

The Impact of Workers' Compensation Experience-Rating on Discriminatory Hiring Practices

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The widespread adoption of experience-rating has been a major trend in workers' compensation systems for over a decade (O'Grady 1999). Under this approach, a firm's insurance premium rate for its industry or class is adjusted upwards or downwards to reflect the costs of the insurance claims made by that firm's workers. Firms that have higher-than-normal claims levels are punished with a penalty, paid on top of their base premium. In contrast, firms that have lower-than-normal claims levels are rewarded with a partial rebate (discount) of their base premium.

Many workers' compensation authorities across the United States, Canada, Australia, and New Zealand adopted experience-rating as a pricing mechanism to encourage employer investment in hazard prevention measures. Although earlier research (e.g., Chelius and Smith 1983) indicated that experience-rating was not associated with improved health and safety performance in the United States, the evidence from more recent studies suggests that experience-rating reduces fatalities in Canada (Bruce and Atkins 1993), lowers the reported accident rate in Canada (Thomason and Pozzebon 2002) and the United States (Worrall and Butler 1988), shortens claim duration in the United States (Krueger 1990), and encourages better safety practices in Canada (Kralj 1994). However, most researchers have been cautious about crediting experience-rating for lowering overall actual injury rates, because experience-rating provides incentives for injury under-reporting (McClintock 1994; Samaras 2001) and undesirable employer activities, such as the contracting out of hazardous activities and excessive claims management (Kralj 1994). Before experience-rating becomes further entrenched in the workers' compensation system, understanding any other unintended, negative side effects remains important.

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Conceptual Framework*Experience-rating and Claims Management*

Many forms of illegitimate claims management practices can be commonly associated with experience-rating. These include: (a) discouraging workers from submitting claims, (b) developing improper incentives or pressure to suppress claims or shorten claim periods, (c) refusing or delaying submission of accident information to the workers' compensation authority, (d) appealing claims, (e) pressing attending physicians to certify injured employees as "fit for light work" and (f) forcing returned employees to work in unsuitable conditions or in positions involving no genuine work (Ison 1986). Hopkins (1995, 33) argued "it is far easier for an employer to reduce the duration of injury claims than to reduce the number of injuries, and for this reason, the rational employer will embark on a claims management program as the first line of attack on compensation costs." In support of this view, Hopkins has described incidents in Australia where management adopted a policy of challenging every claim and another situation where the employer made it clear that claimants would be regarded as "malingerers and bludgers," meaning they would be "the first to go" in the event of terminations or layoffs (Hopkins 1995, 36). Such threats scared the staff into dramatically reducing both the number and duration of their claims.

Larger, empirical studies have also found that claims management activities, legitimate and illegitimate, rise with the degree of experience-rating. For instance, in a Canadian study of over 160,000 workers' compensation cases involving approximately 1,200 appeals in Ontario, Hyatt and Kralj (1995) discovered that employers in all three of the experience-rated plans they examined were much more likely to appeal workers' claims than the unrated employers. They also found that larger firms, which are more experience-rated than smaller firms, were more likely to appeal claims.

In a similar Canadian study of 450 Quebec firms, Thomason and Pozzebon (2002, 299) also found that experience-rating was associated with more aggressive claims management. Firms in the most experience-rated category were 65% more likely to have an in-house claims manager than the unrated firms. Those firms also had more cost-sharing applications (where the employers had successfully argued that pre-existing medical conditions were partly responsible for accident costs), temporary assignments (for injured workers who had not recovered), and dispute appeals. The researchers concluded that "health and safety and claims management appear to be substitute inputs in the process of reducing firms' workers' compensation assessments" (305), and that low-wage firms, in particular, were more likely to focus on claims management than accident prevention. Unfortunately, the degree to which claims management is unlawful is not known. Hence, any anticipated benefits from experience-rating may be offset, in part or totally, by the negative repercussions of illegal employer activities.

Experience-rating and Discrimination Against the Disabled

Not all of the less desirable employer reactions to experience-rating have been studied. For instance, no study to date has systematically addressed the relationship between experience-rating and hiring discrimination. With workers' compensation costs as high as 10% of payroll costs in the United States (Mathis and Jackson 1999, 496), employers may view discriminating in favor of the "strong and fit" as a potentially effective way of reducing penalties or increasing rebates on their workers' compensation premiums. This study attempts to remedy this gap in the literature by empirically examining the relationship between experience-rating and discrimination at the preliminary hiring stage, using New Zealand data. The focus is on the likelihood of disability-related questions being asked on job applications, because disability is likely to be associated with being "strong and fit," at least in the minds of employers. Moreover, research (see for example, Stone and Stone 1987) shows that employers tend to rely on information concerning discriminatory stereotypes to make decisions, and job application forms are a primary source of such information.

This study is particularly important because disability discrimination in employment is already a common occurrence, even in the absence of any "incentives" arising from the workers' compensation system (see for example, Fentonmiller and Semmel 2000; Miceli, Harvey and Buckley 2001; Stone and Colella 1996). Statistics show that in the United States, for example, only one-third of disabled people are employed, although most of them would prefer to be working (Kennedy and Olney 2001, 24; Sunoo 2001, 88), and for severely disabled adults, the underemployment rate exceeds 70% (Coelho 2000, 10).

One might think that only a small portion of the population is disadvantaged by such employment discrimination, but this is not the case. The disabled actually comprise a large minority group, representing, for example, as much as 20% of the population in the United States and New Zealand (Coelho 2000, 10; Statistics New Zealand 2003). For example, in New Zealand, where hiring discrimination is prohibited by section 22 of the *Human Rights Act*, disability is defined relatively broadly to include physical and mental impairments, what we traditionally think of as disability, medical conditions such as asthma, diseases such as hepatitis C and AIDS, sickness, and injury. Moreover, someone is still considered to be "disabled," for the purposes of determining whether he/she warrants protection from discrimination under the Act, even if they have fully recovered from a past "disability." As a result, someone who had hepatitis C in the previous year, or who spent considerable time off work because of this disease, is still considered "disabled," even if he or she has completely recuperated.

With disability so prevalent, not giving disabled workers a fair chance for employment certainly affects the labor market equilibrium, and has potentially serious economic and social consequences. Institutional economists have long recognized that the labor market is not "perfect," in that discrimination based on physical attributes does exist, and appointments to jobs are often not based mainly or solely on merit (Mitra 2003). Workers generally have too little economic power to counter

employer actions, and so “free competition” in the labor market does not necessarily mean “fair competition” (Commons 1950; Ramstad 2001). This often leads to suboptimal outcomes for both employers and workers, particularly disadvantaged workers. It is hoped that this study will help in understanding and preventing further unwarranted employment barriers for these workers, arising as a by-product of an experience-rating system.

Why would an employer want to discriminate in hiring? Ideally, job applicants should be screened according to their individual merits. However, full information on individual characteristics is often not available and so employers use “statistical discrimination” as a quick, cost-effective way of determining whom to hire and whom not to hire (Tomaskovic-Devey and Skaggs 1999). “Statistical discrimination” involves the use of average group characteristics, whether real or imagined, to predict the attributes and behaviors of individuals, perceived to be members of that group (Fischer 1987). It follows that employers would not want to hire a job applicant, who belonged to a group widely regarded as having higher accident rates or higher claims levels as compared to other groups.

Many employers believe that the various groups generally labeled “disabled” under anti-discrimination legislation are more predisposed than other groups to higher injury rates and/or longer stretches of recuperation on compensation, if injured (Chima 1998; Kennedy and Olney 2001). For instance, employees with asthma may be perceived as vulnerable to hazards associated with emissions, making them more likely to need to take time off. Correspondingly, employees who have been injured before may be viewed as accident-prone and therefore likely to be injured again. Similarly, employees weakened by AIDS may be seen as requiring lengthy recuperation time, if they are injured.

Many employers also believe that mentally ill people are dangerous (e.g., Brennan 1964; Corrigan, Watson and Ottati 2003; Noble and Collignon 1987). Some studies have found evidence to support this view. For example, in their U.S. study, Feldmann and Johnson (1994) found that most people who commit violent acts in the workplace have depression or personality disorders.

Whether some types of “disabled” worker really are more accident-prone or dangerous, and therefore expensive in terms of workers’ compensation premiums, is not really the key point. The fact is that many employers, in the absence of widely disseminated and heavily publicized academic evidence to the contrary, believe that they are and make decisions on this basis. In particular, we would expect employers to practice statistical discrimination by screening out disabled job applicants using illegal disability-related questions,¹ given that the perceived costs of hiring such people are high.

Experience-rating and the Insurance Premium Rate

At least in the minds of employers, those paying the highest premiums are the ones that stand to gain and lose most from experience-rating by hiring selectively. If their workers’ compensation claims are relatively high, they face heavy penalties, which in

some cases, may equate to several percent of total payroll costs. In contrast, if their workers' compensation claims are relatively low, they benefit from generous rebates, which again in some cases, may equate to several percent of total payroll costs. We would therefore expect that:

H1: Organizations that pay higher base industry workers' compensation premiums are more likely to discriminate on the basis of disability in their hiring practices.

Experience-rating and Firm Size

Premiums under an experience-rated system are based on a weighted combination of industry- and firm-level costs. A general feature of such a system is that a larger weight is placed on the firm level, the greater the size of the firm. This is because, for small or even medium size firms, accident costs can vary widely from year to year and past claims data can hardly be a reliable basis for determining the firm accident risk and future premium adjustments (Hyatt and Kralj 1995; McClintoch 1994; Thomason and Pozzebon 2002). Hence, experience-rated workers' compensation schemes worldwide tend to grant exemptions to very small firms, whereas very large organizations may be almost fully experience-rated (Chelius and Smith 1983; Worrall and Butler 1988). For example, Worrall and Butler (1988, 83) reported that approximately 85% of firms in the United States were so small that they were not experience-rated. The varying degree of experience-rating is also reflected in a plan in Ontario, Canada, where the premium adjustment factor varies by firm size, with a very small firm receiving or paying 10 percent of the difference between the firm's actual and expected claims costs and the largest receiving or paying up to 80% of such a difference (Hyatt and Kralj 1995, 99). In New Zealand, similar differentiation in experience-rating was applied, at the time of data collection, to firms of different sizes. For instance, at one stage in the 1990s, an adjustment factor related to the total premium amount, ranging from 15% for small employers paying less than \$10,000 in premiums to 60% for large ones paying more than \$1,000,000 was used in the experience-rating formula (French 1992, 45). As there is more incentive for accident claims reduction, legitimate or otherwise, for the more highly experience-rated firms, we expect that:

H2: Larger organizations are more likely to discriminate on the basis of disability in their hiring practices than smaller ones.

Experience-rating, Firm Size, and Insurance Premium Rate

In the 1990s, New Zealand's work accident insurance scheme geared premium penalty and discount rates to the overall level of premiums paid, so that those firms paying particularly high, aggregate premiums (e.g., \$1,000,000+) received the most generous discounts or paid the stiffest penalties. Since the total premium amount is a function

of firm size and the premium rate, firms might qualify for the highest discount rate if they are charged an especially high basic premium rate, even with a moderately sized workforce. Alternatively, if firms have a large workforce, they can achieve the highest discount/penalty status even with a relatively modest basic premium rate. In the former scenario, the size of the firm might matter relatively little to the degree of experience-rating, whereas it might be critical in the latter case. In such circumstances, we would expect firm size and workers' compensation premium level to interact, with one effect obviating the impact of the other.

H3: Workers' compensation premiums and firm size moderate the effect of each other on an organization's discriminatory hiring practices.

Data and Methodology

Data collection. We collected data from several sources. Given our interest in disability-related questions asked at the hiring stage, we obviously had to identify a reasonable sample of organizations that have job application forms, since many, perhaps most, in New Zealand do not. We did this by searching all job advertisements in the *Wellington Post*, *Wellington Dominion*, and *New Zealand Herald* newspapers for the months of September, October, and November of 1999. Using this method, we found 174 organizations that required job applicants to fill out an application form. These organizations were contacted for this form; all 174 agreed to provide it. We acquired 55 more application forms from employers in a large survey of small and medium-sized organizations, following a request for this form on the questionnaire.

New Zealand's workers' compensation system is managed by a crown entity, the Accident Compensation Corporation (ACC), which sets employer (and employee) premium rates (levies) and provides accident compensation. We obtained each employer's ACC premium (levy) by consulting the book, *Calculating your ACC premium payments to 30 June 1999*. Where there was any doubt about which premium class the employer belonged to, the employer was telephoned and asked to identify this class.² All did so.

We used the New Zealand *Who's Who Aotearoa*³ and *Kompass: Australia*⁴ to determine approximate employment numbers, as of 1999, for each of the employers in the sample. If this information was not available from either of these sources, the employer was contacted directly for its staff number.⁵

We contacted most of the unions⁶ on the Department of Labour's *Registrar of Unions*⁷ and asked each union president for his or her union's membership numbers for each employer in our sample. The information so supplied was then compared to aggregate employment levels to calculate a union membership density rate.

We used the State Services Commission's book, *Progress in the Public Service*, to determine which organizations were, as of 1999, part of the civil service and subjected to the actively enforced equal employment opportunities (EEO) obligations in the *State Sector Act*.

The Occupational Safety and Health Service at the Department of Labour supplied us with a spreadsheet, indicating how many times each employer in our sample had been inspected from the point of the *Health and Safety in Employment Act's* enactment in 1992 until the end of 1999.

Sample. The sample includes 229 New Zealand organizations. These organizations collectively employ an estimated 200,000 people, slightly more than a tenth of New Zealand's entire employed workforce. They represent a wide range of New Zealand organizations including 10 manufacturing firms; 21 retail and/or wholesale firms; 16 professional or business service firms; 15 financial firms; six transportation firms; nine hotels, motels, or restaurants; three communication firms; three forestry, agricultural, or fishing firms; 35 daycares, schools, polytechnic colleges, or universities; 17 healthcare organizations; four volunteer organizations; and, 59 public service organizations. Other employers in the sample perform miscellaneous activities or are otherwise unclassifiable. Two employer names were not provided and had to be omitted from the sample. Therefore, we performed our statistical analysis on the remaining 227 cases.

Variables. The frequencies for both the dependent and independent variables are provided in Table 1.

Table 1. Descriptive Statistics (N = 227)

Dependent Variable: DISABILITY

Categories and description	Frequency	Percentage
Unlawful disability-related question(s) asked	60	26%
Only lawful disability-related question(s) asked	87	38%
No lawful or unlawful disability-related question(s) asked	80	35%

Independent Variables:

Variable	Minimum Value	Maximum Value	Mean
ACC PREMIUM	0.45%	6.32%	1.18%
SIZE	3	9,560	834
CIVIL SERVICE	0	1	(29)*
INSPECTION	0	58.2	2.85
UNION DENSITY	0%	100%	33%

* For the dichotomous variables, the numbers shown in brackets are the frequencies rather than the means.

The dependent variable, DISABILITY, measures whether disability-related questions were asked on the job application forms. Questions asked could be lawful or unlawful in nature. Section 23 of the New Zealand *Human Rights Act* indicates that asking about an applicant's disability shall be taken as evidence of an intention to discriminate on this ground. As indicated earlier, disability is broadly defined so that questions about physical and mental impairments, general health, specific medical conditions, sickness days off work, and insurance compensation claims, past and present, can all be taken as evidence of an intention to discriminate. Employers may not ". . . assume that past or present health problems . . . necessarily hamper the employee's ability to do the job safely and competently" (Harcourt and Harcourt 2002, 218).

Not all questions about disability, broadly defined as above, are unlawful. Specifically, Section 29 of the *Human Rights Act* allows employers to ask ". . . whether or not the applicant has an illness, medical condition, or disability likely to affect his or her capacity to carry out the functions of the position . . ." either to a satisfactory performance standard or in a safe manner (Harcourt and Harcourt 2002, 218). Such questions leave applicants free to avoid mentioning the specific nature of a health problem or medical condition that is not job-relevant and does not involve safety issues or competence. Furthermore, "(s)ection 7 of the old *Accident Rehabilitation, Compensation, and Insurance Act* allowed employers to ask whether or not the applicant had ever had an injury or medical condition, caused by a gradual process injury, disease or infection, that the job applied for would have aggravated" (Harcourt and Harcourt 2002, 218).

Both types of questions, lawful and unlawful, could be used for the purpose of lowering the accident insurance premiums. It would, however, be of interest to examine these categories separately to determine whether, and to what extent, their likelihoods differ in different circumstances. It is quite possible that different employer characteristics (incorporated as control variables to be discussed later) have different effects on these two likelihood situations. Hence, DISABILITY is set up as a three-category, nominal variable. DISABILITY assumes the value of "1" if the employer's job application form contained one or more unlawful questions related to disability. Sixty (26%) employers asked one or more unlawful question of this type. DISABILITY assumes the value of "2" if the employer's job application form contained only lawful questions related to disability. Eighty-seven (38%) employers asked only lawful questions about disability. DISABILITY assumes the value of "3" if the employer's job application form contained no questions, lawful or unlawful, concerning disability. Eighty (35%) employers did not have any questions related to disability on their forms.

The independent variables predict whether a job application form contains either one or more unlawful questions or only lawful questions pertaining to disability. We use three independent variables to test our three hypotheses: ACC PREMIUM, LOG SIZE, and SIZE X ACC.

Following hypothesis #1, we expect employers with higher ACC premiums to be more likely to ask lawful and unlawful disability-related questions. ACC

PREMIUM is the employer's work accident insurance premium or levy, as it is called in New Zealand, expressed as a percentage of total payroll costs. ACC PREMIUM varies from a high of 6.32% to a low of 0.45% and averages 1.18%.

Following hypothesis #2, we expect the more experience-rated larger firms to be more likely to ask lawful and unlawful disability-related questions. However, we do not expect this effect to be linear; similar increases in employment numbers should have more of an impact at smaller firms than larger ones. We use LOG SIZE, which is the log value (to the base 10) of the employer's staffing levels, to capture the non-linear impact of increasing staffing levels. The smallest employer in the sample has just three employees, the largest, 9,560. The mean employment level is 834.

Following hypothesis #3, we expect LOG SIZE to mitigate the effects of ACC PREMIUM, and ACC PREMIUM to mitigate the effects of LOG SIZE. Accordingly, we include the interaction variable SIZE X ACC, which is simply LOG SIZE multiplied by ACC PREMIUM.

We include five variables as controls for other potential sources of influence on the dependent variable: UNION DENSITY, DENSITY SQUARED, INSPECTION, INSPECTION SQUARED, and CIVIL SERVICE.

UNION DENSITY indicates what percentage of each employer's workforce is a member of a union. UNION DENSITY has a mean of 33%, but varies from a low of 0% to a high of 100%. Seventy-three (32%) employers have no union members, whereas nine (4%) are 100% unionized.

We expect the more unionized firms to be less likely to ask both lawful and unlawful questions about disability on their job application forms. We would expect this for two reasons. First, unions have a history of protecting their members from arbitrary, including discriminatory, treatment by management (Giles and Starkman 1995; Leonard 1985). Second, unions are in decline in many countries, including New Zealand (Crawford, Harbridge, and Walsh 2000; Farber and Western 2001), and so are keen to attract non-traditional members, including minority groups with a strong interest in protection from discriminatory treatment (Oxenbridge 1997).

We use UNION DENSITY to measure the extent of union influence rather than a dummy variable that indicates the absence or presence of a union. We do this because unionism is voluntary in New Zealand: unions only represent unionized workers. As a result, many employers employ some workers on individual agreements and others on (a) collective agreement(s), with a union only bargaining and grievance handling for the latter. As a result, one cannot talk of "unionized workplaces" with any precision, since so many are more or less unionized.

DENSITY SQUARED is the square of UNION DENSITY divided by 100.⁸ It captures the potential, non-linear effects of union density. For instance, increases in density could have a greater impact on employer behavior at one level of union density than another.

INSPECTION is the total number of inspections performed by the Occupational Safety and Health Service between 1992, the year the *Health and Safety in Employment Act* was enacted, and the end of 1999, divided by the organization's total number of employees and multiplied by 100 to obtain an inspection rate per 100

employees. INSPECTION SQUARED is the square of INSPECTION divided by 100.⁹ The inspection rate per 100 employees varied from a low of 0 for 61 employers (27%) to 58 for just one employer. Fourteen (6%) employers had an inspection rate of at least 10 per 100 employees.

We expect employers that have been frequently inspected by the Occupational Safety and Health Service to be more cognizant of safety issues and more willing to discriminate against various “disabled” groups, such as the currently or previously sick, injured, or diseased, who are perceived as accident-prone or as potential vehicles for the spread of illness and disease. We expect inspections to have a diminishing impact on employer behavior, such that their marginal impact is low when per capita inspection frequency is already high. In other words, we expect inspections to galvanize employers into action, including discriminatory action, when they are rare rather than routine.

CIVIL SERVICE is a dichotomous variable, which indicates whether an organization is part of New Zealand’s civil service, and therefore covered by the 1988 *State Sector Act*. CIVIL SERVICE takes the value of “1” if an organization is included in the State Service Commission’s list of official, civil service organizations. It takes the value of “0” otherwise. Twenty-nine (13%) employers in the sample belonged to the civil service.

Compared to other organizations, we expect civil service departments and agencies to more readily comply with the *Human Rights Act* by less frequently asking unlawful, disability-related questions on their job application forms. The *State Sector Act* imposes special obligations on civil service organizations to be “good employers,” which involve having equal employment opportunity (EEO) programs to promote the equitable treatment of disadvantaged employees. Along these lines, employers are expected to review their human resource practices critically, including those related to hiring, for any procedural defects that might lead to unlawful discrimination. Each civil service chief executive is held personally accountable for making progress in EEO to the extent that poor performance in this area can affect the executive’s year-end bonus and even whether his or her fixed-term employment contract is renewed.

We performed collinearity tests on the independent variables to determine to what extent they were related to each other. The Tolerance statistics for the variables, after the removal of the interaction and square variables that are understandably highly correlated with their main effect variables or linear-dimension variables, suggest no general multicollinearity problems across the variables.¹⁰

Estimation. We analyzed the data using multinomial regression, which applies maximum likelihood to estimate coefficients for the independent variables in two models simultaneously. These logistic models have the following forms:

$$\log(\text{probability (unlawful question)}/\text{probability (no question)}) = b_0 + b_1X_1 + b_2X_2 + \dots + b_nX_n$$

$$\log(\text{probability (lawful question only)}/\text{probability (no question)}) = b_0 + b_1X_1 + b_2X_2 + \dots + b_nX_n$$

An "unlawful question" is a question concerning the applicant's disabilities, as broadly defined under the *Human Rights Act* (e.g., impairment, medical condition, injury). A "lawful question" is a specific question about whether the applicant has occupational overuse syndrome (repetitive strain injury) or a general question about whether the applicant has any kind of illness, medical condition, or disability likely to make the applicant's performance unsatisfactory or pose a hazard.

The probability of "question," regardless of type, divided by the probability of "no question" represents an odds ratio, in this case the odds of being asked a question about one's disability rather than not being asked such a question. The log of this odds ratio is predicted by the independent variables, indicated by Xs in the model statements. The Betas (bs) in the model statements are coefficients, and, as such, outline the estimated effects of a one-unit change in the relevant independent variable on the log odds ratio in each model.

Results

The multinomial logistic regression results are given in Table 2. The estimated regression coefficients for each independent variable are provided in columns 1 and 2. Column #1 compares the odds of a job application form asking at least one unlawful, disability-related question as opposed to no disability-related questions at all. Column #2 compares the odds of a job application form asking only lawful, disability-related questions as opposed to no disability-related questions at all. Changes in the odds of such questions are calculated by taking the reverse log of each coefficient. A positive and statistically significant coefficient indicates that an increase in an independent variable raises the odds of such a question; a negative coefficient indicates the opposite.

Goodness of fit statistics are given at the bottom of Table 2. The Chi-Square Statistic (70.068) is statistically significant (probability value = 0.00) and indicates that at least one coefficient in each column is not zero. The Cox-Snell R Square (0.266) and the Nagelkerke R Square (0.300) are pseudo R square measures and both indicate that the model explains at least a portion of the variance in the data. The classification table reveals that the model correctly predicts 38% of unlawful questioning, 66% of lawful questioning, and 66% of no questioning. Overall, the multinomial model accurately classifies 59% of the organizations' disability-related questioning.

The following results involve column #1, comparing the odds of any unlawful, disability-related questions to no disability-related questions at all.

The intercept coefficient is negative and statistically significant, and indicates that the odds of an unlawful question appearing on a job application form, as opposed to no disability-related questions whatsoever, are approximately 1:460, when all the independent variables are equal to zero.

As expected, the coefficient for ACC PREMIUM is positive and statistically significant, and indicates that the odds of asking an unlawful disability-related question rise almost 71 times for every 1% rise in ACC premium. Thus, an increase

Table 2: Multinomial Logit Results For Job Application Forms Asking Unlawful And Lawful Questions About Disability (Standard Errors In Parentheses)

	Unlawful Question 1	Lawful Question 2
INTERCEPT	-6.134*** (1.696)	-5.758*** (1.502)
ACC PREMIUM	4.257*** (1.165)	4.400*** (1.214)
LOG SIZE	0.529 (0.482)	1.449*** (0.508)
SIZE X ACC	-1.216*** (0.396)	-1.367*** (0.413)
UNION DENSITY	0.034 (0.022)	0.043** (0.020)
DENSITY SQUARED	-0.038 (0.026)	-0.049** (0.024)
INSPECTION	-0.034 (0.074)	0.102 (0.131)
INSPECTION SQUARED	-0.001 (0.020)	-0.122 (0.106)
CIVIL SERVICE	-3.356*** (1.100)	-1.076** (0.494)

* Statistically significant at the .10 level;

** Statistically significant at the .05 level;

*** Statistically significant at the .01 level (two-tailed tests)

Chi Square Statistic = 70.068 with 16 degrees of freedom
(probability value = 0.00)

Nagelkerke R Square = 0.300

Cox and Snell R Square = 0.266

in premium from 0% to 1% raises the odds of an unlawful, disability-related question from 1:460 to 1:7, assuming other independent variables are equal to zero. A further rise from 1% to 2% increases the odds from 1:7 to 11:1, making the probability of asking such questions much greater than the probability of not asking.

Contrary to expectation, the coefficients for LOG SIZE, UNION DENSITY, DENSITY SQUARED, INSPECTION, and INSPECTION SQUARED are all statistically insignificant, although the union variables are close to being statistically significant (probability value = 0.065 for both variables). These findings suggest that employer size, the degree of unionization, and the number of times each organization has been inspected have no significant impact on the likelihood of an unlawful, disability-related question.

The coefficient for SIZE X ACC is negative and statistically significant. It suggests that the very large premium effect on the odds of an unlawful question is reduced with increases in log size. In other words, changes in the premium rate have a bigger effect on the likelihood of smaller employers asking unlawful questions about disability than larger employers. At the average ACC premium level of 1.18%, a unit increase in premium rate is associated with a 60-fold increase in the likelihood of unlawful questions being asked at a firm size of 10 but only a 3-fold increase at a firm size of 10,000.

Civil service organizations are less likely than other organizations to ask unlawful, disability-related questions on their job application forms. The coefficient for CIVIL SERVICE is statistically significant, and indicates that being in the civil service reduces the odds of asking such a question by 97%. Alternatively, this means that being in the CIVIL SERVICE reduces the odds of asking such questions 30 fold.

The following results involve column #2, comparing the odds of lawful, disability-related questions to no disability-related questions at all.

The intercept coefficient is statistically significant and negative, and indicates that the odds of having only lawful questions on a job application form rather than no questions at all are more than 1:300, when all the independent variables are equal to zero.

The coefficients for ACC PREMIUM and LOG SIZE are both statistically significant and positive. In contrast, the coefficient for the interaction variable, SIZE X ACC, is statistically significant but negative. Taken together, these variables suggest that, at a low ACC premium of say 1%, larger employers are slightly more likely than smaller ones to ask lawful questions about disability. However, the effect is not great: each unit increase in LOG SIZE increases the odds of a lawful question by just 9%. In contrast, at a high ACC premium of say 4%, the situation is very much reversed, with smaller employers much, much more likely than larger ones to ask lawful questions about disability. Each unit increase in LOG SIZE decreases the odds of a lawful question 55 fold. In combination, the variables also imply that, for smaller employers, increases in ACC premium increase the odds of asking a lawful question about disability by a much greater extent than for larger employers. Each unit increase in ACC PREMIUM increases the odds ratio 20 fold for smaller employers with just 10 employees, as against 35% for larger employers with 10,000 employees.

The UNION DENSITY coefficient is positive, statistically significant and suggests that the odds of only a lawful question being asked rises 4% for every 1% increase in union density. However, the DENSITY SQUARED coefficient is negative and statistically significant, and indicates that the effect of unionization is mitigated, and eventually reversed, as density rises, yielding a curvilinear effect. Taken together, UNION DENSITY and DENSITY SQUARED indicate that a rise in density initially increases the odds of a lawful question up to a maximum of two-and-a-half times at 44% union density. Thereafter, further increases in density gradually decrease these odds. At 100% density, the odds of a lawful question being asked are half what they are at 0%.

The coefficients for INSPECTION and INSPECTION SQUARED are both statistically insignificant. Such results indicate that inspection activity has no significant effect on an organizations' willingness to ask disability-related questions, lawful or unlawful.

The CIVIL SERVICE coefficient is negative and statistically significant, and indicates that civil service agencies are 65% less likely than other organizations to ask only lawful questions about disability. Alternatively, this means that being in the CIVIL SERVICE reduces the odds of asking such questions 3 fold.

Discussion

Our results are broadly consistent with all three of our hypotheses. In particular, consistent with H1, the evidence from the current analysis indicates that the higher the ACC premium, the more likely employers are to ask disability-related questions on their job application forms. This finding is very much in line with previous research concerning the effects of experience-rating on claims management activities (Hyatt and Kralj 1995; Thomason and Pozzebon 2002). It suggests that as the premium rate increases, experience-rating provides strong incentives to limit the level of employees' claims by discriminating on the basis of disability. Whether or not this aim is accomplished is not the issue. If employers believe that employees who have, or have had, injuries, diseases, or medical conditions are more likely to claim injury compensation in the future, our evidence suggests that employers are more likely to practice disability-related discrimination by asking lawful and unlawful, disability questions on a job application form.

Our results also appear to provide some evidence for the effect hypothesized in H2. By just looking at the main effect of size, an increase in firm size does appear to raise the likelihood of at least lawful, though not unlawful, disability-related questions. However, this finding is complicated by the results of the third hypothesis. As expected, our finding suggests that size and ACC mitigate the effect of each other. As the main ACC premium effect is very strong, the interaction effect only overrides it at high levels of organizational size. That is, after taking into consideration the interaction effect, a rise in ACC premiums is still associated with an increase in the likelihood of unlawful questions being asked for firms with 3,000 or fewer employees, and an increase in the likelihood of lawful questions being asked for firms with 1,650

or fewer employees. With 85% of our sample having fewer than 1,650 employees, we can generally conclude that experience-rating has a significant impact on the likelihood of both lawful and unlawful disability-related questions asked for small to medium size organizations, which form the majority of organizations in our sample and in New Zealand, more generally.

The interaction has a more pronounced offsetting effect on size. At premiums of less than 1.06%, increases in size have the hypothesized effect in raising the likelihood of lawful, disability-related questions. However, at premium rates higher than 1.06%, the main effect of size is more than offset by the interaction. Therefore, for the 54% of the firms in our sample paying more than a 1.06% premium, the net effect of increases in size is to reduce the likelihood of lawful questions. There are several reasons why larger employers may be less likely to ask disability-related questions. First, such employers tend to have more steps in their hiring process, and so there is no strong need to screen out applicants with disabilities or consider accommodating their disabilities at the job application stage. There may be plenty of opportunities to do so later. Moreover, if such employers do intend to treat disabled applicants differently, it might be easier to do so at a later, less public stage, involving fewer applicants. Second, even though we use organizational size as a proxy for experience-rating, it may also proxy for pressures, as predicted by some institutional theorists, which give rise to counter effects (Deephouse 1996; Goodstein 1994). Employers may need to enhance their legitimacy in the eyes of their stakeholders by doing the "right" thing in not discriminating. As larger organizations are often under greater public scrutiny (coercive forces), have a greater need to mimic best practices to appear current (mimetic forces), and are more exposed to industry standards or professional norms (normative forces), they may face more institutional pressures to refrain from discriminatory practices. Large organizations may even avoid asking lawful questions for fear that they might be misconstrued as unlawful, especially if they can find out whether someone has disabilities at a later stage.

Implications and Policy Recommendations

Results from this research suggest three conclusions. First, they show a direct relationship between experience-rating and hiring discrimination. This indicates that employers are proactive, rather than simply reactive, in the management of compensation claims: they try to prevent future claims by discriminating rather than merely limiting the impact of such claims, subsequent to an injury occurring. Second, they show that employer attempts to limit such claims are not restricted to just morally questionable activities, but potentially extend to the unlawful as well. Third, they identify a hitherto unrecognized group of potential victims of experience-rating, the disabled, whereas past research has focused only on the negative consequences of claims management for the newly injured (e.g., Hyatt and Kralj 1995; Thomason and Pozzebbon 2002).

Although this study is based on New Zealand data, the results may generalize to other economically developed nations with similar anti-discrimination protection.

Given that New Zealand anti-discrimination legislation defines disability more broadly and explicitly than other economically developed countries, and specifically prohibits it in job application forms, the hypothesized effects may even be more pronounced elsewhere. Further studies are certainly needed to determine the extent and nature of any cross-national differences.

Discriminatory hiring practices based on physical attributes like disabilities have significant implications for labor market functioning. Disabled job applicants potentially face major, largely invisible barriers to employment, unrelated to their job ability or productivity. This not only reduces fair competition and inefficiently allocates resources, but also obviously has major negative impacts on the disabled population's economic, social, and psychological wellbeing (Schur 2002). According to John R. Commons, working rules are indispensable for encouraging orderly cooperation between employer and employee, where there are potential conflicts of interest as, for example, between the disabled worker and self-interested, discriminating employer (Ramstad 2001). Rules can be enforced coercively or persuasively, with the former likely more effective than the latter. Coercive rules can be enacted through legislation. The best way to ensure well-balanced legislation, which would avoid unexpected discriminatory effects, is through a proper social inquiry process where the disabled minority is adequately and proportionately represented and consulted about the barriers they encounter and possible solutions to overcome these barriers (Chasse 1997). Solutions might include broadening the definition of disability, a more explicit differentiation between legitimate and illegitimate accident prevention measures, more stringent oversight of organizations with the greatest incentives to discriminate under an experience-rating system, heavier penalties for discriminatory offenses in hiring, and a simpler and expedited process for hiring discrimination reporting. More persuasive measures could involve encouraging change through institutional pressures and proactive leadership. Campaigns could be used to both combat the erroneous perceptions organizational leaders and stakeholders have of the disabled and promote the real abilities of this group of workers. Educational programs for management executives could emphasize corporate social responsibilities associated with providing fair opportunities to the disadvantaged. Similarly, professional bodies could establish more explicit non-discriminatory norms. Through these various coercive and persuasive activities and pressures, organizations could be coaxed into shifting their focus from illegal discriminatory hiring or reactive claims management to injury and sickness prevention.

Conclusions

Like earlier studies, the results of this one should heighten concerns about the appropriateness of using experience-rating as an approach to injury prevention. Certainly, any jurisdiction contemplating the adoption of experience-rating should consider what sort of secondary effects experience-rating is likely to have on groups like the disabled, when weighing the pros and cons of such a policy. Similarly,

jurisdictions with an existing experience-rating system should re-assess the need for such a policy or the accompanying changes that may be necessary to alleviate any side effects, especially if the empirical evidence shows no significant and well-corroborated counter-balancing benefits related to more effective injury prevention.

Notes

1. Section 23 of the New Zealand Human Rights Act states that any request for information on a job application form, involving one or more prohibited grounds, can be taken as evidence of an intention to discriminate.
2. Six employers were contacted for information on their premium class.
3. New Zealand's *Who's Who Aotearoa* lists New Zealand companies, provides their contact details, and provides information about some of their basic characteristics, including staff numbers.
4. *Kompass: Australia* is a searchable database from Kompass International which provides information about companies, products, brand names, and executives' names for companies in more than 60 nations.
5. Three employers were contacted directly for information on their staffing numbers.
6. We did not contact unions whose names indicated that they were affiliated with employers not included in our sample.
7. To negotiate collective agreements and exercise the right to strike, all New Zealand unions must be registered with the Department of Labour.
8. Dividing the square of union density does not change the overall results. However, it does increase what would otherwise be a tiny coefficient by one hundred times, making it easier to interpret and report in Table 2.
9. Dividing the square of inspection does not change the overall results. However, it does increase what would otherwise be a tiny coefficient by one hundred times, making it easier to interpret and report in Table 2.
10. The Tolerance statistics were low for ACC PREMIUM (.09), UNION DENSITY (.08), DENSITY SQUARED (.08), and SIZE X ACC (.07), moderate for LOG SIZE (.36), INSPECTION (.26), and INSPECTION SQUARED (.27), and only high for CIVIL SERVICE (.88), prima facie suggesting some multicollinearity problems across the variables. However, much of this reflected strong, obvious correlations between the interaction variable, SIZE X ACC, and the main effects variables, ACC PREMIUM and LOG SIZE and between UNION DENSITY and DENSITY SQUARED and between INSPECTION and INSPECTION SQUARED. With the removal of SIZE X ACC, DENSITY SQUARED, and INSPECTION SQUARED, the Tolerance statistics rose dramatically for UNION DENSITY (0.93), LOG SIZE (0.92), ACC PREMIUM (0.82), and INSPECTION (0.85) and rose slightly for CIVIL SERVICE (.92), suggesting no general problems with multicollinearity across these main effects variables.

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