Gender differences in rates of job dismissal: Why are men more likely to lose their jobs?*

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PRELIMINARY

Abstract

Empirical studies, especially in the US and UK, have consistently reported that rates of involuntary job separation, or dismissal, are significantly lower among female employees than among males. Only rarely, however, have the reasons for this differential been the subject of detailed investigation. In this paper household panel survey data from Australia are used that also find higher dismissal rates among men than among women. This differential, however, disappears once controls for industry and occupation are included. These findings suggest that the observed gender differential reflects systematic differences in the types of jobs into which men and women select.

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1. Introduction

Gender differences in labour mobility, both within and across firms, have been the subject of considerable research. There is also a much larger body of research concerned with i gender differences in labour market behaviour and outcomes. Much of this literature has focused on earnings, although labour force participation, unemployment, hiring and promotion have also been examined.

One aspect that has received relatively little attention from either research strand is gender differences in involuntary job loss. This is potentially an important dimension for understanding differences between men and women in their labour market behaviour and experiences. In particular, a consistent empirical regularity, observed in data from many countries, is that men have a substantially higher rate of dismissal from employment than women. The question that perhaps most obviously follows from this observation is whether it represents a compensating differential that helps to explain the well known gender pay gap. That is, could it be that women tend to choose jobs with lower wages, at least in part compensated by lower layoff risks? Or does the lower dismissal rate reflect other factors, such as differences in the characteristics of male and female employees, or indeed employer discrimination in favour of women?

In this paper, we draw on the Household, Income and Labour Dynamics in Australia (HILDA) Survey data collected over the 2001-2009 period to consider the roles of alternative potential explanations. In common with findings of studies drawing on other data sources, these data show that men have a considerably higher rate of job loss, with the proportion of employees dismissed or made redundant each year approximately 45% higher for male employees than for female employees. We hypothesise that the higher rate of involuntary job loss among men could be the result of differences between men and women in the characteristics of those who choose to participate in the labour market, differences in choices of jobs, differences in employee in-job behaviour of observationally similar men and women, and/or differences in employer treatment of observationally similar men and women.

We investigate the issue by estimating random effects probit models of the probability of job loss in the next year as a function of a wide range of demographic and job-related characteristics. Compared with previous studies, we are able to control for a much broader array of factors, including personal characteristics such as personality, and employment-related characteristics such as detailed occupation and industry category. We are also one of the few studies to relax the 'pooling restriction', allowing effects of demographic and job characteristics to differ for men and women and decomposing the sources of the differences in male and female dismissal rates.

Estimates we obtain indicate that the higher rate of job loss for men has little to do with differences in observable characteristics of men and women, but — consistent with the compensating differential hypothesis — is largely explicable by differences in the types of jobs men and women do. In particular, differences in the industry and occupation composition of male and female employees account for much of the difference in dismissal rates..

The plan of the paper is as follows. In the next section we summarize relevant previous research in this area (broadly defined). In Section 3 we describe the data and present descriptive information on rates of job dismissal, while in Section 4 we elaborate on the conceptual framework that underpins our empirical analysis of the sources of gender differences in dismissal rates. Results of random effects probit models are presented in Section 5, and in Section 6 decomposition analysis that relaxes the pooling restriction is undertaken. Section 7 concludes.

2. Previous Research

The seminal work on the relationship between involuntary separations and gender is that of Blau and Kahn (1981). They used data from the 1966 and 1968 cohorts of the National Longitudinal Survey (persons in the US aged between 14 and 24), to estimate probit models of the probability of permanent layoff disaggregated by both sex and race. They found that the unadjusted rate of layoff for males was close to double that of females. Further, this gap actually increased once other personal and labour market characteristics were controlled for.

With only a few exceptions, this finding has largely gone unchallenged, with most research that has touched on this issue, usually only in passing, also reporting evidence that women are much less susceptible to involuntary separations than are men. Included here are: studies of workers from single firms (Barrick, Mount and Strauss 1994; Giulano, Levine and Leonard 2006; Stumpf and Dawley 1981; Wells and Muchinsky 1985); studies of non-representative samples of workers but employed across many firms (Campbell 1997; Theodossiou 2002); studies employing representative population-based samples, including in Australia (McGuinness and Wooden 2009), Brazil (Orellano and Picchetti 2005), Canada (Picot, Lin and Pyper 1998), the UK (Booth, Francesconi and Garcia-Serrano 1999), and the US (Freeman 1980; Keith and McWilliams 1999); and studies using firm-level data (Antcliff and Saundry 2009; Balchin and Wooden 1995).

A very different result, however, was reported by Booth and Francesconi (2000). Using longitudinal data from the British Household Panel Survey covering the period 1991 to 1996, they reported evidence that female employees were significantly more likely to be laid off than men (a 7% annual layoff rate for women compared with 6.3% for men), and that this differential was not much affected by the inclusion of controls for individual and job characteristics. This finding is

especially surprising given the authors' earlier work drawing on the same data source (Booth et al. 1999), but admittedly using retrospective work history data collected at one point in time rather than prospective longitudinal data, obtained conclusions that were entirely consistent with the original finding of Blau and Kahn (1981). The sample used by Booth and Francesconi (2000) in obtaining their results, however, was unusual in that it both restricted the sample to persons in full-time employment, thus excluding many female employees, and much more importantly, excluded all job to non-employment transitions. In other words, the only cases of involuntary separation that were retained were those where the laid off worker had secured alternative employment by the time of the next survey interview. The restriction to full-time workers was defended on the (quite reasonable) grounds that the authors were only interested in the behaviours of workers with a strong attachment to the labour market. In contrast, no rationale for the exclusion of job to non-employment transitions was provided, and in our view this exclusion is difficult to defend — it almost certainly introduces a serious form of selection bias. There are thus good reasons to dismiss the Booth and Francesconi (2000) results as an outlier.

More challenging are the results reported by Goerke and Pannenberg (2010). Following Blau and Kahn (1981), they estimated probit models of dismissals, but using longitudinal data for West Germany that spanned a period of 20 years commencing in 1985 (though they were only able to use data from six time points within that period). The key feature of their analysis was the exploitation of the panel nature of the data in an attempt to better deal with time-invariant individual unobserved heterogeneity. This is potentially of large importance given the very limited number of control variables included in previous research. Like Booth and Francesconi (2000) they restricted the sample, but only to private sector, prime-age, full-time workers. Further, and like much of the research in this space, their focus was not on gender per se; rather it was on the effects of trade unions (cf. Freeman 1980). Nevertheless, they included a gender dummy and in the pooled data model found that female employees in Germany were significantly more likely to be dismissed from their jobs than were male employees. This effect, however, declined in size and became statistically insignificant once correlated random effects were allowed for.

Such findings suggest either that the conventional wisdom that female employees are less likely to be dismissed or laid off by their employers than male employees may not hold in all institutional settings, or that the relationship between involuntary separations and gender may be changing over time. This, in turn, suggests the need for new research using more recent data and conducted outside the US (and the UK). There is also a clear need for research with a more explicit focus on gender. It is not sufficient just to know that the magnitude of any gender gap in separation rates and whether that gap is affected by the inclusion of controls. As in studies of the gender pay gap, it is

also important to know how the separation rates of men and women are affected by different covariates. Yet to date we are only aware of four studies that allow the covariates of involuntary separations to vary with gender (Blau and Kahn 1981; Booth et al. 1999; Booth and Francesoni 2000; Theodossiou 2002).

Of particular interest is the role of industry and occupation. It is widely recognised that occupational and industrial segregation continues to plays an important role in contributing to the gender pay gap in most industrial nations (e.g., Altonji and Blank 1999). Is it not, therefore, possible that this same segregation might also explain observable differences in involuntary separations? That is, women may select into industries and occupations where the risk of involuntary separation is relatively low. Previous research on gender differences in involuntary separation, however, have not given this issue serious attention, being content to control for the effects of industry and occupation segmentation through the inclusion of a handful of dummies.

3. Data and descriptive statistics

We use the HILDA Survey data to investigate job dismissals in Australia. Discussed in more detail in Wooden and Watson (2007) and Watson and Wooden (2010), the HILDA Survey is a household panel survey that began in 2001 with a large nationally representative sample of Australian household members occupying private dwellings. In wave 1, interviews were completed with 13,969 people aged 15 years and over in almost 7700 households. All members of responding households from wave 1 (n=19,194) form the basis of the panel to be followed over time, though interviews are only conducted with those household members aged 15 years or older. Interviews are conducted every year.

While the survey has a longitudinal design, it employs following rules that, with one caveat, are designed to ensure the sample maintains its cross-sectional representativeness over time. This is achieved by adding other people who join households in which original sample members reside. Most important here are children of original sample members. The one obvious weakness in the sample generation process is that immigrants who arrive in Australia after the initial sample was selected have relatively little chance of being included.[1]

Information on dismissal from employment is obtained in both the person questionnaire (PQ) and the self-completion questionnaire (SCQ), but in this analysis we only use the information on dismissals collected in the PQ. More specifically, since wave 2, survey respondents who have

[1] This weakness will be at least partially rectified in wave 11 when the sample is augmented by an expected additional 2000 responding households.

changed employers or ceased working since the last interview have been asked for the main reason they stopped working in the job held at the time of last interview. In addition, all respondents are also asked about the reasons they left their most recent job, if that is a different job to the one held at the last interview. Responses are then coded against a set of pre-coded categories, one of which is: 'Got laid off / No work available / Retrenched / Made redundant / Employer went out of business / Dismissed etc.' This response option thus covers a number of scenarios, but all involve termination of employment that is not initiated by the employee.[2] The reference period is from the date of last interview to the date of current interview, which given the annual interviewing cycle will typically be around one year. There is, however, considerable variation around this; most notably in those cases where a respondent did not respond in one or more of the preceding waves. We have, therefore, excluded from all analyses reported in this paper any observations where a respondent was not interviewed in the wave immediately preceding the current wave. This ensures a more determinate time-frame for reports of dismissals.

As a crude check of the quality of the HILDA Survey data, Figure 1 compares estimated rates of dismissal obtained from the HILDA survey with those obtained from the cross-sectional Labour Mobility Survey conducted every two years by the Australian Bureau of Statistics (ABS). In its publication *Labour Mobility, Australia* (catalogue no. 6209.0), the ABS reports the number of people who in the 12 months to February of the relevant year "... ceased their last job because they were either: employees who were laid off, including no work available, made redundant, employer went out of business or dismissed; and self-employed people whose business closed down for economic reasons, including 'went broke', liquidated, no work, or no supply or demand". The HILDA Survey rate presented in Figure 1 is constructed so as to match as closely as possible the ABS approach. Thus, it measures the proportion of persons employed at some stage over the previous 12 months who left at least one job in that period, with the reason for leaving the last job being either "got laid off / no work available / retrenched / made redundant / employer went out of business / dismissed etc." or "self-employed: business closed down for economic reasons (went broke / liquidated / no work / not enough business)."

There are, however, still marked differences in the construction of the ABS and HILDA Survey estimates. The HILDA Survey measure relates to the period since last interview, which even for consecutive waves, can vary considerably — from as little as six months to as long as 18 months —

[2] Another response option is 'Job was temporary or seasonal', which could, in some cases, be interpreted as termination of employment initiated by the employer. However, employees will typically take these jobs knowing that they are short-term, and in some cases, and possibly most, will only desire short-term employment. We, therefore, exclude this response option from our definition of job dismissal in our main analysis. We do, however, subsequently test how robust our findings are to changes in definitions.

although for most respondents it is very close to one year.[3] Furthermore, the HILDA Survey interview may have been conducted at any time between late August of the survey reference year and February of the following year. For example, the HILDA estimates for 2002 are based on reports in the wave 2 interview, which took place between late August 2002 and March of 2003, of dismissal since the wave 1 interview, which took place between late August 2001 and March of 2002. In contrast, the ABS estimates all relate to the 12 months up to February of the year following that indicated on the horizontal axis. For example, the estimates for 2002 are for the 12 months up to February 2003.

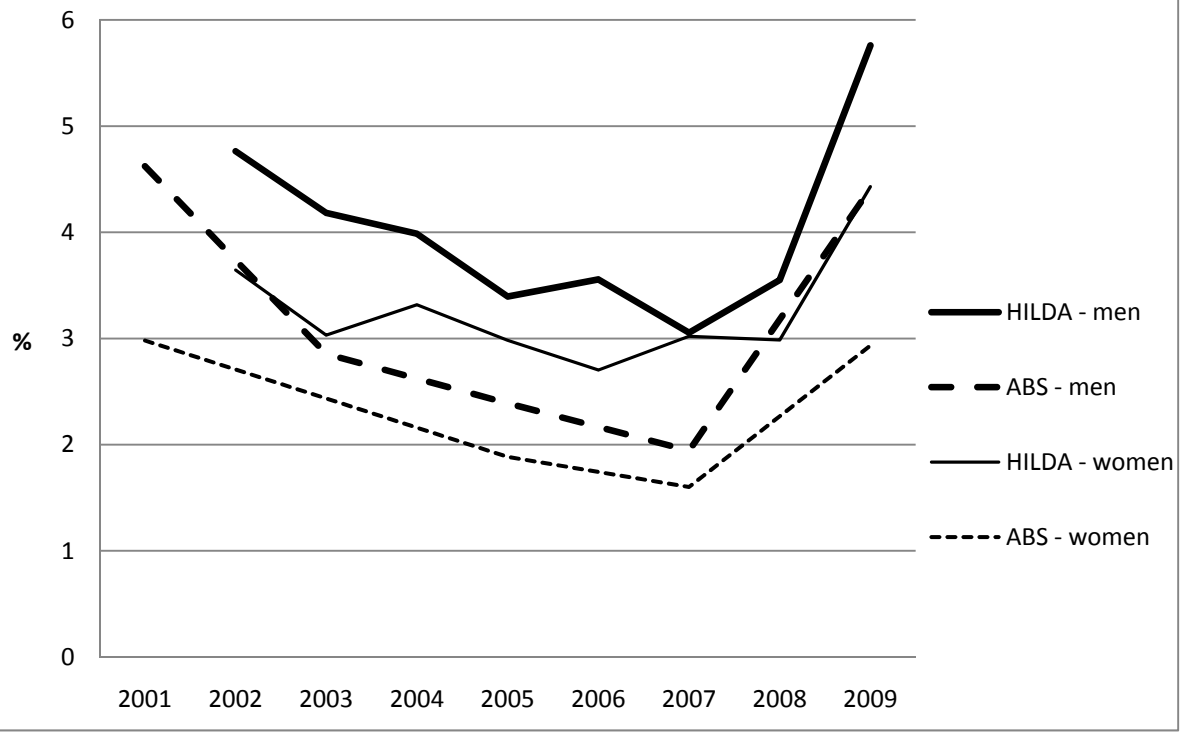
Figure 1 shows that the HILDA Survey data give consistently higher rates of dismissal than the ABS data. Nonetheless, the patterns over time and across genders are quite similar for the two data sources. Dismissal rates declined up to around 2007 and then increased sharply in 2009, and both data sources show the male rate of dismissal to be consistently higher than the female rate.

In the remaining analysis presented in this paper, we exclude the self-employed and employers, since the concept of job dismissal we seek to investigate applies only to employees. We also restrict our focus to dismissals from the main job held at the time of previous interview, since detailed information is only collected about jobs held at the time of interview.[4]

[3] Persons who were not interviewed in the previous wave are excluded from Figure 1.

[4] Inclusion of dismissals from jobs other than the main job held at the time of the previous interview raises the average annual dismissal rate among employees by approximately 0.4 percentage points.

Figure 1: ABS and HILDA rates of job dismissal among employed persons



NOTES: Source for ABS estimates: ABS, *Labour Mobility, Australia*, Catalogue No. 6209.0, various issues.

Dismissal rates are expressed as a percentage of people who had been employed in the preceding year, and relate only to the most-recently-ceased job. For the ABS data, dismissal rates are for the 12 months commencing in February of the indicated year. For the HILDA Survey data, dismissal rates are for the approximate 12 months preceding interview, which is most usually in the fourth quarter of the indicated year,

Figure 2 presents estimates of dismissal rates for the definition and population that are the focus of this study. Specifically, for each wave, it presents the proportion of employees dismissed from their main job by the time of interview at the next survey wave. Approximately 5.3 per cent of males who were employees in wave 1 (i.e., 2001) were dismissed from their main job at some stage prior to being interviewed in wave 2. This dismissal rate fell to as low as 3.1 per cent for the year from wave 7, before increasing sharply to 6.7 per cent for the wave 8 to wave 9 interval. For females, the corresponding dismissal rate fell from 4.1 per cent in wave 1 to 2.8 per cent in wave 7, before increasing to 5.6 per cent in wave 8. Despite the exclusion of dismissals from jobs other than the main job held at the time of interview, these dismissal rates tend to be higher than those presented in Figure 1. This is because the self-employed, included in the estimates presented in Figure 1 but excluded from Figure 2, have relatively low rates of 'dismissal'.

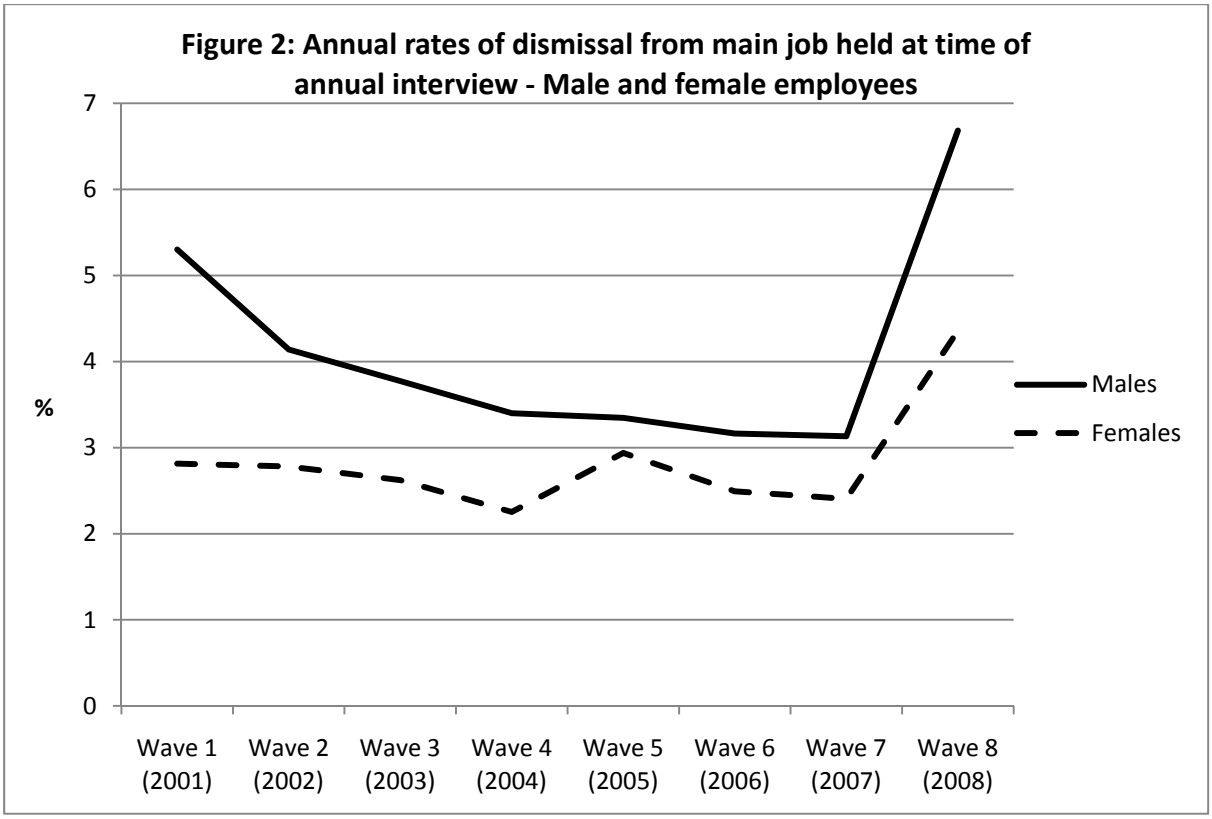


Table 1 compares average annual dismissal rates for men and women over the 2001 to 2009 period as a whole and disaggregated by age, full-time/part-time status, type of employment contract, firm size and sector. The average difference in the annual rate of dismissal over the HILDA Survey sample period is approximately 1.3 percentage points. While not a large gap in absolute terms, the quite low probability of dismissal in any given year (irrespective of sex) means that this translates to a 46 per cent higher probability of dismissal for males. The relative risk of dismissal is therefore much higher for males.

Disaggregation by age and by employment characteristics indicates that the male-female differential is not confined to a narrow group of employees. While there are significant variations in dismissal rates by age, employment status, type of employment contract, firm size and sector, the male-female gap is at least 1.1 percentage points for all groups, and is as large as two percentage points (in the case of casual employees). This would seem to provide some tentative evidence that the difference is not likely to be attributable to differences in either the composition of male and female employees or in the types of jobs in which men and women are employed. Of course, Table 1 considers differences in dismissal rates only across a small number of personal and job characteristics, most notably not examining differences by occupation and industry.

Table 1: Annual rates of job dismissal from main job held at time of annual interview — Employees, 2001-2009 (pooled) (%)

	Males	Females	Male-female ratio
Age group (years)			
15-24	5.0	3.4	1.47
25-44	3.9	2.8	1.39
45-54	3.8	2.5	1.52
55+	4.1	2.8	1.46
Employment status			
Part-time	4.8	3.1	1.55
Full-time	4.0	2.6	1.54
Type of employment contract			
Permanent/ongoing	3.6	2.4	1.50
Fixed-term	4.4	2.7	1.63
Casual	6.1	4.1	1.49
Firm size			
< 20 employees	6.0	4.4	1.36
20-99 employees	4.7	3.3	1.42
100+ employees	3.2	2.1	1.52
Sector			
Public	3.2	1.8	1.78
Private	4.7	3.7	1.27
Total	4.1	2.8	1.46

4. A conceptual framework for explaining the differences in dismissal rates

The differences in the dismissal rates between male and female employees evident in the HILDA Survey data, and found in other Australian and international data sources, lead to the obvious question of why they exist. Potential reasons for the differential can be usefully classified as falling into one of four broad classes of explanation: (1) differences in the observable characteristics of male and female employees; (2) differences in the job choices of male and female labour market participants; (3) differences between observationally similar male and female employees in job performance (or other behaviour); and (4) differences in employer behaviour towards observationally similar male and female employees.

The first hypothesized reason could involve females who are relatively likely to be dismissed — for example, those with low skills or poor health — being less likely to participate in the labour market than similar males. It could also involve females more generally tending to have characteristics, such as personality traits, that translate into behaviour making dismissal less likely. For example, women may tend to be more conscientious than men. These types of factors have been implicitly considered in the studies that control for personal characteristics, such as Blau and Kahn (1981), Booth et al. (1999), Booth and Francesconi (2000) and Theodossiou (2002), although no previous study has controlled for personality. Factors commonly considered include age, educational

attainment, work experience and ethnicity/race. Characteristics such as these may matter because they translate to differences in job performance and/or other behaviour in employment, and because they may be associated with differences in employer behaviour (e.g., employers may be more prepared to fire young workers).

The second potential explanation, differences in job choices, would involve women tending to choose jobs with lower risks of dismissal (e.g., jobs in the public sector). Women may be more averse to jobs with greater dismissal risks because of differences in the (expected) costs and benefits of jobs with greater dismissal probabilities. For example, costs of dismissal may be higher for women if they are more constrained in the distance they can travel to work due to family responsibilities. Women may also have different preferences, including attitudes to risk, leading to greater preference for jobs with less risk of dismissal. Indeed, numerous studies have found a gender pay gap favouring men, a gap that could in theory reflect compensation for non-wage attributes, such as a lesser degree of hours flexibility, greater travel to work times, greater health and safety risks and, of course, less job security.

Potentially relevant employment-related characteristics most obviously include occupation, industry and sector, since there are likely to be systematic differences across occupations, industries and sectors in rates of dismissal, reflecting the varying nature of demand conditions faced by employers.[5] Other potentially important factors include the type of employment contract, the number of hours worked, the timing of work hours, the size of the employer, the employee's job tenure, and the employee's wage rate. Ex ante, one would expect job dismissal to be less prevalent among permanent or ongoing staff, among full-time workers, and in larger firms. Blau and Kahn (1981) further postulate that, all else equal (including the employee's marginal product), the higher the wage, the greater the probability of dismissal. With regards to job tenure, they suggest it may be negatively associated with dismissal because those with longer tenure are likely to have higher levels of firm-specific human capital, which is a source of joint surplus from the employment relationship.[6] Blau and Kahn also argue that dismissal probabilities are increasing in the 'replaceability' of the employees, which might suggest that working irregular hours and at non-standard times of the day and week reduces the likelihood of dismissal given it is harder to find workers prepared to work those hours. While not a job characteristic per se, the local unemployment rate may also provide an

[5] Indeed, one could perhaps include the dismissal rates of the employee's occupation, industry and even sector as the relevant explanatory factors rather than dummy indicators for these three job characteristics.

[6] Blau and Kahn also acknowledge that tenure may, in part, capture an unobserved individual fixed effect, with those less prone to dismissal tending to have longer tenures.

indication of the replaceability of employees and/or the employer's demand conditions, and thus would be expected to be positively associated with the dismissal rate.

Differences in behaviour in the job of observationally similar employees implies either systematic differences in unobservable characteristics or that men and women are inherently different, and therefore perform or behave differently even when they have the same characteristics. That men have a higher rate of dismissal implies that, if this explanation plays a role, men are more likely to shirk, underperform or engage in other behaviours provoking dismissal than are women of the same age, health, educational attainment, and so on. Balchin and Wooden (1995) suggest this as an explanation for their finding that the rate of dismissal was decreasing in the proportion of a firm's work force that is female, hypothesising that female workforces are more compliant. The fourth potential explanation, differences in employer propensity to dismiss men and women, could arise from factors such as societal norms and fears of being accused of discrimination.

These last two potential sources of difference in dismissal rates are, by their nature, difficult to separately identify, since they are observationally indistinguishable without direct information on employee job performance. However, if we have rich information on employees' characteristics, systematic differences in behaviour in employment between men and women with the same observed characteristics would seem to be relatively unlikely. If we also have a sufficiently rich set of covariates for employment-related characteristics, the implication would be that employer behaviour is likely to be the source of any differences between men and women in dismissal rates that remain once personal and employment-related characteristics are controlled for. A finding of such a difference could quite reasonably be interpreted as employer discrimination against males.

Being a household survey, the HILDA Survey has almost no information on job performance, with perhaps the one exception being that number of days of sick leave taken by the employee in the last year is collected. Considerable information is, however, collected about both personal and employment-related characteristics.

5. Models of the determinants of dismissal

Methods

We estimate probit models of the probability of dismissal of employees, taking advantage of the panel structure of the data to control for unobserved individual heterogeneity by estimating random effects models. An individual contributes an observation for each wave in which he is an employee, provided he is also a respondent in the next wave. Given nine waves of data, an individual can therefore contribute up to eight observations. The outcome variable is a dummy indicator equal

to one in the current wave if the employee reports in the *next* wave that he was dismissed from the main job held in the current wave. All characteristics are evaluated in the current wave (rather than the wave in which dismissal was reported) to allow job characteristics to be tied to the job from which the employee was dismissed.

Reflecting the potential factors canvassed in Section 4, a wide variety of explanatory variables is included in the models. We distinguish personal characteristics from job or employment characteristics on the basis that they conceptually capture distinct sources of differences in dismissal rates between men and women. We do this by estimating models with personal characteristics only, and then estimating models which also include job characteristics. When controlling for personal characteristics only, the estimate on the male dummy provides a measure of the difference in the dismissal probability that is not explained by differences in the characteristics of labour market participants. Controlling for both personal and job characteristics, the estimate on the male dummy provides a measure of the difference in the dismissal probability that is not explained by either the characteristics of labour market participants or the types of jobs they do.

Personal characteristics are captured by variables for age, educational attainment, work experience, health, disability, indigenous status and place of birth, personality, and household income. Work experience is equal to the number of years in employment since leaving full-time education for the first time. The health variable is the SF-36 measure of general health (Ware et al. 2000), which rates the respondent's health on a 0-100 scale based on responses to five subjective health-related questions, and was administered in the SCQ. Disability is captured by a dummy indicator for the presence of a long-term health condition, impairment or disability that restricts the respondent in everyday activities, and has lasted or is likely to last, for six months or more. The income variable is equivalised real disposable income of the household, where the equivalence scale used is the modified OECD scale (Haagenars et al. 1994).

Significantly, in waves 5 and 9, the SCQ contained a multi-item question designed to provide measures of the 'big five' personality traits — extroversion, agreeableness, conscientiousness, emotional stability and openness. The approach used is closely based on that used by Saucier (1994), and is described in more detail in Summerfield (2010). For the analysis presented in this paper, we assume personality is stable over the survey period[7] and set values for each of the five traits at the mean score across the two waves in which the questions were administered. Personality would

[7] The data itself suggest this is a reasonable assumption, with rank order correlations over the two periods varying from 0.59 for the agreeableness scale up to 0.73 for extroversion.

seem to have the potential for large effects on likelihood of dismissal, yet to the best of our knowledge, this is the first population-based study of dismissals to include a measure of personality.

Job or employment-related characteristics comprise variables for occupation, industry, sector (public or private), firm size (fewer than 20 employees, 20-99 employees, 100 or more employees), length of job tenure, type of employment contract (permanent / ongoing, fixed-term or casual), hours of work (part-time or full-time), timing of work hours (whether works weekends, nights and/or irregular hours) and the employee's wage (log real hourly wage). Two alternative specifications are estimated, one with broad (essentially 1-digit) occupation and industry groups and the other with disaggregated (essentially 2-digit) occupation and industry groups.[8]

Previous studies have only considered selection into occupations and industries in a very limited way. Blau and Kahn (1981) included just one occupation dummy and one industry dummy, Booth and Francesconi (2000) included four occupation dummies and no industry dummies, Theodossiou (2002) included four industry dummies and no occupation dummies, and Booth et al. (2000) included nine industry dummies and six occupation dummies. We consider the potential role of selection into occupations and industries in considerably more depth. The aggregated specification contains eight occupation dummies and nine industry dummies, while the disaggregated specification contains 40 occupation dummies and 52 industry dummies.

Blau and Kahn (1981) also identify 'replaceability' of employees as a factor positively affecting the layoff probability, which they attempt to capture by inclusion of the local unemployment rate. We likewise include such a variable in our estimated models, although only disaggregated to the level of capital city and balance of state. Also included in the models are wave dummies, which will capture macroeconomic conditions and other time-related macro factors.

Results

Table 2 presents 'mean marginal effects' estimates, obtained by evaluating the marginal effect of each variable on the probability of dismissal for each observation in the sample and taking the mean of these effects over all observations. Specification (i) shows a 1.07 percentage point higher predicted probability of dismissal for males after controlling for personal characteristics, which is only slightly less than the raw empirical difference of 1.3 percentage points. As might be expected, degree-level educational qualifications and greater work experience are associated with lower probabilities of dismissal, while poorer health is associated with a higher risk of dismissal.

[8] Occupation is coded using the Australian and New Zealand Standard Classification of Occupation system (ANZSCO), First Edition, 2006 (ABS cat. no. 1220.0), while industry is coded using the Australian and New Zealand Standard Industrial Classification (ANZSIC), Second Edition, 2006 (ABS cat. no.1292.0).

Interestingly, extroversion has a significant positive effect on the likelihood of dismissal. Point estimates furthermore show negative effects for agreeableness, conscientiousness and emotional stability, and positive effect for openness to experience, but these are not statistically significant. Immigrant and indigenous employees have higher probabilities of dismissal, holding other personal characteristics constant, while a weakly significant negative effect is evident for household income.

Adding job-related characteristics with aggregated industry and occupation groupings (specification (ii)) reduces the gender gap in predicted probability of dismissal to 0.4 percentage points, a gap that is now only weakly statistically significant. This reduces further to a statistically insignificant 0.2 percentage points when the more disaggregated industry and occupation groupings are used. It would therefore seem that much of the gender gap is explicable by differences in the types of jobs chosen by men and women. As we might expect, the estimates for the industry and occupation dummies in specification (ii) show relatively high rates of dismissal in manufacturing and construction industries and for labourers and related workers, and relatively low rates of dismissal in government, education and health industries and professional occupations. Also as expected, employees in the public sector are much less susceptible to dismissal than their private sector counterparts. In terms of other job characteristics, all else equal, the probability of dismissal is higher for casual jobs, employees of small firms, and more highly paid employees, and lower for employees with longer job tenure and employees working nights or irregular hours. All of these findings are consistent with our a priori expectations outlined in Section 4. Contrary to expectations, however, there is no evidence of a positive association with the local unemployment rate (though this possibly reflects the coarseness of the measure used).

Table 2: Mean marginal effects estimates from random effects probit models of the probability of dismissal

	(i)		(ii)		(iii)	
	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat
Personal characteristics						
Male	0.0107	6.03	0.0043	1.91	0.0020	0.85
Age group ('15-24' omitted)						
25-34	-0.0009	-0.27	-0.0012	-0.30	-0.0010	-0.25
35-44	0.0026	0.62	0.0043	0.91	0.0052	1.07
45-54	0.0026	0.55	0.0061	1.13	0.0072	1.30
55 or over	0.0060	1.12	0.0105	1.66	0.0125	1.96
Educational attainment ('No post-school qualifications' omitted)						
Degree	-0.0102	-4.73	-0.0007	-0.25	-0.0005	-0.18
Other post-school qualification	-0.0027	-1.47	-0.0006	-0.29	-0.0011	-0.53
Disabled	0.0020	0.96	0.0024	1.01	0.0026	1.09
General health (SF-36)	-0.0001	-3.11	-0.0002	-3.41	-0.0002	-3.34
Extroversion	0.0016	1.96	0.0015	1.69	0.0015	1.62
Agreeableness	-0.0011	-1.05	0.0000	0.01	0.0002	0.16
Conscientiousness	-0.0010	-1.13	-0.0016	-1.64	-0.0017	-1.72
Emotional stability	-0.0006	-0.72	0.0001	0.05	0.0000	-0.02
Openness to experience	0.0014	1.54	0.0013	1.28	0.0010	0.99
Immigrant and indigenous status (Non-indigenous Australian-born' omitted)						
ESB immigrant	0.0077	3.07	0.0064	2.29	0.0060	2.13
Indigenous or NESB immigrant	0.0060	2.46	0.0041	1.52	0.0041	1.50
Household equivalised income ($'000)	-0.0001	-1.84	0.0000	-1.08	-0.0001	-1.48
Years of work experience ('<5' omitted)						
5 - <10	0.0013	0.40	0.0028	0.73	0.0029	0.75
10 - <20	-0.0069	-1.77	-0.0023	-0.51	-0.0025	-0.55
20 - <30	-0.0105	-2.34	-0.0026	-0.50	-0.0031	-0.58
30+	-0.0097	-1.87	-0.0017	-0.28	-0.0026	-0.42
Job characteristics						
Union member			0.0006	0.28	0.0025	1.08
Job tenure (years)			-0.0030	-8.40	-0.0030	-8.32
Job tenure squared / 100			0.0073	7.18	0.0075	7.19
Part-time			-0.0011	-0.43	0.0007	0.27
Employment contract ('Permanent/ongoing' omitted)						
Fixed term			0.0016	0.52	0.0020	0.64
Casual			0.0100	4.01	0.0112	4.40
Private sector			0.0144	4.25	0.0133	3.65
Firm size ('100+ employees' omitted)						
Fewer than 20 employees			0.0080	3.67	0.0071	3.10
20 - 99 employees			0.0059	2.51	0.0052	2.16
Work on weekends			-0.0028	-1.27	-0.0019	-0.83
Work nights or irregular hours			-0.0036	-1.55	-0.0021	-0.87
Log hourly wage			0.0063	3.01	0.0047	2.21
Occupation ('Manager' omitted)						
Professional			-0.0066	-1.95		
Technician / trade			-0.0009	-0.26		
Community and personal service			-0.0033	-0.76	Contains 40 occupation dummies. See Appendix Table A6 for estimates.	
Clerical and administrative			-0.0032	-0.94		
Sales			-0.0081	-1.88		
Machinery operator / driver			-0.0006	-0.15		
Labourer			0.0026	0.66		

Table 2 continued

	(i)		(ii)		(iii)	
	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat
Industry ('Agriculture, mining' omitted)						
Manufacturing			0.0097	2.31		
Construction			0.0159	3.39		
Wholesale and retail trade			-0.0040	-0.87	Contains 52 industry dummies. See Appendix Table A6 for estimates.	
Hospitality			0.0052	1.04		
Transport, communication			0.0067	1.44		
Professional services			0.0037	0.87		
Government, education, health			-0.0185	-4.06		
Arts, recreation and other services			0.0002	0.04		
Local unemployment rate	-0.0003	-0.43	-0.0006	-0.67	-0.0003	-0.35
Wave 2	-0.0034	-1.19	-0.0043	-1.28	-0.0038	-1.11
Wave 3	-0.0072	-2.41	-0.0215	-4.68	-0.0201	-4.22
Wave 4	-0.0074	-2.31	-0.0211	-4.43	-0.0193	-3.94
Wave 5	-0.0080	-2.50	-0.0218	-4.55	-0.0199	-4.04
Wave 6	-0.0115	-3.23	-0.0269	-5.25	-0.0251	-4.76
Wave 7	-0.0120	-3.30	-0.0274	-5.26	-0.0255	-4.79
Wave 8	0.0056	1.66	-0.0068	-1.40	-0.0049	-0.98
Number of obs		37495		37495		37495
Wald chi2(29)		215.34		608.40		674.45
Log likelihood		-5115.2		-4877.0		-4816.6

Sensitivity tests

We examine the robustness of the findings presented in Table 2 by conducting several sensitivity tests, results of which are presented in Table 3. The table only presents the mean marginal effects estimates for the male dummy, with all other estimates presented in the Appendix.

The first sensitivity test adopts a broader definition of dismissal, redefining the term to also include employees who left the main job because it was temporary or seasonal. The second variation reported in Table 3 is motivated by the approaches taken by both Booth and Francesconi (2000) and Goerke and Pannenberg (2010), and restricts the sample to employees with a 'strong' attachment to the labour market, defined as those employed full-time and with at least two years work experience. Restricting to full-time employees with at least two years of work experience reduces the sample size by approximately 35 per cent. The final sensitivity test involves an alternative sample selection restriction; the exclusion of employees who voluntarily leave the job. Blau and Kahn (1981) employ this restriction, arguing that it is necessary given some quitters may have pre-empted imminent layoff. This restriction results in approximately 10 per cent of employees being excluded.

As is clear from the table, the mean marginal effects estimates on the gender dummy are little-affected by any of the variations considered. Controlling for personal characteristics only, males

have an approximately one percentage point higher probability of dismissal in all cases. Adding job characteristics with aggregated occupation and industry groups reduces this to approximately 0.4 to 0.5 percentage points, while detailed occupation and industry categories further reduces it to approximately 0.2 to 0.3 percentage points.

We also present, in the final row of Table 3, results from a 'pooled' probit model, which treats each observation as independent of all others. This provides information on the implications for the results presented in Table 2 of allowing for correlated random effects, giving the relatively standard result of slightly larger estimates and lower standard errors. The pooled probit results are also presented because the decompositions presented in Section 6 are conducted on pooled probit models due to the absence of techniques for decomposing random effects models.

Table 3: Sensitivity analysis: MME on male dummy

	(i)		(ii)		(iii)	
	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat
Main specification	0.0103	6.08	0.0042	1.97	0.0022	0.98
Broad definition of dismissal	0.0099	5.00	0.0052	2.12	0.0030	1.19
Employees with strong labour market attachment only	0.0119	5.33	0.0041	1.50	0.0021	0.73
Excluding employees who quit	0.0113	6.06	0.0046	1.94	0.0023	0.93
Pooled probit	0.0133	6.88	0.0048	2.11	0.0026	1.08

Note: Estimates for all explanatory variables are provided in Appendix tables.

6. Decompositions of the difference in dismissal rates

Total effect of differences in characteristics

The models estimated in Section 5 constrain the effects associated with explanatory factors to be the same for males and females. In this section, we relax this constraint, thereby allowing us to decompose the sources of difference in the probability of dismissal, identifying the effects of differences between males and females in their personal and job characteristics as distinct from (unexplained) differences in the effects associated with these characteristics — as captured by differences in the coefficient estimates.

To do this we adopt a modified version of the Blinder (1973)-Oaxaca (1973) decomposition that can be applied to probit models. Following Fairlie (1999), who applied the technique to racial gaps in self-employment, a probit equation can be decomposed as follows:

$$\begin{aligned}\overline{Y_m} - \overline{Y_f} = &\left[1/N_m \sum_{i=1}^{N_m} \Phi\left(x_{i,m}^{'}\hat{\beta}_m\right) - 1/N_f \sum_{i=1}^{N_f} \Phi\left(x_{i,f}^{'}\hat{\beta}_m\right) \right] \\ &+ \left[1/N_f \sum_{i=1}^{N_f} \Phi\left(x_{i,f}^{'}\hat{\beta}_m\right) - 1/N_f \sum_{i=1}^{N_f} \Phi\left(x_{i,f}^{'}\hat{\beta}_f\right) \right]\end{aligned} \quad (1)$$

where $\overline{Y_m}$ and $\overline{Y_f}$ are the predicted probabilities of dismissal for males and females, respectively, $x_{i,m}$ and $x_{i,f}$ are vectors of characteristics, β_m and β_f are vectors of the estimated coefficients, N_m and N_f are the sample sizes and Φ is the standard normal cumulative distribution function.

The first component in square brackets is the difference in predicted dismissal rates of males and females attributable to differences in characteristics, applying the male coefficients. The second term is the residual (unexplained) difference due to differences in the estimated coefficients. This has the same form as the standard Blinder-Oaxaca decomposition applied to linear models, and has strong parallels with the mean marginal effects presented in Section 4. Specifically, rather than using the mean values of characteristics and decomposing the dismissal probability as $\left[\overline{x}_m^{'}\hat{\beta}_m - \overline{x}_f^{'}\hat{\beta}_m\right] + \left[\overline{x}_f^{'}\hat{\beta}_m - \overline{x}_f^{'}\hat{\beta}_f\right]$, the mean predicted probability is calculated for of each of the four terms, evaluated over all observations in the term. As in the linear case, decompositions can be evaluated using the male coefficients (as in equation (1)) or using the female coefficients, which will generally produce different, but equally valid, results.

We estimate the same three specifications reported on in Table 2, but models are estimated separately for males and females. Note we employ the pooled probit model here rather than the random effects models, since it is not readily apparent how to treat random effects in decompositions. In any case, as Table 3 (and the associated Appendix tables) demonstrate, results are relatively insensitive to the inclusion or exclusion of correlated random effects.

Table 4 presents the decomposition results. Controlling for personal characteristics only, most of the difference remains unexplained. Controlling for job characteristics results in considerably more of the difference being explained by differences in characteristics. Indeed, once we include detailed occupation and industry dummies, most of the gender difference is “explained”. Indeed, when evaluated at female coefficients the unexplained component is negative, implying that women are actually more likely to be dismissed once differences in characteristics are eliminated.

Table 4: Blinder-Oaxaca decompositions of sex differences in the probability of job loss (%)

	Evaluated at:	
	male coefficients	female coefficients
Personal characteristics only		
Due to differences in characteristics	0.18	-0.09
Unexplained	1.23	1.50
Personal and job characteristics		
Due to differences in characteristics	1.23	0.51
Unexplained	0.18	0.89
Personal and job characteristics, with 2-digit occupations and industries		
Due to differences in characteristics	1.21	2.24
Unexplained	0.25	-0.77

NOTE: Total difference in the mean predicted probability of job loss is 1.41 percentage points.

Identifying the contributions of specific factors

To identify the roles of specific factors, we take Fairlie's (2006) approach. As with the modified Oaxaca-Blinder decompositions, pooled probit model estimation results rather than random effects probit results are decomposed.

This approach calculates the contribution of differences in the distribution of an individual variable x_j as equal to:

$$\frac{1}{N_f}\sum_{i=1}^{N_f}\Phi\left(x_{i,m}^{-j\prime}\hat{\beta}_m^{-j}+x_{i,m}^{j}\hat{\beta}_m^{j}\right)-\Phi\left(x_{i,f}^{-j\prime}\hat{\beta}_m^{-j}+x_{i,m}^{j}\hat{\beta}_m^{j}\right) \quad (2)$$

where variables are as defined in equation (1) and where each observation in the female sample is matched to an observation in the male sample. Noting that the male sample is larger than the female sample, this is done by first taking a random sub-sample of the male sample equal in size to the female sample. The female sample and the male sub-sample are then (separately) sorted by predicted probability of dismissal, and each member of the female sample is matched to the member of the male sub-sample with the same ranking. The drawing of the male sub-sample and calculation of equation (2) is repeated numerous times (100 in this paper), with the mean calculated value across these replications being reported.

This method can also be applied to groups of variables rather than simply the single variable x_j. For example, the age dummies are logically considered as a group. The Fairlie approach has the attractive feature that the sum of effects of individual variables (or groups of variables) is equal to the total effect of differences in the distribution of all characteristics.

Table 5 presents results for the two specifications that include both personal and job characteristics. The table shows that the characteristics to make the biggest contribution to the difference in the dismal rate are occupation and industry of employment. When the aggregated (largely one-digit) occupation and industry categories are employed, differences in the distributions of men and women across these categories explain between 0.72 and 1.02 percentage points of the 1.41 percentage point difference in mean predicted probability of dismissal. When the disaggregated categories are employed, this rises to between 1.12 and 2.67. Clearly, the occupations and industries in which men and women work play a big part in explaining the higher rate of dismissal among male employees.

The higher rate of part-time employment among females is also found to play some role in producing the lower rate of dismissal for women, although estimates are not statistically significant. Other job characteristics either have negligible effects or act to decrease the gap between male and female dismissal rates, the most notable being the type of employment contract. Differences in the personal characteristics of male and female employees likewise have relatively small roles in explaining the gap. Differences in the age distribution, health, and indigenous and immigrant composition of employees contribute slightly to the gap, while differences in education, disability, personality and household income have no discernible role. Significant effects of firm size, job tenure and wages are evident, but the direction of the effects depends on whether males or females are used as the reference group; in all cases, they explain some of the difference in dismissal rates if males are the reference group, but act to decrease the gap if females are the reference group.

Table 5: Contributions of components of characteristics to the male-female difference in the probability of job loss—Fairlie decompositions

	1-digit occupation and industry				2-digit occupation and industry			
	Females the reference group		Males the reference group		Females the reference group		Males the reference group	
Total difference	1.41		1.41		1.41		1.41	
Differences explained (by characteristics)	0.53		1.30		2.13		1.31	
	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat
Age	0.09	1.46	0.02	0.55	0.08	1.35	0.03	0.62
Education	-0.01	-0.34	0.00	-0.02	-0.01	-0.25	-0.01	-0.30
Disability	0.01	0.82	0.00	0.20	0.00	0.60	0.00	0.31
Health	0.07	3.08	0.02	1.95	0.06	2.85	0.03	1.98
Personality	-0.04	-0.42	0.05	0.68	-0.04	-0.43	0.06	0.79
Indigenous and immigrant status	0.01	0.68	0.03	1.82	0.01	0.65	0.03	1.66
Household income	0.00	-0.07	0.00	0.09	0.00	-0.42	0.00	0.51
Work experience	-0.04	-0.40	0.06	0.56	-0.04	-0.39	0.05	0.45
Union membership	-0.02	-1.06	0.01	0.47	-0.01	-0.34	0.02	1.03
Job tenure	-0.03	-0.91	0.07	2.41	-0.05	-1.27	0.14	3.87
Occupation	0.11	0.54	0.26	2.05	1.74	2.29	0.72	3.07
Industry	0.61	3.74	0.76	6.58	0.93	2.77	0.40	1.72
Part-time / full-time status	0.05	0.38	0.14	0.79	0.04	0.21	0.01	0.06
Type of employment contract	-0.13	-2.10	-0.22	-2.93	-0.28	-2.36	-0.26	-3.07
Sector	0.01	0.86	0.00	-0.20	0.00	0.59	-0.01	-0.54
Firm size	-0.07	-2.71	0.01	1.79	-0.16	-2.92	0.01	1.50
Weekend shifts	-0.03	-1.37	-0.01	-0.53	-0.02	-0.97	0.00	-0.14
Night shifts	0.00	-0.05	0.00	-0.64	0.00	0.47	0.00	0.68
Wage (log hourly wage)	-0.06	-1.09	0.11	5.27	-0.12	-1.28	0.10	4.85

7. Conclusion

Our findings are broadly consistent with the hypothesis that women tend to choose jobs with lower risks of dismissal. We note, however, that the male-female difference in the dismissal rate only becomes statistically insignificant once detailed industry and occupation controls are included in our models; correspondingly, a significant portion of the difference remains unexplained in most of the decompositions when aggregated industry and occupation controls are employed. Indeed, the primary motivation for the specification with more-aggregated industry and occupation controls is the concern that the disaggregated specification may 'over-control' for occupation and industry. In particular, many occupations and industries are dominated by one sex at this level of disaggregation. In the same way that it has been argued that occupational and industrial sex segregation has led to feminised industries and occupations being underpaid, it may be that feminised occupations and industries are less prone to dismissals simply because they are feminised. That is, employers may adopt 'firing cultures' based on their gender mix, which they then apply to both their male and female employees. Under this scenario, there may effectively be discrimination against male

employees, but it will be a product of the adoption of propensity to fire employees based on the masculinity of the occupation or industry rather than a predisposition to fire male employees.

This caveat notwithstanding, our results suggest that differences between men and women in preferences over risk of job loss are the main source in the difference in dismissal rates. Noting that we find a positive effect of wages on probability of dismissal in our estimated models, this raises potentially provides an explanation for at least part of the gender wage gap. However, we have not directly investigated this question, which we leave for further research. A further question raised by our findings is why women have a stronger preference for jobs with lower dismissal probabilities. One obvious potential source is that costs of dismissal are higher for women. Investigation of gender differences in costs of dismissal, and its consequences more broadly, would therefore seem to be a useful avenue for future research.

8. Appendix

Table A1: Means of regression variables—All waves combined

	Males	Females
Dismissed	0.041	0.028
Dismissed - broad definition	0.054	0.041
Aged 15-24	0.222	0.223
Aged 25-34	0.233	0.211
Aged 35-44	0.242	0.242
Aged 45-54	0.198	0.225
Aged 55 or over	0.106	0.099
Degree	0.225	0.279
Other post-school qualification	0.338	0.231
Disabled	0.149	0.147
General health	72.537	72.888
Extroversion	4.124	4.400
Agreeableness	4.888	5.405
Conscientiousness	4.759	4.981
Emotional stability	4.863	4.898
Openness to experience	4.051	3.991
ESB immigrant	0.093	0.086
NESB immigrant	0.115	0.121
Household equivalised income ($, Dec 09 prices)	45432	45114
Work experience in years: 0 - <5	0.148	0.154
Work experience in years: 5 - <10	0.118	0.131
Work experience in years: 10 - <20	0.216	0.266
Work experience in years: 20 - <30	0.222	0.224
Work experience in years: 30+	0.211	0.131
Union member	0.254	0.239
Job tenure (years)	6.312	5.420
Job tenure squared / 100	1.032	0.749
Part-time	0.167	0.483
Fixed term	0.093	0.093
Casual	0.190	0.286
Private sector	0.616	0.552
Less than 20 employees	0.229	0.222
20 - 99 employees	0.161	0.145
Work on weekends	0.288	0.254
Work nights or irregular hours	0.253	0.253
Log hourly wage	3.121	2.998
Manager	0.123	0.069
Professional	0.197	0.269
Technician / trade	0.213	0.040
Community and personal service	0.067	0.153
Clerical and administrative	0.082	0.239
Sales	0.072	0.141
Machinery operator / driver	0.114	0.011
Labourer	0.131	0.078
Agriculture, mining	0.078	0.017
Manufacturing	0.152	0.053
Construction	0.095	0.013
Wholesale and retail trade	0.136	0.153

Hospitality	0.058	0.085
Transport, communication	0.093	0.045
Professional services	0.124	0.151
Government, education, health	0.204	0.439
Arts, recreation and other services	0.060	0.044
Other manager	0.091	0.043
Hospitality, retail or service manager	0.032	0.026
Business professional	0.060	0.055
Design, engineering, etc. professional	0.039	0.016
Education professional	0.039	0.097
Health professional	0.015	0.071
ICT professional	0.030	0.006
Legal, social or welfare professional	0.014	0.024
Engineering, ICT or science technician	0.032	0.011
Automotive or engineering trades worker	0.063	0.001
Construction trades worker	0.031	0.000
Telecommunications trades worker	0.033	0.001
Food trades worker	0.018	0.008
Skilled animal or horticultural worker	0.015	0.005
Other technicians or trades worker	0.019	0.015
Health and welfare support workers	0.007	0.022
Carer or aide	0.010	0.075
Hospitality worker	0.016	0.038
Protective service worker	0.027	0.006
Sports pr personal service worker	0.008	0.012
Office manager or program administrator	0.012	0.031
Personal assistant or secretary	0.000	0.028
General clerical workers	0.009	0.048
Inquiry clerk or receptionist	0.008	0.048
Numerical clerk	0.014	0.051
Clerical or office support worker	0.011	0.008
Other clerical or administrative	0.029	0.024
Sales representative or agents	0.017	0.013
Sales Assistant or salesperson	0.045	0.098
Sales support worker	0.010	0.031
Machine or stationary plant operator	0.032	0.005
Mobile plant operator	0.022	0.001
Road or rail driver	0.044	0.003
Storeperson	0.016	0.003
Cleaner or laundry worker	0.015	0.028
Construction or mining labourer	0.023	0.000
Factory process worker	0.029	0.018
Farm, forestry or garden worker	0.016	0.005
Food preparation assistant	0.016	0.016
Other labourer	0.032	0.011
Agriculture, fishing and forestry	0.032	0.009
Mining	0.029	0.004
Food, beverage and tobacco manuf.	0.028	0.018
Textile, leather, clothing, etc. manuf.	0.012	0.007
Pulp, paper and printing	0.012	0.005
Mineral, chemical, polymer, etc. manuf.	0.023	0.007
Metal products manufacturing	0.027	0.003
Transport equipment manufacturing	0.021	0.003
Machinery and equipment manuf.	0.021	0.005
Furniture and other manufacturing	0.008	0.003
Utilities and waste collection	0.018	0.004

Building construction	0.027	0.005
Heavy and civil engineering constr.	0.013	0.002
Construction services	0.055	0.006
Basic material wholesaling	0.012	0.003
Machinery and equipment wholesaling	0.010	0.006
Motor vehicles and parts wholesaling	0.005	0.001
Grocery, liquor and tobacco production	0.007	0.005
Other wholesaling	0.010	0.008
Motor vehicle and parts retailing	0.012	0.003
Fuel and food retailing	0.037	0.046
Other retailing	0.043	0.081
Accommodation	0.009	0.014
Food and beverage services	0.049	0.071
Transport	0.038	0.009
Postal and courier pick-up and delivery	0.010	0.006
Transport support services and warehousing	0.017	0.006
Publishing and broadcasting	0.009	0.013
Telecommunications and internet	0.017	0.008
Library and other information services	0.002	0.004
Finance	0.015	0.023
Insurance and superannuation funds	0.006	0.010
Auxiliary finance and insurance services	0.011	0.010
Rental services and property operators	0.011	0.015
Professional, scientific and technical services	0.044	0.057
Computer system design and related	0.018	0.006
Administrative services	0.011	0.019
Building cleaning, pest control, etc. services	0.008	0.010
Public administration	0.050	0.048
Defence	0.014	0.003
Public order, safety and regulatory services	0.029	0.011
Preschool and school education	0.038	0.119
Tertiary education	0.022	0.029
Adult, community and other education	0.005	0.010
Hospitals	0.017	0.068
Medical and other health care services	0.010	0.054
Residential care services	0.006	0.041
Social assistance services	0.013	0.057
Heritage and creative and performing arts	0.005	0.005
Sports, recreation and gambling activities	0.016	0.010
Repair and maintenance	0.028	0.003
Personal and other services	0.011	0.025

Table A2: Mean marginal effects estimates from pooled probit models of the probability of dismissal

	(i)		(ii)		(iii)	
	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat
Personal characteristics						
Male	0.0133	6.88	0.0048	2.11	0.0026	1.08
Age group ('15-24' omitted)						
25-34	0.0029	0.77	0.0004	0.10	0.0004	0.11
35-44	0.0090	2.09	0.0074	1.69	0.0080	1.81
45-54	0.0099	2.02	0.0105	2.09	0.0111	2.20
55 or over	0.0156	2.71	0.0161	2.70	0.0176	2.93
Educational attainment ('No post-school qualifications' omitted)						
Degree	-0.0145	-5.79	-0.0019	-0.66	-0.0014	-0.47
Other post-school qualification	-0.0031	-1.44	-0.0007	-0.32	-0.0012	-0.54
Disabled	0.0046	1.84	0.0042	1.65	0.0044	1.73
General health (SF-36)	-0.0002	-3.21	-0.0002	-3.16	-0.0002	-3.06
Extroversion	0.0022	2.53	0.0016	1.87	0.0016	1.81
Agreeableness	-0.0018	-1.67	-0.0007	-0.64	-0.0007	-0.60
Conscientiousness	-0.0018	-1.92	-0.0018	-1.92	-0.0019	-2.00
Emotional stability	-0.0014	-1.48	-0.0007	-0.73	-0.0008	-0.84
Openness to experience	0.0011	1.20	0.0010	1.09	0.0008	0.83
Immigrant and Indigenous status (Non-Indigenous Australian-born' omitted)						
ESB immigrant	0.0080	2.73	0.0064	2.19	0.0060	2.04
Indigenous or NESB immigrant	0.0079	2.90	0.0045	1.60	0.0043	1.55
Household equivalised income ($'000)		-2.35		-1.36		-1.67
Years of work experience ('<5' omitted)						
5 - <10	-0.0017	-0.45	0.0024	0.65	0.0026	0.70
10 - <20	-0.0142	-3.60	-0.0040	-1.00	-0.0040	-1.00
20 - <30	-0.0190	-4.21	-0.0047	-1.01	-0.0050	-1.07
30+	-0.0196	-3.68	-0.0045	-0.81	-0.0050	-0.91
Job characteristics						
Union member			0.0006	0.27	0.0025	1.02
Job tenure (years)			-0.0035	-10.07	-0.0035	-9.89
Job tenure squared / 100			0.0086	8.30	0.0086	8.23
Part-time			-0.0017	-0.65	0.0003	0.11
Employment contract ('Permanent/ongoing' omitted)						
Fixed term			0.0030	0.92	0.0033	1.04
Casual			0.0116	4.50	0.0127	4.85
Private sector			0.0156	4.32	0.0137	3.55
Firm size ('100+ employees' omitted)						
Fewer than 20 employees			0.0090	4.03	0.0080	3.43
20 - 99 employees			0.0057	2.33	0.0052	2.09
Work on weekends			-0.0020	-0.88	-0.0010	-0.42
Work nights or irregular hours			-0.0055	-2.33	-0.0043	-1.78
Log hourly wage			0.0071	3.35	0.0055	2.52
Occupation ('Manager' omitted)						
Professional			-0.0080	-2.16		
Technician / trade			-0.0027	-0.69		
Community and personal service			-0.0026	-0.56	Contains 40 occupation dummies. See Appendix Table A6 for estimates.	
Clerical and administrative			-0.0038	-1.01		
Sales			-0.0060	-1.32		
Machinery operator / driver			-0.0006	-0.13		
Labourer			-0.0005	-0.11		

Table A2 continued

	(i)		(ii)		(iii)	
	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat
Industry ('Agriculture, mining' omitted)						
Manufacturing			0.0127	2.75		
Construction			0.0178	3.45		
Wholesale and retail trade			-0.0044	-0.89	Contains 52 industry dummies. See Appendix Table A6 for estimates.	
Hospitality			0.0048	0.89		
Transport, communication			0.0073	1.44		
Professional services			0.0065	1.38		
Government, education, health			-0.0203	-4.06		
Arts, recreation and other services			0.0012	0.21		
Local unemployment rate	-0.0006	-0.61	-0.0006	-0.66	-0.0004	-0.40
Wave 2	-0.0053	-1.45	-0.0058	-1.59	-0.0054	-1.47
Wave 3	-0.0091	-2.42	-0.0226	-4.64	-0.0206	-4.09
Wave 4	-0.0100	-2.54	-0.0225	-4.47	-0.0203	-3.93
Wave 5	-0.0123	-3.10	-0.0250	-4.93	-0.0225	-4.33
Wave 6	-0.0144	-3.34	-0.0291	-5.42	-0.0267	-4.85
Wave 7	-0.0173	-3.90	-0.0301	-5.51	-0.0278	-4.98
Wave 8	0.0055	1.33	-0.0082	-1.57	-0.0060	-1.13
Number of obs		42230		40487		40487
LR chi2(56)		297.52		832.07		950.37
Pseudo R2		0.0243		0.0718		0.082
Log likelihood		-5973.5		-5380.7		-5321.5

Table A3: Mean marginal effects estimates from random effects probit models of the probability of dismissal – Broad definition of dismissal

	(i)		(ii)		(iii)	
	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat
Personal characteristics						
Male	0.0099	5.00	0.0052	2.12	0.0030	1.19
Age group ('15-24' omitted)						
25-34	0.0046	1.32	0.0033	0.84	0.0030	0.76
35-44	0.0086	2.09	0.0081	1.73	0.0083	1.75
45-54	0.0118	2.51	0.0123	2.32	0.0129	2.39
55 or over	0.0216	3.88	0.0194	3.04	0.0208	3.21
Educational attainment ('No post-school qualifications' omitted)						
Degree	-0.0102	-4.17	-0.0014	-0.46	-0.0012	-0.39
Other post-school qualification	-0.0055	-2.51	-0.0022	-0.90	-0.0025	-1.01
Disabled	0.0058	2.46	0.0040	1.49	0.0041	1.51
General health (SF-36)	-0.0001	-2.96	-0.0002	-3.22	-0.0002	-3.17
Extroversion	0.0015	1.73	0.0011	1.18	0.0011	1.10
Agreeableness	-0.0019	-1.68	-0.0004	-0.35	-0.0003	-0.23
Conscientiousness	-0.0012	-1.27	-0.0009	-0.91	-0.0009	-0.89
Emotional stability	-0.0013	-1.43	-0.0011	-1.06	-0.0011	-1.12
Openness to experience	0.0024	2.47	0.0017	1.61	0.0013	1.22
Immigrant and Indigenous status (Non-Indigenous Australian-born' omitted)						
ESB immigrant	0.0070	2.26	0.0045	1.36	0.0039	1.16
Indigenous or NESB immigrant	0.0078	2.77	0.0053	1.74	0.0054	1.77
Household equivalised income ($'000)	0.0000	-4.37	0.0000	-2.17	0.0000	-2.32
Years of work experience ('<5' omitted)						
5 - <10	-0.0058	-1.70	0.0005	0.13	0.0002	0.06
10 - <20	-0.0196	-5.11	-0.0074	-1.75	-0.0077	-1.81
20 - <30	-0.0238	-5.39	-0.0045	-0.91	-0.0051	-1.02
30+	-0.0283	-5.41	-0.0082	-1.38	-0.0090	-1.50
Job characteristics						
Union member			-0.0024	-0.93	-0.0003	-0.11
Job tenure (years)			-0.0050	-12.08	-0.0050	-12.04
Job tenure squared / 100			0.0123	10.41	0.0125	10.43
Part-time			-0.0017	-0.63	0.0013	0.49
Employment contract ('Permanent/ongoing' omitted)						
Fixed term			0.0282	9.16	0.0281	9.06
Casual			0.0300	10.70	0.0301	10.53
Private sector			0.0088	2.54	0.0099	2.64
Firm size ('100+ employees' omitted)						
Fewer than 20 employees			0.0071	2.97	0.0059	2.36
20 - 99 employees			0.0039	1.50	0.0031	1.16
Work on weekends			-0.0030	-1.26	-0.0014	-0.57
Work nights or irregular hours			-0.0047	-1.91	-0.0026	-1.02
Log hourly wage			0.0051	2.34	0.0041	1.87
Occupation ('Manager' omitted)						
Professional			-0.0035	-0.89		
Technician / trade			-0.0031	-0.73		
Community and personal service			-0.0079	-1.62	Contains 40 occupation dummies. See Appendix Table A6 for estimates.	
Clerical and administrative			-0.0005	-0.14		
Sales			-0.0132	-2.74		
Machinery operator / driver			-0.0011	-0.23		
Labourer			0.0010	0.23		

Table A3 continued

	(i)		(ii)		(iii)	
	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat
Industry ('Agriculture, mining' omitted)						
Manufacturing			0.0015	0.33		
Construction			0.0084	1.61		
Wholesale and retail trade			-0.0169	-3.41	Contains 52 industry dummies. See Appendix Table A6 for estimates.	
Hospitality			-0.0124	-2.30		
Transport, communication			-0.0052	-1.00		
Professional services			-0.0047	-1.01		
Government, education, health			-0.0292	-5.92		
Arts, recreation and other services			-0.0058	-1.06		
Local unemployment rate	-0.0009	-1.01	-0.0018	-1.76	-0.0016	-1.59
Wave 2	-0.0046	-1.43	-0.0077	-2.07	-0.0073	-1.94
Wave 3	-0.0088	-2.64	-0.0188	-3.91	-0.0193	-3.89
Wave 4	-0.0114	-3.16	-0.0213	-4.23	-0.0217	-4.19
Wave 5	-0.0131	-3.61	-0.0227	-4.50	-0.0228	-4.41
Wave 6	-0.0185	-4.60	-0.0314	-5.76	-0.0317	-5.67
Wave 7	-0.0203	-4.90	-0.0328	-5.91	-0.0331	-5.84
Wave 8	0.0030	0.79	-0.0057	-1.09	-0.0059	-1.11
Number of obs		42230		40487		40487
LR chi2(56)		311.58		956.82		1047.93
Log likelihood		-7523.8		-6679.0		-6611.9

Table A4: Mean marginal effects estimates from random effects probit models of the probability of dismissal – Employees with 'strong' labour market attachment (full-time and at least two years of work experience)

	(i)		(ii)		(iii)	
	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat
Personal characteristics						
Male	0.0119	5.33	0.0041	1.50	0.0021	0.73
Age group ('15-24' omitted)						
25-34	-0.0019	-0.51	-0.0034	-0.81	-0.0034	-0.80
35-44	0.0015	0.33	0.0021	0.40	0.0025	0.47
45-54	-0.0004	-0.07	0.0025	0.41	0.0032	0.52
55 or over	0.0066	1.09	0.0112	1.55	0.0126	1.73
Educational attainment ('No post-school qualifications' omitted)						
Degree	-0.0109	-4.20	-0.0002	-0.07	0.0000	0.01
Other post-school qualification	-0.0020	-0.94	-0.0008	-0.30	-0.0015	-0.58
Disabled	0.0054	2.14	0.0060	2.03	0.0061	2.03
General health (SF-36)	-0.0001	-1.98	-0.0001	-2.17	-0.0001	-2.13
Extroversion	0.0019	2.03	0.0019	1.78	0.0019	1.75
Agreeableness	-0.0019	-1.62	-0.0009	-0.72	-0.0008	-0.62
Conscientiousness	-0.0022	-2.16	-0.0023	-2.03	-0.0025	-2.15
Emotional stability	0.0005	0.48	0.0008	0.70	0.0007	0.59
Openness to experience	0.0024	2.36	0.0026	2.23	0.0024	2.05
Immigrant and Indigenous status (Non-Indigenous Australian-born' omitted)						
ESB immigrant	0.0071	2.42	0.0056	1.71	0.0052	1.58
Indigenous or NESB immigrant	0.0048	1.65	0.0006	0.17	0.0000	0.00
Household equivalised income ($'000)	0.0000	-1.06	0.0000	-1.26	0.0000	-1.62
Years of work experience ('<5' omitted)						
5 - <10	0.0000	0.00	0.0030	0.72	0.0030	0.72
10 - <20	-0.0098	-2.46	-0.0034	-0.74	-0.0034	-0.72
20 - <30	-0.0125	-2.65	-0.0037	-0.68	-0.0040	-0.73
30+	-0.0107	-1.94	-0.0003	-0.05	-0.0008	-0.12
Job characteristics						
Union member			0.0023	0.86	0.0046	1.66
Job tenure (years)			-0.0032	-7.16	-0.0031	-7.03
Job tenure squared / 100			0.0078	5.83	0.0079	5.77
Employment contract ('Permanent/ongoing' omitted)						
Fixed term			0.0031	0.89	0.0036	1.03
Casual			0.0137	3.80	0.0159	4.29
Private sector			0.0206	4.59	0.0194	4.05
Firm size ('100+ employees' omitted)						
Fewer than 20 employees			0.0064	2.26	0.0053	1.79
20 - 99 employees			0.0048	1.70	0.0040	1.38
Work on weekends			-0.0011	-0.39	-0.0006	-0.23
Work nights or irregular hours			-0.0036	-1.13	-0.0024	-0.74
Log hourly wage			0.0092	3.14	0.0066	2.21
Occupation ('Manager' omitted)			-0.0083	-2.21		
Professional			0.0005	0.11		
Technician / trade			-0.0058	-0.92		
Community and personal service			-0.0005	-0.13	Contains 40 occupation dummies. See Appendix Table A6 for estimates.	
Clerical and administrative			-0.0031	-0.60		
Sales			-0.0002	-0.03		
Machinery operator / driver			0.0017	0.35		
Labourer			-0.0083	-2.21		

Table A4 continued

	(i)		(ii)		(iii)	
	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat
Industry ('Agriculture, mining' omitted)						
Manufacturing			0.0126	2.66		
Construction			0.0166	3.13		
Wholesale and retail trade			-0.0024	-0.45	Contains 52 industry dummies. See Appendix Table A6 for estimates.	
Hospitality			0.0026	0.37		
Transport, communication			0.0089	1.70		
Professional services			0.0068	1.37		
Government, education, health			-0.0178	-3.22		
Arts, recreation and other services			0.0047	0.78		
Local unemployment rate	-0.0014	-1.42	-0.0019	-1.68	-0.0015	-1.32
Wave 2	-0.0046	-1.34	-0.0045	-1.10	-0.0038	-0.92
Wave 3	-0.0125	-3.37	-0.0331	-5.52	-0.0311	-5.04
Wave 4	-0.0113	-2.91	-0.0307	-5.02	-0.0283	-4.50
Wave 5	-0.0121	-3.10	-0.0329	-5.33	-0.0304	-4.79
Wave 6	-0.0214	-4.73	-0.0431	-6.39	-0.0405	-5.87
Wave 7	-0.0197	-4.34	-0.0401	-5.96	-0.0375	-5.45
Wave 8	0.0014	0.36	-0.0168	-2.70	-0.0144	-2.24
Number of obs		27021		26225		26225
LR chi2(56)		204.59		471.97		518.76
Log likelihood		-3679.0		-3360.8		-3311.9

Table A5: Mean marginal effects estimates from random effects probit models of the probability of dismissal – Excluding employees who voluntarily leave the job

	(i)		(ii)		(iii)	
	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat
Personal characteristics						
Male	0.0113	6.06	0.0046	1.94	0.0023	0.93
Age group ('15-24' omitted)						
25-34	0.0016	0.47	-0.0004	-0.11	-0.0004	-0.11
35-44	0.0055	1.41	0.0055	1.21	0.0061	1.31
45-54	0.0059	1.34	0.0075	1.44	0.0081	1.53
55 or over	0.0106	2.06	0.0125	2.03	0.0140	2.24
Educational attainment ('No post-school qualifications' omitted)						
Degree	-0.0131	-5.54	-0.0019	-0.63	-0.0013	-0.41
Other post-school qualification	-0.0030	-1.55	0.0000	-0.02	-0.0005	-0.20
Disabled	0.0042	1.93	0.0048	1.83	0.0050	1.92
General health (SF-36)	-0.0001	-3.01	-0.0002	-3.05	-0.0002	-2.97
Extroversion	0.0022	2.71	0.0022	2.40	0.0021	2.28
Agreeableness	-0.0018	-1.77	-0.0009	-0.79	-0.0009	-0.76
Conscientiousness	-0.0018	-1.99	-0.0022	-2.18	-0.0023	-2.23
Emotional stability	-0.0014	-1.59	-0.0008	-0.84	-0.0009	-0.91
Openness to experience	0.0014	1.58	0.0015	1.48	0.0013	1.25
Immigrant and Indigenous status (Non-Indigenous Australian-born' omitted)						
ESB immigrant	0.0083	3.00	0.0075	2.43	0.0071	2.27
Indigenous or NESB immigrant	0.0066	2.55	0.0037	1.28	0.0037	1.24
Household equivalised income ($'000)	0.0000	-2.14	0.0000	-1.28	0.0000	-1.60
Years of work experience ('<5' omitted)						
5 - <10	-0.0011	-0.35	0.0028	0.73	0.0029	0.75
10 - <20	-0.0124	-3.44	-0.0042	-1.00	-0.0044	-1.03
20 - <30	-0.0171	-4.14	-0.0052	-1.08	-0.0057	-1.16
30+	-0.0178	-3.68	-0.0052	-0.90	-0.0058	-1.00
Job characteristics						
Union member			-0.0006	-0.26	0.0013	0.52
Job tenure (years)			-0.0035	-9.05	-0.0035	-8.90
Job tenure squared / 100			0.0087	7.76	0.0088	7.71
Part-time			-0.0027	-1.02	-0.0007	-0.27
Employment contract ('Permanent/ongoing' omitted)						
Fixed term			0.0030	0.91	0.0034	1.03
Casual			0.0124	4.57	0.0136	4.91
Private sector			0.0164	4.44	0.0146	3.69
Firm size ('100+ employees' omitted)						
Fewer than 20 employees			0.0105	4.47	0.0094	3.84
20 - 99 employees			0.0070	2.78	0.0065	2.51
Work on weekends			-0.0019	-0.80	-0.0009	-0.39
Work nights or irregular hours			-0.0055	-2.27	-0.0044	-1.77
Log hourly wage			0.0070	3.19	0.0054	2.40
Occupation ('Manager' omitted)						
Professional			-0.0080	-2.16		
Technician / trade			-0.0027	-0.69		
Community and personal service			-0.0026	-0.56	Contains 40 occupation dummies. See Appendix Table A6 for estimates.	
Clerical and administrative			-0.0038	-1.01		
Sales			-0.0060	-1.32		
Machinery operator / driver			-0.0006	-0.13		
Labourer			-0.0005	-0.11		

Table A5 continued

	(i)		(ii)		(iii)	
	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat
Industry ('Agriculture, mining' omitted)						
Manufacturing			0.0127	2.75		
Construction			0.0178	3.45		
Wholesale and retail trade			-0.0044	-0.89	Contains 52 industry dummies. See Appendix Table A6 for estimates.	
Hospitality			0.0048	0.89		
Transport, communication			0.0073	1.44		
Professional services			0.0065	1.38		
Government, education, health			-0.0203	-4.06		
Arts, recreation and other services			0.0012	0.21		
Local unemployment rate	-0.0007	-0.79	-0.0011	-1.14	-0.0009	-0.89
Wave 2	-0.0044	-1.45	-0.0060	-1.64	-0.0056	-1.50
Wave 3	-0.0078	-2.45	-0.0237	-4.76	-0.0218	-4.23
Wave 4	-0.0079	-2.34	-0.0234	-4.54	-0.0212	-4.01
Wave 5	-0.0097	-2.86	-0.0256	-4.92	-0.0232	-4.36
Wave 6	-0.0116	-3.11	-0.0298	-5.40	-0.0275	-4.86
Wave 7	-0.0144	-3.72	-0.0312	-5.56	-0.0292	-5.07
Wave 8	0.0038	1.08	-0.0105	-1.99	-0.0084	-1.54
Number of obs		37654		36110		36110
LR chi2(56)		269.84		680.12		736.73
Log likelihood		-5741.6		-5173.5		-5115.8

Table A6: Estimates for 2-digit occupations and industries

	Random effects probit		Pooled probit		Broad definition of dismissal		Full-time and 2+ years of work experience		Excluding employees who quit	
	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat	Estimate	z-stat
Hospitality, retail or service manager	-0.0047	-0.80	-0.0052	-0.82	-0.0038	-0.54	-0.0105	-1.54	-0.0043	-0.67
Business professional	-0.0047	-1.03	-0.0056	-1.14	-0.0024	-0.45	-0.0072	-1.43	-0.0043	-0.86
Design, engineering, etc. professional	-0.0034	-0.58	-0.0039	-0.63	0.0010	0.14	-0.0038	-0.59	-0.0039	-0.61
Education professional	-0.0084	-1.12	-0.0090	-1.12	-0.0085	-1.12	0.0011	0.10	-0.0091	-1.09
Health professional	-0.0229	-2.72	-0.0247	-2.74	-0.0142	-1.62	-0.0276	-2.44	-0.0245	-2.63
ICT professional	-0.0113	-1.64	-0.0130	-1.76	-0.0076	-0.95	-0.0134	-1.82	-0.0127	-1.66
Legal, social or welfare professional	-0.0149	-1.81	-0.0172	-1.96	-0.0068	-0.80	-0.0151	-1.53	-0.0157	-1.73
Engineering, ICT or science technician	-0.0040	-0.66	-0.0042	-0.64	-0.0051	-0.69	-0.0004	-0.06	-0.0040	-0.58
Automotive or engineering trades worker	-0.0048	-0.83	-0.0056	-0.92	-0.0023	-0.33	-0.0059	-0.95	-0.0064	-1.01
Construction trades worker	-0.0036	-0.51	-0.0038	-0.50	-0.0019	-0.22	-0.0022	-0.29	-0.0043	-0.54
Telecommunications trades worker	0.0054	0.86	0.0053	0.79	0.0062	0.79	0.0019	0.27	0.0054	0.77
Food trades worker	0.0009	0.11	0.0008	0.09	0.0054	0.57	0.0046	0.45	0.0028	0.31
Skilled animal or horticultural worker	-0.0196	-1.94	-0.0211	-1.94	-0.0105	-1.02	-0.0295	-1.83	-0.0217	-1.92
Other technicians or trades worker	-0.0028	-0.39	-0.0038	-0.51	-0.0058	-0.68	-0.0029	-0.35	-0.0042	-0.53
Health and welfare support workers	-0.0115	-1.15	-0.0130	-1.21	-0.0187	-1.58	-0.0162	-1.20	-0.0124	-1.13
Carer or aide	-0.0109	-1.49	-0.0117	-1.49	-0.0145	-1.80	-0.0120	-0.98	-0.0115	-1.42
Hospitality worker	-0.0122	-1.67	-0.0135	-1.73	-0.0125	-1.50	-0.0360	-2.21	-0.0118	-1.44
Protective service worker	-0.0098	-0.84	-0.0104	-0.83	-0.0019	-0.14	-0.0104	-0.71	-0.0097	-0.76
Sports pr personal service worker	-0.0006	-0.07	-0.0002	-0.02	-0.0133	-1.29	0.0008	0.06	0.0020	0.20
Office manager or program administrator	-0.0026	-0.42	-0.0033	-0.49	-0.0011	-0.15	0.0025	0.36	-0.0028	-0.40
Personal assistant or secretary	-0.0147	-1.79	-0.0159	-1.80	-0.0136	-1.47	-0.0073	-0.74	-0.0159	-1.74
General clerical workers	0.0020	0.36	0.0020	0.33	0.0079	1.23	0.0019	0.26	0.0034	0.55
Inquiry clerk or receptionist	-0.0085	-1.39	-0.0096	-1.45	-0.0017	-0.24	-0.0061	-0.79	-0.0083	-1.21
Numerical clerk	-0.0109	-1.88	-0.0121	-1.95	-0.0104	-1.53	-0.0113	-1.58	-0.0125	-1.97
Clerical or office support worker	-0.0177	-1.57	-0.0188	-1.55	-0.0148	-1.21	-0.0268	-1.57	-0.0198	-1.59
Other clerical or administrative	0.0004	0.06	0.0004	0.06	0.0046	0.68	-0.0004	-0.07	0.0002	0.04
Sales representative or agents	-0.0025	-0.35	-0.0033	-0.43	-0.0042	-0.48	-0.0013	-0.17	-0.0011	-0.13
Sales Assistant or salesperson	-0.0101	-1.86	-0.0110	-1.89	-0.0147	-2.29	-0.0107	-1.36	-0.0100	-1.65
Sales support worker	-0.0199	-2.43	-0.0215	-2.45	-0.0305	-3.18	-0.0354	-1.85	-0.0219	-2.41
Machine or stationary plant operator	0.0027	0.42	0.0029	0.42	0.0066	0.84	0.0044	0.62	0.0032	0.44
Mobile plant operator	-0.0110	-1.32	-0.0121	-1.36	-0.0066	-0.69	-0.0153	-1.64	-0.0095	-1.03
Road or rail driver	-0.0067	-1.03	-0.0077	-1.11	-0.0094	-1.19	-0.0082	-1.09	-0.0064	-0.88
Storeperson	0.0039	0.48	0.0039	0.44	0.0067	0.68	0.0036	0.39	0.0047	0.51
Cleaner or laundry worker	-0.0071	-0.99	-0.0079	-1.03	-0.0149	-1.77	-0.0249	-1.59	-0.0074	-0.93
Construction or mining labourer	0.0045	0.63	0.0055	0.73	0.0097	1.15	0.0038	0.46	0.0075	0.93
Factory process worker	-0.0009	-0.14	-0.0014	-0.21	0.0084	1.19	-0.0013	-0.19	-0.0008	-0.12
Farm, forestry or garden worker	0.0104	1.20	0.0108	1.16	0.0236	2.55	0.0095	0.80	0.0114	1.19
Food preparation assistant	-0.0104	-1.27	-0.0114	-1.29	-0.0120	-1.27	-0.0086	-0.48	-0.0108	-1.17
Other labourer	-0.0093	-1.36	-0.0104	-1.41	-0.0104	-1.33	-0.0009	-0.10	-0.0098	-1.28
Mining	0.0117	1.29	0.0125	1.29	0.0005	0.05	0.0090	0.87	0.0139	1.38
Food, beverage and tobacco manuf.	0.0176	2.16	0.0187	2.13	-0.0007	-0.08	0.0160	1.60	0.0207	2.28
Textile, leather, clothing, etc. manuf.	0.0199	2.04	0.0212	2.03	0.0049	0.44	0.0169	1.43	0.0239	2.20
Pulp, paper and printing	0.0139	1.35	0.0154	1.41	-0.0023	-0.19	0.0128	1.08	0.0153	1.34
Mineral, chemical, polymer, etc. manuf.	0.0287	3.44	0.0309	3.47	0.0223	2.43	0.0281	2.86	0.0318	3.44
Metal products manufacturing	0.0174	1.98	0.0191	2.03	0.0025	0.25	0.0163	1.58	0.0203	2.08
Transport equipment manufacturing	0.0101	1.05	0.0104	1.02	-0.0022	-0.21	0.0099	0.90	0.0120	1.13
Machinery and equipment manuf.	0.0169	1.85	0.0180	1.84	0.0030	0.29	0.0167	1.58	0.0198	1.95
Furniture and other manufacturing	0.0222	1.99	0.0247	2.07	0.0116	0.91	0.0264	2.10	0.0247	1.99
Utilities and waste collection	0.0053	0.52	0.0056	0.51	-0.0035	-0.31	0.0002	0.01	0.0066	0.58
Building construction	0.0236	2.76	0.0256	2.81	0.0118	1.25	0.0237	2.35	0.0267	2.81
Heavy and civil engineering constr.	0.0265	2.59	0.0283	2.57	0.0249	2.20	0.0223	1.87	0.0291	2.56
Construction services	0.0217	2.71	0.0237	2.76	0.0094	1.08	0.0216	2.22	0.0247	2.76
Basic material wholesaling	0.0026	0.23	0.0020	0.17	-0.0097	-0.76	-0.0079	-0.55	0.0048	0.38

Machinery and equipment wholesaling	0.0095	0.90	0.0100	0.88	-0.0005	-0.04	0.0029	0.23	0.0112	0.95
Motor vehicles and parts wholesaling	0.0118	0.81	0.0138	0.89	0.0012	0.07	0.0159	1.02	0.0138	0.85
Grocery, liquor and tobacco production	0.0059	0.51	0.0061	0.49	-0.0086	-0.66	0.0021	0.14	0.0071	0.56
Other wholesaling	-0.0009	-0.09	-0.0015	-0.13	-0.0093	-0.80	0.0039	0.30	-0.0006	-0.05
Motor vehicle and parts retailing	0.0088	0.80	0.0096	0.81	-0.0074	-0.57	0.0079	0.61	0.0096	0.79
Fuel and food retailing	0.0015	0.18	0.0013	0.15	-0.0223	-2.39	-0.0047	-0.37	0.0019	0.20
Other retailing	0.0053	0.68	0.0051	0.61	-0.0089	-1.07	0.0109	1.09	0.0070	0.81
Accommodation	0.0063	0.62	0.0068	0.63	-0.0065	-0.59	0.0067	0.46	0.0088	0.79
Food and beverage services	0.0133	1.61	0.0142	1.60	-0.0062	-0.69	0.0153	1.33	0.0173	1.88
Transport	0.0146	1.69	0.0156	1.68	0.0030	0.31	0.0143	1.37	0.0177	1.83
Postal and courier pick-up and delivery	0.0008	0.06	0.0004	0.03	-0.0214	-1.35	0.0130	0.71	0.0038	0.25
Transport support services and warehousing	0.0186	1.97	0.0200	1.99	0.0070	0.67	0.0175	1.57	0.0205	1.96
Publishing and broadcasting	0.0002	0.02	-0.0001	-0.01	-0.0071	-0.64	0.0030	0.24	0.0006	0.05
Telecommunications and internet	0.0284	3.19	0.0303	3.20	0.0159	1.60	0.0261	2.49	0.0309	3.13
Library and other information services	-0.0231	-0.94	-0.0250	-0.94	-0.0426	-1.67	-0.2569	0.00	-0.0261	-0.96
Finance	0.0086	0.92	0.0089	0.90	-0.0020	-0.20	0.0089	0.81	0.0103	1.01
Insurance and superannuation funds	0.0038	0.33	0.0049	0.40	-0.0048	-0.38	0.0092	0.73	0.0038	0.30
Auxiliary finance and insurance services	0.0260	2.83	0.0282	2.85	0.0187	1.82	0.0233	2.11	0.0299	2.92
Rental services and property operators	0.0179	1.92	0.0194	1.95	0.0020	0.19	0.0176	1.50	0.0210	2.02
Professional, scientific and technical services	0.0056	0.74	0.0059	0.72	-0.0075	-0.92	0.0057	0.60	0.0071	0.83
Computer system design and related	0.0324	3.56	0.0345	3.55	0.0197	1.93	0.0300	2.84	0.0364	3.60
Administrative services	0.0133	1.46	0.0139	1.42	0.0050	0.51	0.0112	0.99	0.0161	1.58
Building cleaning, pest control, etc. services	0.0157	1.51	0.0167	1.49	0.0097	0.85	-0.0107	-0.51	0.0180	1.55
Public administration	-0.0121	-1.38	-0.0133	-1.40	-0.0199	-2.21	-0.0084	-0.81	-0.0134	-1.38
Defence	-0.0215	-1.21	-0.0217	-1.14	-0.0376	-2.08	-0.0327	-1.37	-0.0234	-1.19
Public order, safety and regulatory services	0.0045	0.38	0.0044	0.35	-0.0175	-1.33	-0.0043	-0.29	0.0052	0.40
Preschool and school education	-0.0214	-2.23	-0.0236	-2.29	-0.0234	-2.45	-0.0420	-2.82	-0.0232	-2.18
Tertiary education	0.0002	0.02	-0.0001	-0.01	-0.0046	-0.46	-0.0168	-1.19	0.0004	0.04
Adult, community and other education	-0.0058	-0.46	-0.0059	-0.43	-0.0138	-1.06	-0.0071	-0.38	-0.0064	-0.45
Hospitals	-0.0277	-2.39	-0.0304	-2.44	-0.0384	-3.41	-0.0207	-1.43	-0.0296	-2.32
Medical and other health care services	-0.0043	-0.48	-0.0044	-0.46	-0.0288	-2.89	-0.0023	-0.19	-0.0041	-0.41
Residential care services	-0.0049	-0.49	-0.0055	-0.51	-0.0312	-2.71	0.0000	0.00	-0.0052	-0.47
Social assistance services	-0.0013	-0.14	-0.0015	-0.16	-0.0147	-1.50	-0.0043	-0.35	-0.0013	-0.13
Heritage and creative and performing arts	-0.0039	-0.28	-0.0043	-0.29	0.0033	0.26	-0.0271	-1.07	-0.0033	-0.22
Sports, recreation and gambling activities	0.0029	0.29	0.0028	0.26	-0.0051	-0.48	0.0083	0.61	0.0043	0.39
Repair and maintenance	0.0164	1.84	0.0178	1.85	0.0025	0.25	0.0221	2.10	0.0190	1.91
Personal and other services	0.0085	0.95	0.0096	1.00	0.0033	0.35	0.0075	0.62	0.0104	1.05

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