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Gender Differences in Quits and Absenteeism in Canada

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Abstract

Female workers are traditionally viewed as more likely to quit, to be absent and to take more days of absence than male workers, and this gender difference is widely used as an important explanation for the gender wage gap and other labour market differences between men and women. This study documents the gender differences in quits and absenteeism in Canada and attempts to assess whether the traditional view is still valid today.

The study found that Canadian women's quitting behaviour changed dramatically over the past two decades. While women's permanent quit rate was greater than that of men in the 1980s, it converged to men's permanent quit rate since the early 1990s, and today there does not seem to be any significant difference in quitting behaviour between Canadian men and women. In terms of absenteeism, it was found that, other things being equal, Canadian men and women were somewhat different in paid sick leave, not in other paid and unpaid leaves, and their difference in paid sick leave was not large: women took only one day more than men.

Taken together, these results imply that, in Canada, the current gender differences in quits and absenteeism are not significant factors to explain certain gender differences in labour market outcomes, such as the wage gap between men and women.

Keywords: permanent quit rate, temporary quit rate, paid absence, unpaid absence.

Executive summary

Female workers are traditionally viewed as more likely to quit, to be absent and to take more days of absence than male workers, and this gender difference is widely used as an important explanation for the gender wage gap and other labour market differences between men and women. This study documents the gender differences in quits and absenteeism in Canada and attempts to assess whether the traditional view is still valid today.

One feature of this study is that it examines permanent and temporary quits separately. In particular, it attempts to see if women substitute permanent quits with temporary quits. The tradition that women completely withdraw from the labour force upon marriage or upon giving birth might have long gone, but they may still experience long- or short-term career interruptions upon giving birth. Hence, substitution between permanent and temporary quits may reveal behavioural changes of women with respect to marriage, child bearing and rearing.

A unique feature of our study on absenteeism is that we control for firm fixed effects. It is arguable that leaves of absence cannot be unilaterally determined by workers. A worker's demand for absences must be agreed by the employer or the manager. Hence, unobservable management style, tradition and generosity towards workers' demands for absence also play important roles. And since these are not directly observable by the analyst, it is important to control for firm fixed effects in modelling work absence.

We use the Longitudinal Worker File (LWF) over the 1983-to-2003 period to examine the annual quit rates of Canadian men and women. The LWF is created by the Business and Labour Market Analysis (BLMA) Division of Statistics Canada. It is a 10% random sample of all Canadian workers. The advantages of the LWF are that it is a very large random sample of all Canadian workers and it provides accurate information due to its administrative nature.

We use data from Statistics Canada's Workplace and Employee Surveys (WES) to examine gender differences in absenteeism. WES is a linked employer and employee survey. The target population of employers are business locations operating in Canada. WES draws its workplace sample from Statistics Canada's Business Register, a list of all businesses in Canada. The employee sample is drawn from the lists of employees provided by surveyed workplaces. The targeted population is all employees in the selected workplaces.

With LWF, we found that the permanent quit rates of Canadian workers peaked in the late 1980s, and the permanent quit rates of men and women converged since the early 1990s. The convergence is not accompanied by a divergence of their temporary quit rates, and hence, there is no evidence that women substituted permanent quits with temporary quits. When quits due to pregnancy were taken into consideration, the converging trends in permanent quit rates for men and women remained intact.

We found women were more likely than men to take paid sick absences and they also took more days of paid sick absences than men. However, the differences were quite small. In addition, we found there were practically no gender differences in the incidence and the lengths of other paid and unpaid absences. The only exception was that women with one or more young children

(under 5 years old) appeared to take more days of unpaid absences than women without young children.

Taken together, our findings imply that the gender differences in quit rates and absenteeism may not be used to explain the gender differences in labour market outcomes such as the gender wage gap.

1. Introduction

The gender differences in labour market outcomes such as wages and career attainment are important concerns for policy makers and the public. One explanation for these differences is that women are more likely to quit, more likely to be absent and to take more days of absence than men, and since quits and absences are costly to employers—when some employees quit, the employer has to hire and train new workers, when some workers take leaves of absence, the employer may have to ask existing employees to work overtime and pay them at overtime rate—a cost-minimizing employer would hesitate to hire, train or promote female workers, and would also pay them lower wages.[1]

However, it is widely observed that women's labour force attachment has become much stronger in recent years, both in Canada and in other developed countries. It would be interesting to ask whether the traditional view on women's quitting and absence behaviour is still valid. The first goal of this study is, therefore, to examine the gender difference in quit rate in Canada. Our investigation on quits will be largely limited to descriptive analysis since—as will be seen shortly—the quit rates of Canadian women converged with men's quit rates from the early 1990s and there does not seem to be any significant difference between Canadian men and women in terms of their permanent quit rates.

One feature of this study is that it examines permanent and temporary quits separately. In particular, it attempts to see if women substitute permanent quits by temporary quits. The tradition that women completely withdraw from the labour force upon marriage or upon giving birth might have long gone, but they may still experience long- or short-term career interruptions upon giving birth. For example, if a woman decides to have more than one child and chooses to give births consecutively, or if a woman decides to have only one child but decides to take care of the child on a full-time basis for a number of years, long-term career interruption and hence a permanent quit would result. On the other hand, if she decides to have only one child (or to have a few children during a long period) and sends the child to a day care centre, it is likely that she only needs to have a short-term labour market interruption, perhaps less than a year. Such a decision would result in a temporary quit. Hence, substitution between permanent and temporary quits may reveal behavioural changes of women with respect to marriage, child bearing and rearing.

The second goal of this study is to investigate gender differences in absenteeism. While quitting can be viewed as a "corner solution" to the standard income-leisure model of labour supply, absenteeism can be viewed as an adjustment of the quantity of labour supply—individuals may sign contracts that are not optimal in terms of the amount and the timing of the labour supply and later take a certain amount of absence to reach their optimal quantity of labour supply. The current work takes advantage of Statistics Canada's Workplace and Employee Survey in which different types of work absences such as paid sick absences, other paid absences and unpaid

1. For example, Lazear and Rosen (1990) suggest that, women may receive lower wages than men even if the distribution of productive ability of women is identical to that of men.

absences are distinguished, and rich information on both employers and employees are provided.[2,3]

A unique feature of our study on absenteeism is that we control for firm fixed effects. We believe that unobserved firm characteristics play an important role in determining the incidence and the length of work absences. In addition to federal and provincial labour legislations on job leaves, provisions concerning various job leaves are key bargaining points between workers (through their unions) and employers. Whether a worker can apply for certain types of leave, and how many days of absence a worker is able to take, is directly governed by the collective agreements between the firm and the workers. It is arguable that leaves of absence cannot be unilaterally determined by workers. A worker's demand for absences must be agreed to by the employer or the manager. Hence, unobservable management style, tradition and generosity towards workers' demands for absence also play important roles. And since these are not directly observable by the analyst, it is important to control for firm fixed effects in modelling work absence.

We found that there are limited differences between men and women in terms of paid sick absences: other things being equal, women were only slightly more likely to take paid sick absences than men, and they only took one day more of paid sick leave than men over a 12-month period while no difference can be found in terms of other paid and unpaid absences. These results, together with our observation that the quit rates of men and women converged since the early 1990s, provided a challenge to the traditional view on women's quitting and absenteeism behaviour. The finding implies that certain gender differences in labour market outcomes may not be explained by gender differences in quitting and absenteeism in Canada.

The paper is organized along the following lines. In Section 2, we present evidence on quit rates. We shall study permanent and temporary quit rates separately, and examine how quits due to pregnancy change the comparisons between men and women. Section 3 describes the data and presents some sample statistics of work absences in Canada. In Section 4, we briefly review the recent literature and discuss our empirical strategy. Section 5 presents the empirical results while Section 6 contains a summary and the conclusions. In addition, in the Appendix, we discuss the institutional features of the Canadian labour market and how they may affect the modelling of work absences.

2. Canadian evidence on gender differences in quit rates

The traditional view on gender differences in quit rates is that female workers have higher quit rates than men and this view is often confirmed by studies based on earlier U.S. data (see for example, Donohue [1988]). Other studies find that the gender difference in quit rates tends to disappear once the effects of other variables, such as age, wages, education and occupation, are controlled for (see Viscusi, 1980; Blau and Kahn, 1981; and Meitzen, 1986). We use the Longitudinal Worker File (LWF) over the 1983-to-2003 to examine the annual quit rates of Canadian men and women.

2. We use the term absences and leaves interchangeably.

3. Frederiksen (2006) reinforces the view, initially pointed out in Barmby and Treble (1991), that both employee and employer data are essential to identify models of absenteeism.

The LWF was created by the Business and Labour Market Analysis (BLMA) Division of Statistics Canada. It is a 10% random sample of all Canadian workers constructed by integrating the Record of Employment (ROE) files from Human Resources Development Canada, the T1 and T4 files of Canada Revenue Agency, and the Longitudinal Employment Analysis Program (LEAP)—which is a longitudinal file of all Canadian companies from the Business Register of Statistics Canada. The advantages of the LWF are that the file is a very large random sample of all Canadian workers and it provides accurate information due to its administrative nature.[4]

The LWF classifies job separations into quits, layoffs and other separations according to the reason of separation indicated in the ROE. The use of LEAP further allows us to distinguish permanent separations from temporary ones. We classify a separation as permanent if an employee does not return to the same employer within the year of the job separation or in the following year after the separation. If the employee returns to the same employer within the above time frame, we say that this employee experienced a temporary separation. Applying these definitions to quits, we can calculate permanent and temporary quit rates for the years from 1983 to 2002.[5]

Table 1 contains average permanent quit rates by age group and sex. Figure 1 demonstrates the trend in permanent quit rates for men and women more vividly. The most striking observation is that the permanent quit rates of men and women started to converge from the early 1990s onwards. Between 1983 and 1992, the permanent quit rate of women had been above that of men. The difference ranged between 0.5 to 1.5 percentage point. From 1994, the difference practically disappeared and never exceeded half of a percentage point. The maximum difference was 0.3 percentage point observed in 1995 and 2001. Women's permanent quit rate even fell below that of men's in 1997.

Secondly, the convergence of permanent quit rates between men and women occurred for all age groups, and the permanent quit rates of women aged between 25 and 44 fell below that of their male counterparts in 1994 and stayed there for almost every year thereafter. On the other hand, although the youngest and the oldest groups of women (15 to 24 years old and 55 to 64 years old) had higher permanent quit rates than their male counterparts in almost all years observed, from the early 1990s, the difference became much smaller than before. For example, between 1983 and 1992, the permanent quit rates of women aged 55 to 64 were between 0.8 and 1.3 percentage points higher than that of their male counterpart, but from 1994 to 2002, the difference had never been more than half a percentage point.

We estimated a Probit model for permanent quits for each year and age group, controlling for sex, industry, firm size and province. The marginal effects of gender on permanent quits are

4. The main disadvantage of the LWF is that it only provides very basic information on workers such as age, sex, annual earnings and reasons for job separations, and on firms such as province, industry and firm size.

5. Notice that we are able to calculate the permanent quit rates for years 1983 to 2002 but not for year 2003 with LWF 1983 to 2003, since we need to know whether a quitter would return to the same employer in 2004 or not.

presented in Table 2 and Figure 2.[6] The results show that women were more likely to quit their jobs than men during the 1980s. However, the difference was very small: the marginal effects vary from negative to 0 and from 0 to a small positive value. The maximum marginal effect observed is 0.015. This is the estimated marginal effect for women aged 15 to 24 in 1984. It implies that the permanent quitting probability of these young women was higher than that of their male counterparts by only 1.5 percentage points in that year. The table also shows that, over time, the gender difference in quitting probability declined substantially from an already small difference. While the marginal effect was generally no lower than half a percentage point and sometimes it could be higher than one percentage point in the 1980s, from the early 1990s, the marginal effect never exceeded half a percentage point, and indeed, during the mid and latter 1990s, the marginal effects for women aged between 25 and 44 were often insignificant or negative, suggesting that the gender differences in quitting probabilities for prime-age workers disappeared completely during that period.

Columns 1 and 2 of Table 3 contain the temporary quit rates for men and women. The table and Figure 3 show that substitution between temporary and permanent quit rates was unlikely. Between 1983 and 1993, the temporary quit rate of women was persistently higher than men's, although the difference was not large. From 1994 to 2002, the temporary quit rate of women was still somewhat higher than that of men's, but the difference became somewhat smaller than the differences during the previous 11 years. In other words, the convergence of women's permanent quit rate towards that of men's from 1994 was not accompanied by the divergence of women's temporary quit rate from the temporary quit rate of men. Hence, it was unlikely that female workers substituted permanent quits by temporary quits.[7]

Quits due to pregnancy were excluded in the previous discussion of permanent and temporary quits. An immediate question is that if one includes quits due to pregnancy into the measures of permanent and temporary quit rates, what would happen to the converging trend in permanent and temporary quit rates for men and women? Columns 3 and 4 of Table 3 also contain women's permanent and temporary quit rates when quits due to pregnancy are included. Under this new definition, the permanent quit rate of women shifted up by approximately half of a percentage point (column 3 of Table 3 versus column 7 of Table 1) for the period 1983 to 2002. However, the temporary quit rate of women shifted up more with the inclusion of quits due to pregnancy—1.5 percentage point, the shift more than doubled the temporary quit rate of women under the previous definition.

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6. The marginal effect of the dummy variable *female* is calculated as $\Phi(\bar{x}_1 b) - \Phi(\bar{x}_0 b)$ in which $\bar{x}_1$ and $\bar{x}_0$ are the sample means all explanatory variables except we set *female* to 1 in the former and 0 in the latter. In this equation, $\Phi(.)$ is the standard normal distribution function and $\boldsymbol{b}$ the vector of the Probit estimates. The variance of the marginal effect is calculated as $\boldsymbol{dVd'}$ where $\boldsymbol{V}$ is the estimated co-variance matrix of the estimates and $\boldsymbol{d} = \phi(\bar{x}_1 b)\bar{x}_1 - \phi(\bar{x}_0 b)\bar{x}_0$ with $\phi(.)$ being the standard normal density function.

7. We estimated a Probit model for temporary quits with age, sex, industry, and province as controls for each year. It was found that the gender effect was often insignificant and/or very small in magnitude. This is not surprising since the raw data (columns 1 and 2 of Table 3) indicated that the temporary quit rates of men and women were very close.

Of course, including quits due to pregnancy should only affect the quit rates for women of child-bearing age. The data suggest that the permanent quit rates for women aged from 45 to 64 were almost identical whether one includes or excludes quits due to pregnancy, while for women aged from 15 to 24 and women between 35 and 44, including quits due to pregnancy changed their permanent quit rate only slightly.[8] The permanent quit rate of women aged 25 to 34 are most affected by the inclusion of quits due to pregnancy and maternity: when quits due to pregnancy and maternity are included, their permanent quit rate was, on average, 1 percentage point higher than before (Table 4, columns 1 and 2). Once again, as Figure 4 shows, the converging trend of permanent quit rates between men and women was not affected by the inclusion of quits due to pregnancy.

On the other hand, when we expand the scope of temporary quits by including quits due to pregnancy and maternity leave, the temporary quit rate of women aged 25 to 34 increased dramatically (columns 3 and 4 of Table 4 and Figure 5). Under the previous (narrower) definition, their temporary quit rates varied between 1% to 2% over the 1983-to-2002 period. But under the new definition, their temporary quit rates varied between 5% to 6% during the same period. Given that the permanent quit rates of women of child-bearing age increased only slightly and the dramatic change of their temporary quit rates under the new definitions, we can see that pregnant women in Canada, for the most part, quit their jobs temporarily rather than permanently over the 1983-to-2002 period.

We further estimated Probit models for permanent and temporary quits under the new definition for the 15 to 24 years old, 25 to 34 years old and 35 to 44 years old. The estimated marginal effects of women also indicated the convergence of the permanent quit rates of men and women (Table 5). Workers aged from 25 to 34 seemed to be the exception. The estimated marginal effects indicate that the temporary quitting probability of women in this age group was 3% to 5% higher than their male counterparts, but the difference started to decline after reaching a peak of 5% in the early 1990s (column 5, Table 5).

Overall, data from the 1983 to 2002 LWF suggest that the permanent quit rate difference between Canadian men and women was generally small, and the gender difference in quitting probability further declined from an already small difference since the early 1990s, and the convergence was particularly strong among prime-age (25 to 44 years old) men and women. While women's stronger labour market attachment is the prominent factor in driving the convergence of the quit rates between men and women, in Canada this convergence occurred roughly at the same time when federal legislative changes disqualified those who quit their jobs without certain justifications for unemployment benefits.[9] The data also reveal that temporary quit rates of Canadian men and women did not diverge, implying that Canadian women's declining permanent quit rates were not a result of their substitution of permanent quits by temporary quits. Finally, we found that Canadian women were more likely to take temporary quits rather than permanent quits due to pregnancy or giving birth. This implies that differences in certain labour market outcomes between men and women might be explained by child bearing

8. These were calculated and are available from the author.

9. See Kuhn and Sweetman (1998).

and rearing, while the high temporary quit rates of women were as a result of child bearing and rearing.

3. Gender differences in absenteeism: data

We use data from Statistics Canada's Workplace and Employee Survey (WES) to examine gender differences in absenteeism. WES is a linked employer and employee survey. It was first conducted in 1999. The target population of employers are business locations operating in Canada. Employers in the Yukon, Nunavut and the Northwest Territories, as well as employers operating in crop production and animal production, fishing, hunting and trapping, religious organizations and public administration are excluded from WES.

WES draws its workplace sample from Statistics Canada's Business Register, a list of all businesses in Canada. The employee sample is drawn from the lists of employees provided by surveyed workplaces. The targeted population is all employees in the selected workplaces who receive a Canada Revenue Agency T-4 supplementary form. One to 24 employees are selected from each workplace, depending on the total number of employees in a workplace, and each selected employee is surveyed for 2 consecutive years.

Surveyed employees are asked a number of questions concerning leaves of absence for the 12-month period prior to the survey month. We focus on unscheduled leaves of absence. These include paid sick absences, other paid absences and unpaid absences. Absences due to vacation [question 18a)], maternity and paternity [question 18c)] are excluded. The following questions from the 1999 survey shall make the contents of each type of absence clearer.

18. Have you taken any paid leave?
    O Yes
    O No → Go to Question 18 (e).

18 b) How many days of paid sick leave have you taken?
    ——— · — days.

18 d) How many days of other paid leave have you taken (for example education leave, disability leave, bereavement, marriage, jury duty, union business)?
    ——— · — days.

18 e) Have you taken any unpaid leave?
    O Yes
    O No → Go to Question 19

18 f) How many days of unpaid leave have you taken?
    ——— · — days.

In these questions, paid leave refers to leave paid for by the employer at the worker's full daily wage rate and unpaid leave refers to leave not compensated for by the employer. Days of absence are not necessarily integers.[10]

10. In our final sample, over 2% of employees reported non-integer days in each of the three types of leaves.

The 1999 survey collected information from 6,322 workplaces and 23,540 employees. When the follow-up survey was conducted (around March 2001), 3,981 employees (or 17% of workers) had left the workplaces. The situation is similar for the 20,377 employees in the 2001 survey.[11] Hence, workers from the 1999 and the 2001 surveys were representative samples of Canadian employees, while workers from the 2000 and 2002 surveys were not quite representative. To ensure that our sample of workers is representative of all Canadian workers, we draw our sample from the 1999 and the 2001 surveys only.

A workplace is included in our sample if it existed in both 1999 and 2001 and had at least 10 employees in both years. These restrictions result in 4,080 workplaces being part of our final sample. To concentrate on a relatively homogenous group of workers, we exclude part-time workers, temporary workers, workers aged 65 or above, and workers with activity limitations.

We exclude part-time workers since part-time status may well be endogenous with respect to absenteeism. Among workers who have high demands for absences, some are likely to choose to work on a part-time basis. Part-time status reduces a worker's demand for absences for obvious reasons. For example, if the child of a part-time worker is sick on the day he/she is scheduled to work, he/she can choose to reschedule his/her working day and no absence will occur. We also exclude temporary employees and employees with less than one year of job tenure because they are largely not covered by employment standards legislations or collective agreements. For example, under Canada Labour Code, only workers who have completed three consecutive months of employment with the same employer are entitled for sick leaves.

We exclude workers 65 years or older and workers with activity limitations since the demand for absences by these types of workers often arise for reasons that are different from the majority of employees.[12] For example, workers with activity limitations can be absent from work because of transportation problems.

After the aforementioned restrictions have been implemented, we obtained a sample of 25,507 employees from 4,080 workplaces: 13,985 employees (8,374 men and 5,611 women) from the 1999 survey and 11,342 (6,880 men and 4,462 women) from the 2001 survey. Table 6 contains sample statistics of the incidence and days of absence by sex, age, and the presence of young children (5 years old or younger) for the pooled sample of 1999 and 2001.[13]

First, the data show that women were more likely to take paid sick absences and they took more days of paid sick absences than men. In our sample, 52% of women took paid sick absences, while only 37% men did so. On average per 12 months, women took three and a half days of paid sick absences, while men took only two days of paid sick absences. On the other hand, the differences in the incidences and days of other paid and unpaid absences between men and women were relatively small.

11. These are employees who left their workplace for many different reasons, including layoff, quitting, retiring, returning to school, etc.

12. In addition, the number of observations on workers 65 years of age or older is very small. After the other restrictions have been applied to the original sample, there are only 143 workers aged 65 or above.

13. We also examined the data for 1999 and 2001 separately. The results were the same as in the pooled sample.

Secondly, for both men and women, the data suggest that age is positively correlated with days of paid sick absences and negatively correlated with unpaid absences. In other words, young workers were less likely to take paid sick absences and they took fewer days of paid sick absences than older workers. On the contrary, older workers were less likely to take unpaid absences and also seemed to take fewer days of unpaid absences than young workers. Gender differences in the incidence and days of paid sick absences existed across different age groups, and gender differences in days of paid sick absences appeared to get stronger as workers were getting older. For example, the difference between younger men and women (under age 35) was one day or less; it increased to more than three days for men and women aged 55 to 64.

Thirdly, the presence of young children appears to have some effects on female workers' absences but not on those of male workers. The data indicate that women with young children took more than three days of unpaid absence while those without young children took less than two days of unpaid absence. This and the above observation that days of paid sick absence and unpaid absence changed in opposite directions with respect to age, suggest that workers' behaviours with respect to different types of absences are likely to be different and it is desirable to examine different types of absence separately.

4. Model specifications and estimation strategy

Economists started to investigate absenteeism with some theoretical underpinnings from the early 1980s. The most popular framework was developed by Allen (1981). This framework treats absenteeism as a form of leisure. Job absence arises when a worker's desired hours of employment fall below the contractual hours. This occurs when the marginal utility of leisure becomes high, for example, when a worker feels sick or when an important family event arrives.

The predictions of the basic model on the relationship between absenteeism and other economic variables are essentially the same as that between leisure and these variables. For example, the income-leisure model predicts that the relationship between wage and leisure is indeterminate because income and substitution effects affect leisure in opposite directions. This prediction also applies to the relationship between wage and work absences. But few authors follow a pure income-leisure model of absence in empirical work. For example, the effects of sex, age, the presence of young children and health status on absenteeism are examined by many researchers under the income-leisure framework. At the same time, more and more authors recognize the importance of the employer variables such as firm size, unionization and work schedule flexibility in determining absenteeism.

A number of studies find that the absence rate of female workers is higher than that of male workers (Allen, 1981; Paringer, 1983; Leigh, 1991). However, empirical findings on the determination of absenteeism are often controversial. Leigh (1983) found that age has no significant effect on female absenteeism, but Paringer (1983) and Bridges and Mumford (2001) found the opposite for both sexes. While Leigh (1983) and Vistnes (1997) found that the presence of young children increased female workers' absence, Paringer (1983) found the opposite to be true.

In Canada, studies on absenteeism are relatively rare. The general trend of absenteeism is well documented by Akyeampong.[14] But data limitations prevent him from distinguishing absences due to own illness/disability and absences due to personal or family responsibilities, and whether these absences were paid or unpaid. Another Canadian study is by Chaudhury and Ng (1992). They conduct a multivariate analysis by augmenting the basic work-leisure model of Allen (1981) to include a number of individual characteristics such as age, sex and education and a number of employer- and job-related characteristics. They found that there is no gender difference with respect to long-term absence (5 days or more). This study is limited at the employer level and the sample is not very representative.[15] More recently, Dionne and Dostie (2005), with data drawn from WES, extend the work-leisure framework by controlling for both observed employee and employer characteristics and unobserved heterogeneity with a random effect model. Their main finding is that workers' dissatisfaction with contracted hours increased absenteeism.

The main differences between the current work and the Dionne and Dostie study are, first, we focus on gender differences in absenteeism while their study is more general. Second, while they pool the paid sick, other paid and unpaid absences together and treat them as a single type of absence, we study different absences separately since, as we argued before, different types of absence cost employers (and employees) differently. Third, and perhaps more important, we believe that the firm fixed effects is a key factor in determining work absence.[16] The importance of firm fixed effects is closely related to the institutional features of the Canadian labour markets. A brief review on how work absence is affected by Canadian legislations and the collective bargaining agreements between workers and employers is contained in the appendix.

In terms of estimation strategy, it seems appropriate to model the incidence of absences by the Probit model and the days of absence by the Tobit model. But since the Probit model does not allow us to deal with the firm fixed effects, we specify a linear model for the incidence of absences. This implies that we will estimate linear probability models (LPM) for the incidence of various types of work absence. While it is well known that the LPM has a few shortcomings such as inefficient estimation problems caused by heteroscedasticity and the problem of fitted values being outside the 0 to 1 range, for our data, the linear probability model is not as problematic as it sounds because the observed incidence falls generally above 0.1 and below 0.8 where the probability curve is approximately linear (Moffitt, 1999) and the heteroscedasticity issues can be dealt with by using weighted least squares estimation.

It is also impossible to control for firm fixed effects with the usual Tobit model. But contrary to the incidence of absences, a linear model for the days of absence would be inappropriate for two reasons. Firstly, a significant proportion of employees in our data did not take any leave of absence. In particular, 50% to 60% of workers did not take any paid sick absence, while around

14. See Akyeampong (2005) for a recent analysis.

15. They draw their sample of employers from the city of Saskatoon, Saskatchewan. Seventy percent of the organizations contacted did not respond to their survey and as a result, the sample contains only 33 observations.

16. A minor difference is that they treat the dependent variable (days of absence) as an integer while we treat that as a continuous variable. See footnote 10.

80% of workers did not take other paid and unpaid absences. The values of the dependent variables for these workers are all zero. Secondly, the estimation and inference of the Tobit model rely on the normality assumption. But it is unlikely that the days of paid sick absence, other paid absences and unpaid absences are normally distributed. Hence, we shall estimate a semi-parametric Tobit model (trimmed least squares estimation) due to Honoré (1992) where the normality assumption is not necessary and the firm fixed effects can be controlled for.

The key explanatory variables we are interested in are sex, age and the presence of young children. In accordance with the standard income-leisure model, we also control for hourly wage rate, non-wage benefits, workers' satisfaction with the non-pecuniary aspects of their jobs, earnings of other family members and unearned family income. We use employees' preferences for weekly hours (fewer hours or more hours) and the flexibility of working hours to reflect the argument that employees would sign a non-optimal contract and adjust their labour supply through work absences.

In addition to the above variables, we include educational attainment, occupation and industry to capture the effects of job-related risks on absences. It is easy to understand that workers in some occupations or industries are more likely to be injured than workers from other occupations or industries. The argument for educational attainment is that more educated employees are less likely to work in injury-prone jobs and are thus less likely to be absent.[17] Union status, job tenure and whether a workplace has a formal grievance system are employed to capture the effects of job security on absenteeism. We use indicators on whether the workplace has unfilled vacancies, and whether the workplace is operated for profit to reflect the tightness of control by the workplace on workers' demand for absences. This is so because a firm with unfilled vacancies or an organization operated for profit may exercise strict control over the demand for absences when compared with firms without any vacancy or not-for-profit organizations. Finally, we include employer size and province dummies to capture the facts that legislations on leaves of absence apply differently for large and small firms and that different provinces have different legislations on leaves of absence.[18]

5. Empirical results

Tables 7 and 8 contain our estimation results for the incidence and days of absence where firm fixed effects are not controlled for, while Tables 9 and 10 contain the results for the incidence and days of absence where firm fixed effects are controlled for. Tables 7 and 9 report the linear probability model estimates of the incidence of absences, while Tables 8 and 10 present the least absolute deviation (LAD) estimates for the days of absence. The LAD estimators are based on

17. Chaudhury and Ng (1992).

18. For example, different provinces allow different numbers of days of leave for family responsibilities in their employment standard legislations. In Ontario, employees whose employer normally employs 50 workers or more are entitled to 10 days of unpaid emergency leave, while in Quebec and British Columbia, the allowed leaves are up to 5 days per year. See Human Resources Development Canada (2001) for more details.

the assumption that the disturbance is independent of the explanatory variables but no restriction is imposed on the distribution of the error term.[19]

The results show that the probability of women taking paid sick absences is higher that that of men and they take more days of paid sick absence than men, but the differences are relatively small. We found that the probability of women taking paid sick absence was 5 (controlling for firm fixed effects) to 8 percentage points (not controlling for firm fixed effects) higher than that for men, other things being equal, and on average, women only took one more day of paid sick absences than men. While in terms of other paid and unpaid absences, there did not seem to be any difference between men and women, in terms of both the incidence and the days of absence.

The presence of young children (5 years old or younger) does not appear to have any effect on the incidence and days of absence for men, but it does seem to increase the days of unpaid absence for women. Our results show that women with young children took about two days of unpaid absence more than women without young children. This is invariant whether we control for firm fixed effects or not. It indicates that women generally take unpaid absences for child-caring purposes and couples may attempt to minimize the costs of child caring since women's wage rates are generally lower than that of men's.

We found that the effects of age are the same for men and women and that age has important negative effects on the incidence and days of unpaid absences.[20] Middle-aged workers (25 to 44 years old) were more likely and also took more days of paid sick absence than the youngest group of workers (under 25 years old), while the oldest workers (55 to 64 years old) were not different from the youngest workers. But the above effect disappeared once firm fixed effects are controlled for. On the other hand, the incidence and days of unpaid absences were negatively correlated with age: young workers were more likely to and also took more days of unpaid absences than otherwise identical older workers, and this is the case whether firm fixed effects are controlled for or not.

In addition to the above results, some other findings also seem to contribute to the literature on absenteeism. First, we find that hourly wage rate is unambiguously negative on the incidence and the days of unpaid absences. This is as expected since, for unpaid absences, the higher the wage rate is, the costlier it would be for workers to take unpaid absences. Wage rate also generally has negative effects on the incidence and days of paid sick absences: when firm fixed effects are controlled for, the effects are negative and significantly different from zero. This implies that within a firm, efficiency wage may be paid by the employer to reduce paid sick absences. Our results on wage and absence also suggest that it is important to study different types of absences—paid and unpaid—separately.

19. The bootstrap weights were employed to obtain robust estimates for the linear probability models (LPMs). We obtained the trimmed LAD estimates using the Gauss routines developed by Honoré. Fortunately, the routines for the trimmed LAD estimator allows us to choose a lower value for the bandwidth at which the standard error of the estimate is high, we are reasonably confident that our estimates are robust.

20. We also estimated the models by including the interactions of the sex and age groups and found the coefficients on these interactive terms are not significant.

Second, we found that workers attempt to adjust their actual hours of labour supply through paid sick and unpaid absences. Those who preferred to work fewer hours per week (at the same wage rate) were more likely to take paid sick absences and unpaid leaves than those who preferred to work more hours (at the same wage rate) or those whose preferred that hours of work were equal to the contractual (usual) hours.[21] Employees who preferred to work fewer hours appeared to take more days of paid sick and unpaid absences than workers who preferred to work the same or more hours. The effect was particularly evident on days of unpaid absences: workers who preferred to work fewer hours took close to two more days than otherwise identical workers, controlling or not controlling for the firm fixed effects. Overall, the findings support the hypothesis that workers accept jobs that require them to supply more hours than their optimum and later adjust their actual labour supply by taking more days of absences.

We also found that employees who receive non-wage benefits such as pension plan, life insurance or dental plan were more likely to, and also took, more days of paid leave than those who do not receive these benefits. Theoretically, this is because non-wage benefits have a pure income effect on leisure or work absence. It is different from wage rate which has both an income effect and a substitution effect that work in opposite directions on absence. Furthermore, the collective bargaining agreements in Canada generally require employers to contribute continuously to an employee's non-wage benefits when the employee takes work absence (particularly paid absences), the employee's actual compensation per unit of time worked is increased in the sense that the employee works fewer hours or days while the total compensation remains unchanged.

The study finds that worker's satisfaction with the non-pecuniary aspects of their jobs has significant negative effects on the incidence and days of paid sick absences and unpaid absences. Within a firm, job satisfaction reduced a worker's probability to take paid sick and unpaid absences by around 5 percentage points, and that also reduced days of paid sick and unpaid absences by 0.7 percentage point and 1.5 percentage point, respectively.

Finally, we explore the effects of unfilled vacancies on absenteeism—an aspect not studied in the literature. We find that the existence of unfilled vacancies increases the incidence and days of paid sick absence and reduces the incidence and the days of unpaid absences. One explanation is that managers in firms that have unfilled vacancies are likely to exercise stringent control, and are less likely to grant employees' demands for absences than managers in firms without unfilled vacancies. However, certain demands are hard to deny by the management even in the presence of unfilled vacancy. For example, demand for sick absences with a physician's recommendation. Therefore, employees who need to be absent might request for hard-to-deny absences in firms in which controls for all absences are stringent.

21. We use hour preferences instead of contract (usual) hours since our sample focuses on full-time employees who work at least 30 hours per week. The underlying question asks if an employee would prefer to work the same hours (as the usual weekly hours), fewer hours or more hours at the same wage rate.

6. Summary and conclusions

Using data from the Longitudinal Worker File, we found that the permanent quit rates of Canadian workers peaked in the late 1980s, and the permanent quit rates of men and women converged since the early 1990s. The convergence is not accompanied by a divergence of their temporary quit rates, and hence, there is no evidence that women substituted permanent quits with temporary quits. When quits due to pregnancy were taken into consideration, the converging trends in permanent quit rates for men and women remained intact. However, the gap in temporary quit rates between men and women aged 25 to 34 years became much wider than when pregnancy was excluded, implying that Canadian women of child-bearing age overwhelmingly took temporary quits when they became pregnant.

We found women were more likely than men to take paid sick absences and they also took more days of paid sick absences than men. However, the differences were quite small. In addition, we found there were practically no gender differences in the incidence and the lengths of other paid and unpaid absences. The only exception was that women with one or more young children (under 5 years old) who appeared to take more days of unpaid absences than women without young children.

Taken together, our findings imply that the gender differences in quit rates and absenteeism may not be used to explain the gender differences in labour market outcomes such as the gender wage gap. Certain differences between men and women in quits and absenteeism, for example, the gender differences in temporary quit rates, are largely related to child bearing and rearing or confined within the ages of child rearing and bearing. Hence, child bearing and rearing, rather than the differences in quitting and absenteeism seem to be promising in explaining the gender differences in labour market outcomes.

Table 1 Permanent quit rates[1], by age group and sex, 1983 to 2002

Year	Men						Women					
	All	15 to 24 years old	25 to 34 years old	35 to 44 years old	45 to 54 years old	55 to 64 years old	All	15 to 24 years old	25 to 34 years old	35 to 44 years old	45 to 54 years old	55 to 64 years old
	percentage						percentage					
1983	4.8	7.5	5.4	3.5	2.3	1.4	6.3	9.2	6.6	4.5	3.1	2.7
1984	5.5	8.8	6.3	3.9	2.4	1.6	7.0	10.5	7.2	4.8	3.5	2.8
1985	6.5	10.4	7.4	4.5	2.9	1.8	7.9	11.9	8.2	5.2	3.9	3.1
1986	7.1	11.7	7.9	4.8	3.0	2.1	8.3	12.7	8.6	5.6	4.1	3.2
1987	8.3	13.4	9.4	5.6	3.7	2.4	9.4	14.2	9.9	6.5	4.8	3.6
1988	9.1	14.3	9.8	5.9	3.8	2.7	10.0	15.0	10.1	7.0	4.9	3.8
1989	8.9	14.0	9.8	5.9	3.8	2.7	9.6	14.7	9.8	6.6	4.7	3.7
1990	7.5	12.4	8.5	5.1	3.2	2.3	8.6	13.8	9.2	6.0	4.4	3.1
1991	5.4	9.3	6.4	3.7	2.4	1.6	6.5	10.9	7.1	4.5	3.3	2.6
1992	4.7	8.3	5.7	3.2	2.1	1.4	5.5	9.6	6.1	3.9	2.8	2.3
1993	4.6	8.1	5.7	3.3	2.0	1.3	5.1	9.3	5.8	3.5	2.5	1.9
1994	5.5	9.5	6.8	3.9	2.3	1.5	5.6	10.0	6.4	3.9	2.6	1.9
1995	5.3	9.2	6.7	3.9	2.4	1.6	5.6	10.2	6.5	3.8	2.5	1.8
1996	5.4	9.0	7.0	4.0	2.4	1.7	5.4	9.5	6.5	3.8	2.5	1.9
1997	6.4	10.4	8.2	4.9	2.8	2.1	6.2	10.7	7.7	4.5	3.0	2.2
1998	6.9	11.4	8.9	5.2	3.0	2.1	7.0	12.0	8.5	5.0	3.3	2.4
1999	7.3	12.3	9.4	5.5	3.3	2.2	7.4	12.6	9.1	5.5	3.5	2.3
2000	8.4	13.7	10.8	6.4	3.9	2.7	8.4	14.1	10.2	6.1	4.1	2.5
2001	7.8	13.4	9.7	5.8	3.6	2.6	8.1	14.2	9.5	5.9	4.0	2.8
2002	7.6	13.4	9.4	5.8	3.5	2.5	7.7	13.9	8.9	5.6	3.7	2.7

1. For workers between the ages of 15 and 64 and all jobs paid at least $500 in 1989 constant dollars.
Source: Statistics Canada, 1983 to 2003 Longitudinal Worker File (10% Sample).

Table 2 Marginal effect[1] of gender on permanent quits, by year and age group

Year	15 to 24 years old	25 to 34 years old	35 to 44 years old	45 to 54 years old	55 to 64 years old
1983	0.0147	0.0121	0.0089	0.007	0.0106
	(0.0009)	(0.0008)	(0.0008)	(0.0008)	(0.0009)
1984	0.015	0.0089	0.0087	0.0096	0.0103
	(0.001)	(0.0008)	(0.0008)	(0.0008)	(0.001)
1985	0.0142	0.0088	0.0075	0.0096	0.0117
	(0.001)	(0.0008)	(0.0008)	(0.0008)	(0.001)
1986	0.0098	0.0076	0.0068	0.009	0.0093
	(0.001)	(0.0008)	(0.0008)	(0.0008)	(0.001)
1987	0.0092	0.0058	0.0076	0.0092	0.0107
	(0.0011)	(0.0009)	(0.0008)	(0.0009)	(0.001)
1988	0.0099	0.0044	0.0105	0.0092	0.008
	(0.0011)	(0.0009)	(0.0008)	(0.0009)	(0.001)
1989	0.0078	0.0027	0.0062	0.0071	0.0063
	(0.0011)	(0.0008)	(0.0007)	(0.0008)	(0.0011)
1990	0.0129	0.0064	0.0061	0.0073	0.0059
	(0.0011)	(0.0008)	(0.0006)	(0.0007)	(0.001)
1991	0.0119	0.0057	0.0045	0.005	0.0059
	(0.001)	(0.0006)	(0.0005)	(0.0006)	(0.0008)
1992	0.0095	0.0037	0.0033	0.0033	0.0046
	(0.001)	(0.0006)	(0.0004)	(0.0005)	(0.0015)
1993	0.0078	0.0019	0.0014	0.0022	0.0026
	(0.001)	(0.0006)	(0.0004)	(0.0004)	(0.0007)
1994	0.0022	-0.0018	0.0002	0.0011	0.0014
	(0.001)	(0.0006)	(0.0004)	(0.0004)	(0.0006)
1995	0.0066	0.0003	-0.0003	0.0008	0.0009
	(0.001)	(0.0006)	(0.0004)	(0.0004)	(0.0006)
1996	0.0014	-0.0019	-0.0008	0.0003	0.0004
	(0.001)	(0.0006)	(0.0004)	(0.0003)	(0.0006)
1997	0.0013	-0.0009	0.001	0.0008	0.0008
	(0.001)	(0.0007)	(0.0004)	(0.0003)	(0.0006)
1998	0.0023	-0.0004	-0.0000	0.0017	0.0022
	(0.001)	(0.0007)	(0.0004)	(0.0003)	(0.0006)
1999	0.0026	0.0014	0.0015	0.0013	0.001
	(0.001)	(0.0007)	(0.0004)	(0.0003)	(0.0004)
2000	0.0058	0.0016	0.0006	0.0017	-0.0001
	(0.001)	(0.0007)	(0.0004)	(0.0003)	(0.0004)
2001[2]	-0.0009	0.007	0.0046	0.0059	0.0057
	(0.0008)	(0.0011)	(0.0009)	(0.0007)	(0.0006)
2002[2]	0.0044	0.0025	0.0036	0.0049	0.0023
	(0.0011)	(0.0009)	(0.0007)	(0.0006)	(0.0008)

1. Standard errors of the marginal effect are in parentheses.
2. Probit models for the years 2001and 2002 are estimated with 16 NAICS dummies. For all other years, 6 SIC 1980 industry dummies were employed in estimation.

Source: Statistics Canada, 1983 to 2003 Longitudinal Worker File (10% Sample).

Table 3 Permanent and temporary quit rates – Alternative definitions

Year	Temporary quit rate		Definition including pregnancy (for women only)	
	Men	Women	Permanent	Temporary
1983	0.9	1.2	6.8	2.7
1984	1.1	1.4	7.4	3.1
1985	1.2	1.4	8.3	3.1
1986	1.3	1.6	8.7	3.2
1987	1.5	1.7	9.8	3.3
1988	1.6	1.8	10.5	3.4
1989	1.6	1.8	10.1	3.4
1990	1.3	1.5	9.1	3.2
1991	1.0	1.3	6.9	3.2
1992	0.9	1.1	5.9	3.0
1993	0.8	1.0	5.5	2.9
1994	1.0	1.0	6.0	2.8
1995	0.9	1.0	5.9	2.8
1996	0.9	0.9	5.7	2.6
1997	1.0	1.1	6.6	2.6
1998	1.1	1.2	7.3	2.7
1999	1.3	1.4	7.8	2.9
2000	1.4	1.5	8.7	2.8
2001	1.4	1.5	8.5	3.0
2002	1.3	1.4	8.1	2.9

Source: Statistics Canada, 1983 to 2003 Longitudinal Worker File (10% Sample).

Table 4 Permanent and temporary quit rates for 25- to 34- year-old women

Year	Permanent quit rate		Temporary quit rate	
	Exclude pregnancy	Include pregnancy	Exclude pregnancy	Include pregnancy
	percentage			
1983	6.6	7.6	1.3	5.0
1984	7.2	8.1	1.4	5.5
1985	8.2	9.1	1.5	5.6
1986	8.6	9.5	1.7	5.5
1987	9.9	10.8	1.8	5.6
1988	10.1	11.0	1.9	5.5
1989	9.8	10.7	1.9	5.6
1990	9.2	10.2	1.6	5.6
1991	7.1	8.0	1.3	5.9
1992	6.1	7.0	1.1	5.9
1993	5.8	6.7	1.1	5.9
1994	6.4	7.3	1.1	5.8
1995	6.5	7.4	1.1	5.8
1996	6.5	7.3	1.0	5.4
1997	7.7	8.6	1.2	5.1
1998	8.5	9.3	1.4	5.4
1999	9.1	9.9	1.6	5.7
2000	10.2	11.1	1.6	5.3
2001	9.5	10.7	1.6	5.9
2002	8.9	10.2	1.6	5.8

Source: Statistics Canada, 1983 to 2003 Longitudinal Worker File (10% Sample).

Table 5 Marginal effect[1] of gender, broader definitions of permanent and temporary quits

	Permanent quits			Temporary quits		
Year	15 to 24 years old	25 to 34 years old	35 to 44 years old	15 to 24 years old	25 to 34 years old	35 to 44 years old
1983	0.0191	0.0205	0.0098	0.0106	0.0384	0.0081
	(0.0009)	(0.0008)	(0.0008)	(0.0005)	(0.0006)	(0.0004)
1984	0.0191	0.0178	0.0099	0.0109	0.0413	0.0094
	(0.001)	(0.0008)	(0.0008)	(0.0005)	(0.0006)	(0.0004)
1985	0.0179	0.0175	0.0086	0.0085	0.041	0.0096
	(0.001)	(0.0009)	(0.0008)	(0.0005)	(0.0006)	(0.0004)
1986	0.0138	0.0153	0.0078	0.0076	0.0391	0.0107
	(0.001)	(0.0009)	(0.0008)	(0.0005)	(0.0006)	(0.0004)
1987	0.0131	0.0145	0.009	0.0071	0.0376	0.0097
	(0.0011)	(0.0009)	(0.0008)	(0.0005)	(0.0006)	(0.0004)
1988	0.0141	0.0136	0.0118	0.0071	0.0376	0.0099
	(0.0011)	(0.0009)	(0.0009)	(0.0005)	(0.0006)	(0.0004)
1989	0.0115	0.0114	0.0074	0.0058	0.0377	0.0094
	(0.0011)	(0.0009)	(0.0008)	(0.0005)	(0.0006)	(0.0004)
1990	0.0176	0.0158	0.0075	0.0086	0.0402	0.009
	(0.0011)	(0.0008)	(0.0006)	(0.0005)	(0.0006)	(0.0004)
1991	0.0158	0.0135	0.0056	0.0099	0.0459	0.0107
	(0.001)	(0.0007)	(0.0005)	(0.0005)	(0.0006)	(0.0004)
1992	0.0131	0.0105	0.0043	0.0104	0.0464	0.0099
	(0.001)	(0.0006)	(0.0004)	(0.0005)	(0.0006)	(0.0004)
1993	0.0116	0.0087	0.0022	0.0102	0.0469	0.0104
	(0.001)	(0.0006)	(0.0004)	(0.0005)	(0.0006)	(0.0004)
1994	0.0063	0.0052	0.0012	0.0086	0.0444	0.0099
	(0.001)	(0.0007)	(0.0004)	(0.0005)	(0.0006)	(0.0004)
1995	0.01	0.007	0.0006	0.0084	0.0443	0.011
	(0.001)	(0.0007)	(0.0004)	(0.0005)	(0.0006)	(0.0004)
1996	0.0046	0.0043	-0.0000	0.0081	0.0417	0.0116
	(0.001)	(0.0007)	(0.0004)	(0.0005)	(0.0006)	(0.0004)
1997	0.0047	0.0062	-0.0000	0.0067	0.0373	0.0102
	(0.001)	(0.0007)	(0.0004)	(0.0005)	(0.0006)	(0.0004)
1998	0.0057	0.0064	0.001	0.0072	0.0383	0.0101
	(0.001)	(0.0007)	(0.0004)	(0.0005)	(0.0006)	(0.0004)
1999	0.0058	0.008	0.0025	0.0078	0.0387	0.0109
	(0.001)	(0.0007)	(0.0004)	(0.0005)	(0.0006)	(0.0004)
2000	0.0091	0.0092	0.0018	0.0058	0.0336	0.0097
	(0.001)	(0.0007)	(0.0004)	(0.0005)	(0.0006)	(0.0004)
2001[2]	0.0113	0.0163	0.008	0.0067	0.0376	0.0106
	(0.001)	(0.0009)	(0.0007)	(0.0005)	(0.0006)	(0.0004)
2002[2]	0.0084	0.0138	0.0056	0.0066	0.0347	0.0091
	(0.001)	(0.0009)	(0.0007)	(0.0005)	(0.0006)	(0.0004)

1. Standard errors of the marginal effect are in parentheses.
2. Probit models for the years 2001and 2002 are estimated with 16 North American Industry Classification System dummies. For all other years, 6 industry dummies from the 1980 Standard Industrial Classification were employed in estimation.

Source: Statistics Canada, 1983 to 2003 Longitudinal Worker File (10% Sample).

Table 6 Incidence and days of absence

	Incidence			Days of absence			
	Paid sick leave	Other paid leave	Unpaid leave	Paid sick leave	Other paid leave	Unpaid leave	Number of observations
Men	0.37	0.19	0.19	2.04	1.57	1.61	15,254
Under 25 years	0.25	0.12	0.44	0.83	1.64	3.10	668
25 to 34 years	0.36	0.20	0.26	1.49	1.33	2.60	3,338
35 to 44 years	0.38	0.18	0.17	2.01	1.51	1.12	5,287
45 to 54 years	0.39	0.20	0.12	2.36	1.65	1.30	4,377
55 to 64 years	0.35	0.20	0.11	3.24	2.07	0.93	1,584
No young children	0.37	0.19	0.18	2.15	1.64	1.63	12,774
With young children	0.36	0.20	0.20	1.49	1.18	1.51	2,480
Women	0.52	0.20	0.18	3.53	1.53	2.06	10,253
Under 25 years	0.34	0.15	0.34	1.46	0.64	2.34	426
25 to 34 years	0.53	0.18	0.22	2.50	1.36	2.21	2,386
35 to 44 years	0.55	0.19	0.17	3.44	1.38	1.89	3,712
45 to 54 years	0.53	0.23	0.15	3.98	1.83	2.30	2,888
55 to 64 years	0.49	0.20	0.12	6.99	2.37	1.34	841
No young children	0.51	0.20	0.18	3.56	1.55	1.92	9,071
With young children	0.56	0.16	0.21	3.37	1.38	3.15	1,182

Source: Statistics Canada, 1999 and 2001 Workplace and Employee Survey.

Table 7 Incidence of leaves – No firm fixed effects[1]

	Paid sick leave		Other paid leave		Unpaid leave	
	Estimate	**t-value**	**Estimate**	**t-value**	**Estimate**	**t-value**
Women	0.0764	5.25	0.0054	0.43	0.0107	0.98
Married	0.0005	0.03	0.0171	1.56	-0.0125	-0.94
Young children	-0.0084	-0.42	0.0092	0.48	-0.0105	-0.56
Women with young children	0.0415	1.11	-0.0516	-1.94	0.0235	0.72
Age						
25 to 34 years old	0.0673	2.42	0.0275	1.06	-0.0916	-2.87
35 to 44 years old	0.0671	2.36	0.0093	0.35	-0.1408	-4.66
45 to 54 years old	0.0401	1.27	0.0351	1.26	-0.1647	-5.33
55 to 64 years old	-0.0006	-0.02	0.0230	0.77	-0.1885	-6.27
Prefer fewer hours	0.0438	2.03	-0.0013	-0.09	0.0341	2.18
Flexible hours	-0.0058	-0.39	0.0127	1.12	-0.0262	-2.35
Satisfied with job	-0.0262	-1.19	-0.0041	-0.22	-0.0609	-3.36
Hourly wage rate	-0.0010	-1.52	-0.0000	-0.03	-0.0011	-2.99
Job tenure (years)	0.0007	0.84	-0.0002	-0.28	-0.0036	-6.41
Union member	0.0010	0.06	0.0348	2.51	0.0867	7.38
Non-wage benefit	0.1420	6.45	0.0548	3.77	-0.0790	-4.60
Unfilled vacancy	0.0214	1.64	0.0029	0.26	-0.0299	-2.80
For profit	-0.1037	-3.71	0.0196	0.98	0.0317	2.20
Formal grievance	0.0210	1.25	0.0147	1.05	-0.0329	-3.27

1. Other controls included are education dummies, immigrant status, 5 occupations, 14 industries, establishment size, provinces, and unearned income. Hourly wage rate and unearned income ($1,000) are in 2001 constant dollars.

Source: Statistics Canada, 1999 and 2001 Workplace and Employee Survey.

Table 8 Days of absence – Trimmed least squares estimates without firm fixed effects[1]

	Paid sick leave		Other paid leave		Unpaid leave	
	Estimate	**t-value**	**Estimate**	**t-value**	**Estimate**	**t-value**
Women	1.070	12.43	0.257	1.49	0.295	1.10
Married	-0.199	-2.12	0.408	2.15	-0.491	-1.78
Young children	0.219	1.67	-0.197	-0.69	0.100	0.26
Women with young children	0.070	0.30	-0.204	-0.38	1.836	2.19
Age						
25 to 34 years old	0.880	4.21	0.447	1.05	-2.000	-3.76
35 to 44 years old	0.876	4.19	0.281	0.66	-3.332	-6.33
45 to 54 years old	0.463	2.11	0.392	0.89	-3.189	-5.64
55 to 64 years old	0.389	1.47	-0.058	-0.11	-3.615	-4.95
Prefer fewer hours	0.386	3.24	-0.223	-0.87	1.820	4.65
Flexible hours	-0.122	-1.58	0.204	1.28	-0.133	-0.53
Satisfied with job	-0.527	-3.66	-0.372	-1.29	-1.838	-5.09
Hourly wage rate	-0.008	-1.60	0.015	1.67	-0.128	-5.57
Job tenure (years)	0.016	3.20	0.021	2.10	-0.149	-9.31
Union member	0.230	2.42	0.890	4.76	3.671	12.53
Non-wage benefit	2.218	14.22	1.944	6.55	-2.736	-7.03
Unearned income	-0.001	-1.00	0.002	0.67	0.007	1.40
Unfilled vacancy	0.381	4.95	0.012	0.76	-0.694	-2.98
For profit	-1.837	-14.24	-0.405	-1.63	1.779	4.23
Formal grievance	0.140	1.67	0.501	2.83	-0.974	-3.52

1. Other controls included are education dummies, immigrant status, 5 occupations, 14 industries, establishment size, provinces, and unearned income. Hourly wage rate and unearned income ($1,000) are in 2001 constant dollars.

Source: Statistics Canada, 1999 and 2001 Workplace and Employee Survey.

Table 9 Incidence of leaves – Linear probability model with firm fixed effects[1]

	Paid sick leave		Other paid leave		Unpaid leave	
	Estimate	**t-value**	**Estimate**	**t-value**	**Estimate**	**t-value**
Women	0.0509	2.87	0.0107	0.73	0.0026	0.21
Married	0.0008	0.05	0.0070	0.63	-0.0014	-0.11
Young children	-0.0155	-0.72	0.0104	0.49	-0.0111	-0.49
Women with young children	0.0435	1.13	-0.0779	-2.71	0.0284	0.76
Age						
25 to 34 years old	0.0121	0.44	0.0048	0.17	0.0324	-1.15
35 to 44 years old	-0.0019	-0.07	-0.0019	-0.07	-0.0830	-3.04
45 to 54 years old	-0.0239	-0.73	0.0232	0.78	-0.1055	-3.70
55 to 64 years old	-0.0558	-1.61	0.0098	0.31	-0.1321	-4.56
Prefer fewer hours	0.0570	2.93	0.0063	0.47	0.0410	2.50
Flexible hours	-0.0071	-0.52	0.0188	1.43	-0.0211	-1.90
Satisfied with job	-0.0450	-2.19	-0.0235	-1.25	-0.0465	-2.77
Hourly wage rate	-0.0016	-2.05	-0.0006	-1.13	-0.0010	-2.10
Job tenure (years)	0.0004	0.37	-0.0015	-1.75	-0.0023	-4.12
Union member	-0.0316	-1.60	0.0645	4.29	0.1089	7.84
Non-wage benefit	0.0739	2.49	0.0429	2.56	-0.0407	-1.89
Unfilled vacancy	-0.0154	-0.95	-0.0083	-0.59	-0.0605	-4.34

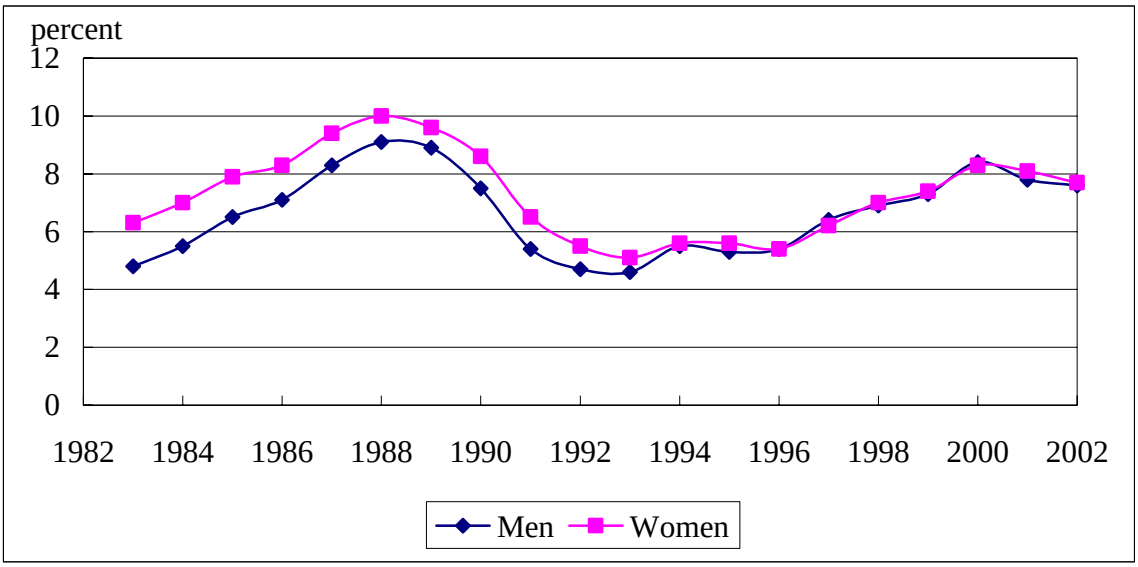
1. Hourly wage rate and income from other family members ($1,000) are in 2001 constant dollars.
Source: Statistics Canada, 1999 and 2001 Workplace and Employee Survey.

Table 10 Days of absences, trimmed least squares estimates with firm fixed effects[1]

	Paid sick leave		Other paid leave		Unpaid leave	
	Estimate	**t-value**	**Estimate**	**t-value**	**Estimate**	**t-value**
Women	0.739	6.21	0.281	1.34	0.458	1.60
Married	-0.167	-0.97	0.193	0.77	-0.202	-0.69
Young children	0.338	1.22	-0.205	-0.72	-0.137	-0.39
Women with young children	-0.086	-0.19	-0.425	-0.90	1.737	2.41
Age						
25 to 34 years old	0.151	0.39	0.333	0.63	-1.230	-2.60
35 to 44 years old	0.112	0.25	0.075	0.14	-2.386	-5.15
45 to 54 years old	-0.352	-0.81	0.115	0.20	-2.242	-4.24
55 to 64 years old	-0.252	-0.51	-0.114	-0.19	-2.968	-4.40
Prefer fewer hours	0.312	2.18	-0.318	-1.13	1.923	5.18
Flexible hours	-0.051	-0.42	0.190	0.95	-0.147	-0.54
Satisfied with job	-0.733	-3.75	-0.168	-0.54	-1.500	-5.04
Hourly wage rate	-0.023	-4.47	0.002	0.07	-0.074	-2.86
Job tenure (years)	0.012	1.69	0.004	0.27	-0.112	-6.16
Union member	0.083	0.47	0.856	3.17	3.823	9.12
Non-wage benefit	1.396	3.95	0.830	2.10	-1.572	-3.12
Unearned income	-0.002	-0.77	3.8-E6	0.001	0.002	0.14
Unfilled vacancy	0.219	1.16	-0.114	-0.45	-0.784	-2.18

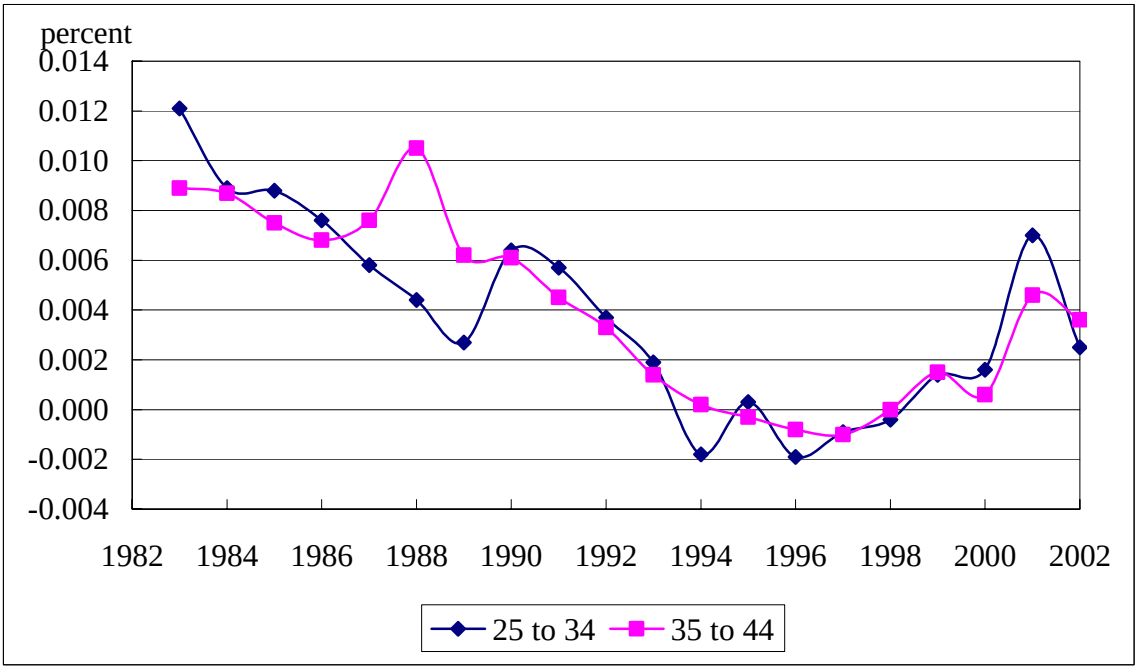
1. Hourly wage rate and income from other family members ($1,000) are in 2001 constant dollars.
Source: Statistics Canada, 1999 and 2001 Workplace and Employee Survey.

Figure 1 Permanent quit rates, men and women aged 15 to 64, 1983 to 2002



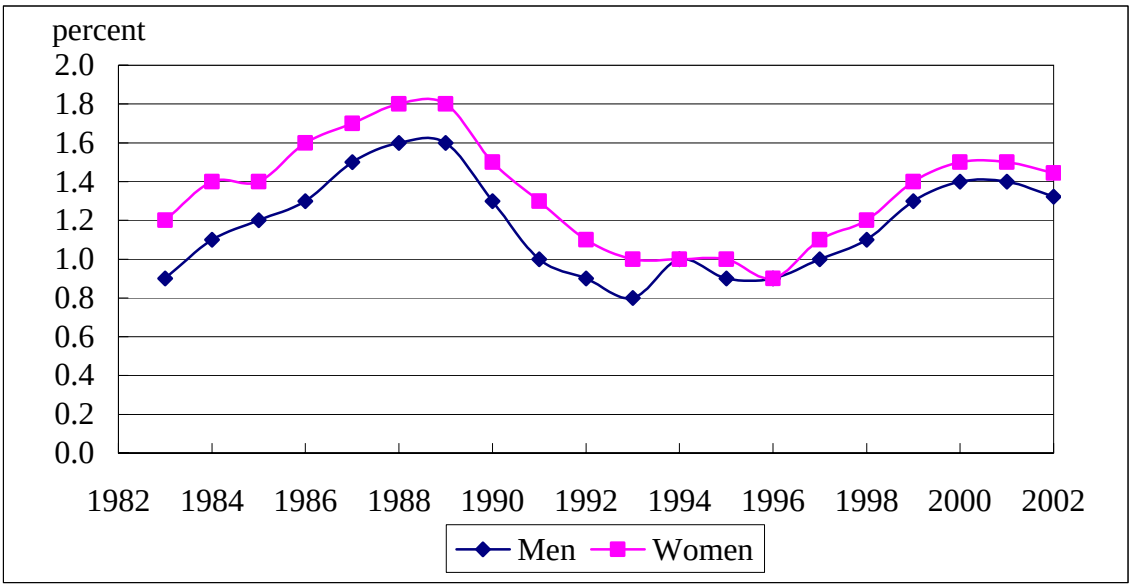
Source: Statistics Canada, 1983 to 2003 Longitudinal Worker File (10% Sample).

Figure 2 Marginal effect of women aged 25 to 34 and 35 to 44, Probit model for permanent quits



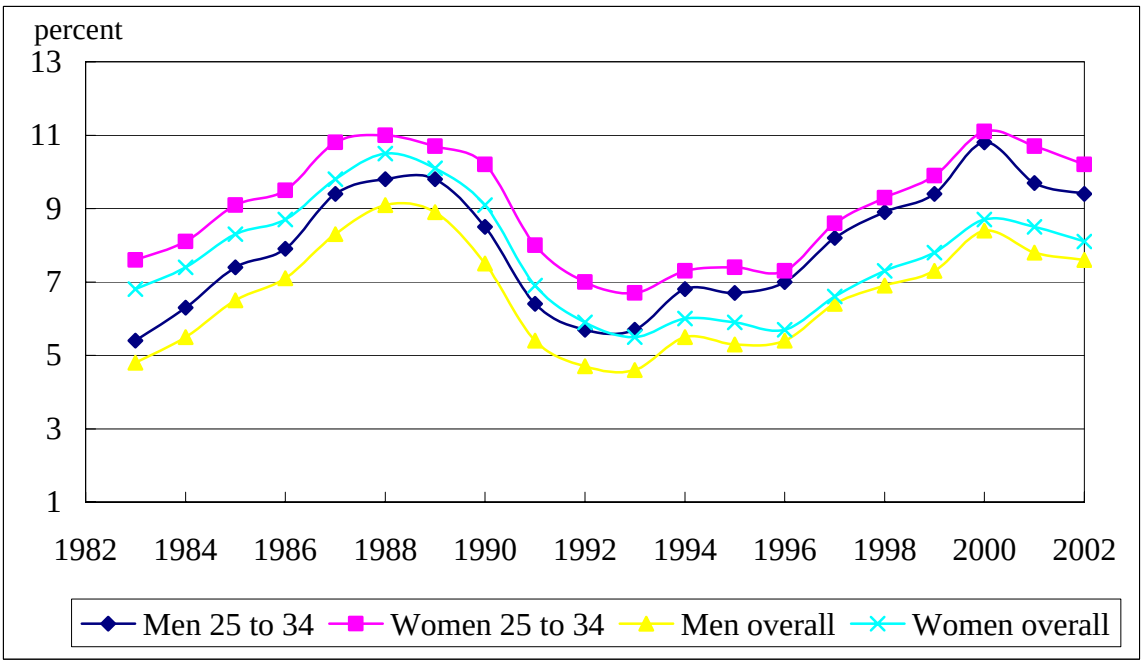
Source: Statistics Canada, 1983 to 2003 Longitudinal Worker File (10% Sample).

Figure 3 Temporary quit rates, men and women aged 15 to 64, Canada



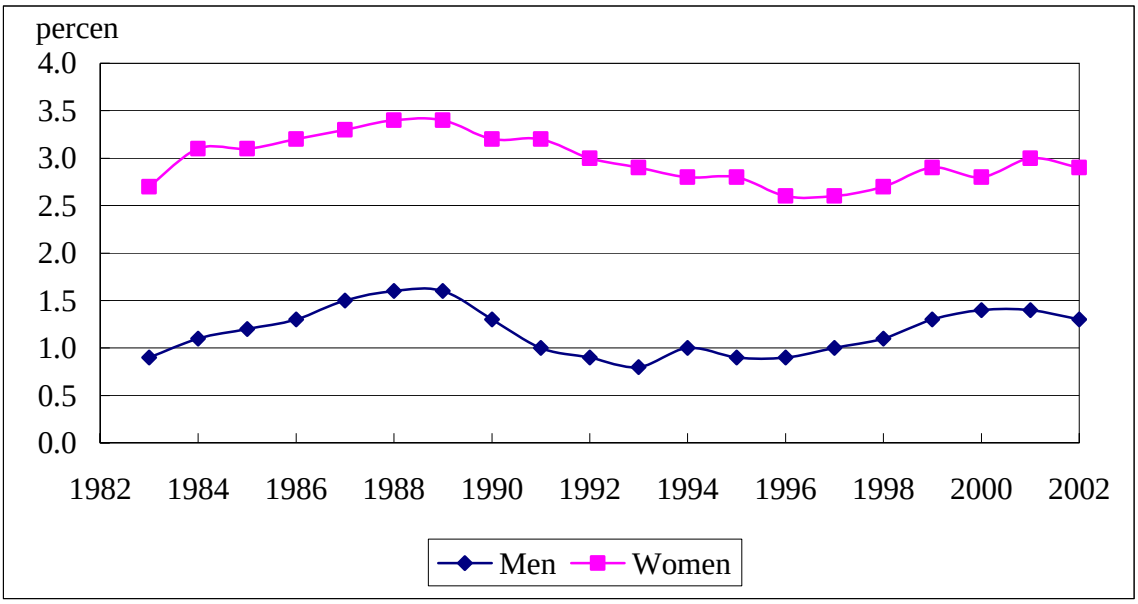
Source: Statistics Canada, 1983 to 2003 Longitudinal Worker File (10% Sample).

Figure 4 Permanent quit rates – Alternative definition



Source: Statistics Canada, 1983 to 2003 Longitudinal Worker File (10% Sample).

Figure 5 Temporary quit rates – Alternative definition



Source: Statistics Canada, 1983 to 2003 Longitudinal Worker File (10% Sample).

Appendix 1 Canadian legislations and collective bargaining agreements on types of leave

In Canada, leaves of absence are governed by federal and provincial legislations. The Canada Labour Code regulates employment standards for industries that fall under federal jurisdiction. These industries are inter-provincial, national, and international. They include railways, airlines, banks, shipping, radio, television and communication industries. Most industries in Canada fall into provincial jurisdiction and hence, for the vast majority of firms and employees, work absences are regulated by provincial labour legislations.

Under federal and provincial labour standard legislations, Canadian workers may take sick leave, parental leave (includes maternity/paternity leave), and a number of other leaves for personal reasons. For workers on unpaid sick leave, the legislations provide protection against dismissal, lay-off, suspension or other disciplinary actions. Canadian labour standards legislations also include a variety of other leaves to help employees meet their personal and family obligations. Besides vacation and maternity leaves (which are not in the scope of this study), Canadian workers in all jurisdictions are entitled to take court/jury leave. In some jurisdictions, they are also entitled to bereavement leave, marriage leave, parental leave, and leave for other family responsibilities.

However, Canadian legislations leave sufficient space for employers and workers to negotiate on the amount of absences, the compensation, job security and other aspects of work absence. For example, although employment standards provide the legal right for Canadian workers to take sick leave and provide job security for workers who take unpaid sick leave, whether a worker gets paid or not, how much sick leave a worker may take, whether a physician's certificate is needed, whether a worker can return to his/her pre-leave job after taking a paid sick leave are directly governed by the collective agreements or by leave policies of the employer in lieu of the collective agreements.

Indeed, actual provisions on sick leave vary significantly across firms and collective agreements. Some companies offer employees the opportunity to take sick leave for a period of time without loss of wages. For example, around 50% of major Canadian collective agreements provide paid sick leave, and some companies continue to pay non-wage benefits to those who are taking sick leave.[22] In addition, some workers are able to accumulate and carry over their sick leave credits, or use their sick leave credits for certain family obligations.

The majority of Canadian collective agreements have provisions for personal leaves, mostly unpaid. Around one-third of Canadian collective agreements have provisions for workers to apply for job leaves for taking care of a sick family member (please refer to footnote no. 22). Again, how many days of leaves a worker can take in a year, and whether the worker get paid or not when taking these leaves depend on the actual agreements or the policy of a company if no collective agreements exist between workers and employers.

22. See Human Resources Development Canada (2001) for more details.

Appendix 2 Descriptive statistics

Variable	Mean	Standard deviation
Incidence		
Paid sick leave	0.4360	0.4959
Other paid leaves	0.1963	0.3972
Unpaid leaves	0.1643	0.3705
Days of absence		
Paid sick leave	2.6390	10.1395
Other paid leaves	1.6935	9.9038
Unpaid leaves	1.6443	10.1119
Women	0.4020	0.4903
Married	0.7440	0.4364
Presence of young children	0.1436	0.3507
Women with young children	0.0463	0.2102
Age		
17 to 24 years old	0.0429	0.2026
25 to 34 years old	0.2244	0.4172
35 to 44 years old	0.3528	0.4779
45 to 54 years old	0.2848	0.4513
55 to 64 years old	0.0951	0.2933
Preferred fewer hours	0.1046	0.3060
Worked flexible hours	0.3109	0.4629
Satisfied with job	0.9119	0.2835
Educational attainment		
Under high school	0.1086	0.3112
High school	0.1807	0.3848
College	0.5253	0.4994
University	0.1854	0.3886
Immigrant	0.1659	0.3720
Hourly wage rate	22.240	12.075
Job tenure (year)	11.186	8.8037
Union member	0.3633	0.4810
Non-wage benefits	0.8923	0.3100
Unearned income ($1,000)	29.368	38.607
Occupation		
Manager (reference group)	0.1288	0.3350
Professional	0.1617	0.3682
Technical and trade	0.4580	0.4983
Marketing	0.0206	0.1421
Clerical	0.1654	0.3716
Production	0.0654	0.2472

Appendix 2 Descriptive statistics (concluded)

Variable	Mean	Standard deviation
Establishment size		
Year = 1999	0.5483	0.4977
10 to 19 workers	0.0856	0.2797
20 to 99 workers	0.3808	0.4856
100 to 499 workers	0.3414	0.4742
500 or more workers	0.1923	0.3941
Unfilled vacancy >0	0.4363	0.4959
Formal grievance system	0.5802	0.4935
For profit	0.8384	0.3691
Industry		
Forest, mining, oil and gas	0.0468	0.2112
Manufacturing (labour intensive)	0.0685	0.2527
Primary manufacturing	0.0714	0.2575
Secondary manufacturing (reference group)	0.0575	0.2328
Manufacturing (capital intensive)	0.0805	0.2721
Construction	0.0774	0.2673
Transportation and warehousing	0.1230	0.3285
Communication and utility	0.0518	0.2217
Retail trade	0.0560	0.2298
Finance and insurance	0.0897	0.2858
Real estate and services	0.0346	0.1827
Business services	0.0683	0.2523
Education and health	0.1171	0.3216
Information and culture	0.0574	0.2324
Province		
Newfoundland	0.0201	0.1404
Prince Edward Island	0.0046	0.0679
Nova Scotia	0.0471	0.2119
New Brunswick	0.0399	0.1957
Quebec	0.2361	0.4247
Ontario (reference group)	0.2824	0.4502
Manitoba	0.0623	0.2417
Saskatchewan	0.0460	0.2094
Alberta	0.1181	0.3227
British Columbia	0.1435	0.3506

Note: All numbers have been calculated by the author using the source mentioned below.
Source: Statistics Canada, 1999 and 2001 Workplace and Employee Survey.

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