

SHORTER ARTICLES

Predicting Disputes in Workers' Compensation

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ABSTRACT

The author uses claims data from the Michigan Bureau of Workers' Disability Compensation to examine what type of workers' compensation cases are most likely to be contested. Logit regression results indicate that how a claim is handled is the most important factor. Uncertainty about recovery increases the likelihood of dispute but can be mitigated by claims handling. Claimant labor market alternatives and strength of the employment relation affect the likelihood of disputes. But, claims handling appears to vary with employment relation and may be the more decisive factor.

While most work-related disabilities are of short duration and involve straightforward claims on the workers' compensation system, a significant percent are disputed. For example, in the State of Michigan, an estimated 12% involve some type of dispute. These disputes dramatically increase the social, monetary and personal costs of disability.

Despite much discussion of their prevalence, little is known about what type of cases are most likely to involve disputes. More attention has been devoted to the relationship between benefit levels and the return to work decision, and the effect on employer costs (Chelius and Kavanaugh, 1988; Hunt, 1982; Viscusi, 1980; Worrall and Appel, 1982; Worrall and Butler, 1985), as well as how to reduce employers' costs (Miron, 1989). This paper examines what type of claims are likely to be contested, using data from the claims files of the Bureau of Workers' Disability Compensation for the State of Michigan (BWDC).

Disputes in Workers' Compensation

The primary objective of the workers' compensation system is to provide income during a period of disability to workers injured on the job or who develop work-related illnesses. Although it was expected that some disputes

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would be inevitable, this insurance system was designed to minimize the need for litigation over liability for work-related injuries and illnesses while providing basic income security to disabled workers.

The Michigan workers' compensation claims process begins on the date of injury or disablement with the worker filing a claim against the firm's insurer. If there is no dispute, the insurer begins paying wage replacement benefits after the statutory waiting period plus medical costs. The employer may, however, dispute a claim by filing a Notice of Dispute. The Notice of Dispute may just challenge a detail of the case or assert that the firm has no liability, an effective denial of the claim. By law, this is the employer's decision; however, many employers rely on their insurers and insurer practices for guidance.

If the dispute is substantive, the claimant can request a hearing before a workers' compensation magistrate to start or restart benefits. At this point, the claim is termed a "contested case". A case may be settled or dropped before it is heard. It may be settled at a hearing, or the final step may be the submission of the claim to the Appeal Board.

Typical reasons for conflict include: whether or not the injury is "work-related;" whether or not recovery has occurred; and, less frequently, whether or not the worker refused a legitimate offer of employment. Michigan is primarily a "wage-loss" state, where disability is defined in terms of limitation on earning capacity and benefits are paid on the basis of lost wages. Thus, the degree of impairment is rarely an issue, in contrast to most states which use impairment rating schemes. However, in contested cases that are settled in the form of a single lump-sum payment, the severity of injury is an implicit factor in settlement size.

These sources of conflict are the outward manifestations of a fundamental source of conflict in workers' compensation: that is, the availability of disability income converts a medically-based problem into a labor supply decision that is vulnerable to the problem of moral hazard. Employers are often suspicious of the legitimacy of the disability, whether or not recovery has occurred, and/or whether workers are actually healthy but using workers' compensation as paid vacation or retirement benefits (Parsons, 1984). Injured workers often feel they are owed something for their pain and fear being cheated out of what is rightfully theirs. If the employment relationship becomes sufficiently strained, uncertainty about future job security and income become dominant issues. This lack of mutual trust coupled with an ambiguous labor force status creates an environment that fosters conflict.

In the next section, a framework is developed to examine which types of claims are likely to become contested. This discussion assumes that the actual decision to contest a claim is made by the injured worker. While technically true, this decision is often made in response to a dispute of the claim by the employer or insurer. Therefore, the behavior modelled below describes the decision to contest or accept an employer's dispute of a claim.

Research Methods

The decision to file and pursue a claim can be seen as a type of individual investment decision where individuals compare the expected costs and benefits of disputing a claim (Borba and Appel, 1987; Cooter and Rubinfeld, 1989). The probability that injured worker, i , will contest the claim (D_i^*) depends on a set of injury-related (X_i), claims process-related (Z_i), and individual and labor-market position (M_i) characteristics that affect both the expected benefits and costs of contesting a claim; or,

$$D_i^* = X_i\beta + Z_i\tau + M_i\delta + \mu_i$$

The true probability of contesting the claim, D_i^* , is unobservable. Only the index variable, D_i , the dichotomous behavior of contesting or not contesting the claim, can be observed (Greene, 1990): or

$$\begin{aligned} D_i &= 1 \text{ if } D_i^* > 0 \\ D_i &= 0 \text{ otherwise} \end{aligned}$$

The individual will contest a claim if the benefits outweigh the costs; or:

$$P(D_i=1) = P(D_i^*>0) = P[(X_i\beta + Z_i\tau + M_i\delta) > \mu_i]$$

This expression can be converted into a logistic function that can be estimated using maximum likelihood (Aldrich and Nelson, 1984):

$$\ln(P/(1-P)) = X_i\beta + Z_i\tau + M_i\delta.$$

The Sample

The Michigan BWDC claim files contain information on claimant characteristics, employment at the time of injury, type of injury, whether or not surgery or hospitalization was involved, and a full history of the claim. A random sample was drawn from cases with dates of injury between April 1, 1984 and March 15, 1985.²

Total sample size was 583. Just over 68 percent of the sample was male. Nearly two-thirds (65.7 percent) was married, and 7.7 percent were single-heads of household. Just under 43 percent of the claims were made against manufacturing industries, and another 33.9 percent against service and government employers. All but 25.6 percent of the claimants were in blue-collar occupations. The mean age of the sample was 40.7 years, and the mean annual salary was \$22,072. The modal injury is back strain/sprain, followed by other strains and sprains. Hospitalization was required for 4.3 percent of the claims. Just under 12 percent were contested

² A more detailed description of the sampling methods can be obtained from the author.

Variables Used to Identify Claims Likely to be Contested

Under workers' compensation, the potential economic benefits of contesting a claim are wage replacement benefits and medical cost reimbursement. The economic costs include: increased lost work time,³ reduced income until the conflict is resolved, direct legal costs, and the opportunity costs of the time associated with pursuing the claim.

It is hypothesized here that non-pecuniary factors arising from two sources may also affect the decision to contest. The first is the likelihood of full recovery. An injured worker unsure about recovery is also uncertain about future earning ability and thus more likely to contest a claim to assure benefits. The effects of uncertainty can be exacerbated by the claim process: the longer the injured worker is unsure about recovery and return to work, the more likely the claim will be contested. The second is the labor market position of the disabled worker and the potential threat disability poses to the employment relationship. Workers who fear that disputing their claim may strain or terminate their relationship with their employer are less likely to contest a claim, particularly if they have few good alternatives in the labor market. The variables in this study, listed in Table 1, fall into three categories: injury characteristics and claims process; the labor market position of the claimant; and personal characteristics.

Injury characteristics and claim process variables were included to measure uncertainty about recovery and future earning ability. Injury type was included in the model as a dummy variable equal to one if the injury was a fracture and/or dislocation, the category of injuries with both the least ambiguous diagnosis and prognosis.⁴ The expectation was that the more uncertain the degree of injury and/or recovery, the more likely a claim would be contested. Therefore, it was expected that the coefficient for the fracture/dislocation variable would be negative. Whether or not a claimant was hospitalized is included as a measure of severity of the injury. It is expected that the probability of contesting increases with severity because of the heightened uncertainty about recovery.⁵

Total number of weeks of temporary total benefit payments was included for two reasons. First, it is likely to be positively related to severity of injury. Second, it serves as an indicator of claim progress. The longer the claim continues, the weaker the employment relationship is likely to become, increasing the probability of dispute. The time between the date

³ In this sample, only 25 percent of the workers who contested their claims returned to work with the same employer, compared to 90.3 percent of those who did not contest their claim.

⁴ An alternative specification was estimated to examine the effect of the types of injuries often identified by observers of workers' compensation as especially troublesome, back injuries and carpal tunnel syndrome. While workers with these injuries were more likely to contest their claim than workers with fractures and/or dislocations, they were not more likely to contest than workers with other types of injuries. These results can be obtained from the author.

⁵ It is also likely that if an injury requires hospitalization, it is sufficiently unambiguous to increase the likelihood of winning a dispute.

Table 1
Variables Used to Identify Cases Likely to be Contested

Variable	Description	Mean(Std. Dev)
FRACT	= 1 if Fracture or Dislocation	0.16 (0.37)
HOSP	= 1 if Hospitalized due to injury	0.04 (0.20)
TWKS	# Weeks of temporary total benefits	12.89(26.75)
WPAY	# Days between date of injury and first benefit payment	130.15(82.96)
PTECH	= 1 if claimant in professional/technical occupation	0.08 (.27)
ADMIN	= 1 if claimant in clerical or administrative occupation	0.02 (0.14)
PROT	= 1 if claimant in protective service occupation	0.12 (0.33)
BLUE	= 1 if claimant in blue collar occupation	0.09 (0.28)
OPER	= 1 if claimant in machine operator or operative occupation	0.24 (0.43)
CRAFT	= 1 if claimant in craft occupation	0.29 (0.45)
CLER*	= 1 if claimant in clerical, retail sales, or service occupation	0.14 (0.35)
OTHOCC	= 1 if claimant occupation unknown	0.02 (0.12)
IND1	= 1 if government or professional services employer	0.28 (0.45)
IND2	= 1 if manufacturing or distribution employer	0.50 (0.50)
IND3	= 1 if business, personal service, or retail sales employer	0.15 (0.36)
IND4*	= 1 if construction employer	0.07 (0.25)
SHRT	= 1 if worked for employer under 39 weeks	0.22 (0.41)
SI	= 1 if employer is self-insured	0.54 (0.50)
SAL	Annual Salary at time of injury	22072 (11094)
AGE	Age of claimant at time of injury	40.7 (13.4)
SEX	= 1 if claimant is male	0.68 (0.46)
MAR	= 1 if Married	0.66 (0.48)
HOH	= 1 if Single Head-of-Household	0.08 (0.27)
LITIG	= 1 if hearing requested by claimant	0.12 (0.32)

* This is the omitted category.

of injury and the first payment is the other indicator of claim progress. The expectation is that the longer the delay of the first check, the more uncertainty about the adequacy of workers' compensation benefits as a source of income and the higher the probability of contesting the claim.

Several variables were included to capture the worker's labor market position and the value placed on the employment relation. The more a claimant values that relationship, the less likely he/she would jeopardize it by contesting a claim. Occupation was included to represent different forms of job attachment as well as proxy alternatives in the labor market. Professional/technical workers were expected to be less likely to contest a case because of a work orientation where they identify with their employer.⁶ Both administrative and clerical workers were expected to be less likely to contest a claim because of few comparable alternatives in the labor market and lack of explicit job protection (Osterman, 1984). The effect of few job alternatives was expected to be compounded for clerical workers by their tendency to be relatively low skilled with low wages. Machine operators and protective service workers would be more likely to contest their claims since they are more likely to be covered by explicit contracts

⁶ See Bailyn (1980) and Shapira and Griffith (1991) for a discussion of the organizational orientation of different occupational groups.

that protect job security. Crafts workers would also be likely to contest their claims because they are highly skilled but have short-term attachments to a particular employer. The clerical occupation category was omitted because it includes those who are likely to be the most economically vulnerable in the sample. Industry dummy variables were included to control for differences in the business cycle across industries.

Workers employed at the firm for under 39 weeks were expected to be more likely to contest a claim since the employment relationship had been relatively short. Whether the firm was self-insured was included as a measure of firm financial stability. In Michigan, firms may self-insure if they demonstrate the financial stability to pay future claims. It was expected that claims made against self-insured firms would be less likely to become contested because those firms are among the most likely to provide a stable employment relation.

Salary potentially has several conflicting effects. First, if salary signals productivity, and thus alternatives in the labor market, higher earners would be more willing to contest their claim. However, they are also more likely to have access to other types of disability benefits, plus face higher opportunity costs of being out of work, and so will be less likely to contest their claim.

Personal characteristics included age, sex, marital status, and income. Age and sex were control variables. Marital status was a possible indicator of alternative income sources. Therefore, married workers would be more likely to contest their claims and single heads-of-household less.

Results

Table 2 shows the results from three models that were estimated. These models were selected to examine several categories of effects. Model 1 includes only personal characteristics. Model 2 adds the effects of injury and claim progress to test for the effect of uncertainty about recovery and future income. Model 3 tests for the effect of the labor market position of the injured worker on the decision to contest. The results of the tests of significance of each subset of coefficients are shown in the row labelled "Delta LL."

Although the log likelihood ratio for Model 1 indicates that the hypothesis that the coefficients other than the intercept are equal to zero can be rejected, with the exception of the intercept, none of the coefficients is significant. This suggests that the probability of contesting a claim does not depend on personal demographic characteristics.

Both the coefficient significance and the change in the log likelihood statistics provide support for the hypothesis that uncertainty about the future that results from an injury affects the probability of contesting a claim. The addition of the injury and claims process variables raises the pseudo R^2 by nine points and, as can be seen by the delta log likelihood, the hypothesis

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Table 2
Logit Regression Results

Independent Variable	Model 1	Model 2	Model 3
Constant	-1.967** (0.483)	-3.298** (0.673)	-5.608** (1.585)
AGE	0.003 (0.009)	-0.003 (0.01)	-0.01 (0.02)
SEX	-0.116 (0.280)	0.100 (0.372)	-0.356 (0.438)
MAR	-0.207 (0.300)	-0.303 (0.405)	-0.342 (0.430)
HOH	0.218 (0.476)	0.185 (0.595)	0.104 (0.641)
HOSP		0.953 (0.595)	1.185 (0.779)
FRACTURE		-2.034* (0.999)	-2.101* (1.024)
TWKS		0.030** (0.005)	0.030** (0.006)
WPAY		0.010** (0.002)	0.011** (0.002)
PTECH			-0.771 (1.255)
ADMIN			-1.066 (3.540)
PROT			1.749* (0.883)
BLUE			2.433* (0.931)
OPER			0.580 (0.959)
CRAFT			1.404 (0.883)
OTHOCC			-5.594 (45.066)
IND1			2.493* (1.289)
IND2			2.233* (1.193)
IND3			2.405* (1.308)
SHORT			-0.622 (0.498)
SI			-0.375 (0.436)
SAL			-0.0001 (0.0002)
LL Ratio	389.76	558.04	584.78
Pseudo R ²	0.40	0.49	0.50
Likelihood function	-209.22	-125.08	-111.72
Delta LL		168.28	26.74

** Significant at the .005 level or better

* Significant at the .05 level or better

that the coefficients for these new variables are equal to zero can be rejected at the .005 level.

The coefficient for FRACTURE, the dummy variable for fractures and dislocations, is negative, as expected, large and significant. This suggests that workers with more straightforward injuries with relatively well-defined recovery periods are less likely to contest their claims. The likelihood of contesting increases with both the duration of temporary total benefits, a measure both of severity of injury and a weakening of the employment relationship, and the length of time between the date of injury and the first benefit payment, a proxy for financial uncertainty. Hospitalization, expected to increase the probability of contesting a claim, is not significant in Model 2. However, when time to first payment is omitted from the regression, the coefficient for hospitalization becomes significant ($\beta = 2.317$, $SE_{\beta} = .528$), while the size and significance of the other coefficients remain effectively unchanged. This pattern suggests that it is the uncertainty about future benefits rather than future health resulting from a severe injury that increases the probability of contesting a claim. From a claims handling perspective, this can be interpreted as saying that the likelihood of contesting a claim can be reduced by paying benefits promptly.

The addition of the set of variables measuring labor market position in Model 3 increases the pseudo R^2 slightly, but the hypothesis that the coefficients for those variables are equal to zero can be rejected at the .015 level. The coefficients for the occupational categories provide mixed support for the hypothesized role of the employment relation in the decision to contest. The lack of significance for the professional/technical and administrative categories are as expected. The coefficient for BLUE, a category composed mostly of laborers and truck drivers, is positive and significant as would be expected from the casual attachment to a specific employer. The coefficient for protective service workers is positive and significant, as expected. However, the coefficients for OPER and CRAFT, both expected to be positive, are insignificant at the .05 level. The coefficient for the craft occupations is significant at the .10 level, suggesting that the casual attachment to a specific employer that typifies these workers may make them more likely to contest a claim than other skilled workers.

The coefficients for self-insurance (SI), short pre-injury job tenure (SHORT), and salary (SAL) are all insignificant, initially suggesting that neither the employment relation nor salary affects the decision to contest the claim. However, although not shown in Table 2, an additional model was estimated that was the same as Model 3 but excluded the claims progress variables, WPAY and TWKS. In that model, the coefficients for both SHORT and SI become significant at the .05 level or better, and that for salary is significant at better than the .10 level. The sign on SI in the omitted model has two implications. First, it provides support for firm stability as a deterrent to contesting a claim. Second, many of the self-insured firms adjust their own claims, and there may be a qualitative

difference in claims handling that deters disputes.⁷ The salary coefficients provide some weak support for the hypothesis that higher salary workers are less likely to contest their claim either because they have access to other benefits or due to the higher opportunity costs of contesting the claim. However, even when significant, the effect is small as is evident from the size of the coefficients.

A possible conclusion that can be drawn from this pattern for the self-insurance and salary variables is that how a claim progresses, as measured by WPAY and TWKS, depends in part on the strength of the employment relation.⁸ This possible association between the employer-employee bond and the likelihood of a claim dispute is not perfectly straightforward, however, since workers who have been with a particular employer for a relatively short time (39 weeks or less) are no more likely than other workers to contest their claim.⁹

Conclusion

The results discussed here support the argument that how the claim progresses is a key factor in the decision to contest a claim. The significance on the variable used to proxy lack of ambiguity of injury diagnosis and/or prognosis points toward uncertainty about future health as important, but the pattern of significance for hospitalization suggests that this can be mitigated by how the claim is handled. There is some support for the hypothesis that the strength of employment relation, that is what the worker would risk by contesting the claim, affects the decision. However, several key measures of employment relation become insignificant when the effect of claim progress is part of the model. While the evidence available here is insufficient to conclude that how a claim is handled varies with the strength of a worker's attachment to a particular job/employer and affects the likelihood that that worker will contest a claim, the possibility of such an association deserves further research.

⁷ It is also possible for a self-insured to contract with a private carrier or what is called a third party association (TPA) to adjust claims.

⁸ The null hypothesis that the mean wait until the first benefit check was the same for employees of self-insured firms and those insured by private insurers was rejected at the .005 level. The comparable hypothesis for total weeks of temporary total benefits could only be rejected at the .1 level.

⁹ This result contradicts Borba and Appel who found the effect of short-duration employment to be positive and significant. A possible explanation is that they included a variable for part-time work, for which the coefficient was negative. It may be that SHORT is capturing the effect of part-time work.

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