CENTRE FOR ECONOMIC PERFORMANCE

DISCUSSION PAPER NO. 326

February 1997

THE PRICE IS RIGHT: INFLATION AND NOMINAL WAGE ADJUSTMENT IN BRITAIN

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ABSTRACT

How much changed regarding the wage-employment relationship in Britain between 1979 and 1994, as the government tried to encourage greater wage and employment flexibility? This paper uses settlement group wage contract data to track the evolution of nominal wage settlements over time and examines the impact that inflation has on these outcomes. We show that disaggregated wage determination is consistent with a continuing disdain for nominal wage cuts on the part of both employees and employers. Paradoxically, price inflation, rather than institutional reform of the labour market may have done more to promote real wage adjustment across establishments in Britain. During periods of high inflation, the distribution of manufacturing real wage settlements shifts to the left, resulting in an increase in the number of settlement groups who experience real wage cuts. High levels of inflation appear to be associated with lower real wage increases for a given shock. The correlation between real wages and subsequent employment adjustment appears to be very weak.

This paper was produced as part of the Centre's

Programme on Industrial Relations

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FEBRUARY 1997

Published by
Centre for Economic Performance
London School of Economics and Political Science
Houghton Street
London
WC2A 2AE

ISBN 0 7530 1085 2

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The Centre for Economic Performance is financed by the Economic and Social Research Council.

ACKNOWLEDGEMENTS

The financial support of the Leverhulme Trust is gratefully acknowledged. Data used with permission of the Confederation of British Industry, whose views are not necessarily reflected in this paper.

The authors wish to thank Paul Gregg for discussions which contributed to this paper.

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"Any individual or group of individuals, who consent to a reduction in money wages relatively to others, will suffer a relative reduction in real wages, which is sufficient justification for them to resist it. On the other hand it would be impracticable to resist every reduction in real wages, due to a change in the purchasing-power of money which affects all workers alike; and in fact reductions in real wages arising in this way are not, as a rule, resisted." (Keynes 1936, p.14.)

1. INTRODUCTION

Do the institutions of the labour market and role of British industrial relations restrict nominal wage cuts, as suggested by Keynes, or has the government's goal of wage flexibility been realised? The debate over the continued existence of nominal wage rigidity has recently been rekindled by the contradictory findings of McLaughlin (1994) and Card and Hyslop (1995). Using United States data, the authors present evidence of, respectively, substantial nominal and real wage flexibility and nominal wage rigidity, ameliorated by higher inflation. Given this disagreement, we therefore attempt to provide some evidence for Britain, on the extent of nominal wage rigidities, the role of inflation in real wage adjustment and the response of employment to shocks at differing real wage levels. Our analysis is distinguished by the use of micro contract group data from the Confederation of British Industry's (CBI) Pay Databank on wage settlements in the private manufacturing sector between 1979 and 1994.

Section 2 looks at recent work in this area, whilst Section 3 discusses our data. Although our dataset contains no evidence of nominal wage cuts, in contrast to the situation in both the USA and

Canada, nominal wage freezes became more common over the latter years of our sample, rising from 8% of settlements in 1990/91 to a peak of 20% in 1992/93. The downward nominal wage rigidity this implies is relaxed by the impact of inflation. Indeed, our sample shows that real wage cuts are fairly common. When annual inflation was in the range of 20%, over 90% of bargaining groups received real wage cuts, with the proportion "losing" in real terms falling to about 50% when inflation hovered around 10%. Therefore, high inflation appears to assist the process of real wage adjustment. We examine whether employment responses to shocks are reduced by lower real wage settlements in Section 4. We find little evidence in support of this hypothesis. The final section offers some conclusions.

2. PREVIOUS WORK IN THIS AREA

Little conclusive empirical research exists to shed light on the issue of the formation of wage expectations and real wage determination in Britain, (see Gregory, Lobban and Thomson, 1987, p.141-2), despite an upsurge of interest in the issue of wage rigidity in the US. Halfpenny and Abell (1985) addressed the role of inflation, wage expectations, wage claims and achieved settlements from wage claims made by five British trade unions between 1947 and 1970. Retrospective rather than prospective inflation appeared dominant in fashioning wage expectations. Robinson (1987) argued that the institutions of British industrial relations were such that one should not expect downward nominal wage flexibility. He found that one third of his sample saw real wage falls between 1979 and 1984, with this declining substantially later in the decade. He suggested that bargaining parties did not exhibit rational expectations insofar that their claims failed to take into account future inflation ie: they were "backward looking".

In North America, Card (1990) and Christofides and Oswald (1992) used wage contract data to investigate real wage movements

during the 1970s and 1980s. Christofides and Oswald revealed that whilst internal factors were important, real wages continued to be affected by external influences, that is they fell in response to high and increasing local unemployment. Card showed how nominal contracting provisions ensured that unexpected real wage changes were accompanied by employment changes of the opposite direction, and although these employment responses were immediate and one-off, wage changes had persistent effects. More recent work in the United States, (Card and Hyslop, 1995), using individual household-based survey data, found there was a strong probability of employees receiving nominal wage cuts, and that, the proportion of employees experiencing nominal wage rigidities was in the region of 15-20% from the mid-1980s onwards. Their sample suggested that nominal wage rigidity was strongly negatively correlated with the rate of inflation, but there was little evidence of local labour markets adjusting to shocks more quickly when inflation was high.

McLaughlin (1994) investigated the same issue also relying upon individual-level data. In contrast to Card and Hyslop, he found that nominal and real wage cuts were common for workers who remained with the same employer **and** those who changed jobs. He argued that nominal wage rigidity is not a significant problem in the US. Nominal wage cuts appear to be linked only to unanticipated rather than anticipated inflation, which is intuitively plausible given that, in the US, cost of living allowances do not allow for complete indexation. Those individuals who lost out were not subject to money illusion, but the "victims" of productivity shocks.[1] McLaughlin was unable to find any significant effects of individual characteristics upon the probability of nominal or real wage cuts, but he did show that productivity increases had a significant and negative effect upon the probability of a wage cut, nominal or real.

3. DATA

In this paper we address the issue of nominal wage rigidity for Britain using **settlement data** taken from the CBI's establishment-level longitudinal employment surveys. Focusing on settlement groups[2] means that we are not concerned with differences in the distribution of movers and stayers and the associated problems of self-selection and measurement error typical of studies using individual data, see McLaughlin (1994). The CBI Pay Databank began the systematic monitoring of wage settlements from the start of the 1979/80 pay round in August 1979. The data used in this paper cover the period from 1979-1994 providing a continuous series on wage outcomes, inflation rates, regional unemployment rates and influences recorded by the month of settlement. The dataset contains around 17,600 observations for the manufacturing sector, with an average of 1,100 observations from the level of the individual settlement group present in each year. We have information on calendar year and month of each settlement. We aggregate this information into periods corresponding to 12 monthly "pay-rounds", traditionally thought to begin in August of each year. The longitudinal nature of the data means that we can follow the same bargaining group over time to establish whether nominal rigidity persists.

The nominal settlement figure used is in response to the question "*Please indicate how much the settlement will increase the earnings of a typical employee in this group over the next 12 months. Please include the effect of bonus payments, merit awards etc, if made as part of the settlement*". Most additional earnings drift should therefore be captured by this question.[3] The responses extend to two decimal places, though we do not pursue the issue of rounding further here. The real value of wage settlements is calculated by deducting the rate of retail price inflation in the month of settlement from the nominal increase.

4. THE DISTRIBUTION AND OUTCOMES OF WAGE SETTLEMENTS

Figures 1 and 2 show, respectively, histograms of the nominal and real wage settlement distributions in each year of our analysis. A vertical line is imposed at the annual average inflation rate on the nominal graph and at zero on the real settlement distribution. Several key findings emerge from the data. The distributions cluster around zero real wage growth, or the inflation rate on the nominal graph, indicating either that employees seek to secure at least the rate of inflation, or that firms are at least willing to concede the rate of inflation, the exceptions being the high inflation years of 1979-82. Secondly, settlement dispersion varies inversely with inflation. The distributions, as captured by the coefficient of variation, are more compressed during years of high inflation. Thirdly, the nominal distributions display clear spikes at zero from 1990 onwards.[4] This pattern was not observed when inflation was at similar levels in the mid-1980s. The coefficients of skewness and kurtosis for the distribution of nominal wage increases reached maxima of 2.01 and 20.95, respectively, in 1983/84 when inflation averaged 5.1%, and attained minima of -.87 and 3.80 in 1990/91 when inflation averaged 8.4 %. There are no reported incidences of nominal wage cuts throughout our sample period.

Table 1 confirms that nominal wage settlements and price inflation exhibit a positive correlation, though nominal wage growth does not move one for one with the inflation rate. The probability of observing real wage cuts varies positively with the rate of inflation, so there is evidence of a degree of money illusion. The rate of unemployment[5], in keeping with conventional macro-economic interpretations, is inversely related to inflation. The proportion of groups who lose, that is experience a real wage cut, increased rapidly to over 90% during the rapid slow-down in inflation between 1980 and 1982. The incidence of nominal wage rigidity is captured by the proportion of settlements at nominal zero. Table 1 indicates that nominal wage rigidities increased dramatically during the 1990s recession. By 1992/93, a zero increase was the modal outcome, comprising some 19.9% of all groups. Card and Hyslop also found

spikes of around 20% at nominal zero in their analysis of United States individual earnings data.

Table 1 also suggests that unexpected inflationary hikes such as the *Lawson* boom in the late 1980s proved similarly damaging to real wage outcomes. Conversely, in periods of low and relatively stable inflation, like 1985-1988 (and 1991-1994), the percentage of groups who experienced immediate real gains in wages was over 80% (60%). The correlations between both the contemporaneous inflation rate and the rate over the contract duration, with zero settlements, are both clearly negative over our sample period. The table appears to suggest that for a given rate of inflation the extent of wage adjustment has marginally increased. The inflation rates, and rates of change, in 1985 and 1991 were approximately the same, but in the latter year there was a higher incidence of both nominal wage freezes and real wage cuts. This may, however, reflect cyclical change.

We identify both those groups who lose out immediately, that is their settlement increase lags the contemporaneous inflation rate, and those groups who lose eventually, the value of their increase being eroded before the end of the settlement. Columns 5 and 6 of Table 1 compare the proportion of groups losing eventually with those losing immediately. Whilst the proportion who lose immediately is correlated with the **rate** of inflation, the number of groups who are worse off by the end of the contract fluctuates, as one would expect, with the **change** in the rate of inflation.

Longitudinal Effects

To determine whether real wage cuts and/or nominal rigidities persist, Tables 2a and 2b present cumulative real wage experiences, using balanced panel samples of five and three years starting in 1979, 1984 and 1989. The cumulative real increase column shows the experience of the same settlement groups through time, against the backdrop of changing inflation. The proportion of groups whose increases outpace inflation over the panel duration, subtracting the cumulative inflation rate from cumulative settlement increase, is clearly

negatively correlated with the rate of inflation. This implies that employers' scope for reaction to a negative shock is more limited in times of low inflation. The sharp increase in unemployment during the early 1980s also appears correlated with cumulative real wage histories. In periods of low and stable inflation and steady unemployment rates, cumulative real wages, on average, increase. This may reflect returns to rising productivity over the same period.

How closely do prices and nominal wages move together? Table 3 gives correlations between the nominal wage increase and various lagged and leading rates of inflation for selected years. The correlations are positive and significant but small. Indeed only 2% of our sample settle at the inflation rate in the month of the agreement and just 18.5% settle within .5 points of the inflation rate. Over the sample period, wage increases are most strongly correlated with the change in inflation over the duration of the contract. This pattern will be observed if, as in our dataset, settlements lag the inflation rate and inflation falls over the contract duration. This may suggest, contrary to McLaughlin's (1994) claim, that workers are subject to money illusion.

Table 4 presents simple regression coefficients of the effects of inflation and unemployment on nominal wage settlements, using the 180 monthly observations in our sample period. The unemployment rate is intended to capture the effect of common exogenous shocks. Column 1 indicates that nominal settlements equal, on average, some 64% of the inflation rate with an additional 2.4 points of "drift". The inclusion of year dummies, column 3, reduces drift to 1.8 points. So the mean settlement becomes negative at inflation levels in excess of 10%. Column 4 indicates that a one point increase in unemployment lowers the average settlement by half a point. If the Keynesian tenet is correct then real wages should fall more rapidly in response to a given negative shock in periods of high inflation. Column 5 therefore includes the interaction of the unemployment and inflation terms as an additional regressor. In accordance with the hypothesis, the coefficient on the interaction term is negative, real wages fall with rising unemployment, more so in high inflation years. A five point increase

in inflation increases the response of real wages to unemployment by an additional .3 points.

Capturing the Effects of Rigidities

Following Card and Hyslop (1995), we generate counterfactual wage distributions for each year. This enables us to depict the difference between the expected distribution, in the absence of wage rigidities, and the distribution which is observed, and to quantify the proportion of employees affected by nominal wage rigidity. The procedure requires that we mirror the top half of the actual wage settlement distribution, and compare this with that which is observed for those settlements below the median increase. If downward nominal rigidities are present then we would anticipate a spike in the real wage distribution at minus inflation, with a deficit in the distribution to the left of the spike, as groups are swept up to the spike. If menu costs are present, preventing small wage changes, then there will be a deficit to the right of the spike at nominal zero. The method of creating counterfactuals relies upon three assumptions:

(1) that in the absence of rigidities the distribution would be symmetric;
(2) that the upper half of the distribution is unaffected by rigidities; and
(3) that wage rigidities do not affect employment probabilities.

Assumption 1 may be justified by appealing to the real wage distribution observed in 1979/80, the pay year with the highest average inflation rate in our sample, where the incidence of zero nominal settlements is at its lowest. Assumption 2 is valid if the median nominal increase is sufficiently positive. The third assumption is perhaps the most dubious but our employment equation estimates, to be discussed later, show no correlation between wage increase and employment change.[6]

In theory nominal rigidities can cause workers to be both "swept up" and "swept back" to the spike in the distribution which represents nominal wage rigidity. The proportion which is "swept back"

represents those who, in the absence of rigidities, might have received a relatively small wage increase but are, in fact, subject to nominal wage rigidity because of prohibitively large menu costs. Those who are "swept up" should, according to the symmetry assumption, have had a nominal wage cut. The counterfactual density f_c is given by

$$f_c = f_a(p) \qquad p >= 50\text{th percentile}$$
$$f_c = f_a(2*50 - p) \qquad p < 50\text{th percentile}$$

where $f_a(p)$ is the actual density at the pth percentile. Thus the counterfactual equals the actual density above the median and the mirror image of the top half of the distribution for all observations below the median.[7] The proportion "swept up" is calculated by subtracting the proportion of groups shown by the actual distribution, F_a, to be at minus the inflation rate or below, from the proportion which the counterfactual distribution, F_c, implies should be at minus the inflation rate or below.

$$\text{Up} = F_c(\text{-Inflation}) - F_a(\text{-Inflation})$$

Similarly the fraction of observations subject to menu cost rigidity, the proportion swept back to zero, is given by the difference in the counterfactual and actual distributions between minus inflation and the median

$$\text{Back} = \{ F_c(\text{median}) - (F_c(\text{-Inflation}) \} - \{F_a(\text{median}) - F^a(\text{-Inflation})\}$$

The results of the Card & Hyslop model are presented in Table 5. The proportions "swept up" by nominal wage rigidity in column 3 range from zero in the high inflation years to around 4% in low inflation years. A simple regression of the proportion swept up on the inflation rate gives a coefficient of -.31 and standard error of .09. A three percentage point fall in inflation is associated with a one point rise in the proportion affected by downward rigidity. Column 4 reports the

proportions "swept back". This proportion, similar in magnitude to the downward rigidities, moves in the same direction as the estimates in column 3, being greater in low inflation years, (regression coefficient -.70, standard error .15). In the high inflation years these estimates are generally negative indicating a concentration of, rather than a dearth of, small settlement increases.

Impact on Employment

If nominal wage rigidity impairs the adjustment of real wages in response to a shock, then one might expect the outcome of a shock to fall instead on employment. Falling real wages, due to inflation, may alleviate the necessity of sharp employment changes in the face of a negative shock. To explore this hypothesis, we utilise a panel dataset constructed by following settlement groups over time. Groups are only included if they appear in at least five consecutive pay rounds, giving us a total of 546 groups.

Table 6 presents simple correlation coefficients of settlement increases and (logged) employment changes for the period 1979 to 1991[8] as a means of summarising the data and illustrating its dynamic structure. The differenced nature of the variables can be thought of as netting out any correlations due to fixed effects. The correlations are given by lag length because the unbalanced nature of the panel generates small cell sizes if calculated by settlement year. The settlement autocorrelations decline monotonically with the length of lag, then oscillate around zero after around two periods.[9] The link with past real wage settlements does not last much beyond two pay rounds. In contrast, the employment autocorrelations are generally smaller and their signs tend to oscillate, consistent with a low order ARMA process with a negative autoregressive component. This suggests the employment adjustment process is somewhat discrete. The cross-correlations are generally insignificant, though the link between wages and lagged employment is stronger than the correlation between employment and lagged wage changes. The sign of the correlation is also generally positive. Wage settlements and employment adjustments

move in the same direction. This may be because we are capturing movements in labour demand along a supply curve.

To test these findings further, Table 7 presents the results of regressions of (log) employment changes on lagged real wage settlements, controlling for other characteristics and unobservable fixed effects. The regression specification can be thought of as encompassing a sequential bargaining model, in which employment is set conditional on negotiated wages. The specification incorporates potential outside influences on the firm's and union's fall-back position, the regional wage and unemployment rates.[10] Our dataset does not include any firm-level information on product prices, capital stocks or output. Such information is only available at 2 digit level from the Census of Production. We therefore supplement our dataset with industry level data on productivity, profits and valued added. This restricts our sample to observations appearing between 1979 and 1991.[11] The estimates use the, by now, familiar Arellano and Bond (1991) GMM estimation techniques, employing dependent variables lagged three periods and beyond as instruments for the endogenous variables, lagged employment and settlement at time t.

The results are generally poorly determined, suggesting that there is no significant relation between lagged wage changes and current employment changes. So the simple link implied by theory does not appear to hold for this dataset. This may, of course, simply be a feature of our dataset, averaging out firm-specific shocks which shift some groups up the supply curve and others down. As outlined by Machin, Meghir and Manning (1991) it is possible to distinguish between a labour demand, right-to-manage and efficient bargaining model, by the implied presence of specific variables. Significance of the union variable would identify the right-to-manage model over the labour demand model. The union status shift variable is, however, only at the margin of significance.[12] Similarly, the lack of significance of the outside wage does not support the efficient bargain model over the right-to-manage model.[13] Column 3 adds a simple shift dummy to indicate whether a zero settlement, and the implied rigidity this may

cause, is associated with any differential employment behaviour. The results indicate not.

Following Card (1990), column 5 replaces the lagged settlement with end-of-contract real wages, calculated as nominal settlement minus the inflation rate over the duration of the contract. This allows the inclusion of an additional instrument for the wage, namely the unexpected price change over the duration of the settlement, which is correlated with wages but uncorrelated with information at the time of the agreement. The presence of year dummies should control for any correlation of unexpected price changes with agggregate demand shocks. This alternative specification, however, makes little difference to our results.

Table 7 also gives industry-level employment equations, whose use eradicates the problem of regressing industry-level aggregates, profits and productivity, on individual level data. These results suggest that at the industry level there is no significant relation between wage and employment change. In both the group- and industry-level specifications the use of a dummy variable signifying a zero nominal settlement, capturing any differential effect for those groups receiving the lowest level of real wages and the highest level of wage adjustment in any one year, has no effect.

5. CONCLUSIONS

The issue of how the price of labour adjusts under inflation is of clear interest to those interested in the functioning of the employment market. The evidence from our dataset on wage settlements indicates that substantial spikes at zero in the nominal wage distribution are observed over time, which appear to be negatively correlated with the rate of inflation. In the high inflation period of the early eighties under 3% of settlement groups experienced zero nominal wage increases, yet when inflation fell to 2% in the early 1990s, nearly 20% of settlements were at nominal zero. Our analysis suggests that the response of

settlements to an aggregate shock may be mitigated by higher inflation. A five point rise in the inflation rate reduces the real wage by an additional .3 points for a given unemployment shock. However, contrary to the prediction of the Keynesian tenet we are unable to detect any strong correlation between real wages and subsequent employment adjustment. The impact of nominal wage rigidity does not therefore appear to be very strong.

ENDNOTES

1. McLaughlin states that the proportion losing out may be upwardly biased due to measurement error regarding wage increases.

2. Coverage is currently around 35%, having followed the same pattern of decline as the wider economy. Settlement groups are only included in the CBI survey if at least part of the annual settlement is determined at local level.

3. The question remains the same following the detail sought in the form 'Notification of Pay Settlements' as required under the government's counter inflation policy as set out in the White Paper, The Attack on Inflation (Cmnd 6151, 1975). We do not know whether individuals within groups receive awards that differ from this average.

4. The real wage distributions display smaller spikes because nominal zeros occur at different months of the pay year and hence at different inflation rates.

5. The precise unemployment rate used is the local unemployment rate weighted by the geographical location of the participating groups in the survey. This explains why there are slight differences between the rates quoted and national figures.

6. Card and Hyslop (1995) allow for employment changes by constructing counterfactuals from the right of the 0.5-a quantile of the actual distribution, where 2a is the fraction of jobs that are assumed lost due to nominal wage rigidities.

7. For example the 40th percentile is given the density of the 60th percentile in the counterfactual.

8. The final two years of observations are dropped because industry level aggregates mapped into the dataset are not available for these years.

9. See Ingram, Wadsworth and Brown (1997) for a detailed discussion of settlement persistence.

10. See Alogoskoufis and Manning (1991) for attempts to identify different theoretical models in empirical work.

11. The aggregate industry data are based on the 1980 SIC which spans the period 1980-92. When matching the data are lagged by one calendar year.

12. The union status variable is based on the initial status of the settlement group on entry into the dataset. No information on change in union status is available.

13. The exclusion of year dummies does not change this result.

TABLE 1

Characteristics of Wage Change Distribution for Manufacturing

	Aggregate Data		Median Nominal Wage Change	Coefficient of Variation	% of groups with		
	Inflation	Unemp			Zero Nominal Increase	An initial real wage cut	An eventual real wage cut
79/80	18.6	4.2	16.0	0.26	0.9	70.8	28.6
80/81	13.5	7.4	8.5	0.35	1.0	92.6	73.0
81/2	10.7	9.6	7.0	0.36	3.0	92.1	18.6
82/3	5.3	10.7	5.9	0.39	5.1	29.0	36.9
83/4	5.1	11.0	6.0	0.33	1.6	29.8	47.2
84/5	5.7	11.5	6.0	0.27	0.4	33.6	19.0
85/6	4.5	11.6	6.0	0.28	1.6	17.0	9.2
86/7	3.7	11.6	5.0	0.31	2.9	14.6	19.0
87/8	4.0	9.3	6.0	0.30	1.2	6.2	88.3
88/9	7.3	7.1	7.3	0.27	0.2	61.6	80.1
89/90	8.3	5.9	8.5	0.25	1.0	49.6	43.2
90/91	8.4	7.4	8.0	0.42	8.4	53.0	12.5
91/2	4.2	9.4	4.5	0.48	10.8	41.4	13.0
92/3	2.3	10.4	3.0	0.66	19.9	25.7	37.2
93/4	2.1	9.9	2.8	0.51	8.0	32.1	72.3

TABLE 2a

Characteristics of Wage Change Distributions Over Time, Using Five Year Panels

Year	Inflation Rate	Unemployment	Median Increase	% Zero Nominal Increase	Cumulative Real Increase	% of Groups Beating Inflation
1979-83						
79/80	18.8	4.2	17.0	0.00	-1.3	37.8
80/81	13.0	7.4	8.6	0.37	-6.3	16.8
81/82	10.5	9.5	7.0	2.93	-11.5	9.5
82/83	4.7	10.6	5.9	5.49	-10.7	17.2
83/84	5.0	10.8	6.0	1.83	-9.8	22.3
1984-88						
84/85	5.8	11.4	6.5	0.3	0.7	66.2
85/86	4.2	11.6	6.3	0.9	2.9	88.0
86/87	3.9	11.6	5.3	3.1	4.5	88.6
87/88	3.9	9.6	5.9	0.3	7.0	91.4
88/89	7.5	7.2	7.4	0.0	7.3	88.6
1989-93						
89/90	8.4	5.9	8.5	1.3	0.1	53.2
90/91	7.9	7.5	8.0	7.3	-.5	50.5
91/92	4.1	9.3	4.5	8.9	-.4	51.1
92/93	1.8	10.4	3.0	16.4	0.7	56.7
93/94	2.3	9.8	2.6	7.5	1.2	57.8

The panel sample sizes are 273, 324 and 370 respectively.

TABLE 2b

Characteristics of Wage Change Distributions Over Time, Using Three Year Panels

Year	Inflation Rate	Unemployment	Median Increase	% Zero Nominal Increase	Cumulative Increase	% of Groups Beating Inflation
1979-81						
79/80	18.7	4.2	16.0	0.0	-1.8	30.9
80/81	13.1	7.4	8.8	0.5	-6.9	15.3
81/82	10.5	9.5	7.0	3.8	-12.3	8.9
1984-86						
84/85	5.8	11.4	6.5	0.5	0.7	67.8
85/86	4.3	11.6	6.2	1.3	2.8	87.3
86/87	3.9	11.6	5.3	2.6	4.4	88.0
1989-91						
89/90	8.6	5.8	8.7	1.2	0.2	53.4
90/91	7.7	7.5	7.3	7.2	-.3	44.7
91/92	4.1	9.4	4.1	10.5	-.2	46.3

The panel sample sizes are 418, 612 and 763 respectively.

TABLE 3

Correlations Between Nominal Wage Increases and a Variety of Inflation Rates

Inflation Rate	1979	1981	1985	1988	1991	1993
Contemporaneous	0.102	0.029	0.056	0.215	0.039	0.083
12 months after the settlement	-.050	0.035	-0.047	0.183	0.128	0.096
1 month after the settlement	0.063	-.046	-.066	0.203	-.128	0.104
2 months after the settlement	0.063	-.049	-.074	0.208	-.140	0.106
3 months after the settlement	0.059	-.037	-.054	0.227	-.113	0.103
1 month before the settlement	0.058	-.010	-.059	0.221	-.061	0.060
2 months before the settlement	0.063	-.006	-.058	0.236	-.080	0.055
3 months before the settlement	0.057	-.021	-.049	0.228	-.078	0.055
The change in inflation over the duration of the contract	0.005	0.087	0.113	0.112	0.156	0.191

TABLE 4

Effects of Inflation and Unemployment on Wage Growth

	Nominal				Real
Independent Variables	1	2	3	4	5
Constant	2.39 (0.16)	2.11 (0.27)	1.76 (0.31)	7.07 (1.02)	1.77 (0.95)
Inflation at Settlement	0.64 (0.02)		0.71 (0.02)	0.56 (0.03)	
Actual Inflation over contract		0.79 (0.05)			
Unemployment Rate				-0.51 (0.10)	0.07 (0.08)
Unemployment * Inflation					-0.06 (0.01)
Year Effects	No	No	Yes	Yes	Yes
Adj. R^2	0.846	0.695	0.918	0.934	0.878
Mean Square Error	1.226	1.726	0.896	0.802	0.719

Notes: Sample size =180. Heteroskedastic standard errors in brackets.

TABLE 5

The Effects of Nominal Wage Rigidity Over Time

Year	Total number of bargaining groups in sample	Inflation Rate	% "swept up" by nominal wage rigidity	% "swept back" by nominal wage rigidity	Total % affected by nominal wage rigidity ("swept up" + "swept back")
1979/80	930	18.6	0	-7.1	-7.1
1980/81	1360	13.5	0	-2.3	-2.3
1981/82	1433	10.7	0.3	-5.0	-4.7
1982/83	1311	5.3	3.8	1.6	5.4
1983/84	1361	5.1	2.7	-6.1	-3.4
1984/85	1249	5.7	2.8	1.9	4.7
1985/86	1156	4.5	2.5	1.0	3.5
1986/87	1175	3.7	1.7	8.1	9.8
1987/88	1068	4.0	5.3	-9.5	-4.2
1988/89	997	7.3	1.7	3.5	5.2
1989/90	1104	8.3	2.3	5.5	7.8
1990/91	1067	8.4	-5.3	0.3	-5.0
1991/92	1136	4.2	2.3	6.9	9.2
1992/93	1138	2.3	3.8	5.1	8.9
1993/94	1097	2.1	3.8	-0.7	3.1