BARGAINING ABOUT WAGES:
EVIDENCE FROM SPAIN

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and aggregate controls do not have any significant effect on duration probably because of the lack of time series variation. In any case, we stress the results on industry strike level as having a positive but small effect and the negative effect of the price volatility.

c. Initial claim and offer

Table 5.6.a and Table 5.6.b present the findings about claim and offer determination. For the sake of simplicity, Table 5.6.a presents an homogeneous specification for both the initial claim and offer which has been estimated using the two-stage GMM-IV method proposed by Arellano and Bond (1991). Columns (1) and (3) report the results for the model in levels while columns (2) and (4) present those for the first differences specification. Although Table 5.6.b presents the same specification we have replaced time dummies with aggregate initials (for both the union and the firm) to calibrate the importance of such variables. We only report first differenced models in Table 5.6.b. The parameters have been estimated using a two-stage GMM-IV method and a three-stage GMM-IV. This last method takes into consideration the covariance among errors in both equations for comparative purposes.

Concerning to testing results, a nominal neutrality restriction[149] (not imposed in estimation) is accepted in all the differenced specifications. On the other hand, the specific effects do not seem extremely important in any

[149]The nominal neutrality implies the restriction that the sum of the coefficients of the nominal variables is one. The test is distributed as a χ^2_1.

equation[150]. Neither first order and second order serial correlation tests for the model in levels nor the Holtz-Eakin test which compare the model in levels and first differences indicate the presence of important specific effects. Finally, the joint estimation of the CLAIM and OFFER equations detects a significant positive correlation (0.26) between the errors in both equations but the parameter estimates do not change when we consider it in the three stage procedure.

Regarding claim setting, the model is poorly determined[151] especially when considering time dummies instead of the variable representing union aggregate initial. Although they have in most cases the correct sign, neither firm nor BU variables have a significant impact in claim determination (though there are some notorious exceptions like the change in sales per employee and the relative wage). The same comments apply to those variables representing the labour market conditions. Note that there is evidence in favour of much more influence of aggregate variables than firm variables on wage increase setting. In fact, all the explanatory power is concentrated in the past claim, the expected inflation increase, the mean wage increase in the sector, the aggregate union initial, the set of union variables, the lagged strike length and the delay in starting the bargaining process.

The results for the offer equation are rather similar to those for the claim setting. Some differences, however, must be pointed out. First, the

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[150]This is probably a direct consequence of the fact that firm's and/or BU variables are poorly determined.

[151]One of the most important reasons for this is the small size of the relevant (in estimation) sample. We shall note that simpler models do not alter significantly the main findings.

initial offer is not positively related to the initial claim which is, in our opinion, a direct consequence of the fact that the offer must be compulsorily announced at the beginning of the bargaining process. Consequently, the firm has not strong incentives to reveal its information. Thus, it is not expected strong correlation between the offer and the proxies for the profitability level of the firm. The findings fully confirm our guess. The coefficient of the level of profits has the correct sign and is significant but the implicit elasticity is small (less than 0.05). In contrast with the initial claim, the proportion of CCOO in the workers council is the only significant union variable and increases the initial offer. Additionally, the length of the past strike lowers the initial offer and the delay in starting the bargaining process increases it. This means that negotiations which start later have lower uncertainty (the initial disagreement is lower). The labour market conditions significantly affect to the initial offer with the industry activity level increasing it and the unemployment level in the local market decreasing it.

d. The wage equations

We present in tables 5.7, 5.8 and 5.9 some GMM-IV estimates for the wage equation. Table 5.7 reports the results with the whole sample while Table 5.8 presents those with the strike non-strike subsamples. The difference as regards Table 5.9 is the method used for estimating the model. While in the first two tables we estimate the model in levels, we use a first differences approach for the last table. The reason for these two different procedures is to test whether the negotiation process is carried

out at an aggregate level or, on the contrary, the unobserved heterogeneity determines most of the negotiation process. In column (1) of Table 5.7 neither decision nor strike duration are instrumented. In column (2), both are instrumented using variables date t-2 and earlier while in column (3) we replace the strike outcome by its predicted value in a year by year Probit.

Regarding the results of Tables 5.7 and 5.8, the first question to note is the importance of dynamics in the determination of the wage increases in those equations where we do not control for the heterogeneous effects. When we drop out the lagged wage increase of the equation, all the tests show severe misspecification problems[152]. Second order serial correlation tests in Table 5.7 detect that heterogeneous effects are not fully removed. The presence of this kind of serial correlation recommend us to estimate the model by first differences while trying to adequately instrument the strike indicator and the duration variable. These results are presented in columns (1) to (3) of Table 5.9. We could summarize the main statistical results as follows. First, the non-significance of the lag of the endogenous variable confirms the importance of the heterogeneity of the bargaining units in the negotiation process. Second, we find first order serial correlation as well as absence of second order correlation which means that the error in levels is white noise. Finally, the test for over-identifying restrictions shows the adequacy of the set of instruments used. Thus, the differenced version of the model seems adequate for the analysis.

We are now going to answer the set of questions previously formulated. The Sargan difference test, which compares the set of instruments

[152]Although we do not present these results they are available on request.

respectively of columns (1) and (2) of Table 5.9 shows an endogeneity problem of the strike variable. Moreover, when replacing the set of instruments for the strike indicator with the predicted strike threat, the value of the test reduces considerably. This suggests that the lags of the strike indicator are poor instruments probably because all past information is taken into account by the union and the firm while negotiating current wages. However, the substitution of the strike indicator (column (1)) by the prediction of the strike threat (column (3)) does not change significantly the parameter estimates and does not improve the main statistics of the model. Third, comparing the estimates using all the sample with the estimates in the non-strike subsample we clearly reject the null of equal coefficients[153]. Fourth, there is some selection problem in the wage increase induced by the strike outcome. Column (4) of Table 5.9 reports the results corresponding to the subsample non-strike firms[154]. A variable addition test (t-test) over the augmented model with the inverse Mill's ratio rejects the null of absence of sample selection bias.

The previous comments imply that the common assumption maintained in the literature about the exogeneity of strike outcomes is not adequate. However, it does not affect the results obtained in this chapter as a comparison of columns (1) and (2) of Table 5.9 shows. In our opinion, this

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[153]The statistic is 205.8 which is distributed as a χ^2_{28}. A similar test, but comparing the strike and non-strike subsamples, is rejected in the model in levels. The statistic is 164.1 (28) which under the null of equal coefficients is also distributed as a χ^2_{28}.

[154]This subsample is selected with all observations for firms which made no strike in any year. We cannot conduct a test for sample selection with the firms belonging to the strike regime because we loose most of the observations. However, as Wooldridge (1994) shows, the presence of endogenous selection could be tested without worrying about the adequate specification of the equation and considering any of the possible regimes.

could be due to the low quality of the instruments used for the strike variables[155]. On the other hand, it seems that there are important differences between strike and non-strike regimes in the wage increase.

From an economic perspective, we could mention the robustness of the duration effects. This variable which is instrumented with all the available moments (dated t-2 and earlier) shows the expected negative sign in all the specifications under any of the theoretical frameworks mentioned above. Thus, there is evidence in favour of a downward sloping wage-concession schedule, though very short strikes still produce higher wage increases, because the positive coefficient of the strike indicator.

The estimated coefficients of Table 5.9 (column 2) imply that strikes lasting more than 3 days reduce the wage increase, for instance. Moreover, after a very long strike, say one month, the wage increase is reduced by 6.6%. There is also confirmation about the importance of the difference between the initial claim and offer, which is translated into a greater proportion into wage increases for the non-strike sample. This implies greater concession on the part of strikers.

There is also a significant difference in wage increases among the regional unions and UGT and non significant differences between the effects of the nationwide unions. The COLA clause does not seem to have a significant influence on wage increases though this variable suffers a serious identification problem[156]. The size of the BU seems to reduce the negotiated wage increase in the case of the non-strike sample. This is

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[155] As a matter of fact the matrix of instruments related to the strike variables is nearly singular because the high proportion of zeros.

[156] There is strong persistence in COLA decision (up to 90 per cent). Consequently, the effect of a COLA clause is poorly identified.

probably a direct consequence of the fact that larger BU diversify negotiation issues (by considering tenure and/or productivity payments, for instance). It also seems that those firms with relatively lower base wages and higher index of effective hours tend to achieve higher wage increases, especially in the non-strike sample.

Regarding the firm variables, the change in sales per employee exhibits a negative sign, opposite to the expected in the context of the OSAI theory. On the other hand, more profitable firms imply slightly higher wage increase. The proportion of sales in the domestic market is also significant in the whole sample. The greater the proportion of sales in the internal market the lower the wage increase. Thus, exporter firms suffer stronger wage increase pressure from strikers which precisely act as an indicator of competitive pressure. The foreign and public share of the capital of the firms does not imply significant differences in the wages. In fact, firms in hands of the public sector suffering a strike, pay a wage increase premium with respect to firms in hands of foreign agents. This is a direct consequence of the peculiar structure of public firms in Spain in those years. They did not have to worry excessively about performance and competitiveness and, in addition, they had very powerful unions.

The aggregate and industry indicators also show that both the union and the firm are looking at higher level variables when negotiating the wage increase. The industry strike activity level has a very significant effect over the negotiated wage. The industry wage increase mean and the expected inflation level strongly influence the agreement. Notice also that the expected inflation level is much more significant for strikers than non-strikers.

e. Strike non-strike wage differencials and the wage decline

The results we have obtained about wage increase setting permit us to obtain some conclusions about the implicit wage increase differentials among both strike regimes and the magnitude of the wage increase decline. Both set of results are drawn in tables 5.10.a and 5.10.b, respectively. We use the set of parameter estimates reported in Table 5.8 in order to calculate wage increase differentials. We also use the selection terms to correct them when necessary, as Stengos and Swidinsky (1990)[157].

Our sample mean corrected differential is 0.41 percentage points. The uncorrected estimated are roughly the same, because the small effect of the selection terms. Our results is very close to Stengos and Swidinsky sample means estimate (0.36) for a set of Canadian contracts. By industries, the largest differences appear in the Minerals and Chemical and in the Transportation industries while the lowest is observed for the Energy and Utilities industry. We could also note that the estimated differential sharply decreases with the length of a work stoppage. In this sense, after a

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[157] The corrected differential could be expressed as:

$$CD = (1/M).\Sigma_{i=1}^{N}\Sigma_{t=1}^{T} \left\{(\Delta\hat{w}_{it}^{s}/s_{it}=1)-(\Delta\hat{w}_{it}^{\bar{s}}/s_{it}=0)\right\}$$

where M is the number of observations, $\Delta\hat{w}_{it}^{s}$ is the prediction of the strike model (Table 4.8(2)) and $\Delta\hat{w}_{it}^{\bar{s}}$ is the prediction of the non-strike model (Table 4.8(1)), both considering the selection terms. On the other hand, the uncorrected differential is defined as:

$$UD = (1/M).\Sigma_{i=1}^{N}\Sigma_{t=1}^{T} \left\{\Delta\hat{w}_{it}^{s}-\Delta\hat{w}_{it}^{\bar{s}}\right\}$$

where both predictions do not consider the selection terms. Consequently, the difference between CD and UD could be expressed as:

$$CD - UD = \sigma_{w_b s}\hat{\lambda}_{ws} - \sigma_{w_a s}\hat{\lambda}_{w\bar{s}}$$

conflict of two weeks, it falls by a half.

This evidence about the decline of wage settlement is consistent across models. All of them mapping out a negatively sloped concession schedule. Although we could pose some doubt about the magnitude of the coefficient of the strike decision, there is not any doubt about the sign of the slope. Despite the negative slope, the joint effect of the strike decision and duration is positive for short strikes and negative for long ones. The decline is set between a low of 4.2 per cent and a high of 9.5 per cent, after a month. However, in terms of wage levels this decline is rather small. The estimated range for a strike of a month is 0.3 to 0.6 per cent. In a previous study for the US, McConnell (1989) found a wage level decline of a 3.0 per cent after a conflict of 100 days which is slightly above the upper bound of our estimated range for a strike of 100 days (1.65 to 2.49). We must stress that a strike of 100 days is rarely observed in Spain[158]. Some exploratory results by sectors[159] suggest that the wage decline is sharpest for the manufacturing sector (a narrow range of 1.90 to 2.28 per cent after a strike of 100 days) than for services industry (a broad range of -0.20 to -1.60)[160].

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[158]Its frequency is less than two per cent.

[159]We have replicated Table 5.8 interacting a services dummies with the strike variables. The results of such a exercise are not reported but are available on request.

[160]Note that for short strikes less than 5 days evidence is just the opposite, the wage increase decline is higher for services than for the manufacturing sector.

VII. Summary of findings and main conclusions

Throughout this chapter we have analyzed several bargaining issues using Spanish data from the NCGE. The work has been centred in the analysis of the empirical relationship between wage settlements and strike variables, emphasizing the correct setup for the analysis. As previous steps we have reported some exploratory evidence on strike decision, duration and initial bargaining positions setting in the context of asymmetric information. The analysis have considered carefully the econometric methods and testing procedures this kind of data requires.

Concerning strike decision and strike duration there is some evidence in favour of standard asymmetric information theories. The likelihood and also the duration of a strike increases with the initial disagreement which can be considered as a proxy for the uncertainty during bargaining and also with the length of the negotiation period, though the last should be taken with extreme caution because this variable is potentially endogenous. The estimates also confirm a negative effect of the relative wage and the COLA clause on the probability and the length of a strike. Finally, we found both work stoppage decision and length are negatively related to price uncertainty.

Regarding to CLAIM and OFFER setting we have found that both are relatively more closely related to aggregate setting than firm conditions. As far as both initials must be compulsorily announced at the beginning of the bargaining process we were not expecting to observe the initial OFFER to be closely related to the set of variables proxying the firm performance level. On the contrary, we have observed that it is negatively related to

that set of variables. Note that we have found, as expected, that our initial OFFER is not a Rubinstein offer (see Cramton and Tracy (1992)). In this sense, we must mention that the above set of findings does not deny the validity of the theoretical model but reveals how the particular institutional features and procedures exert the behaviour of the agents.

The set of estimates about wage increases setting suggests that aggregate factors have much more influence than firm factors. In fact, we have found that the most important determinant of wage settlements are the proxies for the available information (price expectations and the industry wage increase mean) at the time of signing the contract.

Most of our specification and testing effort has been devoted to determine the adequate framework for analyzing the wage increase setting process in relation to strike outcomes. Particularly, we have examined the adequacy of some simplifying assumptions which have been normally made in the previous literature: Exogeneity of strike outcomes, absence of dynamics and self-selection induced by strike outcomes. Although we have detected endogeneity of strike decision we have shown that its incidence is not extremely important. Simultaneously, we have shown that dynamics vanishes when considering a correct setup (first differenced model controlling for unobserved heterogeneity). We found that there is self-selection and/or differences in coefficients among strike regimes. Thus, a two equation framework seems to be preferable to a single equation framework. However, we must comment on this two equation setup that the correct identification of the strike wage increase equation (first differenced model controlling for unobserved heterogeneity) becomes extremely difficult because it requires a very large sample.

Although we have not been able to identify the non-strike equation in its correct setup, we have found a lot of evidence, across all the models we have estimated, in favour of the most relevant prediction of the models trying to explain the relationship between wage and strike outcomes (since the Ashenfelter-Johnson model to the later OSAI). We have found that the wage increase settlement declines with the strike duration. We have estimated a range of -1.65 to -2.50 wage decline after a strike of 100 days, slightly lower than a previous estimate by McConnell (1989). She set the decline for a sample of US contracts around 3.0 per cent.

To conclude, we like to stress that our findings suggest a duality of strikes: short and long. On the one hand, short strikes produce a boost on wage settlements. This kind of strike acts as an enforcement mechanism (strikes as accidents?). On the other hand, long strikes yield a wage agreement concession on the part of the workers. Thus, they act as a revelation mechanism. Note that as far as the effect of a strike on wage levels is very small it suggests that short strikes are much more important in the Spanish case.

Table 5.1. Recent empirical work in the field by issues considered.

study author(s)	year	country: timespan	pairs: obs:	back. theory model	strike incidence method	strike duration method	wage determ. metod.
1.Kennan	85	US:68-76	???: 565	JCT		beta-logit	
2.Tracy	87	US:73-77	392:1319	OSAI	logistic	prop.hazard	
3.Herrington	88	US:55-85	102:1191	OSAI	lpm	uncond. ls	ls
4.Vroman	89	US:57-84	252:2767	OSAI	probit	cond. ls	
5.Abowd & Tracy	89	US:57-84	???:3455	OSAI	logistic		wls
6.Harrison & Ste.	90	CA:46-83	???:3460	JCT		cond. ls[1]	
7.Mcconnell	89	US:70-81	883:3001	OSAI			fep
8.Gramm et al.	89	US:71-80	???: 958	DE	probit	tobit	
9.Gund. & Melino	90	CA:67-85	???:7546	JCT		log. hazard	
10.Fisher	90	CA:64-86	???:2549	OSAI[2]		mle tobit	tobit
11.Card	90	CA:64-85	299:2258	OSAI[2]	panel cl	cond. ls	2epls
12.Stengos & Swi.	90	CA:67-75	???:2222	OSAI	probit		hesm

1. They also checked the robustness of the results against parametric hazard specifications (accelerate failure time, exponential, Cox).

2. Fisher and Card both present a model closely related to Hayes (1984).

Keys:

JCT: Joint Cost theory.

OSAI: One-sided asymmetric information.

DE: Divergent expectations.

lpm: Linear probability model.

ls: Least squares.

fep: Fixed effects probit.

wls: Weighted ls.

mle: Maximum likelihood.

cl: Conditional logit.

2epls: Panel two stages ls (heterogeneous consistent).

hesm: Heckman's two stages estimator for selectivity models.

Table 5.2. Most relevant empirical variables considered and results.

		strike incidic.								strike duration								wage equations								
	expected/study	e	2	3	4	5	8	11	12	e	1	2	3	4	8	9	10	11	e	3	5	7	a10	b10	c10	11	a12	b12
b	single firm	?					i		p	?					i		-		?			+	p	+	+		+	i
.	single union	+								+							+		+			-	+	+	+			
	contract length	+			+		i		+	+				i	i				-			-					+	
u	size (# employ)	+					n			+					n	p			?									
n	cacth-up	+			+				n	+									+									+
i	past wage change	-			-					-				n					?									
t	real/rel.wage$_{-1}$	-			n			n	+	-								i	?							+		
	cola clause						i								i							+						
f	sales	-	-							-		+					-		+	p			+	+	+			
i	profitability	-	i	-						-		i	-				i		+				+	+	i			
r	volatility	+	+	p						+		n	p						+	i								
m	stock	-	i							-		i							-									
	k/l ratio	-	-									n							-									
i	IPI	+								-	-							+	+									
n	AVI	-						+		-									+							+		
d	prev. settle.	+								+									+			+						
u	unemploment	-		-						-			p						-	i		p						
s	employment (d)	+	-			+				+		i							+		-	p						
t	industry wage	+					i			+					i		p		+			-	+	+	+			
r	union density	+	p			-	+		p	+		i			+				+		-						-	
y	concentration	-	+			n	i			-		i			i				+		+							
	import. penet.	-				-				-									-		-							
l	unemployment	-					i	-		-					i			i	-			n				-		
o	employment	+	+			-				+		+							+		n							
c	wage	+						p		+								i	+							i		
a	exp. inflation	+		-	p				+	+			-	+					+	+							i	+
g	volat. exp. inf.	+					p			+					p				?									
g	past unexp. inf.	+		+						+			+						+	p		i						
r	male unemp.(inv)	+			+					+				n		p			+						+			
e	unemp. rate	-								-									-			p	-	-				
c	policy variables	\	n	n	n	n	2	n	n	\	n	n	n	n	2	9	n	n	\	n	n	4	n	n	n	n	n	n
o	year dums/trend	\	n	n	y	y	t	y	n	\	n	n	n	n	t	y	n	y	\	n	y	y	n	n	n	y	n	n
n	industry dummies	\	n	n	n	y	n	n	y	\	n	n	n	n	n	y	n	n	\	n	y	y	n	n	n	n	y	y
t	seasonal dummies	\	n	n	y	n	y	n	y	\	n	n	n	n	y	y	y	n	\	n	n	n	n	n	n	n	y	y
r	pair effects	\	n	n	n	n	n	y	n	\	n	n	n	n	n	n	n	y	\	n	n	y	n	n	n	y	n	y

KEYS:

IPI: Industry production index

AVI: Added value index.

?: indefinite expected sign.

i: non-significant (t-stat lower than one);

n or p: non-significant at 5% negative or positive signand, respectively.

- or +: significant at 5% negative or positive, respectivley .

Table 5.3. The wage effects of a strike. Methodology and findings.

Author(s)	Wage variable	methodology/finding
3.Herrington	annual average of the wage increase	Met: Strike dummy interacting with a proxy of private information. Findings: Non relevant effect. Conclusion: Wage eq. do not support OSAI
7.McConnell	Average log of expected real wage rate	Met: Strike dummy and unconditional duration Findings: Strike dummy non relevant, strike duration has a negative effect (-3%) on wage
10.Fisher	log of the real wage	Met: Tobit wage equation in each strike regime Findings: There are some differentials in key coefficient between both wage equations
11.Card	average expected value of the log of the real wage	Met: Strike dummy, duration by a set of dummies relative strike duration, Agg. strike prob. Findings: Strike occurrence affects positively wage outcome. No evidence in favor of downward concession curve. Aggregate strike incidence affects pos. wage.
12.Stengos & Swidinsky	Annualized base wage increase	Met: Two stages Heckman's method. Findings: Strike has a positive effect on wage Strikes differentials may not been fully compensating losts by striking activity

Table 5.4. Strike decision models.

Estimation on:	PROBIT levels (1) coef. t-st	Conditional LOGIT diff. (2) coef. t-st	LPM levels (3) coef. t-st	LPM diff. (4) coef. t-st
CONSTANT	-2.52 (1.35)	--	-0.18 (0.62)	0.01 (0.29)
s(-1)‡	0.46 (4.84)	--	0.08 (2.93)	0.09 (1.80)
SINGLEUN	-0.27 (1.82)	-0.49 (0.63)	-0.01 (0.54)	-0.07 (1.44)
CCOO	0.66 (3.94)	2.47 (2.06)	0.07 (2.38)	0.11 (1.30)
REG	0.66 (2.39)	2.30 (0.99)	0.17 (2.93)	-0.11 (0.60)
OTHER	0.43 (1.53)	2.18 (1.21)	0.09 (1.56)	0.07 (0.54)
LNEG	0.28 (5.39)	0.54 (2.21)	0.03 (4.05)	0.01 (0.77)
DELY	1.73 (5.20)	2.13 (3.21)	0.14 (5.81)	0.20 (6.13)
DCO	0.02 (3.12)	0.06 (1.40)	0.01 (3.18)	0.01 (3.18)
COLA	-0.11 (1.21)	-0.49 (1.15)	0.00 (0.02)	-0.05 (1.70)
n(-1)	0.21 (6.03)	1.45 (0.74)	0.05 (5.69)	0.16 (2.09)
$w-w_j(-1)$	-0.49 (3.58)	-2.86 (1.49)	-0.11 (3.84)	-0.18 (1.95)
HOURS(-1)	-0.17 (0.43)	0.06 (0.05)	0.09 (0.64)	0.24 (1.49)
TENP(-1)	-2.97 (1.44)	36.1 (1.24)	-0.30 (1.05)	1.47 (0.73)
(ΔSALES-p)(-1)	-0.12 (1.41)	-0.38 (1.16)	-0.01 (0.39)	-0.04 (1.40)
(B/P)(-1)	-0.37 (0.14)	11.7 (0.42)	0.02 (0.45)	0.15 (1.79)
DB(-1)	-0.17 (1.61)	-0.53 (0.98)	-0.03 (1.24)	-0.05 (1.17)
LSALES	-0.48 (2.67)	0.54 (0.41)	-0.09 (1.99)	-0.06 (0.55)
CAPEXT	0.23 (2.15)	2.44 (1.65)	0.05 (2.18)	0.01 (0.12)
CAPPUB	0.30 (2.56)	1.70 (0.66)	0.05 (1.91)	0.00 (0.04)
HIRING(-1)	-0.12 (0.76)	0.64 (0.66)	-0.01 (0.38)	-0.04 (2.53)
S_j	0.11 (2.78)	0.05 (0.37)	0.02 (2.17)	0.00 (0.08)
u_r	0.15 (0.64)	3.58 (2.42)	0.01 (0.35)	0.17 (1.93)
Δe_j	0.22 (0.48)	-0.55 (0.28)	-0.02 (1.69)	0.04 (0.66)
EXPECT	0.07 (0.63)	-0.09 (0.24)	-0.01 (0.56)	-0.01 (0.77)
STIPC	-0.37 (0.89)	-3.05 (1.78)	-0.11 (1.98)	-0.12 (2.20)
Q2	0.22 (2.19)	0.52 (1.15)	0.04 (2.47)	0.08 (2.38)
Q3	0.30 (2.07)	1.62 (2.17)	0.08 (2.60)	0.19 (3.43)
Q4	0.01 (1.04)	1.96 (1.21)	0.03 (0.81)	0.12 (2.20)
Time_dum.	Yes	Yes	Yes	Yes
Indu_dum.	Yes	Not ident.	Yes	No
Time_Span	1985-1990	1985-1990	1985-1990	1986-1990
Obs: (BU)	2207	1712 (162)	1712	1131
st>0 (%)	15.1	14.5	14.5	15.2
Wald Test (df)	433.6 (41)	--	254.8 (28)	117.9 (28)
Sargan (df)	--	--	21.9 (18)	8.4 (12)
fosc	--	--	0.79	-6.95
sosc	--	--	-0.13	-0.20
Log_Likelihood	-721.2	-134.4	--	--
Adeq. POOL(df)	287.8 (180)	--	--	--
NO F.E (df):	--	77.1(32)	--	--
Eakin test (df)	--	--	10.3 (6)	--

Notes to Tables 5.4:

‡: Instrumented using GMM instruments in differenced models (using -2 and earlier lags).

Adeq. POOL (df): Likelihood ratio test comparing the estimates of the pool PROBIT with respect to year by year PROBIT (not reported).

NO F.E. (df): Hausman (1978) test comparing the Conditional LOGIT estimates with those of a pooled LOGIT (not reported).

Wald (df): Wald test of the null that the vector of relevant coefficients (excluding time and industry dummies) is zero.

Sargan (df): Test of the validity of the set of instruments. Under the null of adequacy, the test is distributed as a χ^2_r, where r is the number of overidentifying restrictions.

fosc (df): Test of the absence of first order serial correlation in the error term (Arellano and Bond (1991)).

sosc (df): Test of the absence of second order serial correlation in the error term (Arellano and Bond (1991)).

Eakin test: The test is devoted to detecting the presence of relevant BU specific effects. Under the null of absence of such effects it is distributed as a χ^2_r, where r is the number of overidentifying restrictions the levels model exceeds to the differenced model (correct under the alternative). [see Holtz-Eakin (1988)].

Table 5.5. Duration Models. 1985-1990.

Dependent:	Selectivity MODEL† d (1) coef. t-st.	TOBIT MODEL d (2) coef. t-st.	Conditional LS log(d) (3) coef. t-st.	Heterog. WEIBULL log(d) (4) coef. t-st.
CONSTANT	17.1 (0.52)	-10.7 (0.49)	5.46 (1.23)	6.86 (1.57)
d(-1)	0.73 (9.92)	0.50 (8.70)	0.06 (5.10)	0.05 (2.94)
SINGLEUN	-2.52 (0.93)	-3.20 (1.85)	0.04 (0.10)	-0.09 (0.25)
CCOO	2.86 (0.80)	6.19 (3.15)	0.20 (0.51)	0.19 (0.48)
REG	1.16 (0.24)	5.91 (1.84)	0.24 (0.41)	0.03 (0.05)
OTHER	2.50 (0.54)	3.71 (1.12)	1.20 (1.92)	0.77 (1.25)
LNEG	2.23 (1.80)	3.09 (5.08)	0.18 (1.35)	0.19 (1.46)
DELY	7.26 (2.37)	8.76 (5.20)	0.06 (0.18)	0.18 (0.54)
DCO	0.18 (1.70)	0.22 (2.82)	0.02 (1.96)	0.02 (2.19)
COLA	-1.71 (1.24)	-1.45 (1.38)	-0.15 (0.80)	-0.22 (1.33)
n(-1)	2.05 (2.64)	2.22 (5.52)	0.05 (0.80)	0.02 (0.42)
$w-w_j(-1)$	-3.58 (1.39)	-5.01 (3.11)	-0.10 (0.33)	-0.19 (0.74)
HOURS(-1)	-0.85 (0.11)	-6.73 (1.60)	2.53 (2.24)	2.47 (1.90)
TENP(-1)	-6.83 (0.26)	-34.5 (1.44)	-0.39 (0.09)	-1.19 (0.27)
(ΔSALES-p)(-1)	0.31 (0.26)	-0.61 (0.63)	0.18 (1.18)	0.23 (1.10)
(B/P)(-1)	1.07 (0.03)	-7.07 (0.23)	3.06 (0.60)	1.99 (0.33)
DB(-1)	-0.88 (0.57)	-1.29 (1.09)	-0.34 (1.69)	-0.24 (1.20)
LSALES	-6.05 (2.09)	-5.62 (2.75)	-0.47 (1.37)	-0.43 (1.20)
CAPEXT	3.34 (1.95)	2.74 (2.19)	0.19 (0.88)	0.26 (1.33)
CAPPUB	-0.03 (0.02)	2.33 (1.70)	-0.43 (1.89)	-0.38 (1.78)
HIRING(-1)	-1.46 (0.55)	-0.80 (0.42)	0.59 (1.57)	0.29 (0.79)
S_j	0.89 (1.45)	1.06 (2.44)	1.43 (1.22)	0.11 (1.09)
u_r	3.06 (0.85)	2.00 (0.74)	0.74 (1.48)	0.76 (1.66)
Δe_j	-1.16 (0.14)	-2.78 (0.61)	1.43 (1.21)	0.84 (0.70)
EXPECT	-1.59 (0.92)	-0.30 (0.24)	-0.16 (0.67)	-0.19 (0.83)
STIPC	-12.6 (1.75)	-8.52 (1.71)	-1.16 (1.13)	-1.46 (1.28)
Q2	3.44 (1.97)	2.45 (2.11)	0.41 (1.84)	0.27 (1.26)
Q3	2.88 (1.25)	2.87 (1.69)	0.29 (0.97)	0.31 (1.06)
Q4	-3.64 (0.94)	-0.51 (0.17)	-0.52 (0.96)	-0.65 (1.19)
$\hat{\lambda}$	9.27 (2.44)	--	--	--
σ	11.5	12.1 (23.9)	1.31	0.82 (13.1)
ρ	0.80	--	--	--
θ	--	--	--	0.45 (3.55)
Time_dum.	Yes	Yes	Yes	Yes
Indu_dum.	Yes	Yes	Yes	Yes
Obs:	334	2207	334	334
Log-Likelihood	--	-1702.8	--	-530.4
R^2	0.40	--	0.22	--
Heterogeneity (df)	--	74.2 (41)	--	--

†: With correct standard errors.

Heterogeneity: Wald test of the null that the variance is not a linear function of the explanatory variables ($H_o: s_o = \sigma$; $H_a: s_a = a'Z_{it}\sigma$)

Table 5.6.a. Initial claim and offer determination.

Method:	CLAIM LEVELS (1) coef. t-st.	CLAIM DIFF. (2) coef. t-st.	OFFER LEVELS. (3) coef. t-st.	OFFER DIFF. (4) coef. t-st.
CONSTANT	6.04 (3.29)	-0.30 (0.53)	2.71 (3.35)	-1.16 (4.79)
CLAIM(-1)‡	0.34 (17.3)	0.18 (4.40)	--	--
OFFER(-1)‡	--	--	0.27 (11.4)	0.26 (4.51)
CLAIM†‡	--	--	-0.01 (0.80)	-0.02 (1.38)
SINGLEUN	-0.78 (3.03)	-0.33 (0.67)	-0.18 (1.51)	0.12 (0.43)
CCOO	0.46 (1.31)	1.38 (1.24)	0.12 (0.93)	0.72 (1.82)
REG	-0.59 (1.15)	-1.15 (0.59)	0.26 (1.04)	-0.60 (0.76)
OTHER	0.05 (0.09)	2.60 (1.68)	-0.48 (2.04)	0.04 (0.06)
d(-1)	-0.02 (0.96)	-0.08 (2.11)	-0.01 (1.35)	-0.03 (1.56)
RETARD	-0.33 (2.12)	-0.63 (1.88)	0.37 (5.35)	0.33 (2.91)
COLA(-1)‡	-0.73 (3.79)	-0.26 (0.42)	-0.28 (3.84)	-0.12 (0.52)
n(-1)‡	0.06 (0.71)	-1.86 (0.55)	-0.02 (0.84)	1.00 (0.84)
$w-w_j(-1)$‡	-0.27 (0.94)	4.34 (1.26)	-0.19 (1.44)	1.03 (0.79)
$\omega-w(-1)$	1.01 (1.11)	6.06 (1.07)	0.18 (0.51)	1.86 (0.70)
HOURS(-1)	-1.72 (1.41)	0.07 (0.04)	-1.20 (2.44)	-0.74 (0.96)
ΔSALES†‡	1.67 (1.87)	0.80 (0.55)	-0.57 (1.97)	-0.39 (1.12)
B(-1)‡	0.66 (1.72)	-0.67 (0.64)	0.39 (3.63)	-0.36 (0.61)
DB(-1)	-0.24 (1.21)	-0.52 (1.08)	-0.46 (5.93)	-0.64 (4.70)
LSALES	-1.03 (2.36)	-0.93 (1.56)	-0.06 (0.41)	-0.06 (0.18)
CAPEXT	0.06 (0.27)	2.27 (1.76)	0.06 (0.75)	-0.39 (0.60)
CAPPUB	-0.12 (0.46)	1.07 (1.49)	-0.24 (2.69)	0.32 (0.57)
S_j¥	0.07 (0.77)	-0.21 (1.06)	0.00 (0.02)	0.21 (3.77)
u_r	-0.10 (0.24)	0.87 (1.05)	-0.12 (0.63)	0.01 (0.03)
Δe_j	0.42 (1.07)	0.23 (0.42)	-0.30 (1.56)	-0.21 (0.71)
EXPECT	0.08 (0.73)	0.47 (3.03)	0.12 (2.37)	0.22 (2.55)
$SIGNAL_j$	0.33 (2.04)	0.18 (0.78)	0.34 (4.62)	0.28 (2.38)
Time_dum.	Yes	Yes	Yes	Yes
Indu_dum.	Yes	No	Yes	No
Obs:	1131	840	1131	840
Wald (df)	554.3 (23)	122.2 (23)	533.1	193.2
Sargan (df)	53.7 (65)	31.3 (36)	85.3 (76)	47.5 (42)
fosc (obs)	-0.12	-2.24	0.30	-2.85
sosc (obs)	1.01	-0.34	-2.06	1.11
Eakin (df)	--	17.9 (34)	--	22.6 (39)
REakin (df)	--	11.1 (34)	--	19.5 (39)
Neutrality:	2.77	0.82	19.5	3.51

Notes: See notes to Table 5.4.

†: Instrumented by using GMM in levels (-1 and earlier lags)

¥: The lags of these variables are used as additional GMM instruments (using current and earlier lags).

REakin: Eakin test using the same variance for both Sargan tests (the null and the alternative). [See Holtz-Eakin (1988)]

Neutrality: A Wald test for the hypothesis that the sum of the coefficients of the nominal variables is one.

Table 5.6.b. Initial claim and offer determination. Differenced models.

Method:	CLAIM 3SGMM-IV (1) coef. t-st.	CLAIM 2SGMM-IV (2) coef. t-st.	OFFER 3SGMM-IV (3) coef. t-st.	OFFER 2SGMM-IV (4) coef. t-st.
CLAIM(-1)‡	0.15 (5.44)	0.21 (4.99)	--	--
OFFER(-1)‡	--	--	0.11 (2.88)	0.10 (2.28)
CLAIM†‡	--	--	-0.06 (4.40)	-0.05 (2.67)
SINGLEUN	-0.35 (0.83)	-0.40 (0.35)	0.20 (0.92)	0.20 (0.85)
CCOO	2.09 (2.11)	1.58 (1.40)	0.66 (2.05)	0.77 (2.14)
REG	1.19 (0.69)	0.04 (0.02)	-0.76 (1.07)	-0.47 (0.62)
OTHER	2.80 (2.01)	2.95 (2.80)	-0.22 (0.46)	0.08 (0.16)
d(-1)	-0.08 (2.71)	-0.08 (2.18)	-0.03 (1.27)	-0.02 (1.54)
RETARD	-0.79 (2.76)	-0.63 (1.87)	0.31 (3.26)	0.31 (2.95)
COLA(-1)‡	-0.32 (0.54)	-0.67 (1.02)	-0.41 (2.31)	-0.35 (1.72)
LEMP‡	-4.30 (1.69)	-2.28 (0.67)	0.66 (0.73)	0.62 (0.54)
$(w-w_j)(-1)$‡	5.54 (2.07)	5.31 (1.59)	1.79 (1.97)	1.79 (1.42)
$(\omega-w)(-1)$	6.12 (1.34)	7.45 (1.35)	3.40 (1.66)	3.21 (1.36)
HOURS(-1)	0.63 (0.47)	0.38 (0.24)	-0.27 (0.44)	-0.15 (0.22)
ΔSALES†‡	2.73 (2.20)	1.15 (0.75)	0.02 (0.07)	0.10 (0.31)
B(-1)‡	-0.40 (0.25)	-0.69 (0.30)	0.91 (2.31)	1.01 (1.78)
DB(-1)	-0.56 (1.32)	-0.77 (1.53)	-0.62 (5.94)	-0.52 (4.04)
LSALES	-0.81 (1.67)	-1.10 (2.02)	-0.00 (0.00)	-0.04 (0.15)
CAPEXT	2.68 (2.32)	2.45 (1.81)	-0.12 (0.21)	-0.45 (0.74)
CAPPUB	0.74 (1.03)	0.95 (1.26)	0.08 (0.14)	0.15 (0.26)
$S_j\gamma$	-0.13 (0.70)	-0.20 (0.98)	0.16 (3.84)	0.13 (2.33)
u_r	-0.25 (0.41)	0.07 (0.11)	-0.43 (1.74)	-0.45 (1.54)
Δe_j	0.33 (0.67)	0.29 (0.53)	-0.04 (0.16)	-0.03 (0.13)
EXPECT	0.45 (4.27)	0.41 (3.43)	0.20 (4.15)	0.21 (3.78)
$SIGNAL_j$	0.24 (1.26)	0.39 (1.81)	0.26 (3.47)	0.25 (2.76)
UNIONINI	0.32 (3.06)	0.22 (1.73)	--	--
FIRMINI	--	--	0.35 (7.64)	0.37 (6.88)
ρ	0.267	--	0.267	--
Time_dum.	No	No	No	No
Indu_dum.	No	No	No	No
Obs:	840	840	840	840
Wald (df)	289.3 (24)	236.4 (24)	1235.3 (24)	835.7
Sargan (df)	80.2 (78)	27.5 (36)	80.2 (78)	47.1 (42)
fosc (obs)	-2.10	-2.31	-0.96	-2.36
sosc (obs)	-0.45	-0.30	-0.33	-1.23
neutrality:	2.53	3.82	5.45	2.84

Notes: See notes to tables 5.4 and 5.6.a.

Table 5.7. Wage increase determination. All the sample. Levels. 1986-1990.

	(1) coef. t-st.	(2) coef. t-st.	(3) coef. t-st.
CONSTANT	0.29 (0.44)	0.37 (0.55)	0.38 (0.57)
Δw_{-1}	0.32 (16.1)	0.32 (16.0)	0.32 (15.5)
CLAIM-OFFER†	0.03 (3.93)	0.03 (3.93)	0.03 (3.79)
s († in (2))	0.283(4.73)	0.11 (0.63)	--
d († in (2) & (3))	-0.018(3.64)	-0.026(4.57)	-0.030(5.51)
$\hat{s}^*$	--	--	0.012(0.91)
SINGLEUN	-0.19 (2.43)	-0.20 (2.44)	-0.16 (2.11)
CCOO	0.07 (0.87)	0.10 (1.18)	0.10 (1.09)
REG	0.30 (1.51)	0.30 (1.50)	0.30 (1.47)
OTHER	-0.32 (1.64)	-0.34 (1.72)	-0.33 (1.66)
RETARD	0.08 (1.09)	0.08 (1.07)	0.09 (1.27)
DELY	0.03 (0.31)	0.05 (0.50)	0.04 (0.42)
COLA†	-0.06 (1.31)	-0.10 (1.13)	-0.08 (1.01)
n(-1)	-0.05 (2.56)	-0.04 (1.89)	-0.03 (1.68)
$\{w-w_j\}(-1)$	0.01 (0.09)	-0.03 (0.31)	-0.04 (0.53)
$\{\omega-w\}(-1)$	-0.05 (0.20)	-0.02 (0.07)	0.01 (0.05)
HOURS(-1)	-0.35 (1.42)	-0.39 (1.46)	-0.58 (2.11)
ΔSALES†	-0.19 (1.67)	-0.22 (1.95)	-0.20 (1.74)
B(-1)	0.33 (2.62)	0.33 (2.62)	0.26 (1.96)
DB(-1)	0.31 (4.33)	0.31 (4.35)	0.33 (4.57)
LSALES	-0.01 (0.09)	-0.03 (0.30)	-0.05 (0.39)
CAPEXT	0.07 (1.18)	0.09 (1.48)	0.09 (1.55)
CAPPUB	-0.29 (3.77)	-0.28 (3.71)	-0.26 (3.40)
$S_j Y$	0.04 (2.44)	0.05 (2.90)	0.05 (3.09)
u_r	-0.08 (0.70)	-0.08 (0.73)	-0.07 (0.63)
Δe_j	-0.08 (0.43)	-0.13 (0.65)	-0.07 (0.37)
EXPECT	0.16 (3.24)	0.17 (3.54)	0.19 (3.96)
$SIGNAL_j$	0.46 (5.70)	0.45 (5.51)	0.43 (5.30)
Time_dum.	Yes	Yes	Yes
Quarterly dum.	Yes	Yes	Yes
Indu_dum.	Yes	Yes	Yes
Obs:	1131	1131	1131
Wald (df)	791.5 (29)	722.1 (29)	703.0 (29)
Sargan (df)	118.6 (102)	116.9 (100)	109.8 (96)
fosc (obs)	1.61	1.53	1.68
sosc (obs)	2.19	2.25	2.29
Exog. (df)	1.56 (2)	--	--

Notes: See notes to tables 5.4 and 5.6.a.

Exogeneity: This is a Sargan difference test (Arellano (1993)). Under the null of exogeneity of both strike variables, decision and duration, it is distributed as a χ^2_2.

Table 5.8. Wage increase determination. Level models. 1986-1990.

	non-strike (1) coef. t-st.	strike (3) coef. t-st.
CONSTANT	0.30 (0.44)	0.18 (0.16)
Δw_{-1}	0.38 (14.3)	0.27 (6.82)
CLAIM-OFFER†	0.01 (0.83)	0.04 (4.56)
d†	--	-0.017(3.46)
λ	0.023(1.19)	-0.153(2.00)
SINGLEUN	-0.17 (1.96)	0.01 (0.09)
CCOO	0.15 (1.49)	0.32 (1.90)
REG	0.29 (1.16)	0.12 (0.45)
OTHER	-0.48 (2.63)	0.94 (2.81)
RETARD	0.11 (1.31)	-0.25 (2.07)
DELY	0.02 (0.19)	-0.06 (0.45)
COLA†	-0.02 (0.15)	-0.06 (0.37)
n(-1)	-0.06 (2.34)	-0.07 (2.58)
$\{w-w_j\}(-1)$	0.07 (0.79)	0.03 (0.20)
$\{\omega-w\}(-1)$	0.04 (0.14)	0.03 (0.07)
HOURS(-1)	-0.32 (0.88)	-0.77 (2.28)
ΔSALES†	-0.09 (0.67)	-0.20 (1.26)
B(-1)	0.09 (0.67)	0.36 (1.64)
DB(-1)	0.32 (3.96)	0.33 (3.63)
LSALES	-0.08 (0.58)	0.11 (0.92)
CAPEXT	0.04 (0.62)	0.05 (0.48)
CAPPUB	-0.26 (3.07)	-0.19 (1.64)
S_j¥	0.04 (1.54)	0.05 (1.20)
u_r	0.08 (0.63)	-0.46 (1.97)
Δe_j	-0.16 (0.85)	-0.98 (1.80)
EXPECT	0.19 (3.66)	0.33 (4.96)
$SIGNAL_j$	0.41 (4.93)	0.23 (1.98)
Time_dum.	Yes	Yes
Quarterly dum.	Yes	Yes
Indu_dum.	Yes	Yes
Obs:	969	167
Wald (df)	552.7 (28)	1365.6 (29)
Sargan (df)	92.1 (74)	51.1 (51)
fosc (obs)	0.10	1.27
sosc (obs)	1.44	--

Notes: See notes to tables 5.4 and 5.6.a.

Table 5.9. Wage increase determination. First differenced models. 1987-1990.

	ALL (1) coef. t-st.	ALL (2) coef. t-st.	ALL (3) coef. t-st.	ALL (4) coef. t-st.	non-strike (4) coef. t-st.
CONSTANT	-0.54 (4.47)	-0.51 (4.16)	-0.51 (4.14)	-0.55 (4.18)	-1.00 (7.06)
Δw_{-1}‡	0.03 (0.83)	0.04 (1.12)	0.04 (1.17)	0.02 (0.63)	-0.11 (2.41)
DCO†	0.01 (2.86)	0.02 (3.55)	0.02 (4.09)	0.02 (3.88)	0.03 (3.24)
s‡	0.284(3.98)	0.05 (0.52)	0.121(1.09)	--	--
d‡	-0.020(3.57)	-0.017(2.44)	-0.025(3.91)	-0.023(3.11)	--
$\hat{s}$*Y	--	--	--	0.023(1.49)	--
λ	--	--	--	--	0.06 (3.05)
SINGLEUN	-0.05 (0.47)	-0.09 (0.96)	-0.08 (0.77)	-0.05 (0.54)	0.08 (1.01)
CCOO	0.22 (1.07)	0.29 (1.42)	0.21 (1.08)	0.20 (1.00)	0.03 (0.18)
REG	-1.62 (3.73)	-1.61 (3.90)	-1.52 (3.54)	-1.62 (4.03)	-1.31 (3.39)
OTHER	-0.32 (0.86)	-0.30 (0.86)	-0.35 (1.03)	-0.27 (0.78)	0.61 (1.63)
RETARD	0.13 (1.21)	0.14 (1.32)	-0.00 (0.03)	0.01 (0.12)	0.30 (2.32)
DELY	-0.04 (0.33)	-0.03 (0.26)	0.09 (0.70)	0.06 (0.45)	-0.18 (1.39)
COLA‡	-0.12 (1.13)	-0.03 (0.30)	-0.03 (0.22)	0.01 (0.07)	0.04 (0.34)
n(-1)‡	-0.38 (0.96)	-0.38 (0.93)	-0.52 (1.29)	-0.63 (1.51)	-1.55 (2.67)
$\{w-w_j\}$-1‡	-0.39 (0.86)	-0.34 (0.77)	-0.03 (0.06)	-0.01 (0.01)	0.44 (0.68)
$(\omega-w)(-1)$	1.04 (1.09)	1.30 (1.38)	1.76 (1.79)	2.02 (2.06)	3.09 (2.77)
HOURS(-1)	-0.29 (1.17)	-0.35 (1.35)	-0.56 (2.34)	-0.38 (1.52)	-0.69 (1.83)
ΔSALES‡	-0.11 (1.26)	-0.11 (1.00)	-0.17 (1.55)	-0.20 (1.85)	-0.87 (3.89)
B(-1)‡	0.23 (0.87)	0.22 (0.76)	0.22 (0.74)	0.23 (0.77)	0.23 (0.76)
DB(-1)	0.50 (4.36)	0.53 (4.56)	0.49 (4.21)	0.50 (4.31)	0.20 (1.62)
LSALES	-0.45 (2.04)	-0.38 (1.44)	-0.60 (2.33)	-0.60 (2.39)	-0.14 (0.46)
CAPEXT	-0.34 (1.19)	-0.45 (1.59)	-0.33 (1.16)	-0.41 (1.46)	0.22 (0.83)
CAPPUB	0.33 (1.29)	0.28 (1.06)	0.35 (1.41)	0.32 (1.23)	0.44 (1.29)
S_jY	0.20 (12.0)	0.21 (12.3)	0.21 (12.5)	0.21 (12.4)	0.22 (11.9)
u_r	0.00 (0.02)	-0.01 (0.05)	-0.09 (0.44)	-0.12 (0.63)	0.19 (0.96)
$\Delta e_j(-1)$	0.14 (0.83)	0.12 (0.70)	0.24 (1.33)	0.23 (1.35)	0.01 (0.06)
EXPECT	0.15 (3.29)	0.14 (3.15)	0.12 (2.68)	0.13 (2.87)	0.03 (0.50)
$SIGNAL_j$	0.55 (7.18)	0.56 (7.36)	0.58 (7.49)	0.54 (6.84)	0.45 (4.55)
Time_dum.	Yes	Yes	Yes	Yes	Yes
Indu_dum.	No	No	No	No	No
Obs:	540	540	540	540	370
Wald (df)	761.1 (29)	747.7 (29)	795.4 (29)	773.8 (29)	557.0 (28)
Sar (df)	117.7 (97)	109.8 (95)	98.6 (96)	98.9 (96)	95.4 (79)
fosc	-3.18	-3.37	-3.36	-3.31	-2.96
sosc	0.48	0.40	0.40	0.32	0.47
Exog.(df)	7.9 (2)	--		--	--

Notes: See notes to tables 5.4 and 5.6.a.

Table 5.10.a. Implicit wage increase differentials

	CORRECTED	NON CORRECTED	OBSERVED $\Delta w_s - \Delta w_{ns}$
ALL (sample means)	0.41	0.39	0.12
Energy	-0.04	-0.05	-0.12
Minerals and Chemical	0.61	0.59	0.58
Metal Processing	0.26	0.28	-0.10
Other Manufacturing	0.39	0.37	-0.21
Building	0.33	0.36	-0.26
Retail Services	0.99	0.91	0.07
Transportation	0.67	0.67	0.21
Others Services	0.39	0.32	1.19
ALL; d=5	0.33	0.32	-
ALL; d=15	0.17	0.15	-
ALL; d=30	0.09	0.11	-

Table 5.10.b. A summary on results about strike variables and wage decline.

			STRIKE COEF.		% EFFECT wage increases				% EFFECT wage levels
		TABLE	s	d	d=1	d=5	d=15	d=30	d=100
LEVEL	ALL	7(1)	0.28	-0.019	3.76	2.67	-0.07	-4.18	-1.62
		7(2)	0.11	-0.026	1.21	-0.20	-0.04	-9.67	-2.49
	NON-STRIKE	8(2)	--	-0.017	-0.23	-1.17	-3.53	-7.06	-1.70
		8(2)	--	-0.017	5.44	4.50	2.14	-1.38	-1.29
DIFFERENCED	ALL	9(1)	0.28	-0.020	3.75	2.59	-0.30	-4.60	-1.72
		9(2)	0.05	-0.017	0.50	-0.50	-2.95	-6.60	-1.65
		9(3)	0.12	-0.025	1.37	-0.07	-3.67	-9.09	-2.38
	MANUF'RING	9(1)A	0.25	-0.024	3.20	1.86	-1.57	-6.70	-2.20
		9(2)A	0.07	-0.020	0.70	-0.43	-3.29	-7.60	-1.90
		9(3)A	0.12	-0.024	1.37	0.00	-3.43	-8.57	-2.28
	SERVICES	9(1)A	0.08	-0.003	1.14	0.96	0.52	-0.15	-0.20
		9(2)A	0.00	-0.016	-0.24	-1.18	-3.55	-7.10	-1.60
		9(3)A	0.05	-0.013	0.56	-0.15	-1.92	-4.59	-1.15

Keys:

s: Strike indicator.

d: length of a strike (in days).

Appendix: Data and variables.

The data used in this study comes from the NCGE, an annual survey about bargaining in Spanish large firms (more than 200 employees). Each wave provides information about firm main results (sales, profits), employment structure and negotiation by bargaining unit.

Despite the survey runs since 1978 we only have information for the period 1985-1990. Although it is not a typical panel data, we are able to use some coded information in order to extract an unbalanced panel of bargaining units. From the original sample, we have excluded firms which did not report information about some key variables such as wages or employment. There is also an important share of the records which have missing values for some key pieces of information (wage increase agreement, initial positions and length of the negotiation). We try to show in Table 5.A.1 that there is no sample selection problems induced by non-response.

Table 5.A.1. Characteristics of the sample by rejection condition.

Size	Sampling conditioning	Wage 10^6pta	Employ ment	Strike Inc.
4304	all the valid records	2.83	1341.0	12.7
3572	+ Agreement reported	2.86	1396.6	13.1
2516	+ Initial positions reported	2.87	1390.6	14.4
2207	+ Spell of neg. reported	2.88	1355.4	14.7

There is no major difference in mean wage or employment. However, we could observe same differences in strike incidence, although our guess is that these are probably generated by misreporting of strike activity in the

selected subsample.

We have also used industry data (from several sources) along the previous analysis. We include in this Appendix a brief description of the set of available data in each one of the three information levels considered: bargaining unit, firm and industry.

Variables. Definition and main source.

Bargaining unit variables.[Source:NCGE].

CLAIM: Workers council initial wage increase claim (%).

OFFER: Firm initial wage increase offer (%).

AGREE: Agreement about wages increases (%).

DCO: CLAIM-OFFER.

LNEG: Length of negotiations (in days).

DELAY: Days from the starting date of the agreement to the signing date.

DELY: 1 if the negotiation finishes after the starting date of the agreement.

RETARD: 1 if the negotiation starts after the starting date of the agreement.

n: Employment in the BU.

s: 1 if there is a work stoppage.

d: Strike hours divided by n*8 (which is equivalent to length in days).

Qi: 1 if the negotiation finishes during the i quarter.

w: Wage bill by employee (in logs).

ω: Base wage by employee (in logs).

HOURS: (effective hours + overtime hours) divided by regular hours (in

logs).

TENP: Tenure payments as a percentage of the wage bill.

COLA: Cost of living allowance clause (1 agreed, 0 otherwise).

UGT, CCOO, USO, INDEP, REG, NONAFF, OTHER: % workers council representatives that belongs to respectively, UGT, CCOO, USO unions, that are INDEPENDENT workers, belongs to any REGIONAL union, are NON-AFFILIATED workers and, finally, OTHERS.

SINGLEUN: 1 if any of the above union groups has a hundred per cent of workers council representatives.

Firm variables. [Source:NCGE].

SALES: Gross sales per employee (in logs).

B: Gross profit per employee (in 10^3pta).

DB: 1 if there are positive profits.

LSALES: Percentage of sales in the domestic market.

CAPEXT: Percentage of foreign agents ownership.

CAPPUB: Percentage of public ownership.

HIRING(-1): Hiring as a ratio of the employment in the past year.

Industry, regional or aggregate variables.

$SIGNAL_j$: Mean of the wage increase agreement signed in the same industry in the month preceding the signing of the contract (%). (source: ECC)

w_j: Industry wage level (1 digit level) (in logs). (source: ES)

S_j: Working days lost per employee at the industry j. (source: BEL)

E_j: Employment in the j industry (44 industries). (source: EPA)

u_r: Regional market unemployment ratio (in logs). (source: EPA)

EXPECT: ARIMA price increase forecast at the date of signing the contract.

STIPC: Standard deviation of the CPI index during the five previous years.

UNIONINI: Nationwide union's recommended CLAIM.

FIRMINI: Employers association's recommended (counter) OFFER.

Data sources.

-Ministerio de Trabajo:

Boletín de Estadísticas Laborales (BEL). Various Issues.
Estadística de Convenios Colectivos (ECC). Recording Tape. 1981-1990.

-Instituto Nacional de Estadítica:

Encuesta de Población Activa (EPA). Various issues.
Encuesta de Salarios (ES). Various issues.

Table 5.A.2. Variables. Descriptive statistics.

	all sample		panel non-strike		panel strike	
NOBS	2207		1463		269	
	mean	**st.dev.**	**mean**	**st.dev.**	**mean**	**st.dev.**
Negotiation						
AGREE	6.9224	1.3750	6.9096	1.3661	7.0349	1.3304
CLAIM	9.8314	4.7896	9.6644	4.4446	11.126	6.5010
OFFER	5.3573	1.7006	5.4387	1.6601	5.2229	1.5112
DCO	4.4741	4.8592	4.2257	4.5301	5.9032	6.5536
DELAY	51.545	168.88	37.732	173.49	106.02	133.47
S	0.1513	0.3584	0.0000	0.0000	0.0000	0.0000
S(-1)	0.1536	0.3606	0.1264	0.3324	0.3212	0.4679
D	0.7256	4.5735	0.0000	0.0000	5.105	12.250
D(-1)	0.7791	5.1450	0.6738	4.3319	1.9270	10.765
LNEG	93.065	97.340	87.878	96.717	114.57	91.738
Q2	0.5151	0.4998	0.5023	0.5001	0.5662	0.4965
Q3	0.1010	0.3014	0.0874	0.2826	0.1726	0.3787
Q4	0.0398	0.1957	0.0403	0.1967	0.0281	0.1656
RETARD	0.6855	0.4644	0.6698	0.4704	0.7550	0.4309
COLA	0.7503	0.4329	0.7450	0.4359	0.7550	0.4309
Workers Council structure						
SINGLEUN	0.1164	0.3208	0.1237	0.3293	0.0602	0.2384
CCOO	0.3417	0.2626	0.3343	0.2657	0.4114	0.2437
REG	0.0527	0.1439	0.0497	0.1403	0.0706	0.1556
OTHER	0.0572	0.1410	0.0559	0.1413	0.0659	0.1410
Bargaining unit						
w(-1)	8.2606	0.3642	8.2696	0.3545	8.1696	0.3153
ω(-1)	7.8265	0.3446	7.8346	0.3391	7.7423	0.2985
TENP(-1)	0.0325	0.0228	0.0336	0.0237	0.0296	0.0187
n	6.3913	1.1221	6.3024	1.0154	6.8731	1.3289
n(-1)	6.3914	1.1207	6.2983	1.0178	6.8845	1.3410
HOURS(-1)	-0.043	0.0948	-0.039	0.0827	-0.602	0.1030

Table 5.A.2. (cont).

	all sample		panel non-strike		panel strike	
	mean	st.dev.	mean	st.dev.	mean	st.dev.
Firm variables						
SALES	9.4534	0.8476	9.4954	0.8553	9.2405	0.8972
SALES(-1)	9.3618	0.8603	9.4082	0.8741	9.1300	0.9080
B	0.1086	0.2196	0.1241	0.2210	0.0713	0.2292
B(-1)	0.1066	0.2110	0.1191	0.2123	0.0677	0.1866
DB(-1)	0.8040	0.3965	0.8243	0.3806	0.6907	0.4631
VENNAC	0.8588	0.2138	0.8742	0.2019	0.8124	0.2377
CAPEXT	0.2488	0.3922	0.2335	0.3832	0.2870	0.4130
CAPPUB	0.1782	0.3632	0.1624	0.3480	0.2500	0.4182
HIRING(-1)	0.3084	0.4480	0.3054	0.4513	0.2798	0.4580
ΔSALES	0.0915	0.3428	0.0871	0.3847	0.1105	0.3244
ΔSALES(-1)	0.0934	0.4089	0.0982	0.3959	0.0700	0.5855
Industry and regional variables						
$SIGNAL_j$	7.1069	0.8787	7.1196	0.8938	7.0153	0.8705
$SIGNAL_j$†	7.2051	0.8257	7.2083	0.8443	7.1634	0.8125
W_j	4.9481	0.2523	4.9504	0.2575	4.9173	0.2211
$W_j(-1)$	4.8724	0.2526	4.8726	0.2573	4.8452	0.2257
S_j	0.4118	0.8695	0.3670	0.8326	0.6713	1.2546
e_j	5.2200	0.8047	5.2540	0.7945	5.0535	0.8937
$e_j(-1)$	5.1910	0.7904	5.2202	0.7793	5.0440	0.8631
u_r	-1.633	0.1999	-1.632	0.2034	-1.629	0.1881
Energy	0.0670	0.2501	0.0704	0.2559	0.0763	0.2660
Minerals	0.1708	0.3768	0.1702	0.3759	0.1526	0.3603
Metal Proc.	0.2265	0.4187	0.2030	0.4023	0.3815	0.4867
Other Manuf.	0.2383	0.4261	0.2522	0.4344	0.1887	0.3921
Building	0.0208	0.1428	0.0191	0.1370	0.0441	0.2059
Retail	0.0493	0.2167	0.0512	0.2206	0.0240	0.1536
Transport.	0.0702	0.2555	0.0622	0.2416	0.0763	0.2660
Other serv.	0.1567	0.3636	0.1715	0.3771	0.0562	0.2308
Aggregate variables						
EXPECT	5.5700	2.0833	5.5593	2.0773	5.7183	2.0087
EXPECT†	5.6100	2.0524	5.6085	2.0339	5.7542	2.0037
STIPC	2.2991	0.3382	2.3035	0.3382	2.2968	0.3364
TARGET	5.1990	1.6134	5.2541	1.6672	5.1357	1.5451
UNIONINI	7.8800	0.9494	7.8882	0.9799	7.8181	0.9052
FIRMINI	4.9801	1.3270	5.0407	1.3816	4.9032	1.2428

†: Variables dated at the starting date of the bargaining process.

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