Financial incentives in works’ compensation: an analysis of the experience-rating program in Ontario, Canada

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Introduction

• Experience rating of workers’ compensation insurance premiums is a common practice in North America and elsewhere

• One objective is to achieve an equitable distribution of the cost of work-related injury and illness costs across employers

• A second objective is to provide incentives for employers to reduce the incidence of work-related injury and illness (primary prevention) and to reduce the duration of disability (secondary prevention)
Study objective

• To investigate the incentive for health & safety and cost management at the firm level associated with the degree of experience rating in a retrospective workers’ compensation program

• Program underlying the study is the Ontario NEER (New Experimental Experience Rating) program

• Program began in 1984 with forestry, but now includes all sectors other than construction

• NEER is the principal experience rating program in Ontario
Background on the NEER program

• In the NEER program, firms with claims costs lower than their rate group average receive a rebate on the current year premium

• Conversely, firms with claims costs higher than their rate group average are assigned a surcharge

• A firm’s exposure to premium adjustments is weighted by the size of the firm’s annual premiums

• The adjustment factor is termed the ‘rating factor’
Rating factor is the key explanatory variable in the study

- **NEER rating factor:**
  - The percentage of financial responsibility a firm has for variations in its actual claims cost from expected
  - Expected costs based on average for the rate group, adjusted for a firm’s covered payroll

- **Formula for rebates/surcharges:**
  - rebate or surcharge = rating factor x (actual costs – expected costs)
  - a negative value means a rebate (i.e., actual costs are less than expected costs)
  - a positive value means a surcharge

- **Rating factor values ranged from:**
  - 25% to 90% during the time period 1998-2003
  - 40% to 100% during the time period 2004-2007
Distribution of rating factors across firms and FTEs: Calendar year 2000 and 2005

**2000**

- Distribution of rating factors across firms and FTEs: Calendar year 2000 and 2005

**2005**

- Distribution of rating factors across firms and FTEs: Calendar year 2000 and 2005

Rating Factor, 1998-2003 period

Rating Factor, 2004-2007 period
Methods

• We used regression modeling techniques to identify the effects of the degree of experience rating (as measured by the rating factor) on claim rate outcomes
  o Separate models were run for each claim rate outcome
  o Included consideration of a number of contextual factors

• We used a range of claim rate outcomes at the firm level developed from the claims data that proxy for safety and cost management activities

• Sample included all firms in NEER operating between 1998 to 2007
Other contextual variables included in the analysis

- **FTE growth**: if growth in full-time equivalent workers (FTE) from last year
- **FTE downsizing**: if downsizing in FTE from last year
- **Unemployment rate**: prime-age sector-specific rate for males 25-50
- **New open**: firm opened in last two years
- **Calendar year**: year of the observation
- **Industry**: forestry, mining, other primary, manufacturing, transportation, retail, government, other services
Claim rate outcome measures used in models

Standard measures
- **Total claim rate**: number of claims per 100 FTEs
- **Lost-time claim rate**: number of lost-time claims per 100 FTEs
- **No-lost-time claim rate**: number of no-lost-time claims per 100 FTEs
- **Benefit days rate**: number of days on benefits per 100 FTEs

Less commonly considered measures
- **Permanent impairment claim rate**: number of permanent impairment claims per 100 FTEs
- **No-lost-time permanent impairment claim rate**: number of no-lost-time permanent impairment claims per 100 FTEs
- **Denied claim rate**: number of denied claims per 100 FTEs
- **Cost relief claim rate**: number of claims with some cost relief per 100 FTEs
Measuring the association between rating factor and claim rate

• ‘Elasticity’ measure used to identify the association between the rating factor and claim rate outcome

• Identifies the change in a compensation claim rate associated with a unit change in the level of the rating factor

<table>
<thead>
<tr>
<th>elasticity sign</th>
<th>interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>negative</td>
<td>higher rating factor results in lower claim rate</td>
</tr>
<tr>
<td>positive value</td>
<td>higher rating factor results in higher claim rate</td>
</tr>
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Statistical relationship between rating factor and claim rate outcomes, all NEER employers, 1998-2007

<table>
<thead>
<tr>
<th>Dependant Variable</th>
<th>Coefficient</th>
<th>Significance level</th>
<th>Elasticity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total claim rate</td>
<td>-0.023</td>
<td>not significant</td>
<td>-0.009</td>
</tr>
<tr>
<td>Lost-time claim rate</td>
<td>-0.361</td>
<td>***</td>
<td>-0.144</td>
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<tr>
<td>No-lost-time claim rate</td>
<td>0.103</td>
<td>***</td>
<td>0.041</td>
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<tr>
<td>Benefit days rate</td>
<td>-0.938</td>
<td>***</td>
<td>-0.374</td>
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<tr>
<td>Permanent impairment claim rate</td>
<td>0.023</td>
<td>not significant</td>
<td>0.009</td>
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<tr>
<td>No-lost-time permanent impairment claim rate</td>
<td>0.861</td>
<td>***</td>
<td>0.343</td>
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<tr>
<td>Denied claim rate</td>
<td>1.099</td>
<td>***</td>
<td>0.438</td>
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<tr>
<td>Cost relief claim rate</td>
<td>0.618</td>
<td>***</td>
<td>0.246</td>
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Significant at 1% level ***
Summary of Findings

- On average, a higher degree of experience rating (as measured by the rating factor) is not related to total claim rates, negatively related to lost-time claim rates and positively related to no-lost-time claim rates
  - decrease in lost-time claims appears to be offset by increase in no-lost-time claims

- A higher rating factor is associated with fewer days on benefits per FTE

- No association of rating factor with permanent impairment claim rate

- Associating of rating factor with some types of claim rates (no-lost-time permanent impairment rate, denied claim rate, and cost-relief claim rate) might be indicative of cost management practices
Study Reference


Related Study
