on the contents of SETE see Australian Bureau of Statistics (1999).

INSERT TABLE A1

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TABLE 1

Summary Statistics

	All	*Male*	*Female*
Employment Status			
Part-Time	0.24	0.06	0.44
Casual	0.19	0.13	0.27
Not in Union	0.60	0.57	0.63
Age: 25 to 29	0.17	0.16	0.18
30 to 34	0.16	0.17	0.15
35 to 39	0.17	0.17	0.18
40 to 44	0.16	0.16	0.17
45 to 49	0.14	0.14	0.15
50 to 54	0.11	0.11	0.11
55 to 59	0.06	0.07	0.05
60 to 64	0.03	0.03	0.02
Non-English Speaking Background	0.14	0.14	0.14
Industry and Sector: Primary	0.02	0.03	0.01
Manufacturing	0.16	0.23	0.09
Construction	0.04	0.07	0.01
Services	0.76	0.65	0.88
Mining	0.02	0.03	0.00
Public Sector	0.30	0.27	0.33
Tenure: 1 up to 3 yrs	0.21	0.19	0.23
3 up to 5 yrs	0.13	0.13	0.13
5 up to 10 yrs	0.22	0.20	0.24
10 up to 15yrs	0.13	0.12	0.13
15 yrs or more	0.15	0.19	0.10
Professional / Manager	0.28	0.28	0.29
Assoc. Professional	0.11	0.12	0.09
Trade	0.11	0.18	0.02
Clerical and Intermediate.	0.41	0.32	0.51
High School	0.25	0.23	0.27
Basic Vocational	0.12	0.09	0.15
Skill Vocational	0.13	0.21	0.03
Degree or Higher			
Firm Size: 1 to 10 employees	0.22	0.20	0.27
10 to 50 employees	0.12	0.11	0.12
50 to 99 employees	0.29	0.30	0.27
100 plus employees	0.37	0.39	0.34
Observations	9,272	4,895	4,377

Source: SETE, ABS(1997)

TABLE 2

Employer Funded Training by Employment Status

	All	*Casual*	*Part-Time*	*Not in Union*
Training Incidence				
Male	45.4%	18.0%	24.4%	43.1%
Female	45.9%	25.6%	35.7%	39.8%
Hours in Training				
Male	18.5	4.9	6.3	16.3
Female	15.0	6.9	9.6	12.4
Number of Courses				
Male	0.9	0.3	0.4	0.9
Female	1.0	0.5	0.7	0.8

Source: SETE, ABS(1997)

TABLE 3

Incidence of Employer Funded Training – Marginal Effects

	Male		*Female*	
	Coeff	*T-Stat*	*Coeff*	*T-Stat*
Constant	-0.42*	-5.47	-0.61*	-5.29
Casual	-0.19*	-5.25	-0.17*	-7.15
Part-Time	-0.10**	-2.26	-0.08*	-4.20
Not in Union	-0.03	-1.61	-0.07*	-3.92
Age: 30 to 34	-0.00	-0.12	0.02	0.54
35 to 39	0.00	0.06	0.00	0.06
40 to 44	-0.03	-1.02	0.00	0.07
45 to 49	-0.06**	-2.02	-0.01	-0.34
50 to 54	-0.08**	-2.55	-0.03	-0.99
55 to 59	-0.16*	-4.42	-0.13*	-2.93
60 to 64	-0.26*	-5.26	-0.14**	-1.99
Non-English Speaking Background	-0.18*	-7.91	-0.14*	-5.44
Industry and Sector: Mining	0.09	1.18	0.58**	2.59
Manufacturing	-0.08	-1.37	0.09	0.84
Construction	-0.12	-1.78	-0.04	-0.28
Services	-0.04	-0.68	0.21**	2.01
Public Sector	0.07*	3.36	0.07*	3.79
Tenure: 1 up to 3 yrs	0.10**	2.42	0.11*	3.04
3 up to 5 yrs	0.11**	2.56	0.10**	2.53
5 up to 10 yrs	0.15*	3.64	0.10*	2.81
10 up to 15yrs	0.14*	3.24	0.13*	3.27
15 yrs or more	0.20*	4.71	0.08	1.94
Professional / Manager	0.26*	6.98	0.38*	9.52
Assoc. Professional	0.22*	5.69	0.28*	6.60
Trade	0.08**	2.21	0.08	1.15
Clerical and Intermediate	0.10*	2.98	0.21*	6.09
High School	0.13*	5.89	0.10*	4.62
Basic Vocational	0.11*	3.91	0.08*	3.03
Skill Vocational	0.13*	5.23	0.09	1.89
Degree or Higher	0.18*	6.34	0.12*	4.00
Firm Size 10 to 50 employees	0.10*	3.46	0.06**	2.21
50-99 employees	0.17*	7.23	0.13*	5.37
100 plus employees	0.23*	9.90	0.14*	6.24
Pseudo r^2	0.15		0.17	
Observations	4,895		4,377	

State Controls were included in the regression but are not reported

* and ** indicate statistical significance at the 1 and 5 per cent level respectively

TABLE 4

Intensity of Employer Funded Training

	Male				*Female*			
	Duration		Courses		Duration		Courses	
	Coeff	*T-Stat*	*Coeff*	*T-Stat*	*Coeff*	*T-Stat*	*Coeff*	*T-Stat*
Constant	-39.38*	-6.51	-1.24*	-5.29	-39.35*	-5.18	-1.81*	-4.31
Casual	-13.27*	-4.57	-0.79*	-6.04	-8.73*	-5.14	-0.58*	-7.36
Part-Time	-6.92**	-2.10	-0.42*	-3.18	-6.25*	-4.79	-0.18*	-3.90
Not in Union	-0.83	-0.61	-0.07	-1.58	-1.57	-1.22	-0.14*	-3.22
Age: 30 to 34	2.62	1.21	-0.06	-0.95	0.33	0.17	0.00	-0.07
35 to 39	1.57	0.73	-0.11	-1.63	0.77	0.39	0.00	0.05
40 to 44	-0.75	-0.34	-0.14	-2.06	1.31	0.66	-0.06	-0.82
45 to 49	-2.02	-0.87	-0.19*	-2.64	1.03	0.51	-0.05	-0.67
50 to 54	-6.99	-2.81	-0.26*	-3.37	0.67	0.31	-0.14	-1.89
55 to 59	-18.77*	-4.61	-0.55*	-5.29	-12.81*	-2.58	-0.38*	-3.32
60 to 64	-9.76*	-3.36	-0.81*	-4.90	-9.57*	-3.18	-0.46**	-2.32
Non-English Speaking Background	-11.68*	-6.32	-0.47*	-7.07	-9.51*	-5.36	-0.40*	-6.22
Industry and Sector: Mining	16.57*	2.88	0.23	1.22	28.81**	2.26	0.94**	2.10
Manufacturing	-1.01	-0.21	-0.15	-0.85	-0.91	-0.13	0.10	0.24
Construction	-5.44	-1.04	-0.35	-1.83	-0.07	-0.01	-0.43	-0.83
Services	1.63	0.35	0.03	0.20	8.01	1.19	0.31	0.78
Public Sector	1.22	0.79	0.12**	2.53	4.99*	3.73	0.23*	5.01
Tenure: 1 up to 3 yrs	6.94**	2.12	0.22	1.68	8.38*	3.29	0.49*	4.63
3 up to 5 yrs	6.78**	1.99	0.21	1.53	7.27*	2.68	0.49*	4.46
5 up to 10 yrs	9.91*	3.02	0.30**	2.23	7.29*	2.85	0.48*	4.65
10 up to 15yrs	12.17*	3.43	0.30**	2.23	8.63*	3.14	0.53*	4.83
15 yrs or more	15.40*	4.55	0.52*	3.86	6.55**	2.23	0.48*	4.21
Professional/Manager	20.29*	6.91	0.71*	6.09	26.03*	9.09	1.13*	8.28
Assoc. Professional	15.90*	5.21	0.58*	4.87	22.13*	7.29	0.92*	6.48
Trade	4.79	1.62	0.30**	2.52	3.62	0.72	0.42	1.83
Clerical and Intermediate	7.51*	2.82	0.30*	2.64	16.88*	6.71	0.68*	5.22
High School	8.08*	4.49	0.38*	6.21	4.80*	3.03	0.28*	4.54
Basic Vocational	5.41**	2.33	0.37*	4.75	2.76	1.54	0.19*	2.66
Skill Vocational	7.73*	4.03	0.33*	5.02	-1.15	0.32	0.18	1.21
Degree or Higher								
Firm Size: 10 to 50 employees	7.77*	3.28	0.37*	4.21	2.36	1.18	0.23*	2.93
50 to 99 employees	11.19*	5.97	0.50*	7.24	4.59*	2.82	0.31*	4.86
100 plus employees	16.64*	8.81	0.62*	9.05	5.48*	3.41	0.36*	5.76
Pseudo r^2	0.03		0.07		0.03		0.09	
Observations	4,895				4,377			

State Controls were included in the regression but are not reported.

* and ** indicate statistical significance at the 1 and 5 per cent level respectively

TABLE 5

*Predicted Training Outcomes**

	Incidence	Training Duration	No. Courses
Male	0.45	16.56	0.94
Part-Time and Not in Union	0.21	6.03	0.35
Casual and Not in Union	0.18	4.25	0.29
Casual and Part-Time	0.16	1.83	0.24
Casual, Part-Time and Not in Union	0.14	1.30	0.22
Female	0.46	15.04	0.96
Part-Time and Not in Union	0.31	7.53	0.61
Casual and Not in Union	0.24	6.05	0.45
Casual and Part-Time	0.25	6.07	0.47
Casual, Part-Time and Not in Union	0.23	5.20	0.44

***** All other variables held at sample means.

TABLE A1

Variable Definitions

Variable	*Definition*
Age	Dummy variables indicating 5-year age bands of respondents, the omitted case is 25 to 29 years old.
Non-english Speaking Backgound	Indicates the individual is from a Non-English Speaking Background
Industry	*Agriculture is the omitted category*
Mining	Individual worked in the mining industry
Manufacturing	Individual worked in the manufacturing industry
Construction	Individual worked in the construction industry
Services	Individual worked in the service industry
Casual	Individual was in a casual employment arrangement
Part-Time	Individual worked part-time
Not in Union	Individual was not a union member
Public Sector	Individual was a public sector employee
Tenure	Indicates length of employment with current employer 0 to 1 year is the omitted category
Occupation	*Labourer is the omitted category*
Prof / Manager	Individual was in a managerial or professional occupation
Assoc. Profession	Individual was in an associate professional occupation
Trade	Individual was in a trade occupation
Clerical and Intermediate	Individual was in a clerical or intermediate production occupation
Education	*Lower than High School Completion is the omitted case*
High School	Indicates the individual's highest qualification is high school completion
Basic Vocational	Indicates the individual's highest qualification is a basic vocational qualification.
Skill Vocational	Indicates the individual's highest qualification is a skilled vocational qualification.
Degree	Indicates the individual's highest qualification is a degree qualification.
Higher Degree	Indicates the individual's highest qualification is a higher degree qualification.
Firm Size	Establishment Size at one location, 0 to 10 employees is the omitted case.