The Determinants of Strike Activity in Canada

Facteurs influençant la grève au Canada

Douglas Smith

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Article abstract

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The Determinants of Strike Activity in Canada

Douglas A. Smith

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INTRODUCTION

It has long been recognized that there are cycles of strikes and that they are probably related to the business cycle. If the forces which tend to create a pattern of regularity in strike fluctuations can be identified, it is important to do so. Unless we learn to understand this pattern, cyclical changes in the level of strikes may be mistaken for permanent changes in the economic, social or psychological determinants of the amount of industrial conflict. Since strikes are often the subject of legislation or other government action, such mistakes in the diagnosis of strike fluctuations might contribute to errors in public policy. (6, p. 213.) **

The above quotation by Rees shows the kind of thinking that motivates a study of the empirical aspects of strike activity. Strikes are

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** The number in parentheses refers to titles listed in the bibliography at the end of this paper.
an integral part of the collective bargaining process and as such must be understood in relation to their determinants in order to properly evaluate the performance of that process. In spite of the importance of such knowledge, there has been surprisingly little effort devoted to estimating empirical relationships. The previously quoted study (Rees) was the first seriously quantitative study of strike activity and even this study was carried out with the N.B.E.R. business cycle method of analysis. In other words, Rees' work was of only qualitative rather than quantitative predictive ability. The use of an equation involving strike activity in an econometric model will also be suggested as a method of improving the predictive ability of G.N.P. and related forecasts.

Recently, Ashenfelter and Johnson (1) have presented a related empirical study for the United States, in which a model of strike activity is formulated and tested with quarterly data for the post-Korean War period. An examination of these findings is included in this paper. The primary conclusion is that the core of the Ashenfelter and Johnson work is supported by the Canadian data. This conclusion differs from the earlier view of the Canadian situation as presented by Vanderkamp (9) due to the difference of approach of the Vanderkamp study.

PREVIOUS STUDIES

As indicated earlier, empirical investigation of strikes has been sparse and varied in method of analysis. Only recently, have we had adequate studies, as judged by current standards. And this is only for the United States and Great Britain since there have been no published attempts to date to fit empirical functions for Canada with a view to generating a post-war quarterly equation with reasonable predictive power. In light of this, a brief survey of previous work will be provided.

Rees

The previously quoted work by Rees represented the first attempt at a sophisticated analysis of strike activity. Prior to Rees, there were still some Marxist interpretations of strike activity in existence. This view held that there should be a negative relationship between strikes and the business cycle. The immiserization thesis was that employees would strike as a symbol of revolt against the squalid existence of a depression. At the same time, there was also some difficulty with the direction of causation, with some writers viewing waves of strikes as the moving force of a slide into a depression. An increasing number of strikes was said to adversely affect expectations leading to an economic downturn.
Rees used the N.B.E.R. method of analysis in which turning points for various indicators of economic activity are compared. His was an examination of monthly data for the period 1919-1950, and from this, Rees was able to trace patterns of strike activity. He found recurring cycles of substantial strength over the entire period with significant agreement with the business cycle except for the periods disturbed by World War II and the Taft-Hartley Act. The strike cycle appeared to lead general business activity at the peak and lag at the trough by approximately six months.

The study suggests that a Marxist view of worsening material conditions is not founded in fact and that an analysis of data on time loss from strikes shows that there can be little grounds for assuming that causation runs from strikes to the cycle. There is strong evidence that the converse is true and that strikes are significantly related to the state of business activity. Rees states his conclusions on strike causation as follows:

the principal economic factor affecting union behaviour is the state of the labor market ................. Rising employment and improving business conditions offer the unions a variety of strategic advantages. The employer's reluctance to lose his share of the expanding market and his observation of rising wages elsewhere reduce his resistance to union demands. His ability to replace strikers with nonstrikers diminishes as employment rises, and the strikers have an increased chance of obtaining employment elsewhere if the employer succeeds in replacing them. If the expansion produces a rising cost of living workers will protest in firms whose wages lag behind this rise. (6, p. 218)

Since it is to the advantage of the union to strike in coincidence with the cycle and it is to the advantage of the employers to have strikes at the trough, Rees concludes that although no single party «causes» a strike, the timing of strikes appears to be determined by union strategy. Rees also concludes that more effective smoothing of the business cycle would probably not change dramatically the number of strikes but would be likely to spread them more evenly over the cycle. Rees does not attempt any type of regression analysis to try to isolate significant variables or form an equation with any predictive ability. That is, Rees is able to state qualitatively that strikes will increase in an upturn but he is not able to assign quantitative magnitudes to these estimates.

Ashenfelter and Johnson

The recent paper by Ashenfelter and Johnson (1) was the first published attempt at a quantitative analysis of strike activity. Their paper...
demonstrates that the relationship between strike activity and economic conditions in the United States is very strong. Their preferred equation relates strikes on a quarterly basis from 1952-1967 to the unemployment rate, wage changes and changes in the consumer price level. In the equation presented below, $D_1$ are seasonal dummies, $U$ the unemployment rate, $ΔP$ the rate of change of prices, $ΔW$ the rate of change of wages and $T$ is a linear time trend. The wage and price change variables are used with an Almon lag distributed over 9 quarters based on a third degree interpolation polynomial. The quantities in brackets are the standard errors of the associated regression coefficients.

**Dependent Variable-Number of Strikes**

$$S_t = 1663.8 + 227.3D_1 + 602.4D_2 + 459.4D_3 - 132.6U_t - 80.6 ΔW$$

(168.4) (30.2) (27.8) (27.4) (11.8) (24.7)

$$+ 64.4 ΔP - 2.8T$$

(14.2) (1.1)

$R^2 = .941$  D.W. = 1.52

The Ashenfelter and Johnson results appear to give substantial support of the importance of economic conditions in determining strike activity. The later parts of this paper will be concerned with the validity of a model like that of Ashenfelter and Johnson through a test of that model with Canadian data.

**Vanderkamp**

Until this paper by Vanderkamp (9), there had been no published examination of the relationship between strikes and economic activity in Canada. Vanderkamp chooses an historical framework for his analysis, using annual data for the period 1901-1966, although some sub-period analysis is included, particularly for 1946-1966. The Vanderkamp study is not one of the operation of a labour market in which labour market variables are of major explanatory importance, but rather, the work is similar to that of Rees in attempting to examine the relationship of strikes and « the cycle ». Rees used the N.B.E.R. method whereas Vanderkamp chooses regression analysis with constant dollar G.N.P. as a percent of trend as the major variable affecting the level of strike activity. In addition, in order to compare his results with those of Ashenfelter and Johnson for the U.S., Vanderkamp picks out the period 1946-1966 for closer analysis.

The results obtained by Vanderkamp are summarized in the table and equation that follow.
The table with annual data for 1946-1966 involves the unemployment rate-U, the rate of change of real wages-R, and a trend variable.

\[
\text{NS}_t = 45.14 - 5.1696U_t - 1.7966R_t + 2.387T
\]

\[R^2 = .638\]

The equation with annual data for 1946-1966 involves the unemployment rate-U, the rate of change of real wages-R, and a trend variable. Based on these results, the main conclusions of Vanderkamp are that for the period 1901-1966, there has not been a strong relationship between strikes and economic activity and that the 1946-1966 results suggest that Canadian economic forces are « not the dominating influence suggested by some earlier studies » (9, p. 228). That is, Vanderkamp suggests that the Ashenfelter and Johnson relationship does not hold for Canada. In light of the similar systems of industrial relations in the two countries and the frequently identical management and labour organizations fostered by multi-national corporations and international unions, this result, if true, casts doubt on the Ashenfelter and Johnson conclusions since there are such strong grounds for believing that a valid model should be consistent with the Canadian experience. This will be one of the important questions posed of the later empirical results of this paper using quarterly Canadian data.

**TESTING A MODEL OF STRIKE ACTIVITY**

It has often been noted that the state of labour economics in such that bargaining theory, which is the principal supplement to the forces of labour supply and labour demand, fails to give a determinate wage in a particular bargaining situation. This paper goes one step beyond this point in being concerned not with the settlement wage but rather with

<table>
<thead>
<tr>
<th></th>
<th>WI1</th>
<th>NS1</th>
<th>TL2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y*</td>
<td>.132</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y*</td>
<td></td>
<td>.109</td>
<td></td>
</tr>
<tr>
<td>Y*</td>
<td></td>
<td></td>
<td>.078</td>
</tr>
</tbody>
</table>

1 Significant at .01
2 Significant at .05
the occurrence of strikes in arriving at this settlement. Therefore, our hypothesis about the relationship of strikes and economic activity cannot be expressed in formal mathematical terms but rather as a list of variables that are expected to be important.

The paper by Ashenfelter and Johnson develops a bargaining model in which the probability of a strike – \( p(S_t) \) – is determined by the interaction of management, the union rank and file and the union leadership. The union leadership is assumed to be of the Ross (8) type which is primarily concerned with its own survival within the union as a growing institution. The leadership must therefore attempt to mediate between rank and file aspirations and the ability to pay of the firm. If we denote worker aspirations by \( y_t \) then the relationship is:

\[
p(S_t) = a_0 + a_1 y_t + e_t
\]

where \( e_t \) is a random error term and \( a_1 > 0 \) since higher settlement aspirations imply more strikes.

Following this, we need an expression for \( y_t \) the level of wage aspirations. This is hypothesized to depend negatively on the unemployment rate, because this shows the ability of strikers to get outside jobs during a strike, and negatively on the rate of change of real wages because worker hostility is aroused by a reduction in real wages. Also, workers are said to be concerned with their share in the national product so that we use \( \pi/Y \) as an additional variable giving:

\[
y_t = a^*_0 + a_1^* U_t + a_2^* \Delta R_t + a_3^* (\pi/Y)_t
\]

which is substituted above and then put in a form that is suitable for estimation through aggregation which replaces \( p(S_t) \) with \( S_t \) the number of strikes beginning in each quarter. This also requires the use of seasonal dummies to pick up the hypothesized greater strike activity in the second and third quarters. This gives:

\[
S_t = b_0 + b_1 D_1 + b_2 D_2 + b_3 D_3 + b_4 U_t
+ b_5 \Delta R_t + b_6 (\pi/Y)_t + b_7 T + e_t
\]

where \( T \) is added as a linear time trend. The principal restrictions on signs are \( b_4 < 0 \) and \( b_6 < 0 \) while the sign of \( b_6 \) is ambiguous and will be dealt with in the following section which presents the empirical results of this paper based on quarterly Canadian data for the period 1953-1968.
EMPIRICAL RESULTS

The main empirical results are presented in Table 2. These equations demonstrate quite a good fit for such a diverse time period which serves as a rigorous test of the hypothesis that economic activity and particularly the unemployment rate has a major influence on the occurrence of strikes in Canada. The coefficients do not seem particularly sensitive to the specification of the equation, the unemployment rate in particular being significant in all cases regardless of the other variables that were introduced.

An examination of signs, coefficients and their standard errors suggests that the relationship is very close to that of our hypothesis although there are minor problems such as the rough equality of $D_x$ and $D_3$ since $D_3$ is expected to exceed $D_x$. The sign of $\pi/Y$ is negative with quite a significant coefficient which may appear at first glance to be the opposite of what is a priori expected. However it appears that theory fails to give an unambiguous answer about this sign. Workers might be expected to strike more as the profit share rises to maintain their share of the national product but employers may be more willing to settle at a higher wage rate without a strike if profit rates are high. Studies such as Perry (6), Eckstein and Wilson (4) and others have found profits to be significant in a wage equation lending support to this view and suggesting that the negative sign of $\pi/Y$ is quite reasonable.

As originally theorized by Rees and as confirmed in the empirical results here, the crucial variable in explaining the incidence of strike activity is the unemployment rate. It was earlier noted that a Marxian theory of strikes suggests that unemployment creates unrest and basically political strikes so that unemployment and strike activity would be positively related. However, the model that is used here views strikes as economic rather than political events with North American unions being regarded as essentially "business unions" of the Dunlop (3) variety. Therefore the unemployment rate is expected to be negatively related to strike activity and this view is supported by the empirical results.

However, the influence of divergent employer and union expectations can affect the nature of this relationship. For example, it is a plausible assumption that unions may simply extrapolate past conditions whereas management may be better able to forecast a turning point. Therefore, the unions form expectations of continuing tight labour and product markets while employers have a much less optimistic view. Therefore,
<table>
<thead>
<tr>
<th>#</th>
<th>Constant</th>
<th>$D_1$</th>
<th>$D_2$</th>
<th>$D_3$</th>
<th>$U$</th>
<th>$U^{-1}$</th>
<th>$(\pi/Y)_t$</th>
<th>$T$</th>
<th>$\Delta R^*$</th>
<th>$R^2$</th>
<th>SEE.</th>
<th>D.W.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>31.73</td>
<td>26.37</td>
<td>39.21</td>
<td>30.25</td>
<td>-5.96</td>
<td></td>
<td>1.59</td>
<td></td>
<td>.763</td>
<td>19.8</td>
<td>1.41</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(10.10)</td>
<td>(8.68)</td>
<td>(7.07)</td>
<td>(7.17)</td>
<td>(1.78)</td>
<td></td>
<td>(0.13)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>156.10</td>
<td>24.51</td>
<td>50.77</td>
<td>19.47</td>
<td>-8.78</td>
<td>-1074.44</td>
<td>1.36</td>
<td></td>
<td>.801</td>
<td>18.3</td>
<td>1.64</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(38.83)</td>
<td>(8.04)</td>
<td>(7.42)</td>
<td>(7.39)</td>
<td>(1.86)</td>
<td>(325.64)</td>
<td>(0.14)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>3</td>
<td>51.45</td>
<td>16.15</td>
<td>47.68</td>
<td>20.11</td>
<td>143.70</td>
<td>-804.96</td>
<td>1.49</td>
<td></td>
<td>.777</td>
<td>19.3</td>
<td>1.63</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(32.74)</td>
<td>(7.91)</td>
<td>(7.75)</td>
<td>(7.99)</td>
<td>(38.66)</td>
<td>(327.95)</td>
<td>(0.15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>205.16</td>
<td>39.28</td>
<td>65.18</td>
<td>15.19</td>
<td>-11.34</td>
<td>-1293.02</td>
<td>1.29</td>
<td>-33.29</td>
<td>.822</td>
<td>17.7</td>
<td>1.66</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(44.41)</td>
<td>(10.34)</td>
<td>(8.72)</td>
<td>(7.74)</td>
<td>(2.20)</td>
<td>(342.55)</td>
<td>(0.16)</td>
<td>(11.60)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: $R^* = 1/6 \sum_{t=T}^{T} R_{t-T}$; other variables are as defined in IV.
we would expect an increase in strike activity. This increase is a cyclical
response and is related not to the level of unemployment but rather to
the direction of the rate of change. That is, for a given level of unem-
ployment, we expect more strikes when the unemployment rate is rising
due to the creation of diverging expectations.

Several authors have been concerned with some measure of profit
per unit of output as an explanatory variable. It is related to employer
ability to pay but this does not fit in with a focus on the labour market
and bargaining since the unemployment rate is the correct variable for a
representation of this. It is the hypothesis advanced here that where
the profit variable has been used, it has been significant as a proxy for
the rate of change of the unemployment rate since it is well known that
profits are strongly responsive to cyclical forces. Profit measures tend to
rise early in the upswing and fall in the downswing so that profits and the
rate of change of unemployment are negatively related and the profits
variable would therefore enter our regression with a negative sign as a
proxy for the rate of change of the unemployment rate.

This hypothesis is tested and the results are shown in Table 3. The
rate of change of unemployment statistically performs slightly better than
the profit measure and the former is to be preferred not for this reason
alone but for its greater theoretical justification as outlined above.

A number of additional hypotheses were tested at this point, two
of which are presented in Table 4. The hypotheses relate to the changing
composition of the labour force and changes in the degree of unionization.
It is often argued that women in the labour force have much less attach-
ment as permanent participants and are therefore less likely to become
sufficiently militant to strike. This may currently be true but cannot be
taken as an institutional datum. Unfortunately, from the results of equa-
tion 7, there is little that can be said on the subject. In this period, the
female participation rate has trended steadily upwards for often enumerated
reasons. Therefore FPR, the labour force participation rate for females
enters with the wrong sign, is insignificant and drops T out of significance
due to the very strong collinearity of T and FPR.

With regard to the unionization hypothesis, the data fail to lend any
support. The t-test on U/LF, the number of union members as a percent
of the labour force shows that this variable is quite insignificant, in that
the standard error exceeds its coefficient.


**Table 3**

**DEPENDENT VARIABLE—NUMBER OF STRIKES**

<table>
<thead>
<tr>
<th>#</th>
<th>Constant</th>
<th>$D_1$</th>
<th>$D_2$</th>
<th>$D_3$</th>
<th>$U_t$</th>
<th>$\Delta U_t$</th>
<th>$(\pi/Y)_t$</th>
<th>$T$</th>
<th>$\Delta R^*$</th>
<th>$R^2$</th>
<th>SEE.</th>
<th>D.W.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>156.10</td>
<td>24.51</td>
<td>50.77</td>
<td>19.47</td>
<td>-8.78</td>
<td>-1074.44</td>
<td>1.36</td>
<td></td>
<td>.801</td>
<td>18.3</td>
<td>1.64</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(38.83)</td>
<td>(8.04)</td>
<td>(7.42)</td>
<td>(7.39)</td>
<td>(1.86)</td>
<td>(325.64)</td>
<td>(0.14)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>23.63</td>
<td>4.39</td>
<td>77.15</td>
<td>57.55</td>
<td>-7.01</td>
<td>11.71</td>
<td>1.65</td>
<td></td>
<td>.802</td>
<td>18.2</td>
<td>1.34</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(9.97)</td>
<td>(10.39)</td>
<td>(12.65)</td>
<td>(10.21)</td>
<td>(1.74)</td>
<td>(3.34)</td>
<td>(0.13)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>47.20</td>
<td>17.00</td>
<td>97.31</td>
<td>60.63</td>
<td>-9.63</td>
<td>13.85</td>
<td>1.63</td>
<td>-31.23</td>
<td>.830</td>
<td>17.2</td>
<td>1.27</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(13.60)</td>
<td>(11.22)</td>
<td>(13.63)</td>
<td>(9.91)</td>
<td>(1.96)</td>
<td>(3.30)</td>
<td>(0.13)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Note: $\Delta U_t$ is the rate of change of the unemployment rate, other variables previously defined.
**Table 4**

**Dependent Variable: Number of Strikes**

<table>
<thead>
<tr>
<th>#</th>
<th>Constant</th>
<th>D₁</th>
<th>D₂</th>
<th>D₃</th>
<th>Uₜ</th>
<th>Uₜ</th>
<th>T</th>
<th>U/LF</th>
<th>FPR</th>
<th>R²</th>
<th>SEE</th>
<th>D.W.</th>
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<tr>
<td>7</td>
<td>-124.72</td>
<td>11.51</td>
<td>73.00</td>
<td>52.21</td>
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<td>10.09</td>
<td>—</td>
<td>0.40</td>
<td>6.60</td>
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<td>18.1</td>
<td>1.35</td>
</tr>
<tr>
<td></td>
<td>(124.72)</td>
<td>(11.95)</td>
<td>(13.08)</td>
<td>(11.11)</td>
<td>(1.81)</td>
<td>(3.60)</td>
<td>(1.06)</td>
<td>(5.53)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
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<td>5.39</td>
<td>74.81</td>
<td>56.05</td>
<td>-6.78</td>
<td>10.99</td>
<td>1.73</td>
<td>1.72</td>
<td>—</td>
<td>.805</td>
<td>18.2</td>
<td>1.35</td>
</tr>
<tr>
<td></td>
<td>(64.09)</td>
<td>(10.46)</td>
<td>(12.93)</td>
<td>(10.35)</td>
<td>(1.76)</td>
<td>(3.44)</td>
<td>(0.15)</td>
<td>(1.88)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: FPR is the labour force participation rate for females while U/LF is the number of trade union members as a percent of the non-agricultural labour force.
Applications of Results

As mentioned earlier, results of the type established here have two primary uses. First, to indicate whether a particular series of strikes are following an economic pattern or whether they represent a major shift requiring new labour policy. Most years in the period likely saw some group arguing for the latter but the results suggest that the former is true. The second use is as an aid to prediction of the influence of strikes on aggregate measures such as G.N.P., possibly within the framework of an econometric model. Here the grounds for enthusiasm are much less.

The regressions that have been presented use S—the number of strikes in a quarter as the dependent variable. This is, unfortunately, not the most useful variable since for a given number of strikes, the economic impact will vary with both the duration of the strike and the number of workers involved. The S series counts all strikes equally regardless of the magnitude of these other dimensions of strike activity. Therefore in Table 5, regression results are presented using man-hours lost due to strikes and time loss as a percent of estimated working time as dependent variables.

These results are clearly not as good as those using the number of strikes but this is as expected. Contract negotiations can bunch in particular quarters or very large units like autos or steel can have strikes in which the number involved is so great that a sharp discontinuity is given to the series. In spite of this, the results are not totally unencouraging. Our principal explanatory variables are still quite significant; the major difference is in the amount of variation in the strike series that is explained by the equations. The trend term in TL is not statistically significant which is as expected since the TL series is a ratio that cancels the impact of the aggregate growth of the economy and it was earlier suggested that a hypothesis of a structural shift in the industrial relations system did not appear to be supported by the evidence.

It appears that the equations with TL and SMH as the dependent variables could be substantially improved if data on upcoming contracts were published on a consistent basis. This would, hopefully, allow for results about as good as those of the raw strike series if the only differences between the two are related to large bargaining units bunching in particular quarters as was suggested above.
### Table 5

**Dependent Variable: Manhours Lost due to Strikes—Quarterly 1953-1968**

<table>
<thead>
<tr>
<th>#</th>
<th>Constant</th>
<th>$D_1$</th>
<th>$D_2$</th>
<th>$D_3$</th>
<th>$U_t$</th>
<th>$(\pi/Y)_t$</th>
<th>$\Delta R^*$</th>
<th>$T$</th>
<th>$R^2$</th>
<th>SEE</th>
<th>D.W.</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>3088.0</td>
<td>15.6</td>
<td>216.4</td>
<td>-64.4</td>
<td>-115.8</td>
<td>-23,387</td>
<td>7.0</td>
<td>.417</td>
<td></td>
<td>391.8</td>
<td>1.61</td>
</tr>
<tr>
<td></td>
<td>(833.3)</td>
<td>(172.5)</td>
<td>(159.1)</td>
<td>(158.5)</td>
<td>(39.9)</td>
<td>(6,988)</td>
<td>(3.1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>3893.3</td>
<td>300.0</td>
<td>450.4</td>
<td>111.4</td>
<td>-162.1</td>
<td>-26,900</td>
<td>-508.8</td>
<td>5.5</td>
<td>.451</td>
<td>393.1</td>
<td>1.41</td>
</tr>
<tr>
<td></td>
<td>(988.1)</td>
<td>(230.1)</td>
<td>(194.1)</td>
<td>(172.2)</td>
<td>(49.0)</td>
<td>(7,622)</td>
<td>(258.1)</td>
<td>(3.6)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Dependent Variable: Time Loss as a Percent of Estimated Working Time

<table>
<thead>
<tr>
<th>#</th>
<th>Constant</th>
<th>$D_1$</th>
<th>$D_2$</th>
<th>$D_3$</th>
<th>$U_t$</th>
<th>$(\pi/Y)_t$</th>
<th>$\Delta R^*$</th>
<th>$T$</th>
<th>$R^2$</th>
<th>SEE</th>
<th>D.W.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>0.867</td>
<td>-0.021</td>
<td>0.019</td>
<td>-0.039</td>
<td>-0.031</td>
<td>-5.83</td>
<td>.0006</td>
<td>.271</td>
<td></td>
<td>0.12</td>
<td>1.63</td>
</tr>
<tr>
<td></td>
<td>(0.255)</td>
<td>(0.053)</td>
<td>(0.049)</td>
<td>(0.048)</td>
<td>(0.012)</td>
<td>(2.14)</td>
<td>(.0009)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>1.16</td>
<td>0.10</td>
<td>0.11</td>
<td>-0.06</td>
<td>-0.050</td>
<td>-6.89</td>
<td>-0.19</td>
<td>.0004</td>
<td>.341</td>
<td></td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td>(0.29)</td>
<td>(0.07)</td>
<td>(0.06)</td>
<td>(0.05)</td>
<td>(0.015)</td>
<td>(2.27)</td>
<td>(0.08)</td>
<td>(.001)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CONCLUSIONS

The empirical results presented in section IV tend to strongly support the hypothesis that economic conditions are the primary determinants of the time pattern on strike activity in Canada. Support is also given to the model developed by Ashenfelter and Johnson since it appears to fit the Canadian data quite well. The method and conclusions of the Vanderkamp study appear to be called into question since his findings led him to conclude that there were major differences in the responsiveness of Canadian and U.S. strike series to economic variables. The similarity of the Canadian and American results raises a number of interesting questions. It would have been interesting to try to quantify the response of the Canadian strike data to U.S. influences to try to determine whether the Canadian industrial relations system is functionally dependent on that of the United States or whether the two systems are simply exhibiting independent responses to similar conditions... These topics are, however, beyond the scope of the present study.

The most compelling reason for understanding the relationship between strikes and economic activity is for the proper formulation of public policy with respect to industrial relations. A wave of strikes often produces public pressure for repressive legislation but even a marked increase in strike activity may reflect only cyclical forces and should not be the source of new legislation. The work that is presented in this paper is the kind of analysis that should suggest whether there has been a significant shift in the strike pattern. The results suggest that in the period studied, strikes are adequately explained by the action of economic forces. In addition, results of this nature can be useful for predictions of measures like G.N.P., although further refinements are required to take proper account of many of the institutional factors that influence strike activity.

BIBLIOGRAPHY


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FACTEURS INFLUENÇANT LA GRÈVE AU CANADA

Le présent article a pour objet d'analyser quelques-unes des études récentes consacrées aux répercussions des grèves sur l'activité économique. Le motif principal qui incite à l'examen de la relation entre les grèves et l'activité économique, c'est la mise au point de mesures législatives valables en matière de relations du travail. Une vague de grèves a pour effet de déclencher dans l'opinion publique un mouvement de pression qui réclame des mesures répressives, alors qu'une augmentation marquée du nombre de grèves peut être simplement le reflet des forces économiques en jeu et ne devrait pas, en conséquence, faire l'objet de mesures législatives nouvelles.

L'essentiel de l'article se trouve contenu dans les graphiques 2 à 5 exclusivement. Ces graphiques sont fondés sur une méthode d'analyse à laquelle des auteurs ont eu recours avec succès dans une étude sur le même sujet aux États-Unis. Les données utilisées pour les fins de ce travail sont trimestrielles et elles vont du premier trimestre de l'année 1953 au dernier trimestre de l'année 1968.

Le tableau 2 résume les principales conclusions et il démontre assez bien l'hypothèse que le taux de chômage a une influence marquée sur la fréquence des grèves au Canada, et, contrairement à la théorie marxiste, il ressort que les grèves sont plutôt des événements de caractère économique que de nature politique.

Un autre facteur important, ce sont les variations dans le taux de chômage. Pour un niveau donné de chômage, on peut s'attendre d'avoir davantage de grèves, lorsque le taux est à la hausse. C'est là, pourrait-on dire, un réflexe de défense de la part des travailleurs. On a aussi tenté de vérifier d'autres hypothèses comme la volonté des travailleurs, en période d'inflation, de défendre leur pouvoir d'achat. C'est également là un facteur positif. On a également fait entrer en ligne de compte les changements dans la composition de la main-d'oeuvre et le degré de syndica-
lisation. Ces deux éléments ne sont pas significatifs et ne donnent pas de résultats positifs.

Dans l'ensemble, on peut conclure qu'il y a similitude dans les causes déterminantes des grèves aux États-Unis et au Canada et qu'elles obéissent à un même rythme, contrairement à ce qu'ont pu affirmer certains auteurs. La grève est le plus souvent une réaction contre l'action des forces économiques défavorables aux travailleurs, et c'est de ce côté qu'il faut chercher d'abord les remèdes. Résumé de Brawford et Natlog