The legal form of labour conflicts and their time persistence: an empirical analysis with a large firms' panel

Miguel A. Malo and Nuria Sanchez-sanchez

Universidad de Salamanca, Spain, Universidad de Cantabria, Spain

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THE LEGAL FORM OF LABOUR CONFLICTS
AND THEIR TIME PERSISTENCE:
An empirical analysis with a large firms' panel [*]

Miguel Á. Malo (Universidad de Salamanca, Spain)
Nuria Sánchez-Sánchez (Universidad de Cantabria, Spain)

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Abstract:
Using a panel of large firms from Spain, we check the relative time persistence of different types of labour conflicts such as strikes, collective conflicts, lockouts and other conflicts with lost working hours but without the previous stated legal forms for labour conflicts. We present random-effects probit estimations comparing observations with each type of conflicts with the same set of observations without any type of conflict. The results show that no legal form labour conflicts do not have long-term persistence (persistence is only in the short-term, from quarter to quarter), and the other types of conflicts suffer short and long-term persistence of confliction at the firm level, corresponds to strikes the higher size of both types of persistence. As short and long term persistence of strikes have almost the same size these results do not support asymmetric information theories of strike.

Key words: Strike, labour conflict, time persistence, asymmetric information.
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Author for correspondence:
Miguel A. Malo
Dept. of Economics
Universidad de Salamanca
Edificio FES – Campus 'Miguel de Unamuno'
E- 37007 Salamanca (SPAIN)
E-mail: malo@usal.es
Tel.: +34 923 29 46 40
Fax: +34 923 29 46 86

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1. Introduction

Many times labour relations are not easy. As in other social relationships, conflicts are frequent and in some cases these conflicts lead to lose working hours. Strike is the most extreme form of lost working hours because of labour conflicts at the workplace. The economic literature on strikes has focused on explaining their existence (because of the renown 'Hicks paradox') and on analyzing their duration.

However, this literature lacks to analyze strikes in the context of the rest of labour conflicts at the workplace. In fact, strike is a type of conflict leading to stop (partially or totally) the production process, with a specific legal regulation in all Western countries. Even Labour Law of some countries stipulates other legal forms of labour conflicts in order to regulate the rights of workers and employers and, sometimes, to prevent disruptions in the production process and losses of working hours.

These differences in the legal forms of labour conflicts and the possibility of losing working hours out from such legal forms of conflicts can be used to propose a research design to analyze the relevance of the legal form for labour conflict persistence at firm level. According to this idea, our main objective consists of analyzing whether those conflicts developed under a legal form (mainly strikes) are more or less persistent (more 'conflictive') than those labour conflicts without such legal forms but with losses of working hours (i.e., creating a partial or total disruption in the production process). We will approach to a conflictive climate of labour relations at firm level distinguishing short and long term effects on the probability of each type of labour conflict. This is another novelty of our empirical analysis: strikes are not considered in isolation not only respect to other labour conflicts but we also consider the eventual impact of past strikes (or other labour conflicts) on the likelihood of current strikes (or other labour conflicts).

Apart from these dynamic effects of conflicts and as a side objective, we will especially focus on the existence of a collective agreement at firm level or at above levels, and the relative relevance of atypical contracts (temporary and part-time contracts) in the firm. The first variable would be analyzed as a proxy of a stronger organization of workers at firm level respect to agreements at an above level, and temporary and part-time contracts will be used as proxies of the power of workers in front of their employers (assuming that

workers with atypical contracts will be more reluctant to be involved in any type of conflict, but especially in those without a explicit legal form).

Our database is a quarterly panel of Spanish firms (in Spanish *Encuesta de Coyuntura Laboral*, for short ECL, or survey on short-term situation of employment). This database lets us include rich information about different conflicts at firm level, jointly with information on many characteristics of the firm. Although the micro-data of this database cover all firms' sizes, we focus on large firms (those with 500 workers or more). For smaller firm's sizes the ECL is a rotary panel (with firms remaining 8 quarters in the sample), but firms with 500 workers or more are interviewed all quarters. Then, for these large firms the survey is a sort of census of firms. Consequently, we have a longer quarterly panel from 1993Q1 to 2002Q1.

The remainder of the article is as follows. In the next section, we briefly review the economic literature on strikes, stressing the lack of approaches considering the variety of labour conflicts different than strikes. Then, we present a short descriptive analysis of the database and the main variables of our analysis. After this description, we explain the econometric specification, in order to show how we estimate the persistence of labour conflicts distinguishing short term and long term dynamic effects. Then, we discuss the results of the different estimations. A conclusions section closes the article.

2. Economic models of strike and labour conflicts

Traditionally, the Economics literature on labour conflicts is very focused on collective bargaining and strikes.

Collective bargaining between employers and trade unions is not always something easy, and sometimes the breakdown of the negotiations process happens. These breakdowns lead to strikes, with relevant costs for employers but also for workers. There are many economic models which try to find a coherent explanation for the existence of these breakdowns; see, for example, Kennan (1986) for a survey.

The first attempt to understand strikes as an economic phenomenon was made by Hicks (1932, 1963), who assumed rational agents under symmetric and perfect information. Under these assumptions a paradox emerges: in such a context a strike only can be the result of non-rational behaviour of agents (either employers or workers), but as agents are

rational by assumption strikes are not possible (although they obviously exist!). Hicks tried to look for an explanation to this contradiction arguing that the strike situation might be explained because of two reasons. The first one is a wrong perception of the objectives of some of the agents. In other words, strike is a mistake. The second reason attributes strikes to the fact that sometimes employers and/or unions want to be considered as rough negotiators so that their threats should be credible and resisting long strikes is a way to show roughness. From this perspective, strike is an informational device.

In this vein, two main research lines develop models for explaining strikes in terms of imperfect information and asymmetric information. Ashenfelter and Johnson (1969) present a model where strikes are the results of mistakes arising from the existence of incomplete information in the wage bargaining of employers and unions. These authors presented the first systematic economic analysis of the fluctuations of strikes and discovered the existence of a trade off between the rate of unemployment, the changes in the real wages, and the strike activity.

On strikes and asymmetric information, the first model was proposed by Hayes (1984), later developed by other authors as Tracy (1987), Kennan and Wilson (1993) and more recently Cramton and Tracy (2003). Departing from the Hicks' assumptions, these models assume that the agents do not have perfect information on the objectives and strength of the other agents. Then, strike is used as an information tool. The wage bargaining would begin with the request by the unions of rising wages under the threat of a strike, as long as necessary to obtain such increase in wages. Obviously, at the beginning of the process, the firm does not know whether the union is tough enough to meet the threat. Then, strike duration can be used as an informational tool as only really tough unions can sustain a long strike with high costs for the firm. As the firm gives a high likelihood that the union is really tough, the strike will end with an agreement in line with union claims. However, if the firm accumulates information that the union is weak, a longer strike will not be really costly for the firm, because the strike will end with an agreement in line with firm claims (a low wage). Then, these models predict that short strikes end with relevant wages' increases while long strikes do not, as empirical evidence confirms.

Models based on asymmetric information also predict a direct relationship between size of the firm and strikes duration. Ingram et al. (1993) explain that in big firms with

many different plants it is more difficult to know the benefits of the firm and, as a consequence of poor information, there will be more strikes than in small firms. In the same vein, the volatility of firm benefits, according to Tracy (1987) and Cramton and Tracy (1994), is also an important variable explaining the incidence of strikes.

The asymmetric information models also have a prediction about the persistence of strikes, in line with our main objective in this article. If the bargaining parties are the same year after year, they will learn from past mistakes and they will know much and much better to the other bargaining party. Therefore, as past strikes reveal information about the characteristics of the other bargaining party, then past strikes will decrease the likelihood of a current strike (or the duration of a current strike will be shorter). Ingram et al. (1993), Card (1988) and Jimenez-Martin *et al*. (1996) include a dynamic term in the equation for strike probability to test this prediction. Although their results are not totally conclusive, the empirical evidence seems to show that informational asymmetries are prone to persist (at least partially).

Finally, there is a third type of strike's theory emphasizing the costs of strikes known as 'theory of joint costs' (Kennan, 1986; and Reder and Neuman, 1980). According to this set of theories, when the strike's costs for firms and unions are low, the probability of strike is higher. When the costs of strikes are low, firms and unions do not have incentives to implement protocols or bargaining attempts to avoid this type of labour conflicts. To test this hypothesis, Card (1990) distinguishes two different effects on the cost of the strike depending on the business cycle of the products and labour markets. If there is a very good situation in the labour market, the cost of the strike falls. However, an expansion in the product market increases the costs of a strike and decreases the incidence of strikes. Therefore, in this case the incidence of strikes is countercyclical. His results are in line with these predictions.

There is also a line of research that focuses on analyzing the relevance of institutional factors that would be behind a more or less conflictive climate of labour relationships environment (mainly neglected by the above described theories), and therefore affecting to the incidence and duration of strikes.

Dahrendorf (1988) as well as Siebert and Adddison (1981) emphasize that the extension of the strike phenomenon would be related to the degree of 'institutionalization'

of the labour conflicts through the maturity of the collective bargaining system, closely linked to the degree of development of trade unions and employers' organizations. In this line, we can also include those studies that have analyzed whether the legal regulation of the strike restricts or amplifies the incidence and duration of strikes. In fact, in many occasions, it has been noted that regulatory lacks, for example, in the Spanish case would explain the higher strike incidence in this country in the 1980s. In this regard, Milner and Nombela (1995) conclude that the higher relative incidence of strikes in Spain in comparison with other similar countries is not due to a lack of legal regulation nor to a legal regulation more permissive than in other countries. In the same vein, Jiménez-Martín (2006) shows that when restricting to strikes linked to collective bargaining the strike incidence in Spain is rather similar to other European countries.

Our main objective is closer to the last 'institutional' perspective, as we are mainly worried about comparing strikes with other labour conflicts with a explicit legal regulation (what we will call 'a legal form') and with other conflicts without such legal forms but with lost working hours. This last type of conflict could be 'illegal' or, at least, not explicitly considered by Labour Law and, therefore, they are labour conflicts with no legal form (NLF conflicts, for short).

3. Empirical analysis

3.1. Data and main variables.

The data for this research come from the *Encuesta de Coyuntura Laboral* (ECL). The ECL is a longitudinal survey carried out on a quarterly basis since the second quarter of 1990 by the Spanish Ministry of Labor and Social Affairs. Originally, it surveyed establishments with more than five workers in non-agriculture industries, excluding Public Administration, Defense and Social Security, diplomatic delegations, and international and religious organizations in the service sector. In 1997, the ECL underwent an important methodological change involving the inclusion of establishments with less than 5 workers in the survey[1] sample along with a new sample stratification methodology.

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[1] Firms with at least 1 worker are included, but self-employed workers (i.e., 'firms' without wage and salaried workers) are excluded.

We use data on establishments having more than 500 employees during the period 1993Q1-2002Q1. On average, this stratum represents approximately 15 percent of non-agriculture employment in Spain. This is the only stratum of micro data unaffected by the 1997 changes to the survey methodology. In addition, this stratum of establishments with 500 employees constitutes the Spanish universe of large firms and, therefore, observations do not need to be weighted.[2] In particular, we have a panel consisting of 38,020 observations during the 1/1993-1/2002 period.

In this database there is information to distinguish different types of labour conflicts.

First, strike is the most relevant labour conflict in terms of frequency. From a legal point of view, this type of conflict involves the temporary suspension of work done collectively by the workers through a previous call that must fulfil a series of legal requirements. These legal requirements include an advance notice of 5 days to the employer and to the Public Administration. The advance notice must explain the reasons for the strike, the objectives of the strike, a description of all previous attempts to solve the problems, the strike starting date and which workers are in the strike committee. When the strike affects to public services the advance notice extends to 10 days and Public Administration can state minimum mandatory levels for these services. For our analysis, these minimum mandatory levels could affect to the number of lost working hours in some key industries but not to the strikes' incidence.

Second, there are collective conflicts. This term refers to a legal procedure to solve conflicting situations affecting general interests of workers at the firm level. Formally, this conflict should not lead to the suspension of work tasks and therefore should not lead to lost working hours. Nevertheless, in fact it is not so and (in some firms) there are registered losses of working hours in firms where a collective conflict takes place. From a legal point of view, a collective conflict has two key features: the reason for the conflict which should be beyond the interest of an isolated worker affecting clearly to a group of workers; and the representation of workers should be collective, not different isolated claims by each affected worker. A collective conflict can be solved by labour courts if the workers'

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[2] When a firm is occasionally below the threshold of 500 employees, it is maintained in our stratum and it is only eliminated when the firm does not recover the level of 500 employees during two additional quarters.

representative –or the employer or Public Administration if public interest is affected– files a suit to the tribunals. A long lasting collective conflict might be followed by a strike. According to the law, a non solved collective conflict is considered a valid reason for explaining a strike in the corresponding advance notice.

Third, there is also the possibility of a lockout. A lockout is a defensive right of the employer which might be exercised if a collective labour disruption threatens the firm. Therefore, by definition the lockout is related with lost working hours. The legal effects of lockouts are the same of strikes in terms of the suspension of the labour relationship. However, the legal procedure for lockouts is different. The employer must communicate to the Public Administration the lockout within 12 hours and only is legal when it is the answer to previous strike or to a clear generalized disruption in the production process in the firm (especially if violence is involved). Therefore, lockouts are limited to urgent answers to very exceptional situations (and, consequently, their incidence is much lower).

Finally, we have in the survey a different variable on lost working hours because of labour conflict (in general). We have checked that there are losses of working hours in the three above legal forms of labour conflicts (although in many cases of collective conflicts there are not any impact in working hours). However, there are firms where there are not any of the legal forms of labour conflicts but there are computed losses of working hours because of labour conflicts. We interpret these cases as labour conflicts with no legal form (for short, NLF labour conflicts).

The incidence of each type of conflict can be analyzed with the information provided in the ECL. Consequently, we will raise in the econometric study four different dependent variables: strikes, collective conflicts, lockouts, and NLF labour conflicts.

In order to have a sound empirical analysis, it is important to define the comparison group of those firms with conflicts (of any type). Notice that the four main variables of conflict could be defined as dummies according to the following rule: 0 for no that type of conflict, 1 for the existence of that type of conflict. However, this definition would provide a different comparison group for each conflict variable (i.e. different groups of firms with 'zeros' for each conflict type). For example, those firms without a collective conflict could have suffered a strike or a NLF labour conflict. To have a more meaningful empirical analysis we have chosen to define a common comparison group for all conflicts cases:

those firms with any type of conflict at all (in the same quarter). Therefore, for the 4 dichotomous dependent variables on labour conflicts, observations with 'zeros' are the same for the four dummy variables on labour conflicts, but 'ones' are different and correspond to observations registering each type of conflict[3].

Table 1 shows the main characteristics[4] of firms and their workers in those with each type of conflict and in those without conflicts[5]. On average, the incidence of conflicts is not really high, although the highest rate is 7.3% for strikes. Anyway, this figure is in line (and even slightly lower) with those provided in other studies, as in Jiménez-Martin et al. (1996; Table 1). The rarest conflict is the collective conflict (0.4%) while lockout and NLF labour conflicts affects around 2% of observations.

Focusing on workers' and firms' characteristics, there are relevant differences between firms with and without labour conflicts. In firms with conflicts, the average size is higher and the prevalence of a collective agreement at firm level[6] is really much higher. On workers characteristics, in firms with conflicts the shares of part-time and temporary workers are lower than in non-conflict firms. In other words, when workers are organized (i.e., there is a collective agreement at firm level) there are more labour conflicts with lost working hours and when there are more workers with 'less power' in front of their employer (i.e., the higher the share of different atypical contracts) there are less labour conflicts. In the same vein, the percentage of firms without collective agreement at firm level is lower in those without conflicts, with the exception of firms with NLF labour conflicts. Collective agreement at firm level is a proxy of a high level of organization of

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[3] As a result of this definition of conflict variables we will have a sample size in probits below 38,020. Because of our definition of the no conflict comparison group, we lost those observations with 0 in a specific type of conflict but 1 in a different type of conflict. But, as we explain above, the comparison group is always the same for all types of labour conflicts. Table A2 in the Appendix presents means for all variables for the zeros subsamples in each probit and the differences are negligible.

[4] For a description of all variables see Table A1 and Table A2 in the Appendix.

[5] The column for no conflicts at all corresponds strictly to the estimation of the probit model for strikes. As we said before, Table A2 shows the description of all variables for the zeros of the 4 dependent variables of labour conflicts. Although there are missing cases because the lags of the different dependent variables affect to different cases the means are almost the same for all variables for the comparison group in the all subsamples.

[6] The variable for collective agreement at firm level is defined as a dummy variable. The reference group (no collective agreement at firm level) corresponds to collective agreements at above levels (industry, province, regional or national). In Spain, there is not a 'free' labour market, and in fact all workers are covered by a collective agreement, and the only difference is the level of this agreement. Only very special cases are out from collective agreements at any level (as managers). On more details on collective agreements at firm level and above levels in Spain, see, for example, García-Serrano and Malo (2002 and 2009) or Canal and Rodríguez, 2004).

workers at the workplace (García-Serrano and Malo, 2002 and 2009) and -at descriptive level- the figures in Table 1 are consistent with more conflicts in firms where workers are organized to exert pressure on the firm. However, this descriptive evidence shows an interesting complementary feature: NLF labour conflicts are not correlated with the existence of a collective agreement at firm level (i.e. organization of the workers at the workplace) but with the opposite.

Concerning industries, strikes, lockouts and no conflicts are mainly concentrated (around 70%) in three industries: traditional services, services for the firms, and social services. In addition, for strikes equipment manufacturing is also relevant (10.5%). NLF labour conflicts have a similar pattern, but focusing on social services (43.3%), services for firms (21.6%) and equipment manufacturing (15.6%). Collective conflicts are markedly different, as energy, water and extractive industries, metal processing and equipment manufacturing add more than 60% of all conflicts of this type (although social services is also relevant, adding 16.8% of this type of labour conflict).

Finally, Figure 1 shows a first (descriptive) approach to the persistence of each type of labour conflict (including no conflict at all). The distribution of observations with at least one quarter registering a conflict[7] (or no conflict at all) shows that few conflicts are the most common situations. The smoothest decreasing pattern among conflict variables correspond to strikes, which means that it is the most common type of conflict along time. Any way, beyond 8 quarters with strikes the percentages are rather close to zero (while for the other types of conflict for 4 to 6 onwards). As complementary information, we show the distribution of firms with any type of conflict. Notice that for 1 quarter the percentage of no conflict is below 10% and the decreasing pattern is much smoother than for conflicts series. Although this only a descriptive approach, Figure 1 allows to presume that time persistence is likely more important for strikes than for any other type of conflict, even NLF labour conflicts. Anyway short-term persistence could also exist for labour conflicts other than strikes. The econometric analysis will help us to distinguish the relative relevance of short-term and long-term persistence of each type of conflict.

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[7] Notice that Figure 1 shows quarters registering a labour conflict not conflicts lasting 2, 3, etc. consecutive quarters. For example, when a firm has 10 quarters with strikes, they can be of a few hours in the quarter and in not necessarily consecutive quarters from 1993 to 2002.

3.2. Econometric specification

Past labour conflicts in the firm probably affects to the likelihood of a current labour conflict. This is what we call 'persistence' of conflicts. Therefore, in the analysis of the persistence of labour disputes is essential to tackle the econometric problem known as 'initial conditions'. In our context, initial conditions mean that the probability of having a conflict in the firm at time *t* not only will be affected by whether or not it has had one in *t-1* but also by the possibility that it has had a conflict at the very beginning of the considered period. The econometric literature has been facing this issue for a long time to and in several ways in rather different economic problems (as in the probability of being poor, for example). Recently, Wooldridge (2005) proposed a relatively simple econometric specification, modeling the distribution of the conditional unobserved effect at the initial value along with any exogenous explanatory variable. For certain non-linear models (among them the dynamic probit model for random effects) Wooldridge's proposal permits a simple estimation by means of the most commonly used statistical software.

In our database, we have 37 quarters in total. We will assume that the observations in the first point in time correspond to the initial conditions of our model and, therefore, we will refer to them as moment 0. Hence the model will cover the periods 1 to 36, which correspond to the quarters 2 to 37 of our database. Each firm in each quarter may or not may have a labour conflict. If the firm does not register a conflict this variable has the value 0, otherwise the variable has the value 1. This is our dependent variable whose probability of occurrence we want to explain.

Thus, for a firm *i* the conditional probability of having a labour conflict with lost working hours will be:

$$P(y_{it} = 1 \mid y_{it-1}, z_i, x_{it-1}, c_i) \tag{1}$$

Where y_{it} is the existence of a labour conflict in the firm *i* at time *t*, z_i includes variables which can change from firm to firm but which do not change over time (such as industry), y_{it-1} is the value of the dependent variable in the previous period and is included to take into account the effect of the state dependence, x_{it-1} includes variables affecting the probability of having a labour conflict and can change from firm to firm and over time, and c_i denotes the specific individual effect of each firm. The variables that change between firms and over time include a lag to avoid problems of endogeneity.

We parametrize the individual effect as follows[8]:

$$c_i = \pi x_{i0} + \delta y_{i0} + \mu_i \qquad (2)$$

Here, we are assuming that the individual effect is related to the initial conditions of conflict and the explanation variables, with the addition of an unobserved individual effect μ_i which, it is a probit of random effects, will be distributed according to a normal distribution $N(0,\sigma^2)$.

The final specification of the random effects probit model is as follows:

$$P(y_{it} = 1 \mid y_{it-1}, z_i, x_{it-1}, x_{i0}, y_{i0}) = \alpha y_{it-1} + \gamma z_i + \beta x_{it-1} + \pi x_{i0} + \delta y_{i0} + \mu_i + \varepsilon_{it} \qquad (3)$$

where the parameters being estimated are α, γ, β, π, and δ.

In order to have an easier interpretation of the results, we should take into account how the variables that change between firms and over time affect the probability of labour conflict in each quarter. These variables (included in the set of variables denoted by x) have two different effects on the probability of recording a conflict. On one hand, we have the short-term effect on the probability of conflict thanks to the estimated coefficient $\hat{\beta}$, while the long-term effect is obtained by the estimated coefficient $\hat{\pi}$ because this is the effect of the initial condition of each variable or, in other words, the persistent effect of this variable on the probability of having a labour conflict. Thus, we have the linkage between unobserved heterogeneity and the initial condition of this variable. Similarly, the coefficients $\hat{\alpha}$ and $\hat{\delta}$ provide us with the short and long-term effect of for past labour conflicts on the probability of having a conflict in the present. Specifically, the coefficient $\hat{\alpha}$, if it is strictly positive picks up the effect of true state dependence, and the coefficient $\hat{\delta}$ shows the impact of the relations between the unobserved heterogeneity between firms and the level of confliction at the initial moment.

Finally, the individual heterogeneity that does not change over time is picked up by μ_i. In a random effects probit estimation this effect is measured by an intra-class correlation coefficient, usually denoted as ρ. This coefficient gives the quantity of the unexplained variance (conditional on the observed variables) which is attributed to the individual effect.

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[8] The same parametrization is used by other authors in different contexts, as Hernández-Quevedo et al., (2008) for a problem of the persistence of health conditions.

The estimation of the variance, σ^2, indicates the dispersion of the unobserved heterogeneity. Hence this information is also included in the table with the econometric estimations.

3.3. Econometric results.

We estimate a random effects probit for each definition of labour conflict with lost working hours described in previous sections. We have two groups of independent variables. The first one (z_i) is composed by the following variables not varying on time: industry and region. Both are defined as sets of dummies. The second group (x_{it-1}) corresponds to the variables changing on time and includes the existence of a collective agreement at firm level, the proportion of temporary workers, the proportion of full-time workers, the size of the firm (as a set of 3 dummies), and the quarterly growth rate of the GDP[9].The results shown in Table 2 are in terms of the marginal effects of variables[10] in order to have an easier interpretation.

To test the relevance of the legal form of the conflict we begin comparing the second row of all types of labour conflict. Why? This row includes the coefficients of the initial conditions of the corresponding dependent variable of labour conflict. Therefore, a positive coefficient means that conflicts in the far past are affecting to the likelihood of current conflicts. If the legal form helps to decrease this long-term 'unrest' in the labour relations at the firm level, this long-term effect will be lower for those forms of conflict with a legal form. Here, these forms of labour conflict are strikes, lockouts and collective conflict, as opposed to NLF labour conflicts (last column of Table 2).

For all types of conflicts there are relevant long-term effects with the exception of NLF labour conflicts: for strikes the long-term impact is an increase of 9.7 percentage points (pp), for collective conflicts is 3.8% and for lockouts 3.9 pp, while for NLF labour conflicts is not statistically significant[11]. Therefore, NLF conflicts are not presumably related with a confliction labour relationship at a firm level, but with specific not long-lasting problems. Therefore, the legal form of a labour conflict is not associated with a lower confliction at firm level, but the opposite. Is the legal regulation behind this long-

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[9] As we explained in previous sections, according to Card (1990) and McCollen (1990) the GDP growth rate provides a test for the joint costs theory of strikes.
[10] The estimated coefficients for all probit models are available upon request.
[11] And anyway the estimated marginal effect is rather close to zero (0.2 pp).

term persistence of legal labour conflicts or harder conflicts are those taking the form of strikes, collective conflicts or lockouts? Our estimation can not allow us to give a definitive answer to this question, but as we have a dynamic model, we can conclude that the legal regulation of labour conflicts does not provide an effective framework to decrease long-term confliction, especially in the case of strikes (even considering that strikes might be the channel for the hardest labour conflicts).

The first row presents the short-term effect of each type of conflict, i.e., the impact of having a conflict in the *previous* quarter (not in the far past) on the likelihood to suffer the same conflict in the *current* quarter. The largest short-term effect is for strikes which reached 7.2 pp, as compared to 1.3 pp in the case of collective conflicts, 4.6 pp for lockouts and around 2 pp in case of NLF labour conflicts. We want to remark that for strikes and collective conflicts the size of the long-term effect is above the short-term effect (which is represented in the first row (the corresponding lagged dependent variable of labour conflict): 9.7 pp and 3.8 pp in front of 7.2 pp and 1.3 for strikes and collective conflicts respectively.

Another interesting feature of the Wooldridge (2005) proposal in our context is that lagged values of the dependent variable provide a test of the asymmetric information theories of strike. According to these theories, at least in the case of strikes, the long-term effect should be zero, as all relevant information should be disclosed in the long-term, while in the short-term a positive impact should be observed as a strike in the previous quarter could increase new information about the counterpart in labour relationships.

We explained above that all conflicts considered in Table 2 have relevant time inertia in the short and also in the long-term, including strikes (with the key exception of NLF labour conflicts, with only short-term inertia). Therefore, if there are information asymmetries they persist for all types of labour conflicts and for the strikes in a very clear way (i.e., with the highest long-term impact on the probability of a conflict in the current quarter.)[12] This is exactly the opposite of the predictions of asymmetric information

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[12] A similar result for Spain was found by Jiménez-Martín et al. (1996), but with results of other variables according to the asymmetric information models (variables not included in our database such as wage claims in collective bargaining). The econometric specification used by Jiménez et al. (1996) to avoid the problem of incidental parameters was a linear probability model (one of the best specification options before Wooldridge, 2005).

theories. Only for NLF labour conflicts, an interpretation in terms of asymmetric information theories would be consistent with the results[13].

Nevertheless, we might obtain a partial support for asymmetric information theories if at least the relative size of the short-term effect would be larger that the long-term effect. By contrast, the short and long-term effects of strikes are virtually identical (an increase around 9 pp), while the short-term effect is even a bit lower than the long-term effect. The results are similar for collective conflicts, while for lockouts the short-term effect is slightly above the long-term effect. Therefore, only for lockouts there would be any sort of decrease in asymmetric information (if we assimilate that these conflicts might also be used as informative means about the other agents). Concerning strikes, in terms of the theory of asymmetric information there is no learning over time as the influence of recent and very past strikes are rather the same and, therefore, information asymmetries would persist, which is additional evidence against asymmetric information theories on strike[14].

3.4. Other variables

We will now comment the results of the rest of variables included in the estimations, beginning with the existence of an agreement and the structure of the staff.

The existence of a collective agreement at firm level is only clearly relevant for the likelihood of strike: the short-term effect is rather low an increase of below 1 pp and the long-term effect is 2.4 pp. These results are coherent with collective agreements at firm level as indicators of a relevant level of workers' organization at the workplace to protect their interests (García-Serrano and Malo, 2002 and 2009; Canal and Rodríguez, 2004). If workers are effectively organized at the workplace (even as to sign a collective agreement with the employer), the workers' costs for organizing themselves for a strike are lower and, then, the likelihood of strike will be higher. However, for the rest of conflicts the same interpretation is only valid in the long-term for NLF conflicts, but with a very small effect (an increase of 0.5 pp). When there is a collective agreement at the firm level there is also an increase of the likelihood of a lockout in the short-term, but this effect is also rather small (an increase of 0.6 pp). Therefore, in fact, the interpretation that a better organization

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[13] Although, we want to remark that these theories only consider the case of strikes and not other types of labour conflicts.

[14] And the same would be applicable to collective conflicts, considering this type of labour conflict as a way to obtain information on the other economic agents.

of workers at the firm-level is related with a more conflictive climate of labour relations at the workplace has only a relevant size for strikes in the long term.

Regarding the workforce structure, the percentage of full-time workers and the percentage of temporary workers have been included in the initial moment and in t-1, to check whether workers with 'atypical' contracts are weaker and, then, the likelihood of conflict is lower. An increase of 1 point of the proportion of full-time workers in the previous quarter increases the probability of strike in the current quarter in 7 pp, while there is not a long-term significant effect of this variable. However, there is a negative long-term effect of the proportion of full-time workers on the probability of collective conflict (-0.1 pp) and NLF conflict (-1.3 pp). On the other hand, an increase of 1 point in the percentage of temporary workers in the previous quarter increases the probability of strike in 1.9 pp in the current worker, with a negative long-term effect of 3.3 pp. For the rest of labour conflicts, only there is a significant negative long-term effect of the percentage of temporary workers on the probability of collective conflicts (although it is rather close to zero, almost 0.1 pp).

Therefore, we only obtain very limited empirical support to the theoretical link between a greater relevance of atypical contracts and weakness of workers at the workplace to sustain an open conflict with the employer. Even for the lockout (an answer of the employer to a labour conflict) we do not find any support at all. Only for strikes the results are coherent with such interpretation, with the main (and relevant) exception of the positive effect of the one-lagged percentage of temporary workers on the probability of strike in the current quarter.

With respect to the characteristics of the firm we have size and industry.

As for the size of firms, the results show that all firms below 1500 workers at the initial moment are less likely to suffer strikes. This result would be in line with the theory of asymmetric information, as in smaller firms (always considering that we only have firms with 500 or more workers) unions will have better information about the firm and strikes are not so used as informational devices. There are similar results, but in the short-term for lockouts and NLF labour conflicts (only for those firms between 500 and 700 workers). However, the support of an interpretation following asymmetric information theories is limited, as we also obtain a positive short-term effect for firms between 500 and 700

workers for the case of strikes. Then, the empirical evidence is not really conclusive about the relationship between firm's size and asymmetric information theory. Nevertheless, we have also to remark that we only have firms with 500 or more workers, i.e. firms that usually are considered all of them as 'large'.

On industries, there is not huge differences respect to the construction sector (which is the reference). Anyway, the significant differences are always negative respect to the reference industry. For the case of strikes, metal processing and the residual group of manufacturing industries have a likelihood of conflict around 1.6 pp lower, while for sanitation services is 2.5 pp lower. For collective conflicts, there are no significant differences by industry. For lockouts, metal processing, equipment manufacturing, other manufacturing industries, personal services and sanitation services, decreases each of them the probability of lockout in around 0.5 pp. Finally, for NLF labour conflicts, metal processing, the residual group of manufacturing industries and traditional services, decreases the probability of conflict in around 0.3 pp. Therefore, metal processing and manufacturing industries are industries relatively less conflictive.

We have two economic context variables: the region in which the firm is located and the rate of GDP growth.

On regions, the results show that the reference region consisting of Castilla-León and Castilla-La Mancha (located at the centre of Spain) is the most conflictive one because the rest of regions with statistically significant coefficients have a negative impact on the probability of conflict (with only one exception in the case of NLF conflicts). In this regard, Madrid and the Islands are the least conflictive regions considering strikes and lockouts. For NLF conflicts the North-East region has a positive effect on the probability of this type of conflicts (an increase of 1.1 pp). For collective conflicts, there are no significant differences among regions.

About the GDP growth rate (with a short-term and a long-term effect), the results show a countercyclical impact in the short-term for all types of conflict, with the exception of NLF conflicts (where it is pro-cyclical). Anyway, apart of the case of strikes, the size of all these effects is rather low (close to zero pp and only 0.2 pp as much for NLF conflicts). For strikes, the impact of an increase of 1 pp in the GDP growth rate of the previous quarter increases the likelihood of strike in 2 pp. A counter-cyclical long-term effect of the GDP

growth rate also exists for strikes, but the size of this effect is almost negligible. A pro-cyclical long-term effect on lockout probability is also found (but rather low, 0.1 pp). The previous international literature (Kennan, 1986) shows an empirical regularity, pointing out that the strike incidence is procyclical and the strike duration is countercyclical. Therefore, our results are not strictly coincident with this literature. However, in the case of Spain, Jiménez-Martín et al. (1996) found that the effect of the unemployment rate on the probability of a strike is positive, which is according to our results (because a higher rate of unemployment is associated with a lower rate of GDP). Following Card (1990) in economic expansions the cost strikes increases (for the firm) and decreases the probability of strike, which is consistent with the theory of joint costs.

4. Conclusions

In this article, we have used a large firms' quarterly panel from Spain (1993Q1-2002Q1) to analyze the time persistence of labour conflicts at firm level. Because of the characteristics of this database we can compare different types of labour conflicts respect a group of observations without any type of conflict at all. In addition, we have three different types of labour conflicts according to Spanish Labour Law (strikes, collective conflicts and lockouts), plus additional situations with lost working hours at firm level but without any of the three legal forms of labour conflicts considered (which we have named as NLF conflicts, no legal form conflicts).

Therefore, we can check labour conflicts with a stated legal form (mainly strikes) have higher or lower time persistence than NLF labour conflicts, which is a test about the capacity of legal regulation to affect to confliction of labour relationships in firm. As the probability of labour conflicts can be not only affected by different characteristics of the firms and workers but also by past conflicts in the firm, we estimate random-effects probit models following Wooldridge (2005). The econometric specification proposed by Wooldridge (2005) allows including lagged and initial conditions values of different variables (included the dependent variable of labour conflict) in order to separate the effects of short-term time persistence (from quarter to quarter) and long-term time persistence (i.e. the impact of conflicts held at the first observed quarter of the database, capturing the past 'history' of the firm).

We obtain two main relevant results about time persistence of conflicts.

First, NLF labour conflicts do not have long-term persistence, and their time persistence is only in the short-term (from the previous quarter to the current quarter). However, the three types of 'legal' labour conflicts suffer both, short and long-term persistence of confliction at the firm level. Strikes present the higher levels of persistence in both terms. Therefore, legal regulation does not provide an accurate channel to reduce confliction effectively in labour relationships, in special for strikes. It is possible to argue that our results do not exclude a selection of harder conflicts between types, selecting towards the 'legal' forms -and especially to strikes- those problems very difficult to solve. Even in this case, the results can be interpreted as the non-existence of an effective legal way to solve conflicts decreasing long-term confliction at the firm level.

Second, according to asymmetric information theories of strike, they are used as informational devices. Then, these theories would predict that successive strikes would inform workers and firms about the characteristics of the other economic agent, and the short-term effect would be smaller than the long-term effect. Such result would mean a decrease in informational asymmetries thanks to past strikes. As both effects are rather similar (even a bit larger the long-term effect), our results do not support at all predictions of asymmetric information theories.

As a side objective, we have checked how the 'power' of workers affects to the event of a labour conflict in the short and in the long-term. We have used as proxies the existence of a collective agreement at the firm level and the relative share of atypical contracts in the working staff. The first one measures the level of organization of workers at the firm level, because in firms where workers are effectively organized to bargain a collective agreement with their employer workers can exert more pressure and organize a labour conflict against their employer with lower costs. Concerning atypical contracts (here, temporary and part-time contracts), the hypothesis is that a higher percentage of this contracts in the stock of workers of the firm will decrease the probability of a 'legal' labour conflict, as their instability and lower attachment to the firm would decrease their motivation to be involved in a labour conflict. Only for strikes, the existence of agreements at firm level increases in the short and in the long run the likelihood of conflict, confirming that this level of organization of workers is relevant to understand the persistence of a

conflictive climate of labour relationships at the firm level. However, atypical contracts do not have a relevant impact on conflicts, with the exception of strikes, where they have a no totally coherent picture with the hypothesis explained above (as a higher percentage of temporary workers increases in the short-term the likelihood of a strike).

Therefore, our results provides new and rich empirical evidence about labour conflicts going beyond the usual borders of strikes analyses, and providing a first approach to the relevance of the legal form of different types of conflicts. These new evidence opens the door to further research about the role of legal regulation on the persistence of labour relations conflicts in firms.

Table 1. Descriptive statistics of main variables by conflict type

	Strike	S.E.	Coll.Conflict	S.E.	Lockout	S.E.	NLF Conflict	S.E.	No Conflict	S.E.
	Mean	S.E.	Mean	S.E.	Mean	S.E.	Mean	S.E.	Mean	S.E.
Conflict variable	0,0730		0,0042		0,0201		0,0243			
Firm Size	1574	2101	2042	2128	1769	1917	1960	2820	1253	1408
Full Time Workers Rate	0,9511	0,1164	0,9663	0,0839	0,9532	0,1163	0,9052	0,1090	0,9202	0,1592
Temp. Workers Rate	0,1905	0,2551	0,1398	0,1955	0,2427	0,3255	0,3432	0,2168	0,2524	0,2959
Building	0,0245		0,0099		0,0171		0,0141		0,0178	
Energy, water & extr. ind.	0,0640		0,1683		0,0588		0,0219		0,0392	
Metal processing	0,0786		0,1287		0,0342		0,0313		0,0708	
Equipment manufacturing	0,1054		0,3366		0,0702		0,1563		0,0869	
Other manuf. Industries	0,0494		0,0495		0,0171		0,0266		0,0655	
Traditional services	0,2234		0,0396		0,2030		0,0703		0,1675	
Services for the firms	0,2098		0,0990		0,1689		0,2156		0,2600	
Social Services	0,2258		0,1683		0,4231		0,4328		0,2577	
Personal services	0,0132		0,0000		0,0057		0,0094		0,0200	
Sanitation services	0,0061		0,0000		0,0019		0,0219		0,0146	
Coll.Agr.Firm Level	0,6044		0,7822		0,4478		0,1953		0,3777	
N observations	2714		170		711		925		25070	

Note: Labour conflict variables are not mutually exclusive, but 'No conflicts' category does not include any observation with any type of conflict.
Source: ECL 1993Q1-2002Q1

Table 2. Marginal Effects of random-effects probit models on the likelihood of labour conflict.

Variable	Strike	Sig.	Collective Confl.	Sig.	Lockout	Sig.	NLF Confl.	Sig
Lag_Conflict	0,07201	***	0,01336	***	0,04598	***	0,01965	***
IC_Conflict	0,09736	***	0,03821	***	0,03936	*	0,00223	
lag_Coll.Agr.Firm Level	0,00626	*	0,00014		0,00561	***	0,00026	
IC_Coll.Agr.Firm Level	0,02373	***	0,00005		0,00200		0,00480	***
lag_Temp.Workers	0,01917	***	0,00024		0,00036		0,00266	
IC_Temp.Workers	-0,03276	***	-0,00073	***	-0,00268		0,00140	
lag_Full Time	0,06761	***	0,00033		0,00684		0,00231	
IC_Full Time	-0,01295		-0,00111	**	-0,00628		-0,01283	***
lag_Firm Size (701-1500 workers)	0,00549		-0,00005		-0,00411	***	-0,00039	
IC_Firm Size (701-1500 workers)	-0,01222	**	-0,00002		0,00054		-0,00229	
lag_Firm Size (<701 workers)	0,01204	**	0,00004		-0,00496	***	-0,00313	**
IC_Firm Size (<701 workers)	-0,02481	***	-0,00013		-0,00033		-0,00259	
lag_GDP growth	-0,02030	***	-0,00007	***	-0,00078	***	0,00151	***
ic_GDP growth	-0,00034	*	-0,00001		0,00135	***	0,00016	
Region: North	-0,00843		0,00005		-0,00132		0,00357	
Region: Madrid	-0,02326	***	-0,00004		-0,00602	***	-0,00062	
Region: East Coast	-0,01904	***	0,00004		-0,00399	***	-0,00251	
Region: Andalusia&Extremadura	-0,01066	*	-0,00009		-0,00257	*	0,00343	
Region:North-East (Rioja, Navarra, Aragon)	-0,00750		0,00004		-0,00369	***	0,01153	***
Region: Balearic and Canary Islands	-0,02290	***	-0,00012		-0,00497	***	0,00028	
Energy, water, and extractive industries	-0,01566		-0,00009		-0,00273		-0,00262	
Metal processing	-0,01584	*	0,00000		-0,00487	**	-0,00382	**
Equipment manufacturing	-0,01524		0,00018		-0,00408	*	-0,00022	
Other manufacturing industries	-0,01767	**	-0,00010		-0,00541	***	-0,00293	*
Traditional services	0,00154		-0,00020		-0,00304		-0,00385	**
Services for the firms	-0,00658		-0,00017		-0,00301		0,00019	
Social Services	0,00742		-0,00007		0,00327		0,00089	
Personal services	-0,00824		-0,00019		-0,00480	**	-0,00284	
Sanitation services	-0,02528	***	-0,00017		-0,00508	*	0,00368	
Pr(conflict=1| u_i=0)	0,03241		0,00013		0,00518		0,00440	
Sigma_u	0,51296		0,61739		0,56403		0,70550	
(s.e.)	0,02474		0,12577		0,04895		0,04655	
rho	0,20831		0,27597		0,21347		0,33232	
(s.e.)	0,01591		0,08141		0,03178		0,02928	
N observations	27784		24390		25120		25344	
N groups	1825		1817		1830		1825	

IC: Initial Conditions (i.e., values at the first wave). See main text for detailed explanations on initial conditions variables.
Marginal effects for dummy variables correspond to a discrete change from 0 to 1.
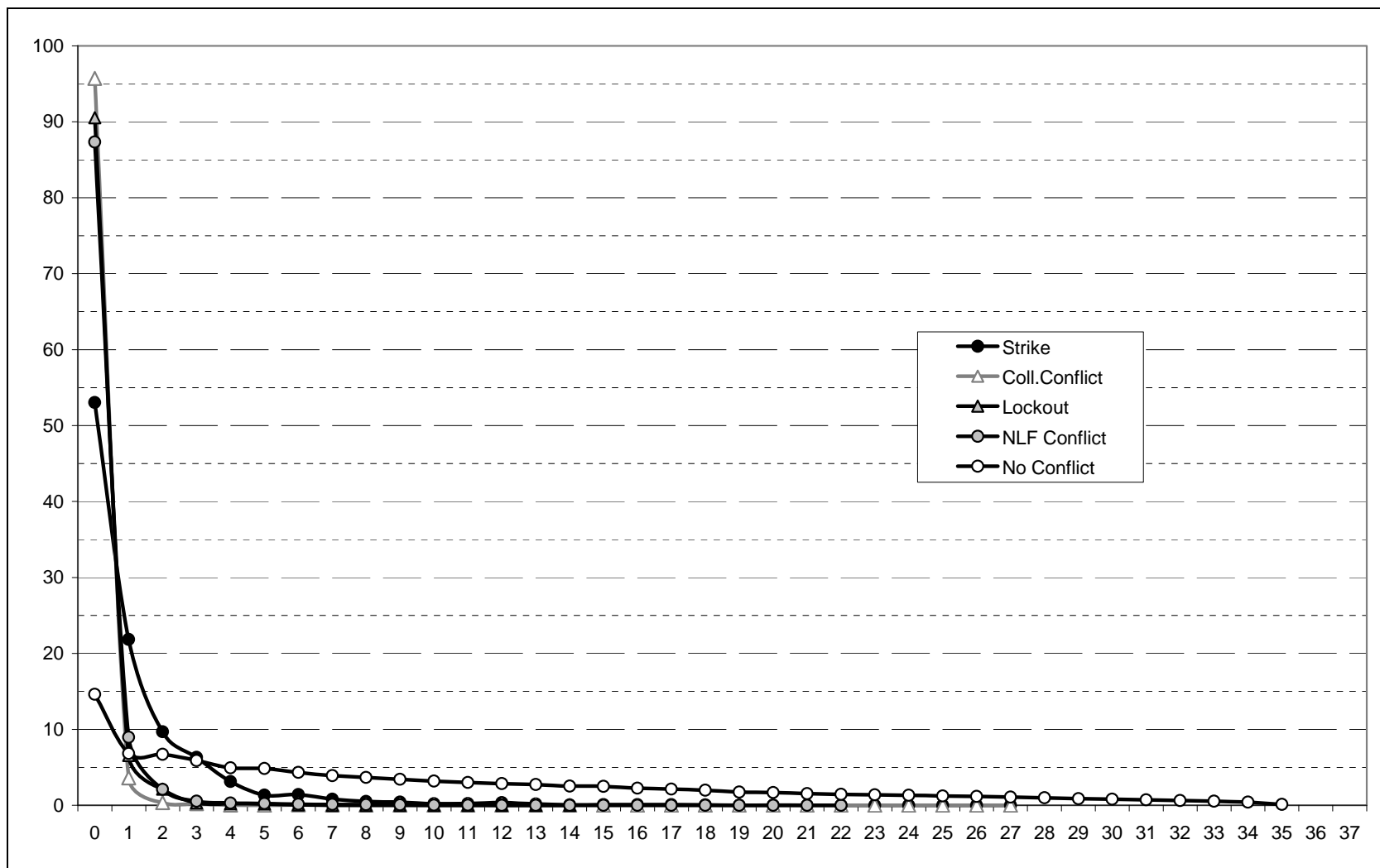Source: ECL 1993Q1-2002Q1

Figure 1. Distribution of labour conflicts by number of quarters with conflicts (by conflict type). Note: 'No Conflict' means any type of conflict at all. Source: ECL 1993Q1-2002Q1

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Table A1. Descriptive statistics of all variables for the subsamples of observations with labour conflicts by type and no labour conflicts at all.

	Strike	S.E.	Coll.Conflict	S.E.	Lockout	S.E.	NLF Conflict	S.E.	No Conflict	S.E.
	Mean	S.E.	Mean	S.E.	Mean	S.E.	Mean	S.E.	Mean	S.E.
Conflict variable	0,0730		0,0042		0,0201		0,0243			
lag_Conflict variable	0,3744		0,3168		0,2846		0,3078			
IC_Conflict variable	0,2051		0,1089		0,0209		0,5625			
lag_Coll.Agr.Firm Level	0,6011		0,7525		0,4896		0,3359		0,3754	
IC_Coll.Agr.Firm Level	0,6270		0,7723		0,4744		0,4172		0,4009	
Lag_Temp.Workers Rate	0,1885	0,2614	0,1313	0,2023	0,2389	0,3243	0,3403	0,2848	0,2543	0,2953
IC_Temp.Workers Rate	0,1772	0,2555	0,1074	0,1237	0,2303	0,3169	0,3321	0,3173	0,2665	0,2766
Lag_Full Time Workers Rate	0,9544	0,1146	0,9663	0,0919	0,9524	0,1182	0,9101	0,1355	0,9209	0,1581
IC_Full Time Workers Rate	0,9592	0,0998	0,9657	0,0962	0,9563	0,1195	0,9193	0,1380	0,9358	0,1279
lag_Firm Size (701-1500 w.)	0,4661		0,3465		0,4345		0,4844		0,4649	
IC_Firm Size (701-1500 w.)	0,5000		0,4059		0,4307		0,3734		0,4356	
lag_Firm Size (<701 w.)	0,2907		0,2772		0,2391		0,1875		0,3369	
IC_Firm Size (<701 w.)	0,2587		0,2079		0,2827		0,3359		0,3915	
lag_GDP Growth Rate	2,369	1,524	3,112	1,815	3,473	1,497	3,756	1,144	3,341	1,242
ic_GDP Growth Rate	-1,013	2,521	-0,979	2,698	1,512	2,932	0,706	3,099	-0,182	2,967
Region: Center (w/o Madrid)	0,1021		0,0693		0,1233		0,0313		0,0612	
Region: North	0,1632		0,2970		0,1841		0,1125		0,1100	
Region: Madrid	0,1867		0,1584		0,1461		0,1859		0,2579	
Region: East Coast (Catalonia, Valencia, Murcia)	0,1961		0,2277		0,2144		0,1516		0,2446	
Region: South-West (Andalusia, Extremadura)	0,1980		0,1188		0,2372		0,2188		0,1746	
Region:North-East (Rioja, Navarra, Aragon)	0,1167		0,1188		0,0645		0,2578		0,0890	
Region: Balearic and Canary Islands	0,0372		0,0099		0,0304		0,0422		0,0628	
Firm Size	1574	2101	2042	2128	1769	1917	1960	2820	1253	1408
Full Time Workers Rate	0,9511	0,1164	0,9663	0,0839	0,9532	0,1163	0,9052	0,1090	0,9202	0,1592
Temp. Workers Rate	0,1905	0,2551	0,1398	0,1955	0,2427	0,3255	0,3432	0,2168	0,2524	0,2959
Building	0,0245		0,0099		0,0171		0,0141		0,0178	
Energy, water & extr. ind.	0,0640		0,1683		0,0588		0,0219		0,0392	
Metal processing	0,0786		0,1287		0,0342		0,0313		0,0708	
Equipment manufacturing	0,1054		0,3366		0,0702		0,1563		0,0869	
Other manuf. industries	0,0494		0,0495		0,0171		0,0266		0,0655	
Traditional services	0,2234		0,0396		0,2030		0,0703		0,1675	
Services for the firms	0,2098		0,0990		0,1689		0,2156		0,2600	
Social Services	0,2258		0,1683		0,4231		0,4328		0,2577	
Personal services	0,0132		0,0000		0,0057		0,0094		0,0200	
Sanitation services	0,0061		0,0000		0,0019		0,0219		0,0146	
Coll.Agr.Firm Level	0,6044		0,7822		0,4478		0,1953		0,3777	
N observations	2714		170		711		925		25070	

Table A2. Descriptive statistics of all variables for the subsamples of observations without any type of conflict in each random-effects probit model.

	Strikes=0		Coll.Conflict=0		Lockout=0		NFL Conflict=0	
	Mean	S.E.	Mean	S.E.	Mean	S.E.	Mean	S.E.
lag_Dep.Variable	0.0563		0.0031		0.0155		0.0199	
IC_Dep.Variable	0.0443		0.0011		0.0021		0.4001	
lag_Coll.Agr.Firm Level	0.3754		0.3667		0.3657		0.3644	
IC_Coll.Agr.Firm Level	0.4009		0.3922		0.3917		0.3915	
Lag_Temp.Workers Rate	0.2543	0.2953	0.2567	0.2974	0.2575	0.2984	0.2588	0.2964
IC_Temp.Workers Rate	0.2665	0.2766	0.2701	0.2769	0.2705	0.2779	0.2715	0.2776
Lag_Full Time Workers Rate	0.9209	0.1581	0.9190	0.1603	0.9193	0.1598	0.9186	0.1596
IC_Full Time Workers Rate	0.9358	0.1279	0.9342	0.1297	0.9344	0.1295	0.9339	0.1297
lag_Firm Size (701-1500 w.)	0.4649		0.4647		0.4641		0.4650	
IC_Firm Size (701-1500 w.)	0.4356		0.4327		0.4322		0.4323	
lag_Firm Size (<701 w.)	0.3369		0.3386		0.3381		0.3366	
IC_Firm Size (<701 w.)	0.3915		0.3971		0.3968		0.3965	
lag_GDP Growth Rate	3.341%	1.242	3.375%	1.233	3.374%	1.238	3.381%	1.232
ic_GDP Growth Rate	-0.182%	2.967	-0.130%	2.982	-0.102%	2.990	-0.110%	2.988
Region: Center (w/o Madrid)	0.0612		0.0601		0.0610		0.0597	
Region: North	0.1100		0.1080		0.1084		0.1083	
Region: Madrid	0.2579		0.2610		0.2597		0.2601	
Region: East Coast (Catalonia, Valencia, Murcia)	0.2446		0.2465		0.2464		0.2444	
Region: South-West (Andalusia, Extremadura)	0.1746		0.1735		0.1742		0.1747	
Region:North-East (Rioja, Navarra, Aragon)	0.0890		0.0877		0.0873		0.0895	
Region: Balearic and Canary Islands	0.0628		0.0633		0.0631		0.0632	
Firm Size	1253	1408	1243	1380	1248	1384	1247	1386
Full Time Workers Rate	0.9202	0.1592	0.9181	0.1614	0.9184	0.1609	0.9176	0.1615
Temp. Workers Rate	0.2524	0.2959	0.2546	0.2971	0.2552	0.2980	0.2563	0.2976
Building	0.0178		0.0177		0.0181		0.0179	
Energy, water & extr. ind.	0.0392		0.0387		0.0385		0.0380	
Metal processing	0.0708		0.0703		0.0697		0.0695	
Equipment manufacturing	0.0869		0.0857		0.0849		0.0856	
Other manuf. industries	0.0655		0.0662		0.0654		0.0657	
Traditional services	0.1675		0.1691		0.1690		0.1679	
Services for the firms	0.2600		0.2618		0.2610		0.2614	
Social Services	0.2577		0.2555		0.2587		0.2590	
Personal services	0.0200		0.0200		0.0199		0.0200	
Sanitation services	0.0146		0.0150		0.0149		0.0151	
Coll.Agr.Firm Level	0.3777		0.3702		0.3697		0.3677	
N observations	25070		24220		24409		24419	

S.E. (Standard Errors) are only included for continuous variables.
IC: Initial Conditions
Source: ECL 1993Q1-2002Q1