

# The Impact of Unions on Workplace Financial Performance: An Empirical Study in the French Context

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## Abstract

Using data from a nationally representative survey (1998 RE-PONSE survey), we examine the relationship between unions and workplace financial performance in the French context. In accordance with the literature based on previous surveys in the United Kingdom (WIRS) or Australia (AWIRS), the paper uses a subjective measure of workplace performance provided by the French managerial respondents. Union presence was found to have no impact on workplace performance. Furthermore no significant union rent was evident even when the workplace faced few or no competitors in their main product market. The earlier U.S. and UK literature found unions had a negative impact on workplace financial performance. Our results are quite different and reflect the particular French industrial relations context. This may be symptomatic of the general decline in union strength since the early 1970s and the weakness of collective bargaining at the workplace level in France.

Since the early 1980s, collective bargaining has been experiencing a rapid development at the workplace level in France. At this level, collective bargaining appears to influence a wide range of workplace outcomes such as employment, training, and participatory programs. However, at the same time, we can notice a continuous drop in union membership and a loss of union influence in France since the 1970s. This paradox is very surprising since a growth of collective bargaining in the workplace has been accompanied by the growth of union power in several other countries (Groux 1994). The “union crisis”—often mentioned in French publications (Mouriaux 1998; Amadiou 1999)—leads to the question of the union’s impact on workplace performance.

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There currently exists a large body of literature dealing with the impact of unions on firm performance in the United States and in Great Britain (see Metcalf [2003] for a recent review). Unfortunately, this question has never been clearly answered in the French context. To date, little empirical research has been undertaken on the link between unions and workplace performance in France. The only existing study using French data has found no association between union presence and firm financial performance in the automotive equipment industry (Mathieu-Morvan 2001) while most of the U.S. and British studies have argued that the presence of unions has a negative impact on establishment or firm-level financial performance (Hirsch and Addison 1986; Metcalf 2003).

Extending this perspective to the French context provides an opportunity to more fully explore the basic question of whether and how unions contribute to the performance of firms. Thus, the purpose of this study is to assess how unions influence the workplace performance in the French context using a survey that was conducted under the auspices of the French Ministry of Labor in 1998.

This paper is organized in the following manner: previous research is presented in the first section, methodology is discussed in the next section, the third section summarizes the main results, and conclusions and implications are drawn in the fourth section.

## **Theoretical Background and Existing Evidence**

According to the neoclassical economists, the impact of unions on firm financial performance stems from their ability to extract rent in the form of higher wages (Booth 1995). One of the most well established effects of unions is the ability to increase wages above competitive levels (Lewis 1986). These high wages can have a detrimental impact on firm profits if unions do not have any other positive effects to compensate for firms' higher expenditures on wages (Hirsch 1991). Union impact on financial performance depends on the scale of potential rents, which is related to the market structure facing the firm, and also dependent on firm-specific advantages like R&D or advertising. Firms with a competitive advantage or those evolving in a less competitive market are more able to earn monopoly profits. Thus, unions will more easily obtain higher wages for workers (Hirsch and Addison 1986). Unions' bargaining power and, in particular, ability to mobilize workers on wage grievances make it possible for unions to change wage levels.

Finally, this economic approach is based on the idea that the relationship between unions and employers is a zero-sum game, in which gains obtained by one party are the exact compensation of losses suffered by the other party (Walton and MacKersie 1965). However, there is a theory to indicate that

union presence can have a positive effect on productivity and this effect would balance the negative impact of unions on wages. This conceptual framework is the so-called “two faces” view of unionism (Freeman and Medoff 1984): the monopoly face and the collective voice/institutional response face. The collective voice and institutional response (CV/IR) model draws on the exit-voice dichotomy of Hirschman (1970). By providing workers with a means of expressing discontent at the workplace, unions can reduce the extent to which resignations and absenteeism lead to a sub-optimal degree of labor turnover. By presenting unions as an alternative to resignation and apathy, Harvard scholars deliver an argument in favor of union representation. High labor turnover can reduce productivity in a workplace through a direct loss of firm-specific training. According to Freeman and Medoff (1984), unions can also enhance productivity by improving communication between workers and management. The opening of communication channels between management and workers can result in integrative rather than distributive bargaining. Unions may provide additional information to a firm about the preferences of employees, thus permitting the firm to choose a better mix among working conditions, workplace rules, and wage levels. The opening of these channels can result in a more satisfied, cooperative, and productive workforce. In addition, unions may be responsible for a “shock effect.” Unions can induce managers to alter methods of production and adopt more efficient personnel policies (Freeman and Medoff 1984).

There have been a number of empirical studies on the relationship between unions and productivity. Doucouliagos and Laroche (2003) provide a meta-analysis on seventy-three existing studies on unions and productivity. Their results suggest that “if all of the available evidence is pooled together, measures of central tendency indicate a near zero association between unions and productivity. However, there exist country and industry specific associations between unions and productivity.” In these conditions, it is theoretically difficult to predict the impact of unions on firm financial performance. When unions use their bargaining power in order to obtain higher wages at the expense of the firm, it reduces profits. However, by giving a voice to the unsatisfied workers, unions can improve worker motivation and, therefore, improve labor productivity (Freeman and Medoff 1984). Thus, this higher level of labor productivity may compensate union rents obtained by collective bargaining.

Some of the extensive literature on the impact of union presence on workplace performance is summarized in Table 1. The summary of the literature indicates a wide range of financial performance measurements, units of observation (country, sector, firm, establishment, etc.), and period considered. A large

TABLE 1  
Studies of Union Effects on Financial Performance

| Study   | Outcome   | Union measure                    | Findings   |
|---|---|----------------------------------|--|
| Freeman (1983)<br><i>United States</i>                      | Price Cost Margin (PCM)/<br>Return on Capital (ROC)       | Union presence                   | Negative effects of unions (-14%); depends on market structure                                 |
| Salinger (1984) <i>United States</i>                        | Tobin's $q$   | Collective bargaining rate       | Unions extract a rent (77% of profits); negative effects of unions in monopolistic market only |
| Clark (1984) <i>United States</i>                           | Price Cost Margin (PCM)/<br>Return on Capital (ROC)       | Union presence/unionization rate | Negative effect of unions (-18 to 19%)   |
| Karier (1985, 1988) <i>United States</i>                    | PCM   | Unionization rate                | Negative effect of unionization (-14%) in concentrated industries                              |
| Voos and Mischel (1986a, 1986b)<br><i>United States</i>     | PCM   | Union presence                   | Negative effect of unions  |
| Domowitz, Hubbard, and Petersen (1986) <i>United States</i> | PCM   | Union presence                   | Negative effects of unions   |
| Maki and Meredith (1986)<br><i>Canada</i>                   | ROC/Return on sales (ROS)/<br>Return on investments (ROI) | Union presence                   | No significant effects   |
| Hirsch and Connolly (1987)<br><i>United States</i>          | Tobin's $q$ /Return on sales                              | Unionization rate                | Negative effects of unions (-13 to -20%); market share and R&D investments                     |

TABLE 1 CONT.  
Studies of Union Effects on Financial Performance

| Study   | Outcome   | Union measure                                       | Findings  |
|---|---|---|---|
| Machin and Stewart (1990, 1996)<br><i>United Kingdom</i>                            | Financial performance in WIRS 1980, 1984, and 1990      | Union recognition, closed shop/<br>man, endorsement | Negative effect of manual unions declined in 1980s; confined to strong unions where high market share by 1990 |
| Hirsch (1991) <i>United States</i><br>Morishima and Copping (1991)<br><i>Canada</i> | Tobin's $q$ /ROC<br>ROC/ROS                             | Union presence<br>Union presence                    | Negative impact of unions<br>Negative impact of the interaction between unions and market share               |
| Laporta and Jenkins (1996)<br><i>Canada</i>   | ROS   | Union presence                                      | No significant effects  |
| Menezes-Filho (1997) <i>United Kingdom</i>  | Firm profitability, 1984-90                             | Union recognition                                   | Negative but declining  |
| Addison, Siebert, Wagner, and Wei (2000) <i>United Kingdom</i>                      | Perceptual Workplace Financial performance in WIRS 1990 | Union density                                       | No significant effects  |
| Addison and Belfield (2000)<br><i>United Kingdom</i>                                | Perceptual Workplace Financial performance in WIRS 1998 | Union recognition                                   | No significant effects  |
| Mathieu-Morvan (2001) <i>France</i>   | ROC/profitability                                       | Union presence/unionization rate                    | No significant effects  |

Sources: Belman (1992, 94-101) and Wilkinson (2000).

majority of Anglo-Saxon studies conclude that unions have negative effects on financial performance, whatever the methodology adopted. It seems that workplace economic performance does differ with the market the workplace operates in, and with the interaction of unions with other employment practices.

Turning to France, there are at least three reasons to believe that the effectiveness of voice provision by French unions is weak. First, since unions have a small number of members,<sup>1</sup> union activity within the workplace is likely to be weak. Second, the union voice is fragmented at the workplace level because of multiple-union representation on site and because each union competes for the same employees with the same preferences and job attributes. Third, a further concern in France is the incidence of the labor law and public policy within the industrial relations system. Incentives for unions to act in close accord with the needs and preferences of the workers they represent are weakened further by the law, which states that collective agreements can be applied at the workplace if only one union signs the agreement, even if this union represents a minority of workers.

There are good reasons to believe that the effectiveness of the union voice is weak in many French workplaces, and hence the positive effects of unions observed in the United States are far less obvious in France. Several empirical studies in the French context showed that the impact of French unions on productivity is weak and that the union wage effect is difficult to assess (Coutrot 1996; Laroche 2002). The only concrete results have come from a recent study (Mathieu-Morvan 2001), which suggests a nonsignificant effect of unions on financial performance for workplaces. Moreover, the author found no significant union impact was evident even when the establishment faced few or no competitors in their main product market or when the establishment invested in R&D. Finally, it appears that these first results in the French context cannot lead to definitive findings and must be validated otherwise, considering the nature of the sample and the existence of several methodological limits.

Finally, the main research questions that we wish to address in this study are:

- Does the presence of unions have an effect (positive or negative) on workplace performance in France?
- Does the presence of unions have a more pronounced effect on workplace performance when the workplace faces few or no competitors in its main product market, as in the U.S. context?

## Methods

### *Sample and Data Collection*

The data used are derived from the 1998 Relations Professionnelles et Négociations d'Entreprises (REPONSE) Survey,<sup>2</sup> a nationally representative survey of workplaces with twenty or more employees, covering all sectors of the French economy. This is the second survey in a series; the first was conducted in 1992. Interviews were carried out with the most senior manager responsible for employee relations in 2,978 French workplaces. The REPONSE survey collected information from managers and from union representatives. This survey contains a lot of information on the establishments, their organizations, workplace practices, and the environment in which they operate. The survey gathered objective and perceptual data on union presence and perceptual indicators of workplace performance. For some measures, such as workplace performance, respondents were asked to provide their perceptions on Likert-type scales. For other measures, such as establishment size, informants provided factual data.

### *Measures*

*Dependent variable.* In this study, the unit of analysis was the establishment rather than the firm. Consequently, the use of objective financial measures of performance was not possible, and we used a qualitative assessment of workplace performance. While the use of perceptual measures of performance is open to criticism, such measures are often the only ones available at the establishment level and have been used in a large number of other studies in the United States, United Kingdom (Machin and Stewart 1990, 1996), or in Australia (Drago and Wooden 1992). Cooke (1992) has argued that the use of perceptual measures permits the comparison across establishments in a variety of industries and that informed managers should be able to provide reasonable approximations of workplace performance within a restricted response range. In addition, some research has found measures of perceived workplace performance to correlate positively with objective measures of firm performance (Laroche 2002).<sup>3</sup> The dependent variable was constructed from one item assessing respondents' perceptions of their workplace's performance over the past three years relative to that of other establishments in the same industry. Responses are coded along a five point ordinal scale, from "a lot better than average" to "a lot below average."

Table 2 lists the percentage distribution across the relative performance categories of the workplaces included in the different sectors of the French economy. A greater percentage of the workplaces reported that their relative performance was above average than the percentage that reported that their

TABLE 2  
Union Presence and Workplace Financial Performance by Sector

|                      | A lot<br>better than<br>average | Better<br>than<br>average | About<br>average | Below<br>average | A lot<br>below<br>average | Total |
|----------------------|---------------------------------|---------------------------|------------------|------------------|---------------------------|-------|
| Whole Economy        |                                 |                           |                  |                  |                           |       |
| All                  | 2.9%                            | 26.3%                     | 51.1%            | 17.7%            | 1.8%                      | 2,452 |
| Unionized            | 2.9%                            | 24.6%                     | 49.9%            | 19.9%            | 2.7%                      | 1,497 |
| Nonunionized         | 3.0%                            | 29.0%                     | 53.1%            | 14.3%            | 0.5%                      | 955   |
| Private Sector       |                                 |                           |                  |                  |                           |       |
| All                  | 2.8%                            | 26.9%                     | 51.8%            | 16.9%            | 1.6%                      | 2,364 |
| Unionized            | 2.7%                            | 25.4%                     | 50.8%            | 18.8%            | 2.3%                      | 1,415 |
| Nonunionized         | 3.0%                            | 29.2%                     | 53.2%            | 14.0%            | 0.5%                      | 949   |
| Manufacturing Sector |                                 |                           |                  |                  |                           |       |
| All                  | 2.0%                            | 23.1%                     | 50.9%            | 22.1%            | 2.0%                      | 1,010 |
| Unionized            | 1.8%                            | 21.7%                     | 50.1%            | 24.0%            | 2.5%                      | 733   |
| Nonunionized         | 2.6%                            | 26.7%                     | 53.1%            | 17.0%            | 0.7%                      | 277   |

performance was below average. Finally, respondents have a tendency to view their workplace performance as better than average. We can also notice that there is little difference in the reporting of workplace performance by sector.

*Primary independent variables.* The major objective of this study was to examine whether union presence was associated with workplace performance. In order to test this relationship, different approaches to measuring union presence were used. Table A1 in the appendix includes information on the union presence measures included in our empirical models. Although we were constrained by the questions contained in the REPOSE survey, we sought to use as wide a variety of union presence indicators as was possible.

In line with U.S. studies, these indicators include especially union presence and union density. First, we measured union presence using a variable that captures the presence of a “union delegate” (*délégué syndical*) at the workplace (see Table A1). Second, we measured the extensiveness of unionization at the establishment. The variable included, labeled union density, is simply the proportion of the workforce unionized and can be considered as a proxy of union strength. Aside from variables describing union presence or union density, numerous variables measuring aspects of union activity within the workplace were considered as proxies of union voice. First, because of separate and competing unions in France, an attempt is made to allow for different stances taken by French unions on workplace performance. A vari-



able for each representative union is also used and is based on the union's majority in the establishment. A second variable, "multiple union," is based on whether there are at least two different unions in the workplace.

*Control variables.* It is important to investigate workplace characteristics in order to be able to understand the link between unions and performance. Our models include several control variables to capture other factors that are related to both union presence and workplace performance.<sup>4</sup> Because of differences in external and internal environment, we included a dummy variable that indicates whether the establishment belongs to the public or private sector. In order to reduce the influence of the size of the workplace and other scale effects, we included several dichotomous variables to indicate the number of employees in the workplace. We also include the age of the establishment to capture any maturation effects. Another control variable that we used was the existence of a holding. Establishments that are single independent entities will be less able to capture rents than those that are part of large organizations. The quality of the industrial relations climate can also be directly correlated with the workplace performance. Belman (1992, 45) argues that "the relationship between unions and firm performance may be influenced by the industrial relations climate . . . and the consequent attitudes of labor and management affect firm performance." A number of additional variables entered the estimates as control variables such as the percentage of female workers, the percentage of part-time workers, and if the respondent is an HR manager. The importance of market power in relation to union effects on workplace performance has already been made clear. The REPONSE survey includes a range of market status measures. These include measures of the market share for the main product or service of the workplace, the geography of the market—local, regional, national, or international, and whether the current state of the market for the main product or service is growing, mature, or declining (see Table A1). Identification of union effects across these different market conditions is also an element of the following analysis. Finally, we include sixteen dummy variables representing industries (NAF 16) to capture any other industry characteristics associated with performance perceptions.

## **Analysis and Results**

The workplace financial performance variable is a dichotomous indicator, hence a binary logit model is used. Logistic regression analysis has been used previously in the study of union effects by Drago and Wooden (1992). As the simplest probability model, our binary logit models have only two categories in the response variable—workplace financial performance is better or a lot

better than average and workplace financial performance is below or a lot below average. Finally, significant positive coefficients indicate variables associated with better financial performance.

The basic results for union presence models are reported in Table 3. The predictive power of the equations is relatively good.<sup>5</sup> Turning to the estimates parameters and looking first at the non-industrial relations influences on work-

TABLE 3  
Union Effects on Workplace Financial Performance

|   | Whole<br>Economy | Private<br>Sector | Manufacturing<br>Sector |
|---|------------------|-------------------|-------------------------|
| Union Presence  | -0.089 (0.5)     | -0.105 (0.7)      | -0.169 (0.6)            |
| 500 or more employees                                 | -0.097 (0.3)     | -0.181 (0.9)      | -0.026 (0.0)            |
| Percentage Female                                     | 0.013 (0.1)      | 0.001 (0.0)       | 0.088 (0.2)             |
| Percentage Part-time<br>Holding                       | -0.092 (0.4)     | -0.089 (0.4)      | -0.242 (1.3)            |
| Public Sector   | -1.029 (6.3)**   | 0.104 (0.7)       | 0.048 (0.1)             |
| Establishment Age: base category is less than 9 years |                  |                   |                         |
| 10-19 years   | 0.233 (2.6)      | 0.214 (1.7)       | 0.071 (0.1)             |
| 20 or more years                                      | 0.181 (1.5)      | 0.152 (1.1)       | -0.130 (0.2)            |
| Respondent is HR Manager                              |                  |                   |                         |
| Industrial relations climate                          | -0.163 (1.5)     | -0.185 (1.8)      | -0.212 (1.2)            |
| HRM Score   | 0.357 (4.1)**    | 0.378 (4.4)**     | 0.198 (0.6)             |
|   | 0.100 (20.4)***  | 0.097 (18.6)***   | 0.056 (2.4)             |
| Market Share: base category is 3-24%                  |                  |                   |                         |
| Market Share <3%                                      | -0.225 (1.8)     | -0.224 (1.8)      | -0.321 (1.6)            |
| Market Share 25-49%                                   | 0.039 (0.1)      | 0.054 (0.1)       | 0.114 (0.3)             |
| Market Share >50%                                     | 0.319 (4.3)**    | 0.362 (5.4)**     | 0.096 (0.1)             |
| Market Horizon: base category is national market      |                  |                   |                         |
| Local market  | -0.091 (0.2)     | -0.111 (0.3)      | 0.315 (0.3)             |
| Regional market                                       | 0.152 (0.7)      | 0.125 (0.4)       | -0.101 (0.1)            |
| International market                                  | -0.018 (0.0)     | -0.002 (0.0)      | -0.079 (0.1)            |
| Value of Sales: base category is stable               |                  |                   |                         |
| Rising  | 0.759 (32.4)***  | 0.763 (31.9)***   | 0.723 (11.0)***         |
| Falling   | -0.042 (0.0)     | -0.042 (0.1)      | -0.531 (2.5)            |
| Observations  | 1,779            | 1,717             | 773                     |
| -2 Log Likelihood                                     | 1,989.78         | 1,937.89          | 814.42                  |

Chi-square in parentheses. In all models, 16 industry dummies are included (NAF 16). Full specifications of this and other models are available from the author.

\* Statistically significant at 10% level.

\*\* Statistically significant at 5% level.

\*\*\* Statistically significant at 1% level.

place financial performance, HRM score and a rising value of sales are both significant at the 1 percent level and positively linked to workplace performance (see Table A1). The *value of sales* result is as expected, while the *HRM score* effect is consistent with the argument that HRM practices have a positive impact on firm performance (Huselid 1995) or that profitable firms are more willing to implement HRM practices. Also significant (at the 5 percent level) is the fact that the establishment is in the public sector and that the establishment's market share is over 50 percent. The negative effect of being in the public sector probably reflects the difficulty of assessing performance in a noncompetitive market, and the positive effect of market share is as predicted. Since this latter variable indicates high levels of market share, it was expected to be positively associated with workplace performance. Finally, a cooperative industrial relations environment would appear to be important for workplace performance (at the 10 percent level).

The detailed analyses of the impact of unionism on workplace financial performance across the three sectors are available from the author. The presence of a union delegate is not associated with the likelihood that an establishment has a financial performance "a lot better than average" (see Table 3). This result suggests that the presence of unions in a workplace is not associated with financial performance.

The distinction between single and multiple unionism is shown to be not important in explaining the likelihood of having a performance "a lot better than average." Once again, this could reflect the absence of links between unions and workplace performance. In general, the results suggest that union presence is not associated with perceptions of performance. In each case, a union presence dummy variable yields a negative, but not significant, coefficient. This is in line with the Mathieu-Morvan (2001) analysis of French industrial relations and suggests that the absence of union effects identified recently in the automotive equipment industry holds true in other French industries.

Finally, an additional analysis was undertaken of the impact of unionism when the establishment faced few or no competitors in their main product market.<sup>6</sup> Again, we find that union presence in conjunction with market share has no impact on workplace performance, a result that contrasts with that suggested in previous studies (Karier 1985, 1988; Machin and Stewart 1990, 1996). These results suggest that there is no relationship between unions and workplace performance even if the product market is in a bad or unpredictable state.

## Discussion and Conclusion

Based on a sample of French establishments, this study investigated the association between union presence and workplace financial performance. Our results do not support arguments and previous results suggesting that unions reduce firm profits (Freeman 1983; Voos and Mishel 1986a, 1986b). However, these results should be interpreted cautiously, given the limitations inherent in this study. First, the REPOSE data required us to rely on perceptual measures of workplace performance. The use of perceptual measures of firm performance is regularly used in research, and results are generally consistent with the findings of studies that used objective performance measures. Second, another limitation is the use of cross-sectional data. Whether unions predict the workplace performance is a question that could be more conclusively answered with longitudinal designs. Within the limitations outlined above, this study supports arguments that French unions had no influence on workplace financial performance.

Beyond the study of the union impact on the French workplace performance, these results invite a reflection on collective bargaining at the workplace level in France. In the Anglo-Saxon countries and in Northern Europe, collective agreements fix wage levels, seniority rules, promotions, layoffs, and more. In France, collective bargaining is more focused on exchanging points of view with no influence on managerial decisions rather than on obtaining a contractual agreement between the parties. The weakness of union presence in the workplace and the existence of multiple unions often lead to a unilateral managerial decision. The absence of strong unions that encourage worker involvement explains the lack of counterproposition. Moreover, it appears that some managers are tempted to get around some unions while giving the priority to discussions with more cooperative unions (Andolfatto and Labbé 2000). Most industrial relations specialists in France agree that the improvement of collective bargaining is linked to better union recognition. If it seems necessary to reduce government intervention and to encourage the creation of work rules between unions and employers at the workplace, it is also important to guarantee all the conditions of a balanced negotiation. Union autonomy in the workplace is a crucial issue that the actors in French industrial relations must address.

## Notes

1. The unionization rate in France is about 8 percent in the whole economy, with approximately 5 percent unionization in the private sector and 12 percent unionization in the public sector.

2. REPOSE is the equivalent of the Workplace Industrial Relations Survey (WIRS) in Great Britain.

3. Diagnostic tests have indicated that the subjective measure of financial performance used in the REPOSE survey is a satisfactory indicator of accounting and financial performance at the workplace level (Laroche 2002).

4. Details on the method of construction of variables included in the equations are presented in Table A1 in the appendix.

5. Likelihood ratio statistics indicate that all our models fit the data significantly better than models with the intercept only.

6. Full specifications for these models are available from the author.

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## APPENDIX TABLE 1

## Definitions of Variables

| Variable name                   | Definition   |
|---------------------------------|--|
| <i>Dependent variable</i>       |  |
| Workplace financial performance | '1' if financial performance of establishment compared with other establishment in the same industry was better or a lot better than average; otherwise '0.'   |
| <i>Independent variables</i>    |  |
| Union presence                  | '1' if at least one "union delegate" at workplace; otherwise '0.'  |
| Union density                   | Three dichotomous variables to measure union density at workplace. One takes the value of '1' for weak density (otherwise '0'), the second takes the value of '1' for medium density (otherwise '0'), and the third takes the value of '1' for strong density (otherwise '0').   |
| Multiple union                  | '1' if two or more unions at workplace; otherwise '0.'   |
| Unions identity                 | Six dichotomous variables to identify union. One takes the value of '1' for CGT (otherwise '0'), the second takes the value of '1' for CFDT (otherwise '0'), the third takes the value of '1' for CFTC (otherwise '0'), the fourth takes the value of '1' for CGC (otherwise '0'), the fifth takes the value of '1' for FO (otherwise '0'), and the sixth takes the value of '1' for other unions (otherwise '0'). |
| Establishment size              | '1' if the establishment employs 500 or more employees; otherwise '0.' The base category is less than 500 employees.   |
| Percentage female               | The percentage of an establishment's total workforce defined as female.  |
| Percentage part-time            | The percentage of an establishment's total workforce defined as part-time.   |
| Holding Public sector           | '1' if the establishment is a part of a holding; otherwise '0.'  |
| Establishment age               | '1' if the establishment is in the public sector; otherwise '0.'   |
|                                 | Three dichotomous variables to measure the length of time that the establishment has been operating. One takes the value '1' for less than 9 years (otherwise '0'), the second takes the value '1' for 10–19 years (otherwise '0'), and the third takes the value '1' for more than 20 years (otherwise '0'). The base category (b.c.) is less than 9 years.   |

APPENDIX TABLE 1 CONT.

Definitions of Variables

| Variable name                | Definition   |
|------------------------------|--|
| Respondent is HR manager     | '1' if respondent is HR manager; otherwise '0.'  |
| Industrial relations climate | '1' if the establishment has a "good" industrial relations climate; otherwise '0.' The IR climate is defined as 'good' if the respondent considers the relationship between union and management at the workplace as 'good.'   |
| HRM score                    | This variable was constructed by counting the number of HRM practices existing in a workplace. It consists of the following 13 variables: merit increase for workers; merit increase for managers; performance bonus for workers; performance bonus for managers; training plan for workers; training plan for managers; performance appraisal for workers; performance appraisal for managers; autonomous work teams; suggestion boxes; quality circles; project teams; and information sharing. Values for this variable range from 0 to 13. |
| Market share                 | Four dichotomous variables to measure the market share. One takes the value '1' for less than 3% (otherwise '0'), the second takes the value '1' for 3–24% (otherwise '0'), the third takes the value '1' for 25–49% (otherwise '0'), and the fourth takes the value '1' for more than 50% (otherwise '0'). The b.c. is 3–24%.   |
| Market horizon               | Four dichotomous variables. One takes the value '1' if the market for the establishment's product or service is primarily local (otherwise '0'), the second takes the value '1' for regional market (otherwise '0'), the third takes the value '1' for national market (otherwise '0'), and the fourth takes the value '1' for international market (otherwise '0'). The base category is national.  |
| Value of sales               | Three dichotomous variables. One takes the value of '1' for falling (otherwise '0'), the second takes the value of '1' for stable (otherwise '0'), and the third takes the value of '1' for rising. The base category is stable.   |