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Legislative Change and Strike Activity in Canada, 1926-1974
Changements à la législation et évolution des grèves au Canada de 1926 à 1974

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See table of contents

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Article abstract

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In the past political scientists have paid little attention to the study of industrial conflict. This is rather curious omission, since there is a large political science literature on other forms of collective action.[1] One reason for the neglect of industrial conflict in the political science literature would appear to be the view that labour-management disputes are not political issues, but merely private disputes between individuals and groups. However, it is evident that governments can and do influence the rules of conduct which govern labour-management relations. Labour legislation and regulations can either facilitate or restrict the ability of labour or management to pursue their respective interests. While different theories of the state lead to contrasting predictions about the role of the state in labour disputes, this question needs to be examined empirically.[2]

Most previous research on industrial conflict in Canada and elsewhere has focused on economic and/or sociological determinants of strike activi-

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1 See for example, Ted Robert GURR, *Why Men Rebel*, Princeton, New Jersey: Princeton University Press, 1970; J. A. FRANK, «Une 'jacquerie industrielle' vue comme action parapolitique», *Revue de l'Institut de Sociologie* 1 and 2, 1975, 163-193; Charles TILLY, "Revolutions and Collective Violence" in Fred I. Greenstein and Nelson Polsby (eds.), *Handbook of Political Science,* Reading, Mass., Addison-Wesley, 1975; and J.A. FRANK and M.J. KELLY, "Street Politics in Canada: An Examination of Mediating Factors", *American Journal of Political Science* 23, 1979, 593-614.

2 For example, a Marxist perspective on the role of the state in industrial conflict is offered in Christopher HUXLEY, "The State, Collective Bargaining and the Shape of Strikes in Canada", *Canadian Journal of Sociology* 4, 1979, 223-230.

ty.[3] This research focus reflects the fact that these two disciplines have almost completetly dominated this area of enquiry. However, several recent studies by Douglas Hibbs and others have argued that the neglect of political factors has been a serious shortcoming in the literature on industrial conflict.[4] Implicit in Hibbs' research is the view that the effects of economic and sociological factors on strike activity can only be understood when they are placed in a broader political context. Industrial conflict is a phenomenon which defies disciplinary boundaries and there would appear to be much to be gained by adopting an interdisciplinary approach to the study of this question.

This study attempts to explain long term variations in the level of strike activity in Canada during the period 1926-1974 by examining the effects of several economic and organizational variables on the pattern of industrial conflict. An attempt is made to place strike activity in a broader political context by examining the extent to which changes in federal labour legislation have influenced the pattern of strike activity in Canada over time. It is hypothesized that the level of strike activity varies directly with the state of the economy and labour's organizational capacity to press its demands and that labour legislation influences the relationship between strike activity and these two variables.

ECONOMIC DETERMINANTS OF STRIKE ACTIVITY

It has frequently been argued that labour's use of the strike weapon is more effective during periods of prosperity than during periods of economic recession.[5] Indeed, most of the empirical evidence tends to sup-

3 Andrew R. WEINTRAUB, "Prosperity Versus Strikes: An Empirical Approach", *Industrial and Labour Relations* 19, 1966, 231-238; J.H.G. CRISPO and H.W. ARTHURS, "Industrial Unrest in Canada: A Diagnosis of Recent Experience", *Industrial Relations* 23, 1968, 237-264; John VANDERKAMP, "Economic Activity and Strikes in Canada", *Industrial Relations,* 9, 1970, 215-230; Douglas A. SMITH, "The Determinants of Strike Activity in Canada", *Relations Industrielles,* 27, 1972; 663-678; William T. WALSH, "Economic Conditions and Strikes Activity in Canada", *Industrial Relations,* 14, 1975, 45-54; Jean Michel COUSINEAU and Robert LACROIX, «Activité économique, inflation et activité de grève», *Relations Industrielles,* 31, 1976, 341-358.

4 Douglas A. HIBBS, "Industrial Conflict in Advanced Industrial Societies", *American Political Science Review,* 60, 1976, 1033-1058; David SNYDER, "Early North American Strikes: A Reinterpretation", *Industrial and Labor Relations Review,* 30, 1977, 325-341; Douglas A. HIBBS, "On the Political Economy of Long Run Trends in Strike Activity", *British Journal of Political Science,* 8, 1978, 153-175.

5 WEINTRAUB, "Prosperity Versus Strikes", *op. cit.,* 231; HIBBS, "Industrial Conflict in Advanced Industrial Societies", *op. cit.,* 1042.

port this conclusion, although a variety of economic variables have been employed. The rationale for this thesis is that unions seeking gains are likely to obtain a relative advantage in striking an employer during peaks in the business cycle, when market pressures are high and when the employer is likely to have a favourable profit position.[6] During periods of prosperity employers are likely to be both more able and willing to yield to union demands. Periods of strong economic activity increase the preparedness of unions to initiate work stoppages by improving their financial position and by providing the prospect of temporary alternate employment.[7] In brief, unions strike in times of prosperity because the relative cost is less to them and greater to employers.

Five measures have been selected to reflect the main dimensions of the cyclical character of the state of the economy. These measures include the unemployment rate and the rate of change in prices, wages, profits and unemployment. The unemployment rate is intended to measure the tightness of the labour market. When unemployment is low, striking workers may find it easier to find alternate employment and can move to higher paying jobs. In addition, sizeable strike funds can be accumulated.[8] When the labour market is tight, management will have greater difficulty in replacing successful strikers. Furthermore, the potential loss of profits resulting from a strike is likely to be the greatest during periods of low unemployment.[9] Finally, at any given level of unemployment, strike effects will probably differ depending on whether the rate of unemployment is rising or falling. For this reason, the rate of change in the level of unemployment is expected to vary inversely with strike activity.[10]

The rate of change in the consumer price index is expected to be related positively to strike activity because unanticipated inflation which occurs during fixed term contracts tends to decrease the length of collective agreements and to make settlements without work stoppages difficult to achieve. This is due to the fact that uncertainty over the future inflation rate makes unions more willing to strike in order to protect their wages, and to keep up with inflation. Several empirical studies of strike activity in Canada tend to support this conclusion.[11]

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6 WEINTRAUB, "Prosperity Versus Strikes", *op. cit.*, 231.

7 WALSH, "Economic Conditions and Strike Activity in Canada", *op. cit.*, 49.

8 ASHENFELTER and JOHNSON, "Bargaining Theory Trade Unions and Industrial Strike Activity", *American Economic Review*, 59, 1969, 41.

9 HIBBS, "Industrial Conflict in Advanced Industrial Societies", *op. cit.*, 1042.

10 D. SMITH, "The Impact of Inflation on Strike Activity in Canada", *Relations Industrielles*, 31, 1976, 141.

11 *Ibid.*, 141.

The rate of change in nominal wages is also expected to vary directly with the level of strike activity. The rationale for this assumption is that workers' aspirations for higher wages will outstrip actual wage changes and thus strike activity is likely to result. In view of the publicity given to large wage settlements and to the probable demonstration effect, as well as the continued interest of workers in increasing wage levels and fringe benefits, such a formulation appears quite plausible. This contrasts with Ashenfelter and Johnson who argue implicity that workers' expectations will rise less rapidly than wage rates. Ashenfelter and Johnson argue that "the function of the strike is as an equilibrating mechanism to square up the union membership's wage expectations with what the firm may be prepared to pay".[12] From this perspective, it is assumed that expectations rise less rapidly than wages. The authors report evidence of a negative relationship between a lagged form of wage change and strike activity in order to support this contention.[13] However, several other studies report evidence of a positive relationship between wage change and the level of strike activity, which suggests that worker's wage aspirations tend to increase more rapidly than actual wage change.[14] The position taken here is that unions have a continuing interest in increasing wages and fringe benefits.[15] For this reason, union aspirations for higher wages and fringe benefits are expected to outpace actual changes in labour compensation most of the time.[16]

Changes in the level of corporate profits after taxes are expected to vary positively with the level of strike activity since, if profits have been increasing in recent periods, the typical union member may feel that he/she deserves a larger wage increase.[17] Thus, increases in profits are likely to increase labour's initial wage demands and harden bargaining attitudes.[18] On the other hand, increases in corporate profits may increase the ability and willingness of employers to meet union demands and thus a negative relationship might be predicted.[19] Since the willingness of unions to strike in a

12 ASHENFELTER and JOHNSON, "Bargaining Theory Trade Unions and Industrial Strike Activity", *op. cit.*, 39.

13 *Ibid.*, 46.

14 Jack W. SKEELS, "Measures of U.S. Strike Activity", *Industrial and Labour Relations*, 24, 1971, 515-525.

15 This model assumes that unions are concerned with obtaining material concessions and do not attempt to replace the capitalist system. Canadian unions are for the most part business unions.

16 SKEELS, "Measures of U.S. Strike Activity", *op. cit.*, 519.

17 ASHENFELTER and JOHNSON, "Bargaining Theory Trade Unions and Industrial Strike Activity", *op. cit.*, 41.

18 Robert SWIDINSKY, "Trade Unions and the Rate of Change of Money Wages in Canada 1953-1970", *Industrial and Labour Relations*, 25, 1972, 368.

19 WALSH, "Economic Conditions and Strike Activity in Canada", *op. cit.*, 50.

period of rising profits is likely to exceed management's desire to concede, a positive relationship between corporate profits and striking activity is predicted.

ORGANIZATIONAL CAPACITY

The organizational capacity of labour to press its demands has frequently been overlooked in studies of the determinants of strike activity. The theoretical rationale for the inclusion of this variable can be found in Olson's analysis of collective action. Olson demonstrated that whether individuals ever organize to pursue common interests, is problematic rather than given, as is often assumed.[20] Other authors have extended the logic of Olson's argument by arguing that the frequency and magnitude of collective action depends largely on the organizational strength of the group concerned. In their study of strike activity in France, Shorter and Tilly defined labour's organizational strength as control over resources and represented it by union membership as a percentage of the labour force. Union membership was treated as a proxy variable for control over members' loyalties, strike funds and the like. The authors suggested a positive relationship between union membership and strike activity on the grounds that a larger union membership increases the economic leverage, solidarity and ability of unions to outlast employers.[21] In brief, the authors argue that the state of union organization can influence the level of strike activity regardless of prevailing economic conditions.

LABOUR LEGISLATION

As was noted previously, governments can and do influence the rules of conduct which govern labour management relations. Labour legislation and regulations can either facilitate or restrict the ability of labour and management to pursue their respective interests. The enactment of facilitative labour legislation in Canada in 1944 dramatically altered the right of trade unions to bargain collectively and clearly distinguised labour legislation in the earlier periode 1926-1943, from labour legislation in the post 1944 period.

20 Mancur OLSON, *The Logic of Collective Action,* 2nd edition, Cambridge, Mass., Harvard University Press, 1965.

21 SNYDER, "Early North American Strikes", *op. cit.,* 330.

From 1926-1943 the labour movement was governed by the *Industrial Disputes Investigation Act* (I.D.I.A.) which imposed conciliation on unions, prevented collective action, and left employers free to carry out reprisals against workers for union activity.[22] The courts frequently granted injunctions against strikers and upheld "yellow dog" contracts.[23] A short-lived decentralization of labour legislation occurred in the mid-1930s as British Columbia, Quebec and Ontario began to develop their own labour codes, but with the outbreak of the Second World War the diversification movement came to a halt. Privy Council Order 3495 extended the I.D.I.A. to all war-related industries and wages controls were imposed despite a rising inflation rate. When a strike of gold miners occurred at Kirkland Lake, Ontario in 1942, the strike leaders were promptly incarcerated for intimidation.[24] After 1942, union led organizational drives resulted in strikes such as the one in the Montreal aircraft industry in 1943.[25] The government reacted by proclaming an Order in Council in 1943 which outlawed strikes and absenteeism.[26]

Between 1926 and 1943 the labour movement was usually on the political and economic defensive. Workers were unable to organize effectively because of existing labour legislation and periodic searches for communists in unions under the sedition and subversion provisions of the *Criminal Code.*[27] Many strikes were defensive reactions against lay-offs or wage cuts. The absence of legislation which permitted collective action by labour meant that labour disputes centered around union recognition and not economic issues. One of the most important of these strikes for the right to organize was the 1937 C.I.O. effort to organize auto industry workers at the General Motors plant in Oshawa, Ontario.[28] Inspired by the 1935 *Wagner Act* in the United States, Canadian labour struggled for the legal right to organize.[29]

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22 H.D. WOODS, *Labour Policy in Canada,* 2nd edition, Toronto, Macmillan, 1972, 21.

23 Stuart JAMIESON, *Times of Trouble: Labour Unrest and Industrial Conflict in Canada, 1900-1966,* Ottawa, Information Canada, 1968, 193-196; WOODS, *Labour Policy in Canada, op. cit.,* 24; Stuart JAMIESON, *Industrial Relations in Canada,* 2nd edition, Toronto, Macmillan, 1973, 85-86; Lorne BROWN, "Breaking Down Myths of Peace and Harmony in Canadian Labour History", Canadian Dimension 9, 1973, 21.

24 JAMIESON, *Times of Trouble, op. cit.,* 284.

25 *Ibid.,* 287.

26 *Ibid.,* 290-291.

27 *Ibid.,* 216.

28 *Ibid.,* 259; JAMIESON, *Industrial Relations in Canada, op. cit.,* 88; BROWN, "Breaking Down the Myths of Peace and Harmony in Canadian Labour History", *op. cit.,* 23.

29 JAMIESON, *Times of Trouble, op. cit.,* 216.

In January 1944 a new era in labour relations was ushered in by Privy Council Order 1003. This order formed the basis of the post-war industrial relations system.[30] For the first time, labour was provided with concrete guarantees for the right to organize. The order provided protection for labour leaders which had been withheld by the I.D.I.A.[31] Since the *War Measures Act* was in force, P.C.O. 1003 was to be applied nation-wide. At the expiration of the *War Measures Act*, the *Industrial Relations Disputes Act* of 1948 made P.C.O. 1003 permanent. Succeeding legislation such as the *Canada Labour Code* (1966) and the *Public Service Staff Relations Act* (1967), as well as most provincial legislation followed the main lines laid down in P.C.O. 1003.[32]

The changes in the legal status of unions which resulted from the 1944 Privy Council Order created greater permanency in bargaining, made union recognition less of an issue, and entrenched the legal obligation to bargain in good faith in a system of collective bargaining.[33] Vanderkamp, for one, argued that these legislative changes made strikes less likely, because the new legal status of unions made employers more willing to negotiate.[34] An alternate possibility is that unions strike more frequently and for different reasons when restrictive labour legislation is repealed. For example, it might be expected that economic variables would be more important determinants of strike activity after 1944 than before, since the question of union recognition had become less of an issue. Similarly, organizational variables might be expected to be more important in the pre-1944 period, as strikes often centered around non-economic issues such as union recognition. Vanderkamp suggests three reasons why non-economic issues might be of lesser importance in the pre-1944 period. These include the low level of unionization, the social acceptability of wage reductions and the non-settlement of the issue of union recognition.[35] Vanderkamp's statistical analysis of strike activity in the pre and post Second World War period tends to support this line of argument.[36] A similar study of strike activity in Canada and the United States in the pre and post war period by Snyder reached identical conclusions.[37]

30 WOODS, *Labour Policy in Canada, op. cit.*, 97.

31 JAMIESON, *Times of Trouble, op. cit.*, 294; WOODS, *Labour Policy in Canada, op. cit.*, 93; JAMIESON, *Industrial Relations in Canada, op. cit.*, 123; BROWN, "Breaking Down the Myths of Peace and Harmony in Canadian Labour History", *op. cit.*, 24.

32 WOODS, *Labour Policy in Canada, op. cit.*, 27-38, 367-378.

33 VANDERKAMP, "Economic Activity in Strikes in Canada", *op. cit.*, 218.

34 *Ibid.*, 218.

35 *Ibid.*, 222.

36 *Ibid.*, 215-230.

37 SNYDER, "Early North American Strikes", *op. cit.*, 340.

THE MEASUREMENT AND GROWTH OF STRIKE ACTIVITY

There is still considerable disagreement in the literature over the question of the most appropriate definition of strike activity, and this problem is compounded by the fact that even common definitions have been operationalized in severe different ways.[38] Strike activity is a multidimensional concept and several different measures are required to represent its component dimensions. The most commonly employed dimensions are: frequency, magnitude and duration. Frequency refers to the number of work stoppages in a given time period, while magnitude and duration refer to the number of workers involved and the number of man days lost, respectively. Unfortunately, several studies have combined these three dimensions in a composite measure.[39] Recent evidence suggests that the frequency, magnitude and duration of strike activity are empirically distinct. Shalev, for example, reports that the correlations between the frequency, magnitude and duration of strikes in a number of western nations were neither consistent nor particularly strong.[40] Composite indices, then, would tend to mask the effects of various independent variables and thus present formidable problems of interpretation. Table 1 contains data on the relationship between the three measures of strike activity between 1926 and 1974. This data is presented in order to determine whether the three dimensions of strike activity are empirically differentiated as was suggested previously. The table indicates that while all three measures of strike activity vary in the same direction, the strength of the relationship was only moderate. In no case did the R^2 exceed 65 per cent of variance. Thus, while all three measures are related, it is clear that they are relatively independent measures of strike activity. It is also noteworthy that magnitude and time lost are more highly correlated with each other than they are with strike frequency. Since these variables reflect the impact of a strike rather than the decision to strike, this should not be suprising. In any event it is clear that while the three measures are related they are not synonymous. Thus, a second disadvantages of employing composite measures of strike activity is that they may conceal differences in the growth rates of their component parts.

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38 For a discussion of this problem see Robert STERN, "Methodological Issues in Quantitative Strike Analysis", *Industrial Relations,* 30, 1977, 33-34.

39 HIBBS, for example, constructs a three dimensional cuboid that represents the so-called "shape of strikes". D. HIBBS, "Industrial Conflict in Advanced Industrial Societies, *op. cit.,* 1035.

40 Michael SHALEV, "Strikers and the State: A Comment", *British Journal of Political Science,* 8, 1978, 479-511.

The evidence regarding long-term trends in strike activity in Canada has thus far been inconclusive. Newspaper accounts would appear to suggest that, at least in terms of man-days lost, strike activity has increased greatly over the years. Canada is said to compare unfavourably with most other western democracies in terms of man-days lost due to strike activity. In fact, Canada's record on this dimension of strike activity in recent years is second only to that of Italy.[41] By way of contrast, Hibbs reports that a composite index of strike activity in Canada including measures of strike frequency, duration and man-days lost, exhibited no apparent pattern for the period 1900-1970.[42] In order to assess the trend in strike activity in Canada between 1926 and 1974, the estimated growth rates of each of the three measures of strike activity were calculated. This data is contained in Table 2. The R^2's are presented as summary measures of the "goodness of fit" of the equations. In general, a high R^2 suggests that the time series has followed closely a smooth exponential growth over the estimation period. The table indicates that time lost as a percentage of total working time has increased at approximately twice the rate of the other two strike measures. These findings contradict Hibbs' analysis of the pattern of strike activity in Canada and underscore the dangers associated with the use of composite measures of strike activity.

METHOD AND FINDINGS

The statistical technique employed in the data analysis was ordinary least squares (OLS) multiple regression. However, equations in which significant auto correlation was indicated by the Durbin-Watson d statistic were estimated with the generalized least squares (GLS) estimation procedure.[43] It was necessary to employ the GLS estimation technique because previous studies of the determinants of strike activity in Canada have failed to observe the basic rules of the classical general linear regression model and as a consequence their conclusions are suspect.[44] The classical regression model is based upon specific assumptions, and the violation of any of these assumptions may lead to erroneous inferences from a set of data. In particular, the assumption of independent error terms for succeeding observations (non-autoregression) is likely to be violated

41 *Globe and Mail,* May 28, 1979; *Financial Post,* April 28, 1979.

42 HIBBS, "On the Political Economy of Long Run Trends in Strike Activity", *op. cit.,* 161.

43 G.S. MADDALA, *Econometrics,* New York, McGraw-Hill, 1977, 277-284; KAMENTA, *Elements of Econometrics,* New York, Macmillan, 1971, 287-289. The Time Series Processes (TSP) package was used with the two stage Cocahrane - Orcutt procedure.

44 See VANDERKAMP, "Economic Activity and Strikes in Canada", *op. cit.,* 215-230.

when time series data is being used. It is well-known from the econometrics literature that if the disturbances are autoregressive, the conventional formulae for the t and F statistics no longer hold, and tests of hypothesis are no longer valid.[45]

Each of the three measures of strike activity were hypothesized to vary directly with the rate of change in prices, profits, wages and union membership and inversely with the employment rate and changes in the unemployment rate. It was expected that the economic variables would be more closely associated with frequency than with strike duration or magnitude. The economic variables were also expected to be more closely associated with strike activity in the post-1944 period than the pre-1944 period. The equations were estimated for the entire time period 1926-1974 and also separately for the years 1926-1943 and 1944-1974. The assumption was that the changes in federal labour legislation which occurred in 1944 may have resulted in a structural break in the time series. Given evidence of such a structural break, it was decided to divide the sample according to the different populations and estimate each subsample separately. The following equation was used to test the hypotheses discussed in the previous section.

$$Y_t = a_o + b_1 W_t + b_2 P_t + b_3 PR_t - b_4 UN_t - b_5 U_t + b_6 M_t + e_t$$

Where Y = particular strike measure

W = rate of change in average nominal weekly wages and salaries in the industrial composite at time t; $W = W_t - W_t - 1$

P = rate of change in the consumer price index at time t; $P = P_t - P_{t-1}$

PR = rate of change in total after tax corporate profits at time t; $PR = PR_t - PR_{t-1}$

UN = unemployment rate at time t

U = rate of change in the unemployment rate at time t; $U = U_t - U_{t-1}$

M = union membership as a percentage of total non-agricultural workers at time t

e = stochastic error term

The Y variable was alternatively strike frequency (SF), workers involved (WI), and time lost (TL). The hypothesized signs were

$$b_1 > o\ ,\ b_2 > o\ ,\ b_3 > o\ ,\ b_4 < o\ ,\ b_5 < o\ ,\ \text{and}\ b_6 > o\ .$$

Most previous studies have also included a time trend variable in the estimating equation. However, the inclusion of a time trend poses both

45 Jan KAMENTA, *op. cit.*, 287.

theoretical and methodological problems. The interpretation of the coefficient for this variable is uncertain with various authors emphasizing different factors. For example, according to Vanderkamp and Walsh the trend variable can be viewed as a learning function of the bargaining process or as institutional accommodation.[46] Thus one might expect a negative coefficient. Unfortunately, both Vanderkamp and Walsh report positive coefficients and neither author felt it necessary to explain this discrepancy.[47] Other studies attach a number of varied meanings to the time trend coefficient, some positive, some negative.[48] It seems apparent that the time trend variable is a container concept rather than a variable. Unless the content of this container concept can be specified in terms of actual variables its use should be carefully scrutinized. The passage of time itself does not provide an explanation for anything. It sometimes appears that the inclusion of a time trend variable represents more of an attempt to increase explained variance than it is to provide an explanation of variations in strike activity.[49]

The results of the tests of the several hypotheses for the entire time period 1926-1974 for each of the three measures of strike activity are presented in tables 3 through 5. The results of the regression analyses are presented in truncated form namely excluding all variables for which the t-ratio was not statistically significant at the 5 per cent level. This amounts to a process of backward elimination in which the equation was initially tested with all variables included and then the variable with the lowest t-ratio was deleted successively until all of the individual regression coefficients were statistically significant.[50]

Table 3 presents data on the relationship between the three measures of strike activity and the independent variables during the period 1926-1974. The table indicates that only the change in nominal wages, change in unemployment and union membership variables were influential in explaining variations in the three measures of strike activity. Overall, some 77 per cent of the variance in strike frequency was explained by changes in nominal wages and changes in the unemployment rate. The equations for

46 VANDERKAMP, "Economic Activity and Strikes in Canada", *op. cit.*, 227.

47 *Ibid.;* WALSH, "Economic Conditions and Strike Activity in Canada, *op. cit.*, 50.

48 SNYDER, "Early North American Strikes", *op. cit.*, 333.

49 There is a prevalent tendency in the literature to treat time as a residue of often unspecified variables. As PREZEWOSKI and TEUNE have suggested this is not a very satisfactory situation. The preferable alternative to this situation is the specification, to the extend possible, of this residue in terms of specific variables. See Adam PREZEWOSKI and Henry TEUNE, *The Logic of Comparative Social Inquiry,* New York, Wiley, 1970, 26-30.

50 Samprit CHATTERJEE and Bertram PRICE, *Regression Analysis by Example,* New York, John Wiley Sons Inc., 1977, 202-206.

man-days lost and duration did not explain as much of the variance in these measures accounting for approximately 56 and 59 per cent of the variance respectively. The change in nominal wages was found to be significantly and positively related to each of the three measures of strike activity as predicted by the hypothesis. The level of union membership was influential in explaining the amount of time lost due to strike activity.

Tables 4 and 5 contain data on the relationship between the various independent variables and strike frequency in the pre and post-1944 periods. The two equations performed equally well in terms of the variance explained, but the statistically significant variables differed. In the earlier period 1926-1943, union membership, and changes in the unemployment rate were related significantly to strike frequency and both were in the predicted direction. However, in the post-1944 period only changes in nominal wages were influential in explaining the variance in strike frequency.

Data on the relationship between time lost due to strike activity, the number of workers involved and the various independent variables in the two time periods are contained in Table 4 and 5. In the earlier period only changes in the unemployment rate were related significantly to time lost. In the later period changes in nominal wages were also important. However, the sign of the coefficient representing changes in the unemployment rate was positive, which was at variance with the hypothesis. In both cases, the amount of variance explained was considerably less than for the strike frequency equations.

The tables indicate that in the earlier period union membership and changes in the unemployment rate was related significantly to the number of workers involved. Overall, the amount of variance explained was quite high at 84 per cent in the earlier period. However, in the later period only changes in nominal wages were related significantly to the number of workers involved.

Summary and Conclusions

The study began with a discussion of some of the major problems which have arisen in quantitative studies of strike activity. Attention was paid to the combination of economic, organizational and legislative determinants of the level of strike activity. It was argued that the three most commonly employed measures of strike activity are conceptually distinct and thus composite measures of strike activity should be avoided. The data analysis tended to support the theoretical argument. The three measures of strike activity were found to be only moderately associated and they tended to grow at varying rates.

A brief overview of labour activity and legislation during the period 1926-1974 documented the importance of the changes in labour legislation which were enacted in Canada in 1944. These changes guaranteed labour's right to organize and to bargain collectively. They institutionalized the main elements of the current labour relations system. It was hypothesized that the level of strike activity varies positively with the rate of change in corporate profits, prices, nominal wages, and the level of union membership and inversely with the level of unemployment and the rate of change in the level of employment. The expectation was that labour's organizational capacity to press its demands as measured by union membership as a per cent of the non-agricultural civilian labour force would be a better predictor of strike activity in the pre-1944 period than in the post-1944 period.

1) The major findings of the data analysis were as follows: During the period 1926-1974 the rate of change in nominal wages was the best predictor of variations in the level of strike activity. In terms of variance explained strike frequency was most closely associated with the economic variables. This finding is consistent with earlier research which indicates that economic variables are more closely linked to the "decision" to strike than the "impact" of a strike.
2) In the pre-1944 period, union membership was the best predictor of strike frequency and the number of workers involved. The rate of change in the level of unemployment was of lesser importance. Overall the equation explained most of the variance in strike frequency and strike magnitude. However, the basic equation was not as successful in predicting variations in the time lost due to strike activity. The only statistically significant predictor of time lost was the rate of change in the level of unemployment.
3) In the post-1944 period the rate of change in the level of nominal wages was the best predictor of the frequency, duration and magnitude of strike activity, although again the best fit was obtained for the strike frequency equation. In addition the rate of change in the level of unemployment was associated positively with time lost.

The preceding analysis confirmed the importance of facilitative legislation as an intervening variable in the relationship between the state of the economy, union membership and strike activity. An examination of the data reveals quite clearly that the 1944 legislative changes had a significant impact upon the determinants of strike activity. In the earlier period the state of union organization was a key determinant of variations in strike activity, apparently as a result of the fact that the union recognition issue had not been settled. After 1944, collective bargaining became institutionalized and the state of the economy became the major determinant of the decision to initiate and continue strikes.

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Changements à la législation et évolution des grèves au Canada de 1926 à 1974

Le présent article tente d'expliquer les variations à long terme des grèves au Canada pendant la période 1926-1974. À cette fin, il examine les effets de diverses variables d'ordre économique et organisationnel sur les types de conflits du travail. L'article s'efforce de replacer la grève dans son contexte politique en observant comment les modifications apportées à la législation fédérale du travail ont influencé au cours de ces années les types de grèves survenus au Canada. Ce qui ressort de cette étude, c'est que d'une part, le type de grève varie en fonction de la situation économique et de la capacité des syndicats d'imposer leurs revendications et que, d'autre part, la législation du travail influence le rapport entre les grèves et les deux variables qui viennent d'être citées.

Les effets de nombreux facteurs économiques ainsi que de l'activité syndicale ont été étudiés en fonction de trois mesures d'évaluation des grèves, soit la fréquence, l'amplitude et la durée de la grève. On l'a fait pour l'ensemble de la période. Par la suite, les séries chronologiques furent scindées en choisissant une mesure législative fédérale (le C.P. 1003) comme point de rupture. Cette analyse confirme l'importance d'une législation du travail favorable aux travailleurs en tant que variable dans le rapport entre la situation économique et l'action syndicale d'une part, et les grèves, d'autre part. L'examen des données révèle très clairement que les modifications apportées à la législation en 1944 ont eu un impact significatif sur les causes déterminantes des grèves. Durant la période antérieure à 1944, l'état de l'organisation syndicale était la cause principale des variations dans les grèves. Après 1944, la négociation collective s'est institutionnalisée et la situation économique devint la cause principale de la décision de déclencher et de poursuivre les grèves.

DATA SOURCES

(1) Strike Measures: John VANDERKAMP, "Economic Activity and Strikes in Canada", *Industrial Relations,* 10, February 1970, pp. 229-230; and calculated from Canada, Department of Labour, Strikes and Lockouts in Canada, Ottawa, 1977; Canada, Statistics Canada, *Canadian Statistical Review: Historical Summary 1970,* Ottawa, 1972; Canada, Department of Finance, *Economic Review 1978,* Ottawa, 1978.

(2) Wages and salaries, consumer prices, corporate profits after tax, unemployment obtained or calculated from: M.C. URQUHART and K.A.H. BUCKLEY, *Historical Statistics of Canada,* Toronto, Macmillan, 1965; Canada, Statistics Canada, *Canadian Statistical Review: Historical Summary 1970,* Ottawa, 1972; Canada, Department of Finance, *Economic Review 1978,* Ottawa, 1978.

(3) Union membership: Canada, Supply and Services Canada, *Labour Organizations in Canada,* Ottawa, 1975.

TABLE 1

R^2's Among Three Measures of Strike Activity 1926-1974

	Strike Frequency	*Workers Involved*	*Time Lost*
Strike Frequency	1.00	.63	.51
Workers Involved	.63	1.00	.65
Time Lost	.51	.65	1.00

TABLE 2

Regression Estimates of the Growth Rates of Three Measures of Strike Activity

Variable	*Estimate Period*	*Growth Rate %*	R^2	*DW*
Strike Frequency	1926-1974	2.2	.67	1.74
Workers Involved	1926-1974	2.4	.58	2.10
Time Lost	1926-1974	5.5	.53	1.96

DW - Durbin-Watson d statistic.

TABLE 3

Regression Analysis of Strike Activity in Canada, 1926-1974

Strike Measure	*Intercept*	*W*	*M*	*U*	R^2	*D.W.*	*Estimation Procedure*
Strike Frequency (SF)	34.4	2.2	—	-1.5	.77		GLS
	(6.78)**	(6.55)**		(-1.85)*		1.75	
Time Lost (TL)	0.2	.008	.004	—	.56	1.73	OLS
	(0.45)	(3.48)**	(1.79)*				
Workers Involved (WI)	.95	.15	—	—	.59	1.99	OLS
	(4.56)**	(8.15)**					

**p.<01 one-tailed test
*p.<05 one-tailed test
(t- ratios in parentheses)
W = △ wages M = union membership U = △ unemployment rate

TABLE 4

Regression Analysis of Strike Activity in Canada, 1926-1943

Strike Measure	*Intercept*	*M*	*U*	R^2	*D.W.*	*Estimation Procedure*
Strike Frequency (SF)	-13.60	6.80	-2.18	.84	2.26	GLS
	(-1.02)	(4.72)**	(-2.82)**			
Time Lost (TL)	.05	—	-.006	.32	1.55	GLS
	(7.14)**		(-2.67)**			
Workers Involved (WI)	.-2.37	.43	-.08	.84	1.78	0LS
	(-3.87)**	(6.30)**	(-1.88)*			

**p.<01 one-tailed test
*p.<05 one-tailed test
t- ratios in parentheses
U = △ unemployment rate M = union membership

TABLE 5

Regression Analysis of Strike Activity in Canada, 1944-1974

Strike Measure	*Intercept*	*W*	*U*	R^2	*D.W.*	*Estimation Procedure*
Strike Frequency (SF)	27.2	2.39	—	.86	1.70	GLS
	(3.98)**	(7.23)**				
Time Lost (TL)	.10	.01	.04	.45	1.88	OLS
	(3.41)**	(4.56)**	(1.97)*			
Workers Involved (WI)	.91	.15	—	.55	2.27	OLS
	(2.64)**	(6.02)**				

**p.< 01 one-tailed test
*p.< 05 one-tailed test
t- ratios in parentheses
W = △ wages U = △ unemployment rate