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A Microeconometric Analysis of the Effects of Strikes on Wages

Robert Lacroix

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Résumé de l'article

Au cours des vingt dernières années, l'effet des grèves sur les salaires a fait l'objet de nombreux articles. Plusieurs auteurs on tente de mesurer l'effet de l'activité de grève vue comme un reflet du militantisme syndical ou des « pressions syndicales » sur les salaires. L'hypothèse commune à l'ensemble de ces études est que l'activité de grève a un effet positif sur les salaires. D'autres auteurs se sont demandes si les ententes salariales signées après une grève étaient différentes des autres ententes salariales. S'il advenait que les ententes salariales signées après grève soient systématiquement plus élevées que les autres, l'activité de grève aurait alors une incidence positive sur les salaires. Les auteurs qui ont étudie cette question ont, eux aussi, fait l'hypothèse d'une incidence positive des grèves sur les ententes salariales.

Dans une première section de cet article, nous remettons en cause l'hypothèse d'une relation positive entre la grève et le niveau d'une entente salariale. Partant de trois modèles de grève largement reconnus, soit celui d'Ashenfelter-Johnson (1969), celui d'Eaton (1972) et celui de Siebert et Addison (1981), nous tentons d'inférer quelle serait la conséquence d'une grève sur les salaires. Nous trouvons que, dépendant du modèle de grève retenu, nous pouvons aussi bien inférer un effet positif ou négatif que nul de la grève sur l'entente salariale. En somme, nous réalisons que l'hypothèse d'une incidence positive de l'activité de grève sur les salaires est, pour le moment, sans fondement théorique.

À l'aide de données individuelles sur 1915 ententes salariales signées dans le secteur manufacturier canadien entre 1968 et 1981, nous avons estime 14 équations de salaire (une par annexe) ayant, entre autres variables explicatives, le stade de règlement (après une grève ou non). Les résultats présentes à la section 2 indiquent que, dans tous les cas où le nombre d'ententes salariales signées après une grève est important, l'incidence des grèves sur les ententes salariales est statistiquement non significative. Ces résultats empiriques, contraires à ceux de la majorité des études antérieures, appuient fortement l'hypothèse d'une incidence nulle des grèves sur les ententes salariales que nous avions inférées du modèle de Siebert et Addison (1981).

Dans une troisième section, nous discutons des différences entre nos résultats empiriques et ceux des études antérieures. Pour ce faire, nous estimons, à l'aide des mêmes données, une équation salariale traditionnelle pour l'ensemble des 14 années qui s'échelonnent entre 1968 et 1981 et nous en comparant les résultats avec ceux des 14 équations salariales de la section 2. Nous réalisons alors que l'effet positif de la grève trouve dans les études antérieures était probablement imputable à une mauvaise spécification de l'équation de salaire.

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A Microeconometric Analysis of the Effects of Strikes on Wages

Robert Lacroix

This paper examines the hypothesis of a positive relationships between strikes and the level of negotiated wage agreements.

Over the past twenty years, the effect of strikes on wages has been the subject of numerous articles. Several authors have tried to measure the effect of strike activity, seen as a proxy for «union militancy» or «union pressure», on wages[1]. The hypothesis common to all of these studies is that strike activity has a positive effect on wages.

Another question arises as to whether wage settlements signed after a strike are different from other negotiated wage agreements. If wage settlements reached after a strike were higher than other wage agreements, strike activity would have a positive effect on wages. Researchers who have tried to answer to this question have generally made the hypothesis of a positive effect of strikes on negotiated wage agreements — and their empirical results seem to support this hypothesis[2].

In Section 1 of this article, the «positive effect hypothesis» is put into question. Indeed, depending on the strike model chosen, the three following hypotheses can be inferred: a) wage settlement signed after a strike will be lower than other negotiated wage agreements; b) wage settlements concluded after a strike will be higher than other negotiated wage contracts; c) on the average, there will be no difference between the two types of wage settlements.

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* LACROIX, R., directeur, Centre de recherche et développement en économique, Université de Montréal.

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1 Examples include HINES (1964); SWIDINSKY (1972); ASHENFELTER, JOHNSON and PENCAVEL (1972); GODFREY (1971); GODFREY and TAYLOR (1973); TAYLOR (1972); KNIGHT (1972).

2 Examples include SPARKS and WILTON (1971); MILLS (1971); COUSINEAU and LACROIX (1977); RIDDELL (1980); SWIDINSKI (1984).

Based on microdata consisting of 1915 wage agreements signed in the canadian manufacturing sector between 1968 and 1981, it is shown, in Section 2 that, contrary to previous studies, our empirical results strongly support the third hypothesis (c). Section 3 presents a comparison of our results to those found in previous studies.

THE EFFECT OF STRIKES ON NEGOTIATED WAGE SETTLEMENTS

We know that in bargaining models, either the possibility of a strike does not exist or the effect of a strike on the wage agreement is indeterminate [Nash (1950), Harsanyi (1956), Riddell (1980), Mayhew (1983)]. So we are forced to conclude that any theoretical foundation for a certain relationship between strikes and wage changes has to be found in strike models. The three following models have been chosen as representative of the three dominant approaches we find in the literature: 1) Ashenfelter-Johnson model (1969); 2) Eaton model (1972); 3) and finally, Siebert and Addison model (1981).

The Ashenfelter Model and the Effect of Strikes on Wage Agreements

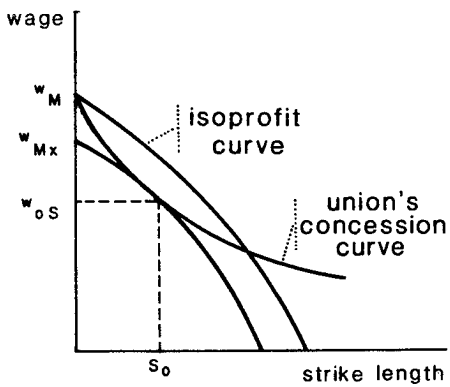
In their classic 1969 article, the authors argued that there are not two but three parties in collective bargaining: management, the union leadership, and the rank and file members of the union. The union leaders seek not only to enhance the position of the union but also, and to an even greater extent, to secure their own position within the union. To achieve this goal, they must satisfy the expectations of their affiliated workers as much as possible. If the rank and file expect a wage increase that is higher than what the employer is prepared to agree to, the union leaders are faced with a dilemma. They must either persuade the workers to accept a lower wage increase or, if the gap between workers' expectations and the employer's capacity to pay is too wide, to call a strike. If a strike is called, it will last until the rank and file revise their expectations downward. Thus the strike is seen as a means of reconciling the expectations of unionized workers and management.

More specifically, A-J assume that, at the expiration of a contract, management has perfect information on the «concession function» of the union workers (i.e. the negative relation between strike length and wage demands) and maximizes a profit function, which depends upon wages, among other variables, subject to this workers' «concession function».

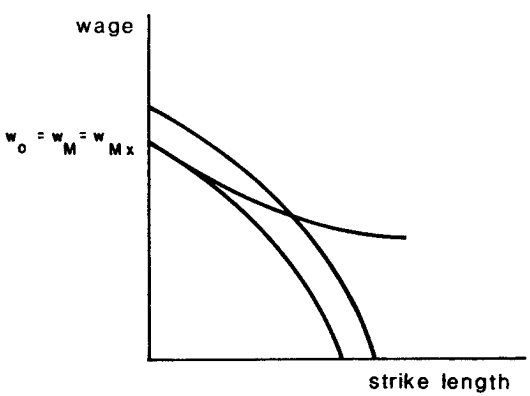
According to this model, there will be a strike if the union workers' expectations are such that, at the expiration of the contract, the minimum wage that the union workers are willing to accept instead of going on strike is greater than the maximum wage that the firm is willing to pay to avoid a strike [$w_M > w_{Mx}$]. And there will be an agreement without strike if $w_M = w_{Mx}$.

These two situations can be graphically represented in the wage-strike length space as follows (Figure 1):

Figure 1



a) Agreement after a strike



b) Agreement without a strike

In Figure 1(a) since $w_M > w_{Mx}$, there will be a strike of a length S_o and a wage settlement w_{oS} after the strike. In Figure 1(b) since $w_M = w_{Mx}$, there will be a wage agreement w_o without strike.

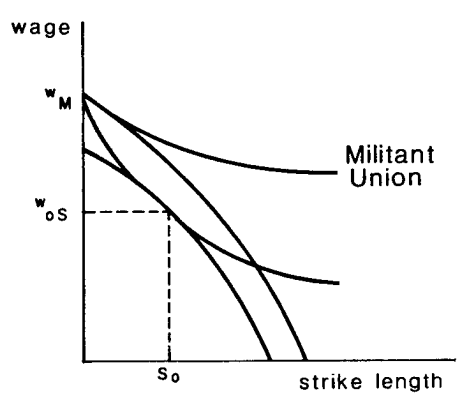
Does this model provide an answer to the question: what is the effect of a strike on a wage agreement, other things being equal?

Since, in this model, a strike is called only to force the rank and file to revise their expectations downward, we can assume that what will differentiate a wage settlement without strike from a wage agreement reached after a strike will be different union concession functions.

Therefore, «all things being equal» implies that we have two or more identical firms negociating at the same moment. Different union concession functions would explain the fact that in one firm there is a settlement after a strike while in another identical firm, an agreement has been reached without strike.

If we make the simplifying but reasonable hypothesis that the two groups of union workers are willing to accept the same minimum wage rather than go on strike (w_M), only the slope of the concession curve would be different. The more militant union would have the lowest concession rate during a strike. Thus, the concession curve of the more militant union will always lie above the concession curve of the less militant union. In these circumstances, Figure 2 shows that it will always be in the best interest of the employer negotiating with the more militant union to reach a wage agreement at w_M without strike. On the other hand, the employer negotiating with the less militant union will prefer a wage settlement w_{oS} after a strike of a length S_o. Thus, in this latter case, a wage agreement reached after a strike will be lower than a wage settlement signed without strike. This conclusion is contrary to the hypothesis generally made[3].

Figure 2



3 Note that if the acceptable minimum wages preferred to a strike by union workers are different, it is reasonable to suppose that the more militant union will have the highest w_M so that there will be a larger disparity between a wage agreement without strike and a wage settlement reached after a strike.

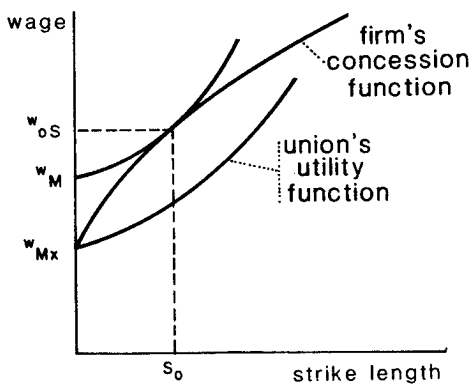
The Eaton Model and the Effect of Strikes on Wage Agreements

Eaton's model can be seen as the transposition of the A-J model. In this case, a union is seeking to maximize a certain utility function depending on wages. The union will maximize this utility function subject to the given firm's «concession function» considered.

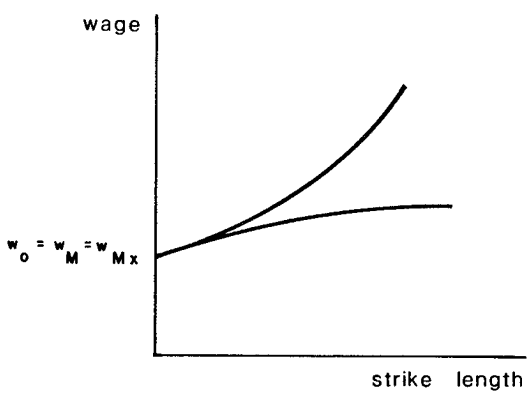
In this type of model there will be a wage agreement without strike if the last wage (or wage increase) offered by the firm (w_{Mx}) is equal to the minimum wage (or wage increase) that the workers will accept in order to avoid a strike (w_M). And there will be a strike if the last wage offered by the firm is such that $w_{Mx} < w_M$.

In the wage-strike space, these two cases can be illustrated as follows:

Figure 3



a) agreement after a strike

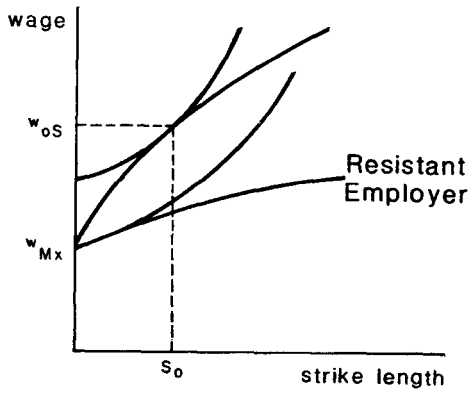


(b) Agreement without strike

According to this model, if we want to study the effect of a strike on a wage settlement, *all things being equal*, we have to assume that the two identical unions have the same utility function and are negotiating at the same time. We cannot assume that the two firms have the same «concession function», since it is a difference in the concession function of the two firms which explains the fact that one agreement has been reached after a strike and the other without strike. The concession curve of the more resistant employer will always lie below the other one.

As shown in Figure 4, the union negotiating with the more resistant firm will prefer a wage settlement w_{Mx} without strike, but it will be in the best interest of the union negotiating with the less resistant employer to go on strike and obtain w_{oS}. Contrary to what has been found with the A-J model, a wage agreement without strike will be lower than a settlement signed after a strike.

Figure 4



The Siebert and Addison Model and the Effects of Strikes on Wages

In this model, negotiations are essential to the exchange of information on the relative bargaining powers of the negotiating parties and the firm's ability to pay. By increasing the amount of information available to both parties, negotiations reduce the probability of error in the perception of the relative bargaining strengths and/or the firm's ability to pay. These errors of interpretation generally lead to strikes.

If there were no time limits to negotiate a wage contract, the likelihood of a strike would approach zero. Unfortunately, a certain number of factors prevent unlimited length of the negotiation period.

Firstly, the information necessary to negotiate wages that will be paid during the next two or three years becomes so rapidly obsolete that negotiations will generally begin not long before the end of the existing contract and parties will often reach an agreement after the end of this contract.

Secondly, during the negotiation period, since the existing agreement is near its expiry date, workers are uncertain about their future wages and must postpone a great number of decisions. This entails losses. Moreover, when a collective agreement has expired, wages and other working conditions are «frozen» until a new contract is signed. The income of the workers no longer increases in line with their obligations.

Finally, to negotiate, the union must maintain a bargaining team and pay all the cost incurred.

The negotiations also involve losses for management. In addition to the direct costs, there is the uncertainty regarding the future cost of labour, which could obstruct decision-making about sales contracts in the longer run.

To summarize, it can be said that both parties gain from negotiations for two reasons: they are an efficient means of avoiding costly strikes; they permit workers to reach a better wage agreement than the employer's initial offer and allow the firm to obtain a better wage settlement than the workers' initial demand.

However, because of the negotiation costs, bargaining parties have to choose an optimal negotiation length. This negotiation length is the duration that will equalize the marginal benefits of the negotiations and their marginal costs[4].

By imposing a time limit on the duration of negotiations, the bargaining parties are also accepting a positive strike probability. It is a similar type of decision to that taken by the motorist who decides to drive from point A to point B in X hours. While drivers cannot foresee a specific accident, they know that the probability of having an accident increases with speed. In that sense, they «demand» accidents because they know that accidents are a cost of saving time. Drivers therefore choose a probability of having an accident that maximizes their income minus the costs expected to result from an accident. Note that while a given probability of having an accident is chosen, a specific accident is always involuntary and is the result of a miscalculation.

4 This optimal negotiation duration will eventually be the same for both parties. Indeed, it will always be profitable for the negotiator having the longest optimal negotiation duration to make a concession modifying the cost-benefit ratio of the other party and inducing the other negotiator to pursue the negotiations.

By analogy, we can say that if a strike happens, it will be the result of an error. It will be a «hazard» of negotiation, an accident. Negotiating parties have not chosen to go on strike at the beginning of the negotiations, rather they have accepted a certain strike probability in choosing a duration of negotiations that would maximize their net benefits.

Using this theoretical approach, what can be said about the effects of strikes on negotiated wages?

Contrary to the case of the two preceding models, «all things being equal», implies in the present model that we look at the effects of strikes on wages for a group of identical firms and identical unions. Why then do we have strikes in certain cases? As was said previously, strikes occur because errors were made in the evaluation of the relative bargaining powers of the parties and/or the ability to pay of the firms, and these errors were so important that an agreement could not be reached during the limited period of negotiations. Thus, there are two sets of wage agreements: one set regrouping wage agreements reached without strike and the other, wage settlements signed after a strike.

The average of wage agreements reached without strike will be denoted $\overline{w}_O$. What can be said about this average? Firstly, for each wage agreement reached without strike, the bargaining parties, after an intensive exchange of information, were convinced that a certain wage contract was consistent with their relative bargaining powers and the capacity to pay of the employer. This does not imply that all wage agreements reached without strike will be identical. Indeed, in a world of imperfect information, even in the case of agreements without strike, errors in the evaluation of bargaining powers and ability to pay of firms might have been made by both parties. By comparison with the wage agreement corresponding to the real bargaining powers and capacity to pay of firms, the effective wage agreements will be sometimes higher and sometimes lower. However, for a large number of identical firms and unions having signed a wage agreement at the same time, we might expect a compensation of errors. Thus $\overline{w}_O$, the average of wage settlements signed without strike, might reflect the real relative bargaining powers of the parties and ability to pay of the identical firms.

Let us take a look at the wage agreements reached after a strike. The average of these agreements will be $\overline{w}_{OS}$ and we want to know if $\overline{w}_{OS}$ will be higher, lower or equal to $\overline{w}_O$.

Contrary to the conclusions reached in the preceding two models, with an «informational model», a strike cannot be seen any more by the party having perfect information as a simple waiting game. Indeed, both parties have imperfect information.

Under these conditions, a strike becomes a particular period of negotiations during which a lot of information continues to be exchanged and evaluations on the relative bargaining powers of the parties and the capacity to pay of the firm change. After a certain strike length, a decision to end the strike will be taken because negotiating parties think that a certain wage settlement $\overline{w}_{oS}$ corresponds to the relative bargaining powers of the parties and the firm's ability to pay.

The same reasons given previously which support the case of the wage agreements without strike explain the fact that wage settlements after a strike are not identical. The average of these wage agreements will be $\overline{w}_{oS}$.

Now, if we have a large number of wage agreements reached after a strike, we see that $\overline{w}_{oS}$ will be different from $\overline{w}_o$ if and only if a strike changes either the relative bargaining powers of the parties or the capacity to pay of the firm or both.

We know that a strike does not change the existing bargaining powers, it only reveals them more accurately to the two bargaining parties. Indeed, the bargaining powers essentially depend on the relative cost of a strike for the negotiating parties. For identical firms and unions negotiating at the same time, these relative costs can only be identical. The information revealed by the strike itself will correct the error in the evaluation of the bargaining powers, but will not change it. Thus, $\overline{w}_{oS}$ could not be different from $\overline{w}_o$ due to a change in the relative bargaining powers of the parties.

It cannot be said whether strikes will change, on average, the capacity to pay of the firms. We know however that if strikes have an effect on the capacity to pay of the firms, this effect will generally be negative and we might have $\overline{w}_{oS} < \overline{w}_o$. And the probability of a negative effect of a strike on the capacity to pay of the firm will certainly increase with the length of the strike.

Thus, the hypothesis that can be inferred from the S-A model is the following one: all things being equal and for a large number of cases, the average wage settlement signed after a strike ($\overline{w}_{oS}$) will be equal to or lower than the average of the other negotiated wage agreements[5].

EMPIRICAL RESULTS

As shown in the preceding section, with three different strike models we can infer three different hypotheses on the effect of strikes of negotiated

5 In another theoretical context Cousineau and Lacroix (1977) reached the same conclusions.

wage settlements. So the effect of strikes on negotiated wage agreement becomes an empirical questions.

To try to discriminate between these three hypotheses, a set of microdata consisting of 1915 wage settlements signed in the Canadian manufacturing industry between 1968 and 1981 have been used to estimate 14 wage equations (one for each year)[6].

The fact that we had a sufficient number of microdata to reduce the sample period to one year for each regression, permitted us to eliminate the possible effects of macroeconomic variables on wage determination. Indeed, during a period as limited as one year, it is acceptable to suppose that individual wage contracts have all been negotiated in the same macroeconomic climate (e.g. inflation, unemployment... etc.). Then the differences in wage increases found in different wage contracts will only be due to certain particularities of individual contracts that have to be taken into account to isolate the specific effects of strikes on wages. The following factors best explain interindividual differences in wage increase contracts:

Catch: a price catch-up variable, calculated as a difference between anticipated and actual inflation during the period of application of the preceding wage settlement, standardized for the duration of the forthcoming contract;

Cola: dummy variable equal to 1 when a Cola clause is included in the wage agreement and to 0 otherwise;

S_j: industrial dummies for sectors of the manufacturing industry;

Strike: dummy variable equal to 1 when the collective agreement has been signed after a strike and to 0 otherwise.

The wage equation is thus the following one:

$$(1) \quad \dot{w}_i = \beta_0 + \beta_1 \text{ Catch} + \beta_2 \text{ Cola} + \sum_j \beta_{j3} S_j + \beta_4 \text{ Strike} + u.$$

Where[7];

$\dot{w}_i$: the total percentage change in the base wage rate negotiated in a bargaining unit i of the manufacturing sector for the life of the contract expressed as an annual (compound) percentage rate.

6 These data have been drawn from Labour Canada Major Wage Settlements data bank which includes all collective agreements covering 500 or more employees and the majority of collective agreements covering between 200 and 500 employees. Among other things, we find in this data bank and for each collective agreement, the settlement date, the settlement stage (i.e. conciliation, mediation, strike...), the duration of the contract, the increases in the base wage rate, the industrial sector, the presence of a Cola clause... etc.

7 For a complete definition of these variables, a technical appendix is available from the author upon request.

By the variable *Catch* we take into account the fact that for a certain number of labour contracts the preceding wage settlement has been such that the increase in real wage has been less than expected by the workers when the wage agreement was signed. In such a case, workers will try to catch up by increasing their wage demands. The coefficient of this variable is expected to be positive.

A certain percentage of collective agreements include an indexation clause. All things being equal, a wage agreement which includes a Cola clause will give a lower initial increase in the base wage rate than a wage settlement without it. Therefore, the variable Cola is expected to have a negative coefficient[8].

Because each industrial sector has its own market conditions, wages can vary differently in various sectors. S_j should capture these interindustry variations in wage developments.

Finally, a certain number of wage agreements have been signed after a strike is over. To estimate the effect of strikes on wage agreements, a dummy variable (Strike) has been added to the wage equation.

Firstly, it can be seen that the variable Catch is practically always statistically significant and has the expected sign. Therefore, collective agreements signed after a previous contract during which the real wage has increased less than expected, generally received wage increases higher than the other wage contracts. Secondly, as expected, wage contracts with a Cola clause have initial wage increases lower than wage contracts without Cola. However, depending on the inflation rate during the life of the contract, contracts with a Cola may lead to wage increases equal to or higher than those of the other wage contracts[9]. When the regression is significant (F-test), and the number of wage settlements with strike is large, all things being equal, there is no difference between wage agreements reached after a strike and other negotiated wage settlements.

On the whole, our empirical results support the hypothesis inferred from the Siebert and Addison model which states that, on the average, for a large number of cases and all things being equal, there will be no difference between wage settlements reached after a strike and other negotiated wage agreements.

8 COUSINEAU and LACROIX (1983b).

9 See COUSINEAU and LACROIX (1981).

TABLE 1

Wage Equation, Manufacturing Industry, by Year[1]

Year	*Collective agreements*	*Strikes*	*Constant*	*Catch-up*	*Cola*	*D-Strike*	R^2	*F*
1968	17	2	3,34*	-0,038	—	-0,37	0,80	3,22
			(2,43)	(-0,55)		(-0,28)		(0,07)
1969	18	5	6,90**	0,49	-0,49	2,42	0,92	3,73
			(7,10)	(0,62)	(-0,17)	(1,51)		(0,11)
1970	34	3	8,33*	0,061	-0,64	1,73**	0,78	8,10
			(17,45)	(0,50)	(-0,83)	(2,04)		(0,00)
1971	13	2	8,81*	0,15	-0,98	5,49	0,77	1,67
			(5,08)	(1,50)	-(0,29)	(1,32)		(0,33)
1972	111	15	8,11*	0,11**	-0,84	1,79*	0,21	1,12
			(11,85)	(1,80)	(-1,38)	(2,51)		(0,33)
1973	171	48	14,08*	0,19*	-1,60*	0,69	0,23	2,12
			(12,01)	(2,82)	(-2,19)	(0,93)		(0,005)
1974	167	46	13,96*	0,29*	-2,47*	-0,64	0,25	2,47
			(11,14)	(3,38)	(-2,66)	(-0,72)		(0,001)
1975	132	22	19,93*	0,078	-2,25*	0,59	0,38	3,17
			(18,00)	(1,26)	(-1,96)	(0,49)		(0,000)
1976	258	87	9,82*	0,07*	-1,00*	0,43	0,35	6,52
			(25,4)	(2,50)	(-2,73)	(0,99)		(0,000)
1977	230	19	7,85*	0,10*	-2,06*	0,26	0,28	3,83
			(21,2)	(4,20)	(-4,39)	(0,38)		(0,000)
1978	244	25	9,29*	0,03	-1,25*	-0,70	0,29	4,80
			(28,77)	(1,54)	(-3,27)	(-1,48)		(0,000)
1979	186	35	10,63*	0,24*	-1,52*	1,00	0,30	3,32
			(16,05)	(4,59)	(-2,23)	(1,39)		(0,000)
1980	202	35	11,46*	0,44*	-2,36*	-0,10	0,64	17,4
			(31,67)	(7,02)	(-5,16)	(-0,22)		(0,000)
1981	130	52	11,32*	0,43*	-1,09	-0,31	0,71	13,9
			(17,10)	(7,02)	(-1,49)	(-0,46)		(0,000)

[1]Regressions also included variables for each sector of the manufacturing industry.
— ( ) t-values and significance for F.
— * significance at 95% or more.
— ** significance at 90%.

AN EXPLANATION OF THE DIFFERENCE BETWEEN OUR RESULTS AND THOSE OF OTHER STUDIES

Why have so many previous studies found a positive effect of strikes on wages? The reason, according to us, is that there were two major flaws contained in the wage equations including a strike variable. Firstly, many studies have shown that strike activity is positively correlated with the level of economic activity and the level of inflation[10]. Since it is difficult to have empirical variables of expected inflation and of labour market conditions in wage equations capturing the whole impact of these factors on wages, a strike variable might capture a part of the effect of economic conditions on wages. Therefore, a positive effect of strikes on wage agreements may be found, even if there were no causal relationship between these two variables.

Moreover, in these studies, either industrial sector effects on wage agreements are completely neglected or these effects are forced to be the same for the whole sample period. But, because of specific economic conditions in various industries, wage settlements might be very different from one industry to another even if all of them are signed under the same general economic conditions. Furthermore, we have no reason to suppose that these interindustrial disparities in wage agreements whould remain constant from one period to another. Then, should strikes somehow be correlated with the evolution of relative wages, previous results on the effect of strikes on wages should be interpreted with caution.

In the 14 wage equations, these two problems have been practically solved. Indeed, assuming that the economic environment is relatively stable during a short period of time, it has been possible to get rid of expected inflation and labour market variables by reducing our sample periods to one year. Moreover, in each of the 14 wage equations, an industrial sector variable has been added and the coefficients of these sectorial variables could vary from one year to the next.

One could wonder what would have been the result if, instead of solving the two problems of the previous studies by reducing the sample period, it had been decided to estimate a single wage equation for the entire 1968-81 period using the same data. To answer this question the following wage equation was estimated.

$$(2)\quad \dot{w}_i = \beta_0 + \beta_1 \text{Vac} + \beta_2 \dot{P} + \beta_3 \text{Catch} + \beta_4 \text{Cola} + \beta_5 \text{Contr.} + \sum_{6} \beta_j S_j + \beta_7 \text{Strike} + u$$

10 For a review of these studies see LACROIX and DUSSAULT (1979).

where:[11]

Vac = a measure of the degree of labour market tightness.

$\dot{P}$ = a measure of anticipated inflations.

Contr = a dummy variable for the Canadian wage control program (1975-1978).

Other variables are the same as those in equation (1).

The results are presented in Table 2. Coefficients of independent variables other than «Strike» have the expected sign and are statistically significant. Indeed, wages increase more rapidly when excess demand in the labour market is higher (higher VAC), or when economic agents expect an increase in the inflation rate (higher $\dot{P}$). Moreover, as found in the majority of previous studies, the coefficient of the variable «Strike» is positive and statistically significant.

TABLE 2

Wage Equation, Manufacturing Industry 1968-81[a]

Variables	Parameter estimate	t-value
Vacancy rate	0,042	19,32
Expected inflation	0,42	11,54
Catchup	0,42	11,54
Cola	-1,92	-10,55
D-Strike	0,58	2,93
Contr	-0,78	-4,52
Constant	2,68	6,57

R^2: 0,42
F: 54,4
N: 1 915
Number of strikes: 396
a The regression also included variables for each sector of the manufacturing industry.

This example illustrates how easy it is to obtain a positive effect of strikes on wages when the wage equation contains a strike variable with other economic condition variables as independent variables.

11 For a complete definition of these variables, a technical appendice is available from the author upon request.

CONCLUSION

We have seen that depending on the model or the theoretical approach used, the expected effect of strikes on negotiated wage settlements would be positive, negative or nil. However, our empirical results strongly support the hypothesis inferred from the accident model of strike developed by Siebert and Addison and which states that on the average, there will be no difference between wage settlements reached after a strike and other negotiated wage agreements.

It has also been shown that it is easy to find a positive effect of strikes on wage settlements when a wage equation is estimated with time series data and includes as independent variables a strike variable, an expected inflation and a labour market variable.

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Analyse microéconométrique des effets des grèves sur les salaires

Au cours des vingt dernières années, l'effet des grèves sur les salaires a fait l'objet de nombreux articles. Plusieurs auteurs on tenté de mesurer l'effet de l'activité de grève vue comme un reflet du militantisme syndical ou des «pressions syndicales» sur les salaires. L'hypothèse commune à l'ensemble de ces études est que l'activité de grève a un effet positif sur les salaires.

D'autres auteurs se sont demandés si les ententes salariales signées après une grève étaient différentes des autres ententes salariales. S'il advenait que les ententes salariales signées après grève soient systématiquement plus élevées que les autres, l'activité de grève aurait alors une incidence positive sur les salaires. Les auteurs qui ont étudié cette question ont, eux aussi, fait l'hypothèse d'une incidence positive des grèves sur les ententes salariales.

Dans une première section de cet article, nous remettons en cause l'hypothèse d'une relation positive entre la grève et le niveau d'une entente salariale. Partant de trois modèles de grève largement reconnus, soit celui d'Ashenfelter-Johnson (1969), celui d'Eaton (1972) et celui de Siebert et Addison (1981), nous tentons d'inférer quelle serait la conséquence d'une grève sur les salaires. Nous trouvons que, dépendant du modèle de grève retenu, nous pouvons aussi bien inférer un effet positif ou négatif que nul de la grève sur l'entente salariale. En somme, nous réalisons que l'hypothèse d'une incidence positive de l'activité de grève sur les salaires est, pour le moment, sans fondement théorique.

À l'aide de données individuelles sur 1915 ententes salariales signées dans le secteur manufacturier canadien entre 1968 et 1981, nous avons estimé 14 équations de salaire (une par année) ayant, entre autres variables explicatives, le stade de règlement (après une grève ou non). Les résultats présentés à la section 2 indiquent que, dans tous les cas où le nombre d'ententes salariales signées après une grève est important, l'incidence des grèves sur les ententes salariales est statistiquement non significative. Ces résultats empiriques, contraires à ceux de la majorité des études antérieures, appuient fortement l'hypothèse d'une incidence nulle des grèves sur les ententes salariales que nous avions inférée du modèle de Siebert et Addison (1981).

Dans une troisième section, nous discutons des différences entre nos résultats empiriques et ceux des études antérieures. Pour ce faire, nous estimons, à l'aide des mêmes données, une équation salariale traditionnelle pour l'ensemble des 14 années qui s'échelonnent entre 1968 et 1981 et nous en comparons les résultats avec ceux des 14 équations salariales de la section 2. Nous réalisons alors que l'effet positif de la grève trouvé dans les études antérieures était probablement imputable à une mauvaise spécification de l'équation de salaire.